VNIVERSITAT DE VALÈNCIA Facultat de Ciències Biològiques

ASPILOTA-GROUP IN NATURAL PARKS OF VALENCIA AND EUROPEAN *DINOTREMA* REVISION

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D. **Ricardo Jiménez Peydró**, Catedrático de Universidad del Departamento de Zoología de la Facultad de Ciencias Biológicas de la Universitat de València,

INFORMA QUE

D. **Francisco Javier Peris Felipo**, licenciado en Ciencias Biológicas por la Universitat de València, ha realizado bajo su dirección el presente trabajo titulado: **"*Aspilota*-group in Natural Parks of Valencia and European *Dinotrema* revision"**, y que hallándose concluido, autoriza su presentación a fin de que pueda ser juzgado por el tribunal correspondiente y optar así a la obtención del grado de Doctor por la Universitat de València, con la Mención de "Doctor Internacional", dentro del Programa de Doctorado en Biodiversidad.

Y para que así conste, en cumplimiento de la legislación, firmo el presente informe en:

Valencia, 23 de Marzo de 2013

Dr. Ricardo Jiménez Peydró

A ma y a pa

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Algunos profesores y compañeros me han comentado que la mejor parte de la redacción de la Tesis Doctoral es escribir los agradecimientos porque cuando los concluyas podrás decir que la has terminado, aunque realmente no es tan fácil. Como sabéis, o sabréis cuando la leáis, esta tesis no es una simple tesis internacional o europea en la que te trasladas durante unos meses al extranjero sino que, por suerte o por desgracia -mejor por suerte-, he podido gozar de bastantes meses fuera y de estancias en diversos centros de investigación y museos de historia natural. Por ello, antes de nada, y por si se me olvida, quiero daros las gracias a tod@s los que habéis aportado vuestro granito para su realización. Muchas gracias por todo.

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La siguiente parada es en un sitio muy frío. Cuando estuve allí la nieve, en algunos sitios, me llegaba a la cabeza y el frío era tremendamente intenso. Si no, que se lo pregunten al conserje del Zoological Institute Russian Academy of Sciences de St. Petersburg cuando llegaba después de cruzar el puente "Dvortsovyy most". Seguro que pensaba que acababa de entrar por la puerta el "Joker-chino" –por la sonrisa y los ojos–. A esta parada llegué por casualidad, después de haberme desesperado con mis bichos y de no haberles podido poner nombre pese a los muchos museos visitados. Pero, junto a Viena, es la mejor parada de todas; corta porque sólo fueron unos días pero, sin duda, una de las más importantes. Y todo gracias a Sergey A. Belokobylskij –Sergey, Sergi, Belo… te he llamado de tantas formas para referirme a ti que siempre tengo miedo de que se me escapen cuando hablo contigo aunque con lo bueno que eres sé que no te molestaría–. Ahora, llega lo difícil porque tengo tantas cosas que agradecerte que no sé por donde empezar aunque las importantes ya te las he dicho más de una vez en alguna de las estancias que hemos podido compartir en Londres, Varsovia o, incluso, en tu visita a Valencia. Sabes que sin ti esta tesis no habría visto nunca la luz porque, como tu dices, cuando alguien menciona la palabra *Dinotrema* o las palabras *Aspilota*-group, sin quererlo, "un escalofrío te recorre todo el cuerpo". Gracias por tu superpaciencia,

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As I mentioned, on this journey there have been many ports and without doubt, the most important of them was Vienna and the Naturhistorisches Museum. The latter stop was an unexpected one, but thanks to it, I discovered the fact that I was being introduced to complicated world of Braconidae. However, there was Maximillian Fischer, "Max" for his friends or Doctor Fischer or when you had

questions in mind. What could I say about him ... I do not even know where to start ...! He showed me the world of Alysiinae, taught me to distinguish when it is smooth, rough, very rough or extremely rough, to differentiate between brown-yellowish and yellow-brownish-even though by now I still have many doubts, then again... I am a man and my ability to distinguish colours is not very extensive- not including heaps of anecdotes and memories that would be never-ending if I tried to encapsulate them. So I can only give you a thousand thanks for having taught me, for your help, your generosity, patience and for all those talks during our "coffee breaks." It is a great honour to have known you.

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The next stop is a very cold one. When I was there, in some places, the snow reached up to my head and the cold was extreme. If this is hard to believe, you should ask the concierge of the Zoological Institute of the Russian Academy of Sciences in St. Petersburg , when I arrived after crossing the bridge of "Dvortsovyy most". Without doubt he thought that I had just walked through the door of the "Chinese Joker" - named after my smile and my eyes. I came by this stop by chance, after I had got particularly exacerbated with my bugs and because I could not name them, despite the many museums that I had visited.

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scared of one of these names escaping me when talking to you, although knowing how kind you are, I doubt that you would have minded-. So, here comes the hard part, since I have so many things to be thankful for, I am not sure where to start, even though I have already mentioned the important parts more than once during our stays in London, Warsaw or, even during your visit to Valencia. You know that without you this dissertation would not have ever seen the light because, as you say, when someone mentions a *Dinotrema* word, or words, or the *Aspilota*-group unwittingly "a chill runs throughout your body". Thank you for your super-patience, for teaching me and reminding me, again and again, that the world of the braconids is very large and very complicated and that, therefore, you must carry on working, but carefully. Thank you, also for guiding me, encouraging me and for continuing to be patient and to instruct me, for teaching me to be able to describe and for being ready to resolve any of my doubts ... Surely I have forgotten so many things, so if you do not mind, I will summarize them in the one go: thanks for being there and above all, thank you for all that you have done unselfishly and for your love for Braconidae. A thousand, thousand thanks.

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Firstly, I would like to thank Jenö Papp -Senior researcher of the Department of Zoology of the Hungarian Natural History Museum of Budapest- all your help, your kindness and availability during my visits to Budapest. Equally, I want to thank Puskas Gellért -curator of the collection of wasps of the museum- for his help and benevolence during my stay.

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At this point, we arrive at the last stop, in Leiden (Netherlands), where I want to thank Professor C. van Achterberg- from the National Museum of Natural History (Naturalis) -for your help and kind-heartedness during my visit to this city.

However, while this journey has had many stops, we cannot forget the most important, Valencia, and specifically the Laboratory of Entomology and Pest Control of the Institute of Cavanilles Biodiversity and Evolutionary Biology, in the University of Valencia, although since my trip began I have not visited it in a long time, this is where it all started. So, I would like to express my most sincere thanks to Maria Teresa Oltra -or Tere- for her unfailing help, for teaching me to differentiate subfamilies and to assemble insects, for your patience whilst correcting and revising texts-not only for this dissertation, but also of my Master's dissertation, articles, posters and all types of work, for the countless hours spent listening again and again to the same subject matter when we had to do presentations in public. Thanks also for those exquisite banquets and confectionaries that you made for us from time to time to brighten our days up. Thank you very much for being the "mother" of the Laboratory. Also, I would like to thank José Vicente Falcó, for all your teaching and help during the period of sampling. From the lab, I cannot forget about those witches -Julia and Natalia, who were always there to spy, putting things in place, for being great friends and confidants and for distracting me at times of obfuscation. Sara and Jesi, who knows if future witches ...?, and for all the guys, fellow lab

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I would like to thank Maite and Javi for having cared for me, for keeping my schedule busy and for letting me be one more of your family. Without forgetting, of course, of those two little ones -Araceli and Natalia- every time I embarked on another trip and returned,,. they would ask me if I had brought biscuits from Vienna; they will brighten your day with games and silly sayings and that are always on the hunt for gossip.

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this paper there really is only one Javi. To Blanca, Isa and Noelia, although I see you less often, you always make time to meet up, and because you are invariably there for me when needed. And to those who started this course but because of work-related reasons have had to emigrate from Valencia: Amparo, Elena, Deme, Jose and Ramón.

To Paqui, who since my childhood has always been helping me, taking care of me and trying to protect me.

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Table of contents

Abbreviations

BMNH Natural History Museum, London (England).

ENV Entomological Collection of University of Valencia (Spain).

HNHM Hungarian National History Museum, Budapest (Hungary).

MZLU Lund Museum of Zoology (Sweden).

NHMB Museum für Naturkunde, Berlin (Germany).

NHMW Naturhistorisches Museum, Wien (Austria).

NMA Naturhistorisk Museum of Århus (Denmark).

RMNH Naturalis Biodiversity Center, Leiden (Netherlands).

ZISP Zoological Institute of the Russian Academy of Sciences, St. Petersburg (Russia).

ZSSM Zoologische Staatssammlung München (Germany).

Resumen

El trabajo de investigación en que se basa la Tesis doctoral realizada por Francisco Javier Peris Felipo, se ha centrado en el estudio taxonómico, análisis de la diversidad y examen fenológico de los bracónidos alysinos del grupo *Aspilota*. Además, se ha llevado a cabo la revisión europea del género *Dinotrema*.

Alrededor de 2.000 especies y más de 100 géneros han sido registrados en la subfamilia Alysiinae. Actualmente, esta subfamilia está separada en dos grandes y polimórficas tribus, *Alysiini* y *Dacnusiini*. Los miembros de esta subfamilia se distribuyen por todo el mundo siendo muy comunes en hábitats naturales de las regiones templadas y boreales y se caracterizan por ser endoparasitoides exclusivamente koinobiontes de diversas familias de dípteros ciclorrafos.

Por su parte, el grupo *Aspilota* se encuentra bastante bien diferenciado dentro de la tribu *Alysiini* e incluye los géneros *Adelphenaldis* Fischer 2003, *Aspilota* Foerster 1862, *Dinotrema* Foerster 1862, *Orthostigma* Ratzeburg 1844 y *Synaldis* Foerster 1862.

Entre ellos, el género *Dinotrema* Foerster es uno de los más abundantes, con aproximadamente 320 especies descritas a nivel mundial. A pesar de ello, todavía es muy poco lo que se conoce sobre este género de avispas parasitoides de dípteros pertenecientes a las familias Phoridae, Anthomyiidae y Platypezidae.

Los objetivos de este estudio han sido: (i) Estudio faunístico y fenológico del grupo *Aspilota* en cada parque. (ii) Determinar la diversidad alpha, beta and gamma y conocer la estructura de las comunidades en cada parque natural. (iii) Revisión europea de las

especies del género *Dinotrema*. (iv) Elaboración de claves dicotómicas para el género *Dinotrema* a nivel europeo.

Para llevar a cabo este estudio fueron seleccionados tres enclaves naturales de la Comunidad Valenciana por presentar condiciones microclimáticas particulares. Estos se correspondieron con tres Parques Naturales: El Parque Natural del Carrascal de La Font Roja (norte de Alicante), el Parque Natural de Las Lagunas de La Mata-Torrevieja (sur de Alicante) y el Parque Natural de La Tinença de Benifassà (norte de Castellón).

El análisis de la fauna de *Aspilota* se realizó a partir de material procedente de muestreos semanales entre Abril 2004 y Diciembre 2007 en cada uno de los parques, colocándose, además, trampas Malaise. Los ejemplares capturados eran llevados al laboratorio donde se procedía a su montaje y etiquetado. Seguidamente, se realizaba la identificación del material.

Se recolectaron 820 ejemplares pertenecientes a 6 géneros, distribuidos de la siguiente forma: *Adelphenaldis* (2), *Aspilota* (108), *Dinotrema* (341), *Eudinostigma* (10), *Orthostigma* (88) y *Synaldis* (271). A su vez, estos ejemplares se distribuyen en 52 especies: 1 *Adelphenaldis*, 10 *Aspilota*, 25 *Dinotrema*, 1 *Eudinostigma*, 5 *Orthostigma* y 10 *Synaldis*. De las 52 especies, 31 (59.61%) son nuevas especies y 4 constituyen nueva cita para España (*A. delicata*, *A. procreata*, *D. costulatum* y *D. crassicostum*). Sin embargo, debido a la dificultad que presenta el estudio de estos géneros, nos hemos centrado únicamente en las nuevas especies de *Adelphenaldis* (1) y *Dinotrema* (21). Estas son: *A. maxfischeri* y *D. achterbergi, D. amparoae, D. belokobylskiji, D. benifassaense, D. broadi, D. enanum, D. fischerianum, D. jimenezi, D. lagunasense, D. mareum, D. munki,*

D. pappi, D. paquitae, D. pareum, D. pilarae, D. robertoi, D. teresae, D. tinencaense, D. torreviejaense, D. vitobiasi y *D. zimmermanae*.

Posteriormente, el análisis fenológico constató que, a nivel global, es posible encontrar ejemplares de este grupo en cualquier momento del año, siendo mayor su abundancia en primavera y otoño. Sin embargo, al analizar los diferentes parques por separado se apreció que en La Font Roja están presentes sobre todo en primavera, en La Tinença en primavera y otoño y en Torrevieja en primavera e invierno. A su vez, al comparar estos picos de abundancia con las condiciones climatológicas de cada parque comprobamos que los individuos del grupo *Aspilota* presentan mayor abundancia en el medio cuando las temperaturas son moderadas, entre 18-22ºC. Por otro lado, a nivel específico, se observó que hay especies que pueden encontrarse en el medio en cualquier época del año y que otras únicamente se encuentran en momentos puntuales.

Finalmente, se llevó a cabo el análisis de la diversidad alpha, beta y gamma para conocer la diversidad y estructura de la comunidad de *Aspilota* en cada uno de los parques. Mediante estos análisis se apreció que el Parque Natural de la Tinença de Benifassà presenta mayor abundancia y diversidad de especies, seguido de La Font Roja y Torrevieja, respectivamente. En el análisis de la estructura de la comunidad, apreciamos que los Parques Naturales de La Font Roja y de Torrevieja presentan un patrón de comunidad que coincide con el modelo *log-series* mientras que la Tinença se adapta a los modelos *log-series* y *log-normal*.

Por otro lado, como hemos mencionado anteriormente, en esta Tesis también se ha realizado la revisión europea del género *Dinotrema* y, con esta finalidad, se visitaron los Museos de Historia Natural en los que se encuentra depositado el material tipo para llevar

a cabo el estudio, revisión y toma de fotografías digitales y de barrido de cada uno de los caracteres importantes para su identificación. Con todas las especies revisadas se elaboraron las claves dicotómicas para la identificación de las especies europeas de *Dinotrema*, proporcionándose, además, la revisión de cada especie.

Finalmente, de los resultados obtenidos, tanto del análisis del grupo *Aspilota* en enclaves protegidos de la Comunidad Valenciana como de la revisión europea del género *Dinotrema,* podemos concluir:

1. El estudio de la composición faunística del grupo *Aspilota* de cada uno de los parques, ha permitido capturar e identificar un total de 52 especies siendo 31 nuevas especies.

2. La fenología del grupo *Aspilota* en cada uno de los parques naturales, muestra dos picos de abundancia, uno en primavera y otro en otoño, coincidiendo con periodos de precipitación y temperaturas moderadas.

3. El análisis de la estructura de la comunidad del grupo *Aspilota* en cada uno de los parques, determina que hay pocas especies abundantes y muchas especies raras.

4. La revisión Europea del género *Dinotrema* ha permitido catalogar un total de 161 especies, siendo 11 nuevas especies; se ha ampliado la distribución geográfica de 64 especies y se han elaborado las claves taxonómicas para la identificación de las especies europeas.

Abstract

The research done by Francisco Javier Peris Felipo, which this doctoral thesis is based on, focuses on the taxonomic study, diversity analysis and phenological examination of the braconid Alysiinae of the *Aspilota*–group. In addition, the revision of the European *Dinotrema* genera has been carried out.

Alysiinae subfamily have been recorded 2,000 species and 100 genera approximately. Currently, this subfamily is divided in two large and polymorphic tribes, the *Dacnusiini* and the *Alysiini*. The members of this subfamily can be found all over the Earth and they are very common in natural habitats in the temperate and boreal regions and are characterized by being endoparasitoids, exclusively koinobionts, of various Diptera cyclorrapha families.

On one hand, the *Aspilota*–group is fairly differentiated within the *Alysiini* tribe and it includes the *Adelphenaldis* Fischer 2003, *Aspilota* Foerster 1862, *Dinotrema* Foerster 1862, *Orthostigma* Ratzeburg 1844 y *Synaldis* Foerster 1862. Among them, the *Dinotrema* Foerster is one of the most abundant genera, with about 320 identified species worldwide. However, very little is still known about this kind of dipterous parasitoid wasp belonging to the Phoridae, Anthomyiidae and Platypezidae families.

The objectives of this study have been: (i) The study of the fauna and phenology of the *Aspilota*–group in each park. (ii) To determine the alpha, beta and gamma diversity and to understand the structure of networks in each park. (iii) The revision of the *Dinotrema* genera at a European level. (iv) The development of dichotomous equations for the *Dinotrema* genera at a European level.

In order to carry out this study three natural sites in Valencia were selected to represent particular microclimatic conditions. They corresponded to three national parks: The Natural Park of La Font Roja Carrascal (north of Alicante), the Natural Park of Las Lagunas de La Mata-Torrevieja (south of Alicante) and the Natural Park of La Tinença of Benifassà (north of Castellon).

The analysis of the fauna of *Aspilota* was performed from the material that was sampled on a weekly basis between April 2004 and December 2007 in each of the parks, additionally positioning Malaise traps in these sites. The captured specimens were taken to the laboratory where they were assembled and labelled. Then the identification of the material took place.

During the samples, 820 specimens were collected belonging to 6 genera, distributed in the following manner: *Adelphenaldis* (2), *Aspilota* (108), *Dinotrema* (341), *Eudinostigma* (10), *Orthostigma* (88) and *Synaldis* (271). In turn, these samples are distributed into 52 species: 1 *Adelphenaldis*, 10 *Aspilota*, 25 *Dinotrema*, 1 *Eudinostigma*, 5 *Orthostigma* and 10 *Synaldis*. Of these 52 species, 31 (59.61%) are new species and 4 are of a new record for Spain (*A. delicata, A. procreata, D. costulatum* and *D. crassicostum*). However, due to the difficulty that studying these genera requires, we have focused solely on the new species of *Adelphenaldis* (1) and *Dinotrema* (21). These are: *A. maxfischeri* and *D. achterbergi, D. amparoae, D. belokobylskiji, D. benifassaense, D. broadi, D. enanum, D. fischerianum, D. jimenezi, D. lagunasense, D. mareum, D. munki, D. pappi, D. paquitae, D. pareum, D. pilarae, D. robertoi, D. teresae, D. tinencaense, D. torreviejaense, D. vitobiasi* and *D. zimmermanae.*

Subsequently, the phenological analysis found that, on a global level, it is possible to find copies of this group at any time of the year,

with a higher abundance in spring and autumn. However, when analyzing the different parks separately, it was found that in La Font Roja they are present especially during spring, in Tinença during spring and autumn and in Torrevieja during spring and winter. In turn, when comparing these peaks of abundance to the climatic conditions of each park we found that individual specimens in the *Aspilota*–group show a greater abundance when the temperatures are moderate in their environment, between 18–22°C. Moreover, a specific level, it was observed that there are species that can be found in the environment at any season and others are only at certain times.

Finally, we carried out the analysis of alpha, beta and gamma diversity in order to understand the diversity and structure of the networks of the *Aspilota* in each of the parks. Through these analyses it was found that the Natural Park of Tinença de Benifassà presents a greater diversity and abundance of species, followed by La Font Roja and Torrevieja, respectively. In the analysis of the structure of the networks, we established that the Natural Parks of La Font Roja Torrevieja showed networks that coincide with *log-series* model while Tinença adapts to the *log-series* and *log-normal* models.

Moreover, as mentioned previously, in this dissertation a European study of the *Dinotrema* genera has been carried out and, to this end, we visited the Museum of Natural History that contains the material to enable this study, to revise and take digital photographs and scan each of the important characteristics for its identification. For all of the species, a dichotomous equation was developed to identify the European *Dinotrema* species, likewise adding to the review of each species.

Finally, of the obtained results, from both of the analysis of the *Aspilota* in protected landscapes of Valencia as well as from the European review of *Dinotrema* genera, we can conclude:

1. That the study of the faunal composition of the *Aspilota*–group in each of the parks, has allowed us to capture and identify a total of 52 species, 31 being new species.

2. The phenology of the *Aspilota*–group in each Natural Park shows two abundance peaks, one in spring and one in autumn, which coincides with two periods of abundant precipitation and moderate temperatures.

3. The analysis of the network structure in the *Aspilota*–group in each park, demonstrates that there are few abundant species and many rare species.

4. The European review of *Dinotrema* genera has enabled us to catalogue a total of 161 species, 11 being new species; it has expanded the geographic distribution of 64 species, moreover, taxonomic equations have been developed for the purpose of identifying European species.

1. Introduction

"L'essentiel est invisible pour les yeux"

Le Petit Prince, Antoine de Saint–Exupéry

Although curiosity about the environment around us has evolved from antiquity to the present day, the concept of biodiversity seems to acquire special importance nowadays -no doubt as a result of our growing awareness of the progressive degradation of natural landscapes. Along with this, it is also true that despite the increasing number of studies, knowledge of that diversity is still insufficient and that its deeper understanding requires new faunal analysis that contribute to their better understanding. Within this context, we initially decided to dedicate this thesis to study the diversity of Alysiinae braconids in three natural parks of Valencia that are greatly important from a bioclimatic point of view.

This required us to previously locate braconids below in order to determine next what they are and what is known about Alysiinae braconidae.

Braconidae are the second largest family of Hymenoptera apocrita which includes the Ichneumonoidea superfamily with approximately 40,000 recorded species around the world. The majority of species are primary parasitoids of the immature stages of Lepidoptera, Coleoptera and Diptera (Sharkey 1993). During their larval stage, they develop inside the body of their prey/host (other insects) with mostly complete metamorphosis (holometabolous) or with a simple metamorphosis (hemimetabolous).

Biologically speaking, two groups can be found: idiobionts and koinobionts. Most of them are endoparasitic koinobionts, although a significant number of idiobionts ectoparasites can also be found. The idiobionts usually paralyze their prey, laying an egg on or near to the larvae, which will consume the host after the egg hatches. The koinobionts do not paralyze their hosts (or do so only temporarily) and lay their eggs inside the host's body.

Thus, through these biological facts, we may consider that Braconidae are major regulators of phytophagous insect populations (LaSalle and Gauld 1992) and that they can be used to infer the presence or absence of their hosts (Matthews 1974; LaSalle and Gauld 1992). Some braconid species are economically important because of their potential for pest control (González and Ruiz 2000; Elpino–Campos *et al.* 2007). These wasps are of enormous ecological interest because of their role in controlling the population of phytofagous insects, causing a direct effect in the host species population size and indirect ones in the diversity and survival of host plants (La Salle and Gauld 1992; Torezan–Silingardi 2011).

We can find two major lineages within the braconidae family by the shape of the clypeus: the cyclostomes and non–cyclostomes. These feature would provide up 46 subfamilies.

However, among all these subfamilies, two of them that stand out because of their diversity and for being very close phylogenetically, the Alysiinae and the Opiinae (Griffiths 1964, Achterberg 1983; Buckingham and Sharkey 1988; Quicke *et al*. 1997, Wharton *et al*. 1997, Belshaw *et al*. 1998). Here, the subfamily Alysiinae will be the only studied.

The Alysiinae subfamily is considered a monophyletic group by the position of the exodonts mandibles, the total loss of the

occipital carina and being endoparasitoids koinobionts of Diptera cyclorrapha. Around 2,000 species and 104 genera have been recorded worldwide within the Alysiinae subfamily (Yu *et al.* 2011) which are now separated into the two large and polymorphic tribes *Alysiini* and *Dacnusiini* (Shenefelt 1974, Yu *et al.* 2005). Griffiths (1964, 1966a, 1966b, 1968a, 1984) considered phylogenetics to belong to the *Dacnusiini* tribe as monophyletic. Nevertheless, Wharton (2002) did not consider the tribe *Alysiini* as such. Morphologically, these two tribes are distinguished by the presence (*Alysiini*) or absence (*Dacnusini*) of the vein r–m in the fore wings. Due to this feature, the *Alysiini* has three submarginal cells while *Dacnusini* only shows two.

From a biological point of view, the *Alysiini* interact with a wide variety of cyclorrapha hosts, often in humid habitats and ephemeral substrata, laying their eggs in the host's larvae or eggs. *Dacnusini*, by contrast, are almost exclusively specialized in leaf and stem miners, such as Agromyzidae, Ephydridae and Chloropidae. Specimens of the generas *Aphaereta* Foerster, 1862 and *Alysia* Latreille, 1804, belonging to the *Alysiini* tribe, have been bred and freed in biological control programs involving Calliphoridae and Muscidae, while some *Dacnusiini* have been successfully utilized to control pest of leaf miners and Tephritidae (Wharton et al 1998).

The Alysiinae are present in all zoogeographical regions of the world act for which are consider as a cosmopolitan group. *Alysiini* are distributed in all regions while *Dacnusini* are known only in the temperate and boreal regions of the Northern Hemisphere.

Despite the knowledge of this subfamily, the genera level classification is quite complex. However, numerous studies have been conducted to try to establish a taxonomic classification. Already in the 60's, Griffiths (1964, 1966a, 1966b, 1968a, 1968b, 1984) established

the most generic concepts of *Dacnusini*, while authors like Achterberg (1988a, 1988b), Fischer and Zaykov (1983), Gimeno *et al*. (1997), Quicke *et al*. (1997), Wharton (1980, 1994, 2002), Docavo *et al*. (2006) and, even, Griffiths (1964) attempted to define the *Alysiini*, reaching the conclusion of a classification based on group of genera and species.

Once we determined what alysin braconidae are, we began studying their diversity at three natural parks of Valencia having particular bioclimatic characteristics. The parks are: El Carrascal de la Font Roja (north of Alicante province), Las Lagunas de La Mata-Torrevieja (south of Alicante province) and The Tinença of Benifassà (north of Castellon province).

However, the large number of species caught and the huge complex task that we faced in their identification, forced us to choose only one group of genera. Among all these generated groups, we selected the *Aspilota*-group because it was very well represented in the three parks for many genera and species.

Therefore, as we did earlier with the alysin braconidae, we then tried to explain what the *Aspilota*–group is and how its study has evolved over history.

The *Aspilota*–group is rather well differentiated inside the tribe *Alysiini* (van Achterberg 1988b) and includes the genera *Adelphenaldis* Fischer 2003, *Aspilota* Foerster 1862, *Carinthilota* Fischer 1975, *Dinostigma* Fischer 1966, *Dinotrema* Foerster 1862, *Eudinostigma* Tobias 1986, *Leptotrema* van Achterberg 1988, *Orthostigma* Ratzeburg 1844, *Panerema* Foerster 1862, *Pterusa* Fischer 1958 and *Synaldis* Foerster 1862.

Nevertheless, over the years, the genera included in this group has changed since, for example, van Achterberg (1988b) did not consider *Synaldis* as a genera and included their species within the *Dinotrema* genera. However, later publications by Fischer (1993a, 1993b), Belokobylskij (2002a, 2004a, 2004b) and Tobias (2003a, 2003b, 2004a, 2004b, 2006) considered *Synaldis* as a taxonomically diferent genera from *Dinotrema* due to the absence of the 2RS vein.

To understand how the study of this group has evolved, we must look back at history. The first historical record detailing this species belonging to this group dates from the early nineteenth century, when William Elford Leach published the first bibliography of entomology (1815). Later on, Nees von Esenbeck (1832), an amateur botanist doctor described many species of insects related to plants; Alexander Haliday, entomologist, published an "*essay on the classification of the parasitic Hymenoptera of Britain"* (1833–1838); Julius Theodor Christian Ratzabrug, doctor, published "*Die Ichneumonen der Forstinsecten in forstlicher und entomologischer Beziehung"* (1844–1852); Arnold Förster, German entomologist, worked mainly with Coleoptera and Hymneoptera and he pubblished "*Synopsis der Familien und Gattungen der Braconen"* in 1862. Carl Gustav Thomson, Swedish entomologist, published several works on Hymenoptera between 1878-1895. Before the century finished, T.A. Marshall, published a book called "*Les Braconides. Species des Hymenopteres d'Europe et d'Algerie*" (1896). At the beginning of the 20th century XX, H.L. Viereck, an American researcher, carried out several studies on Hymenoptera (1917); N.A. Telenga, a Russian scientist, published about *Alysiini* tribes (1933). In the mid-twentieth century, A.W. Stelfox and M.W.R.V. Graham, published several articles related to *Aspilota* (1943, 1950, 1951). Later on, researchers such as E. Königsmann (1969), Hedqvist (1972), Bhat (1979), Robert

Wharton (2002), J.A. Berry (2007) or Thorkild Munk (2013a, 2013b) have undertaken several studies describing new species belonging to the group.

Apart from all these authors, five big specialists have helped to raise the profile of the world of the *Aspilota* Braconidae in the last few years and they deserve a special mention. These are Vladimir Ivanovich Tobias (1929–2011) (Russia), Maximilian Fischer (Austria), Jenö Papp (Hungary), Kees van Achterberg (Netherlands) and Sergey A. Belokobylskij (Russia).

V.I. Tobias published several articles and books through the course of his life on braconidae, focusing in many of them in *Aspilota* genera (1962, 1975, 1986, 1990, 1995 1998, 2003a, 2003b, 2004a, 2004b, 2006), particularly those from year 2003 where a lot of information is found which can be used ot identify the species.

Jenö Papp, who has focused mainly in the study of Microgastrinae subfamily, has published several articles describing species or studying braconidae fauna in different countries such Mongolia (1999, 2000, 2005, 2009c), Korea (2001, 2003a, 2007a, 2009a), Cape Verde Islands (2003b), Greece (2007b) or Yugoslavia (2009b).

Kees van Achterberg, has estudies different braconidae genera and he stands out with works which have facilitated the identification and knowledge of the philogenetic relationships of the different genera (1990, 1993, 1997a), although his contribution to *Aspilota*–group (1988b, 2009) is also worth mentioning.

Sergey A. Belokobylskij, a specialist in the Doryctinae, Exothecinae or Histeromerinae subfamilies, among all others, also

stands out because of his great contribution to the knowledge of *Aspilota* (2005) and *Synaldis* (2002a, 2004a, 2004b).

However, among all the specialists in this group, it is Maximilian Fischer without a doubt the greatest authority since his study of Alysiinae and Opiinae subfamilies has allowed for over 300 published articles and the description of more 1,000 species since 1955. Among all his works we would like to mention those related to the genera *Adelphenaldis* (2003), *Aspilota* (1972, 1973a, 1973b, 1973c, 1973d, 1974a, 1974b, 1974c, 1975a, 1975b, 1976, 1977, 1996, 2009), *Dinotrema* (1993b, 2009), *Eudinostigma* (2009), *Orthostigma* (1995) and *Synaldis* (1962, 1993a, 1993b), apart from several publications where he describes the diversity of Alysiinae of different areas.

Although there are numerous published works and a large number of species has been described, approximately 750 (Yu *et al.* 2011), proper faunistic studies aiming at the *Aspilota*–group have not been carried out as yet, mainly because of the great taxonomic difficulties they present, the lack of updated taxonomic keys and the few contributions coming from areas far from the place of residence of the specialists.

However, even knowing the major obstacle that this implied, and with only a few references on this group in Spain (1989, 1996, 2008a, 2008b), we decided to approach the analysis of diversity and phenology of *Aspilota*–group in the three parks mentioned.

However, the difficulty in identifying many of the samples and even the difficulty of abscribing them to a genera or a given species forced us to seek the help of specialists in the field. Thus, we contacted Vienna Museum and the rest of the specialists later on. Thanks to their invaluable help our efforts could finally see the light,

since we could begin to identify the samples, resolve genera doubts, discover new species and, in short, advance our research.

The first results were available in several publications on the new genera for Spain, such as the *Syncrasis* Foerster 1862, on which we redescribed *Syncrasis* (*Eusyncrasis*) *talitzkii* Tobias 1986 caught in the Natural Park of Las Lagunas de La Mata–Torrevieja (Peris–Felipo *et al.* 2011). Although it is not a genera that belongs to Aspilota group, it raised questions as to the genera the samples caught belonged to. We also cited *Adelphenaldis* Fischer 2003, having three species in Spanish fauna, a new species being *Adelphenaldis maxfischeri* Peris–Felipo and, also, we drafted the worldwide taxonomic descriptions keys (Peris–Felipo *et al*. 2012).

Nevertheless, we still faced the task of researching new species. Identifying correctly the species, however, required a review of each of the genera at a European level. Obviosuly, the known complexity of these genera made it absolutely impossible for a single researcher to face a task that would have taken too much time and thus we focused only in one genera. To this end, we selected a genera that was more unknown and for which therefore, we had a larger number of non-identified samples, the *Dinotrema* genera.

This forced us to compare the standard material of the species of *Dinotrema* we found in different museums, research centers, etc., but also the non-*Dinotrema*, due to the changes that the *Aspilota*, *Dinostigma*, *Eudinostigma* and *Synaldis* species have endured and this led to a revision of all of them.

This led us to the idea in turn to undertake a major revision of the European genera and, in order to avoid the research being limited to museum visits, seeing samples and taking notes, some times complex without any other type of record existing, we took pictures

from each standard sample, scanning each of the major features. To this end, we asked the museums and research centers to borrow the available standard types.

And thus, after hours, days, months locked up in a electronic microscopy room, we managed to photograph all the species. The next step consisted in building the puzzle to obtain the European taxonomy keys of the *Dinotrema* genera. We took samples, we grouped species according to features and after revising and correcting many times, we managed to draft the description keys.

At this point, we focused on the faunal, phenological and diversity analysis of the species within the *Aspilota*–group in the three sampled parks and European revision of the *Dinotrema* genera providing dichotomous keys for its identification, together by a redescription supported by scanned images of each of their features required for identification.

2. OBJECTIVES

The main aim of this dissertation is to analyze the diversity of the Alysiinae in three natural parks of Valencia (Natural Park of Carrascal of Font Roja, Natural Park of Las Lagunas of La Mata and Torrevieja and Natural Park of La Tinença de Benifassà), although we focused on the *Aspilota*–group.

In turn, the study of this analysis entails other objectives, such as:

1. The faunistic and phenological study of the *Aspilota*–group in each park.

2. The study of alpha, beta and gamma diversity by using biodiversity indixes, which also allow us to understand the structure of the ecosystem in each park.

3. A European review of the species belonging to the *Dinotrema* genera.

4. The development of dichotomous equations for the *Dinotrema* genera, at a European level.

3. Material and Methods

A. Area of study: general description

1. Location and characteristics

Natural areas of Valencia were selected to ensure the greatest diversity of *Aspilota*–group species. To do that, the selected areas showed high variable conditions in terms of climate, geography, topography, flora and fauna. Three natural parks in satisfy these requeriments: the Natural Park of El Carrascal of La Font Roja, the Natural Park of Las Lagunas of Mata–Torrevieja and the Natural Park of Tinença de Benifassà (Fig. 1).

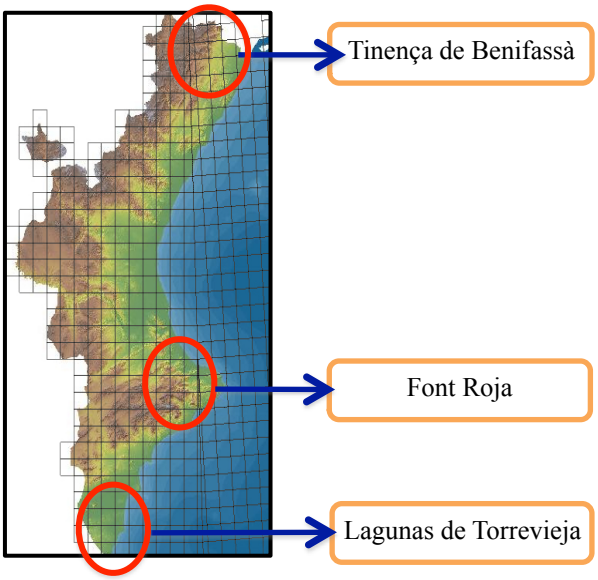


Figure 1. Location of natural parks selected to collection in Valencia.

The Natural Park of La Font Roja is located in the north of the Alicante province, and is known for its low level of anthropogenic disturbance (Figs. 2, 3). The park extends over 2,298 ha with a maximum elevation of 1,356 m. The orientation of the hill range favors cool, moist winds from the northeast, resulting in rainfall

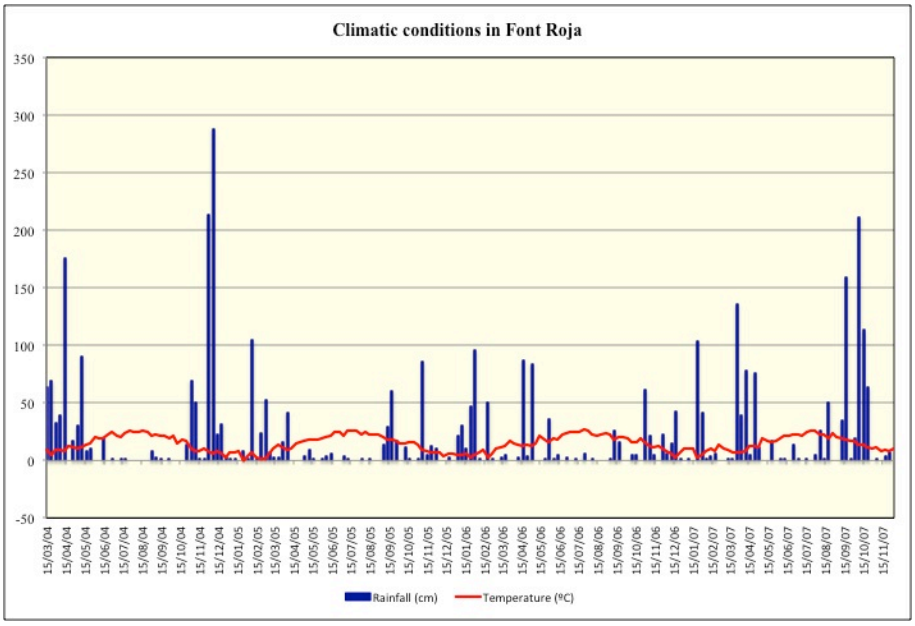
retention over the area. Due to this, and combined with the fact that it contains steep slopes and its soil is predominantly rich in limestone, the landmarks in this site are quite varied. Among these landscapes can be noted deciduous forests, brushwood, scrub rock vegetation, pine forests and agricultural areas. Each one of these faces experience different climatic conditions. The north face is classified as upper sub-humid with annual rainfall between 600–1,000 mm, while the south face is dry with an annual rainfall between 350–600 mm. Indeed, the park is classified as dry and thermo-Mediterranean due to the high average temperatures throughout the year (15–20ºC) and the low average rainfall. The climatic conditions[1,2] of the sample collection were variable with high rainfall in spring, autumn and winter and dry in summer. The temperature was cold during winter, but temperate during spring and summer (Graphic 1).

Figures 2–3. Natural Park of El Carrascal de la Font Roja.

[1] Information on climatic conditions were provided by AEMET (State Agengy of Metereology)

[2] Data from Font Roja was provided by Bocairent station because there are no station in Alcoi.

Graphic 1. Climatic conditions in Font Roja (2004–2007).

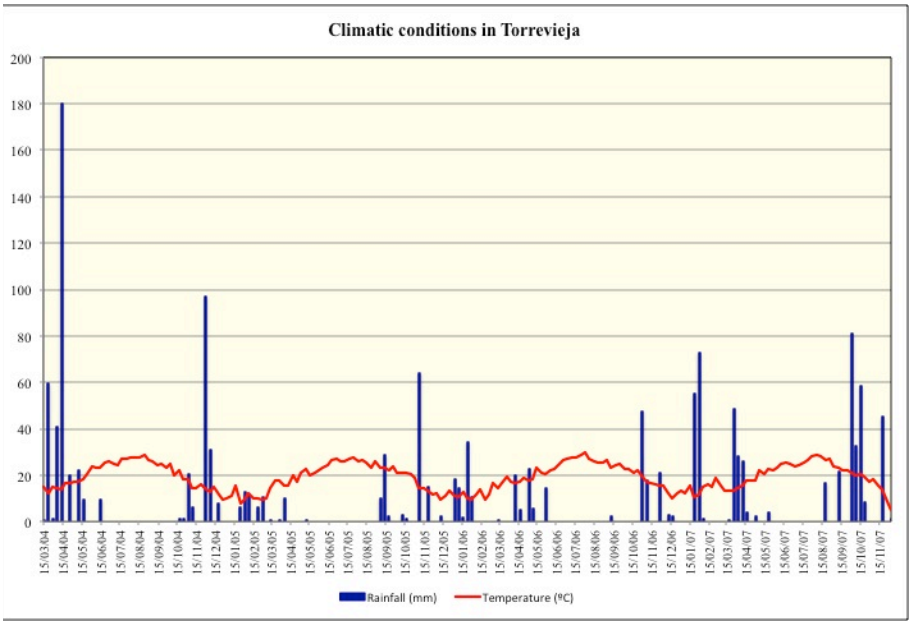


The Natural Park of Las Lagunas de la Mata–Torrevieja is located to the south of the Alicante province, and extends over 3,700 ha. The 2,100 ha of which are covered by water (Figs. 4, 5). The park is rich in saline soils, wild orchids (*Orchis collina* Banks & Sol. ex Russell), and diverse areas of *Senecio auricula* Bourgeau ex Coss and salt marsh plants as the *Limonium* genera. Moreover, its reed and bulrush areas containing abundant grass plants such as *Arthrocnemum* sp. and *Juncus* sp., and Mediterranean areas populated by *Quercus coccifera* L., *Pinus halepensis* Mill. and *Thymus* sp. The climate is arid, with high temperatures and an annual rainfall of less than 300 mm. The climatic conditions were encountered during the sample collection were occasional rainfall due to the changeable conditions throughout the years. The rainfall was most frequent in spring (March–April) during some years, but the rainfall was also noted in autumn or winter. The temperature was moderate throughout the entire year, including

winter (9–25ºC), and also temperatures can reach 30ºC during the summer (Graphic 2).

Figures 4–5. Natural Park of Lagunas de la Mata–Torrevieja.

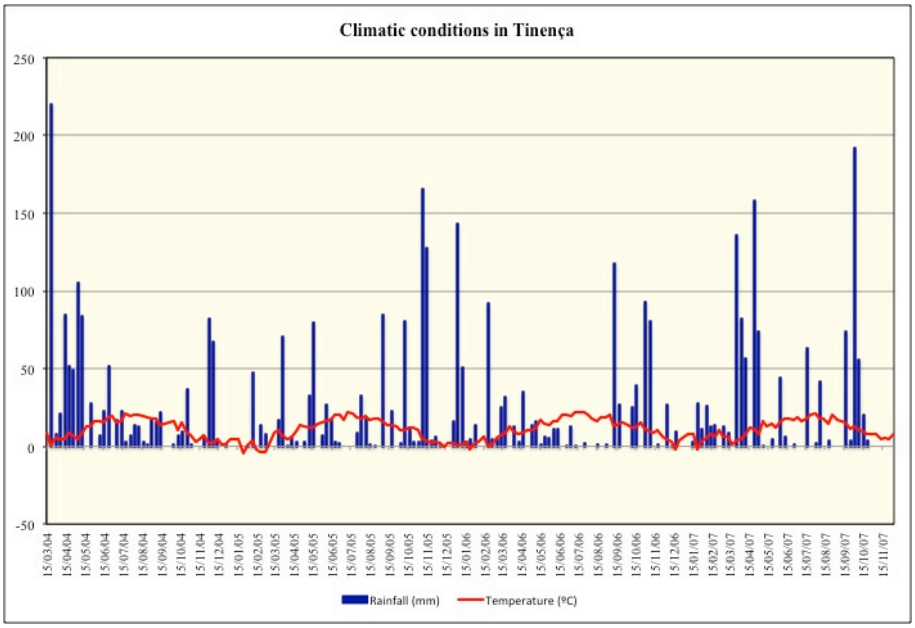
Graphic 2. Climatic conditions in Lagunas de La Mata–Torrevieja (2004–2007).



Finally, the Natural Park of La Tinença de Benifassà is located to the north of Castellon province, and extends over approximately 25,814 ha (Figs. 6, 7). The park covers an extensive and well–preserved mountainous area, encompassing many landscapes that vary greatly, ranging from medium to high–altitude Mediterranean environments and hosting a high amount of fauna and flora biodiversity. It is possible to differentiate forests of *Pinus sylvestris* L., *Pinus uncinata* Mill., *Fagus sylvatica* L., *Juniperus communis* L., and *Quercus ilex* L., alternating with crops of *Prunus* sp. and *Corylus* sp.. The climatic conditions are humid continental, with annual average temperatures of below 12ºC. Freezing conditions may occur throughout most of the year. Rainfall varies in different zones according to topographical features, and the annual precipitation ranges from 600 to 1,000 mm. The park falls within the supra–mediterranean bioclimate. During the sample collection, the climatic conditions were abundant rainfall in spring and autumn. The temperature was cold in the winter (0–10ºC), but temperate during spring and summer, ranging between 15–25ºC (Graphic. 3).

Figures 6–7. Natural Park of La Tinença of Benifassà.

Graphic 3. Climate conditions in Tinença of Benifassà (2004–2007).



2. The sampling collection and specimen identification

The sample collection was carried out from April 2004 to December 2007. During this period, the area was visited weekly to get the samples with entomological net and so that the trap drop.

The specimen identification was carried out from October 2008 to July 2012. Moreover, the separation and identification of specimens were undertaken between October 2008 – April 2010. First of all, because the insects that were captured with the Malaise trap all belonged to the different type of insect, the Braconidae specimen separation was required. Once separated, the subfamily keys of Achterberg (1993) was used to determine the different spceimens. Then, we selected to work with Alysiinae specimens. Subsequently, the genera identification was carried out using Tobias keys (1986).

Finally, the species identification was completed using the Fischer (1993b, 2003, 2008a) and Tobias keys (1986).

In many cases the specimens were not identify after examination and comparison with original descriptions. However, these specimens were identified with other or additional material. In order to contrast with additional material, Natural History museums were visited from April 2010 to October 2012.

B. Methodology

1. Material collection

The collection of Braconidae samples was carried out using different techniques depending on the nature of biological material.

The capture of imago was done using direct methods, including entomological nets where the vegetation is kept. Besides the entomological nets, additional elements like a suction tube consisted of a small bottle where the specimens are sucked in and ethyl acetate is deposited inside the bottle to kill the specimens, were used. Furthermore, indirect methods such as Malaise traps were also used (Fig. 8). These traps were kept in the same place during the sample collection and correspond to Townes model (Marris House Nets, London). The samples were conserved in a freezer for direct methods samples or in 70% ethanol for Malaise trap method samples until the analysis was done.

The capture of pre-imaginal phase (larvae or pupae stage) was done by direct methods described above. Subsequently, they were transferred to the laboratory and were conserved in a bioclimatic chamber, known as Walk–in model chamber, and kept in appropriate temperature and humidity conditions until the emergence of imagos.

Figure 8. Malaise trap method.

2. Material preparation

The imago were prepared by being softened with a few drops of alcohol over a slide. This process allowed them to stretch their wings and the other parts of the body in order to facilitate their observation and identification. During the evaporation of alcohol, a triangular card was punched in an entomological pin. After evaporation, the specimen was glued over the extremity of the card by the mesopleuron with Arabic gum glue. Later, three more labels were added. The first label contained information about the place, date and specimen collector (leg.). The second label contained a barcode to catalog the specimen in the Entomological Collection of the University of Valencia (ENV). Finally, the last label contained information of the identification of the species. For some of the samples, the last label could vary depending on whether it belonging to a different type of specimen. In this case, the words *holotype* could appear, referring to when it was identified as a new species that was formally described, or *paratype* when it belonged to the same species as the holotype, but is originally from a different locality than the holotype. All specimens captured during the samples are stored in the Entomological collection of the University of Valencia (ENV).

3. Reference material

The entomological collections were visited after the collcetion and identification of different speciemens. The entomological collections visited were: Naturhistorisches Museum (Vienna, Austria), Natural History Museum (London, England), Naturalis History Museum (Leiden, Netherlands), Hungarian Natural History Museum (Budapest, Hungary), Zoological Insitute of Russian Academy of Sciences (St. Petersburg, Russia), Zoologiska museet Lunds Universitet (Lund, Sweden), Denmark National Museum (Copenhagen, Denmark), Naturhistorisk Museum Aarhus (Arhus, Denmark) and Museum and Institute of Zoology Polish Academy of Sciences (Warsaw, Poland). To identify properly the specimens the type material was taking into account including holotype, paratypes and allotypes.

4. Terminology and morphological characteristics used for identification

The terminology of the morphological features and sculpture, measurements and wing venation nomenclature follows Fischer (1973). The following list summarizes the different morphological characters used for species determination is illustrated by figures.

Head (indixes)**:**

- Head, dorsal view: ratio of their maximum width to median length (Figs. 13, 14).
- Eye, lateral view: ratio of its maximum height to maximum width; ratio of maximum width of eye to width of temple (Figs. 11, 12).
- Temple, lateral view: distance between posterior margin of eye and occipital margin (on the median level of eye) (Figs. 11, 12).
- POL: post-ocellar line: distance between inner margins of

hind eyes (Fig. 14).

- OOL: ocular-ocellar line, shortest distance between the inner margin of the eye and the inner margin of the hind ocellus (Fig. 14).
- OD: maximum diameter of ocellus (Fig. 14).
- Face, front view: ratio of its width (minimum distance between eyes) and median height (shortest distance between clypeus and antennal tourulus) (Figs. 9, 10).
- Clypeus, index: ratio of its maximum width to maximum median height (Figs. 9, 10).
- Paraclypeal area: concave area between clypeus and eye including anterior tentorial pit (Figs. 9, 11).
- Malar space: shortest distance between lower margin of eye and upper margin of the mandible base (Figs. 10, 11, 12).
- Subocular groove (depression; malar suture): the groove between lower margin of eye and upper margin of the base of the jaw (Fig. 9).
- Jaw index: ratio of its median length (from proximal incision to apex of middle tooth) to maximum width (Figs. 9, 11, 15, 16).
- Upper (first) tooth (Fig. 15).
- Middle (second) tooth (Fig. 15).
- Lower (third) tooth (Fig. 15).
- Antennal segments: number of scape (scapus), pedicel (pedicellus) and flagellar segments (flagellomeres) (Figs. 17, 18).
- Scapus and pedicellus (Fig. 17).
- First flagellar segment (flagellomere): ratio of its maximum length to maximum (subapical) width (Figs. 17, 18).
- Second flagellar segment (flagellomere): ratio of its maximum length to maximum (subapical) width (Figs. 17,

18).

Mesosoma:

- Mesosoma index: ratio of the length to height (Figs. 19, 20).
  - mesosomal length: distance from the anterior margin of the middle lobe of mesoscutum to posterior margin of propodeum (Fig. 20).
  - mesosomal height: distance from lower margin of mesopleuron and upper margin of scutellum (Fig. 20).
- Mesoscutum index: ratio of its median length and maximum width (Figs. 22, 23).
- Notauli: completely flattened on the horizontal surface of mesoscutum and present only formerly on the vertical surface of the mesoscutum (Fig. 22).
- Mesoscutal pit: round (Fig. 24a), oval (Fig. 24b), elongated (Fig. 24c).
- Prescutellar depression: without (Fig. 25a) or with (Fig. 25b) lateral carinae.
- Sternaulus (precoxal suture): short and not connected with anterior and posterior margins of mesopleuron (Fig. 21a), long and connected with anterior margin of mesopleuron (Fig. 21b), long and connected with posterior margins of mesopleuron (Fig. 21c), long and connected with anterior and posterior margins of mesopleuron (Fig. 21d),
- Posterior mesopleural furrow (Fig. 19).
- Propodeum sculpture: completely smooth (Fig. 27a), smooth and with short median carina (Fig. 27b), smooth and with complete median carina (Fig. 27c), mainly sculptured and with complete median carina (Fig. 27d), with large areola (Fig. 26).
- Spiracle of propodeum (Fig. 26)

- Hind femur index: ratio of its length to maximum width (Figs. 28, 29).
- Hind tibia index: ratio of its length to maximum height (Figs. 28, 29).

Wings:

- Fore wing index: ratio of its maximum length to maximum width (Figs. 30, 31).
- Vein abscissae: r1, r2, r3 (Fig. 30), ratio of r1 to r2 and r2 to r3.
- Radial cell index: ratio of its maximum length to maximum width (Fig. 31).
- Nervulus (Fig. 30).
- Brachial cell (Fig. 30).
- Hind wing index: ratio of its maximum length to maximum width (Figs. 30, 31).

Metasoma:

- First metasomal tergite index: ratio of the maximum length to maximum apical width (Figs. 32, 33).
- Ovipositor: measured the length of ovipositor (not sheaths) in lateral view (Fig. 32).

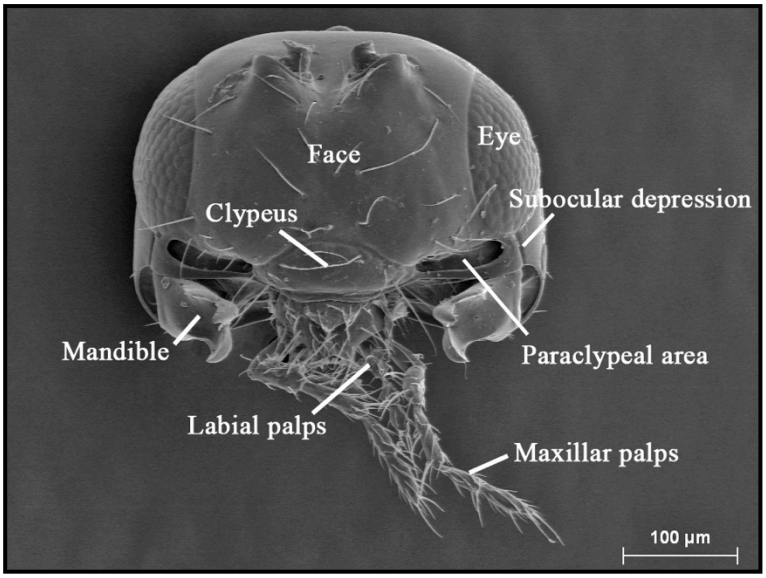


Figure 9. *Aspilota* sp. Head in front view.

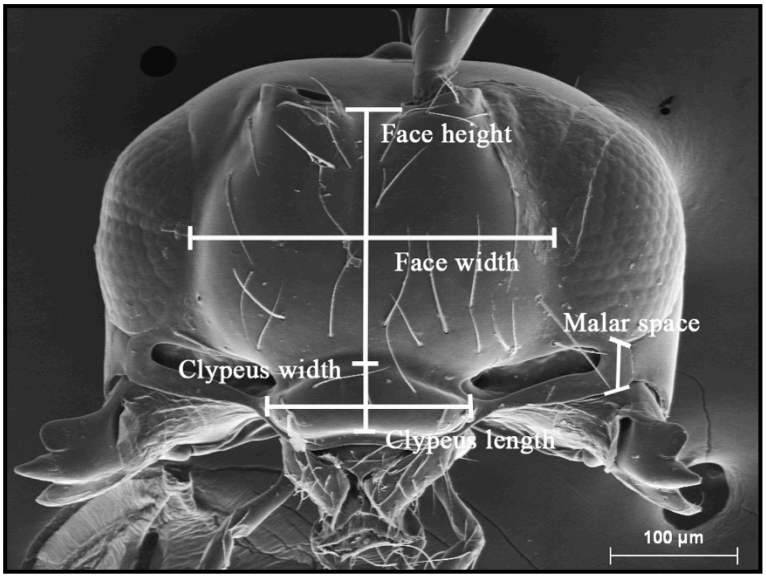


Figure 10. *Aspilota* sp. Head in front view (measurements of the face and clypeus).

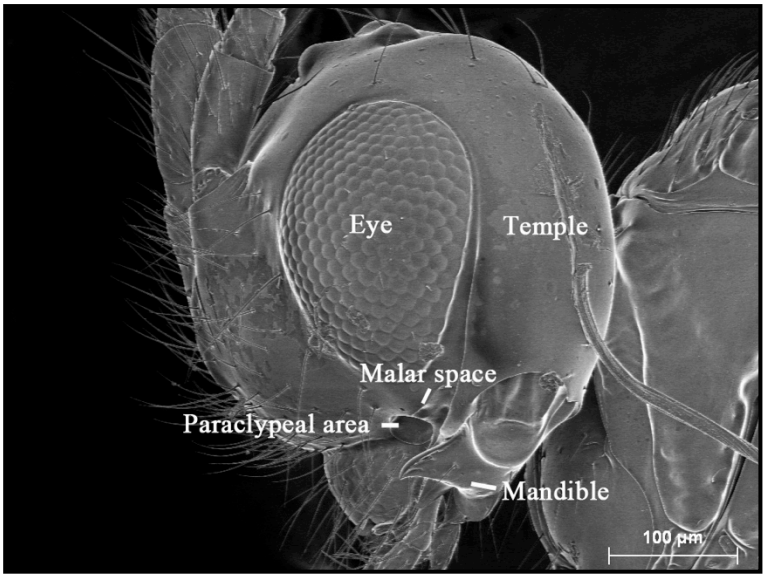


Figure 11. *Dinotrema* sp. Head in lateral view

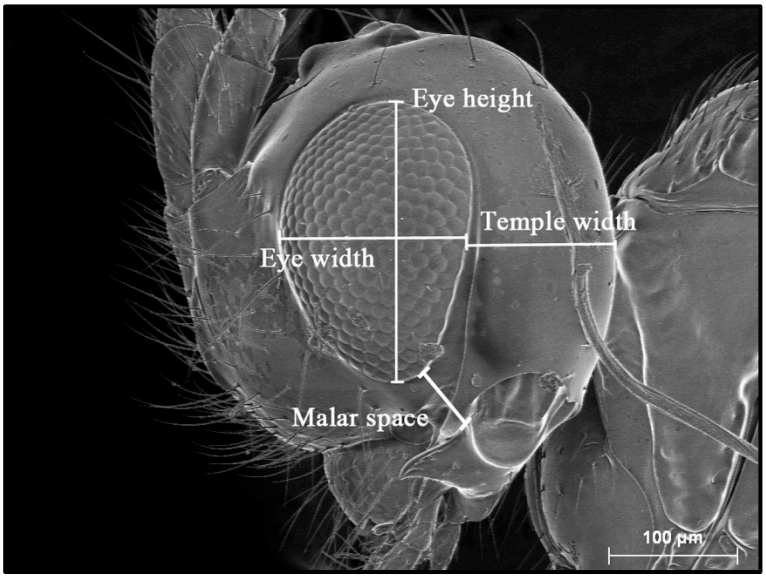


Figure 12. *Dinotrema* sp. Head in lateral view (measurements of the eye and temple).

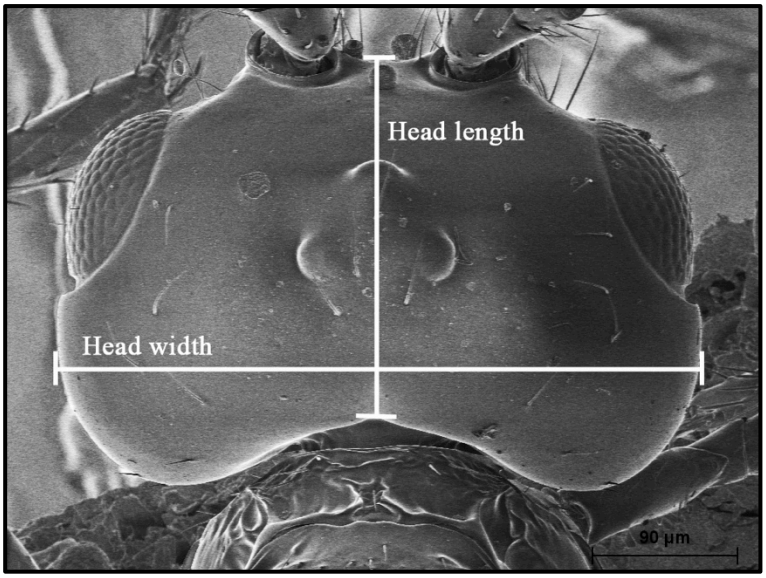


Figure 13. *Dinotrema* sp. Head in dorsal view (measurements).

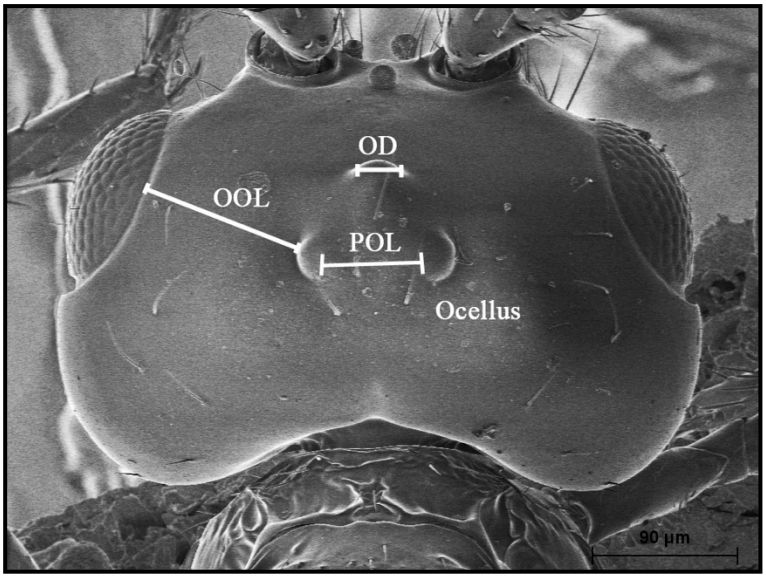


Figure 14. *Dinotrema* sp. Head in dorsal view (ocelli).

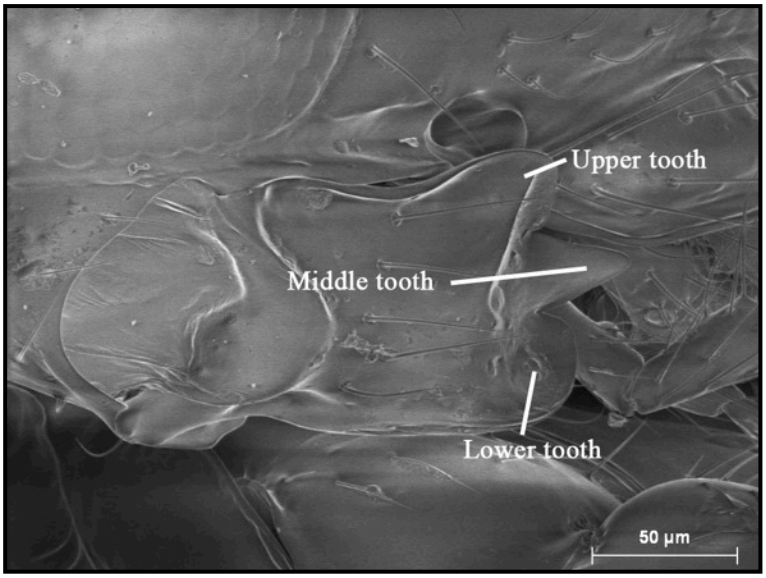


Figure 15. *Dinotrema* sp. Mandibular teeth.

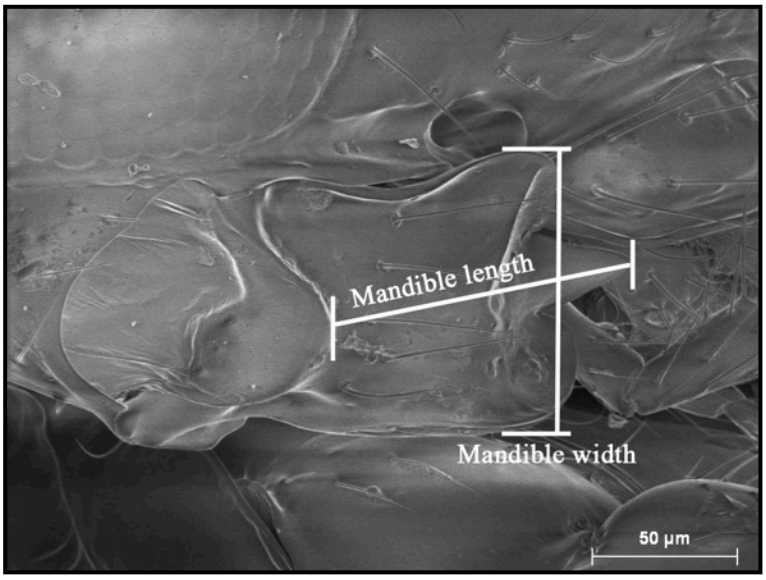


Figure 16. *Dinotrema* sp. Mandible (measurements).

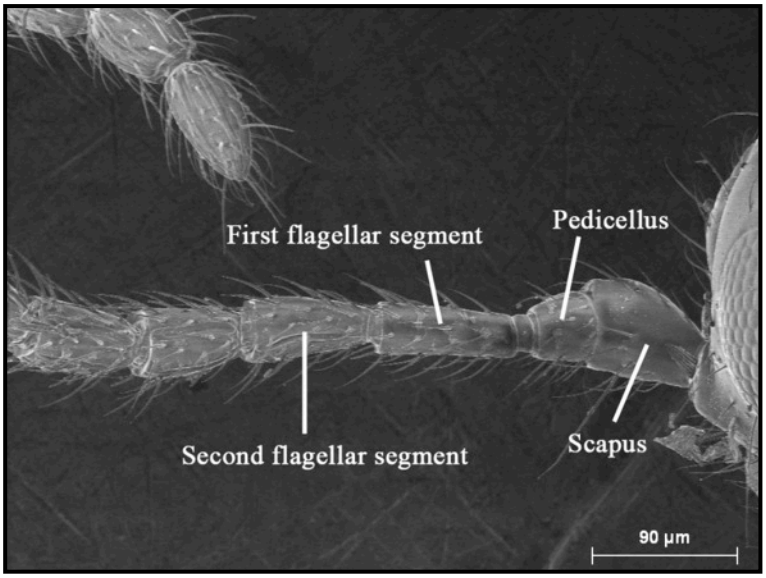


Figure 17. *Dinotrema* sp. Antenna, basal segments.

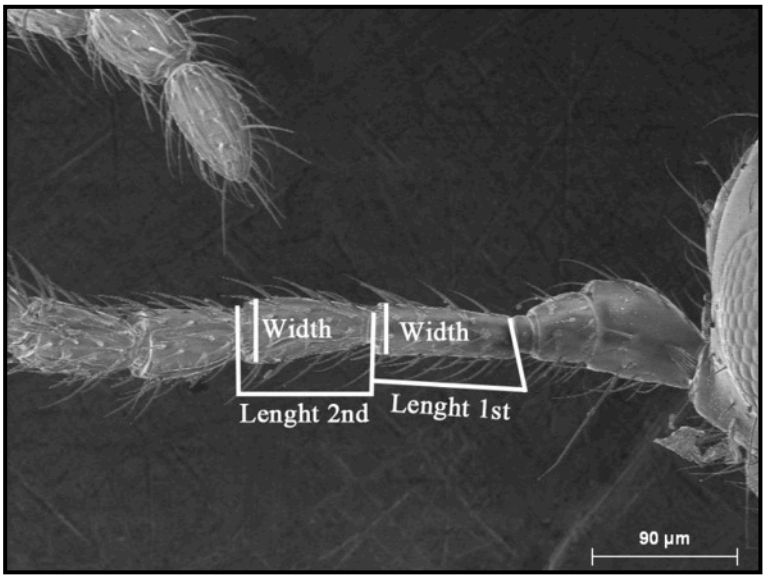


Figure 18. *Dinotrema* sp. Antenna, basal segments (measurements).

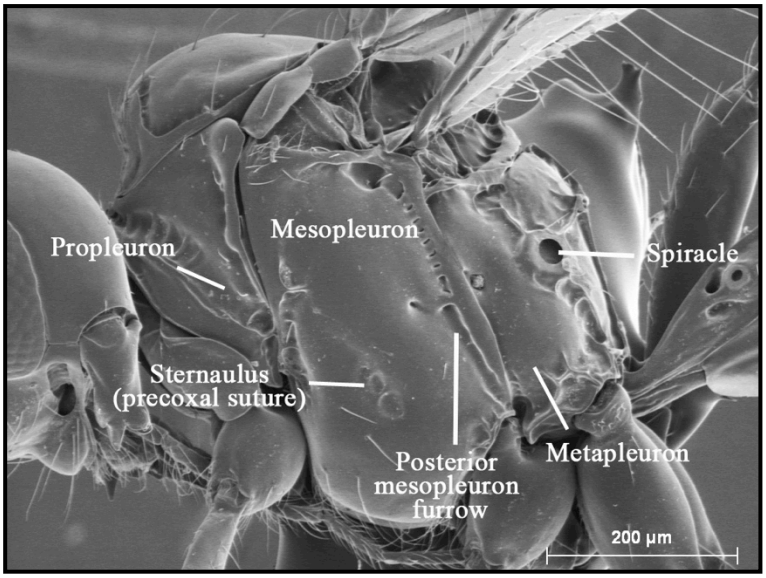


Figure 19. *Dinotrema* sp. Mesosoma.

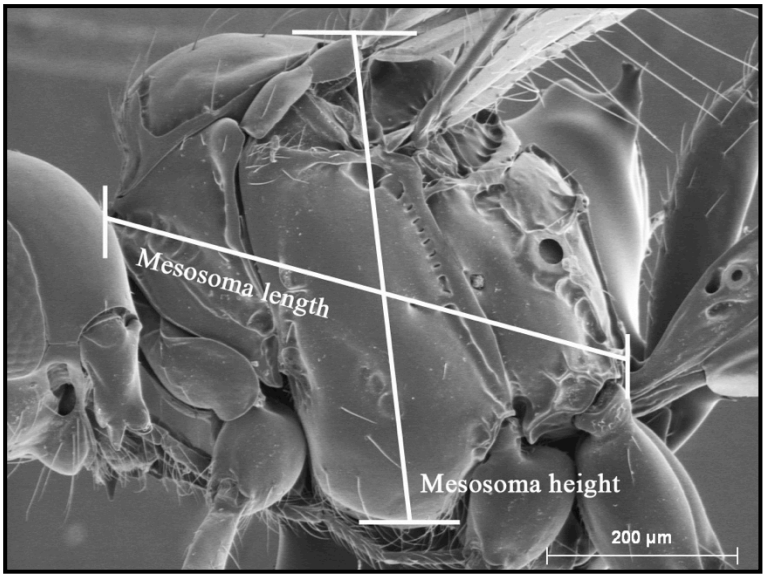


Figure 20. *Dinotrema* sp. Mesosomal (measurements).

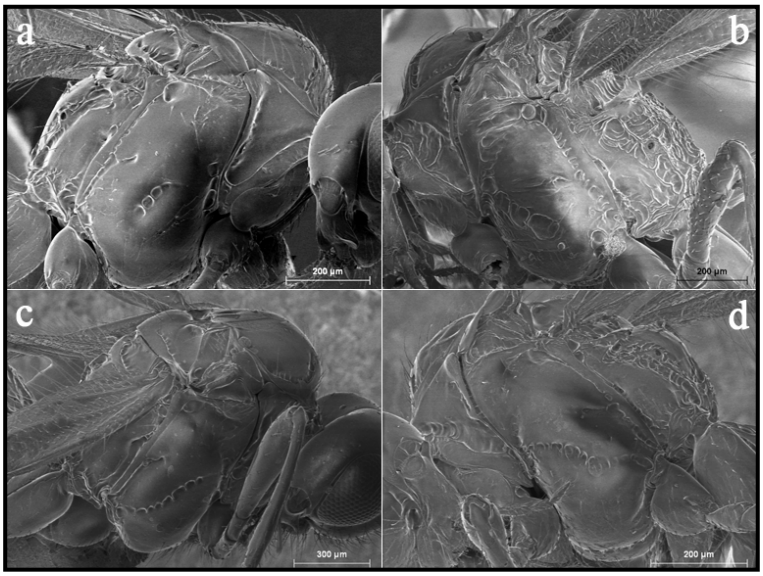


Figure 21. *Dinotrema* sp. Sternaulus (precoxal suture) kinds. **a**. Short. **b.** Reaching anterior part of mesopleuron. **c.** Reaching posterior parts of mesopleuron. **d.** Reaching anterior and posterior parts of mesopleuron.

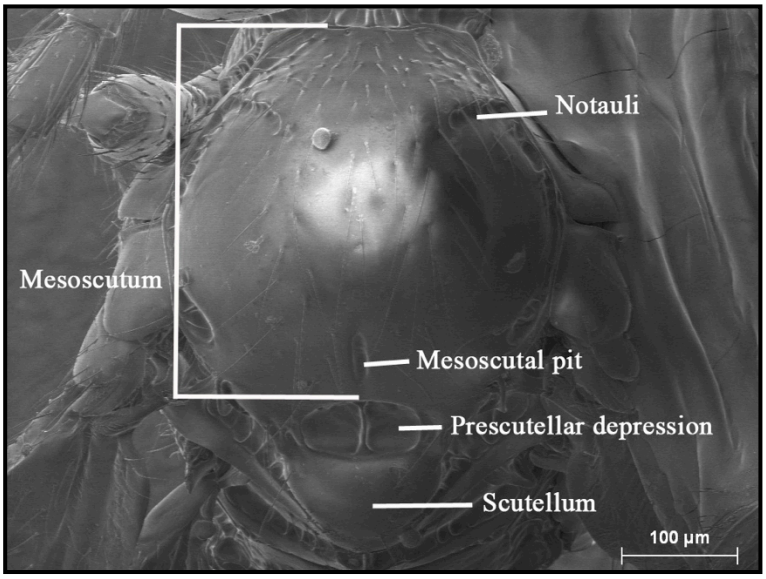


Figure 22. *Dinotrema* sp. Mesonotum.

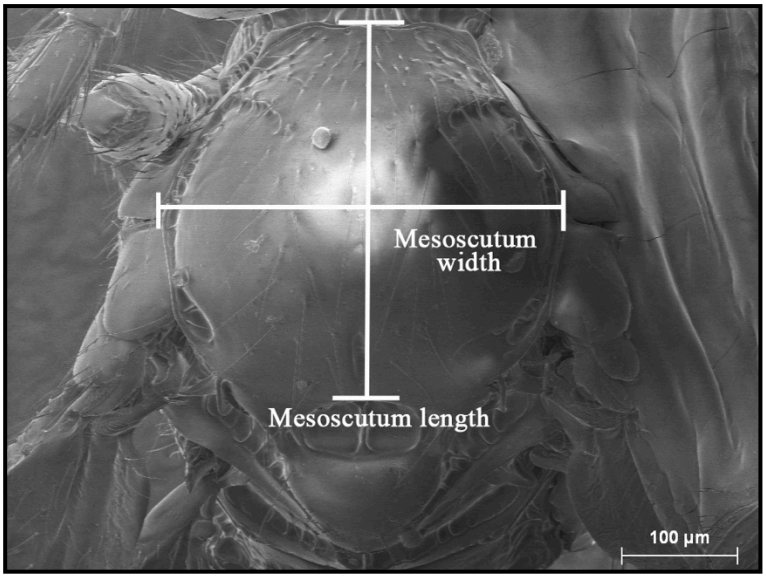


Figure 23. *Dinotrema* sp. Mesoscutum (measurements).

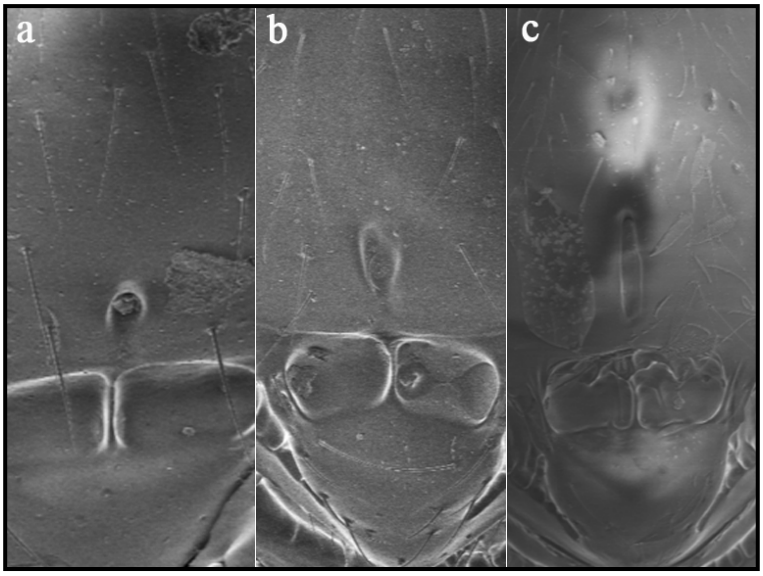


Figure 24. *Dinotrema* sp. Mesoscutal pit kinds. **a.** Rounded. **b.** Oval. **c.** Elongated.

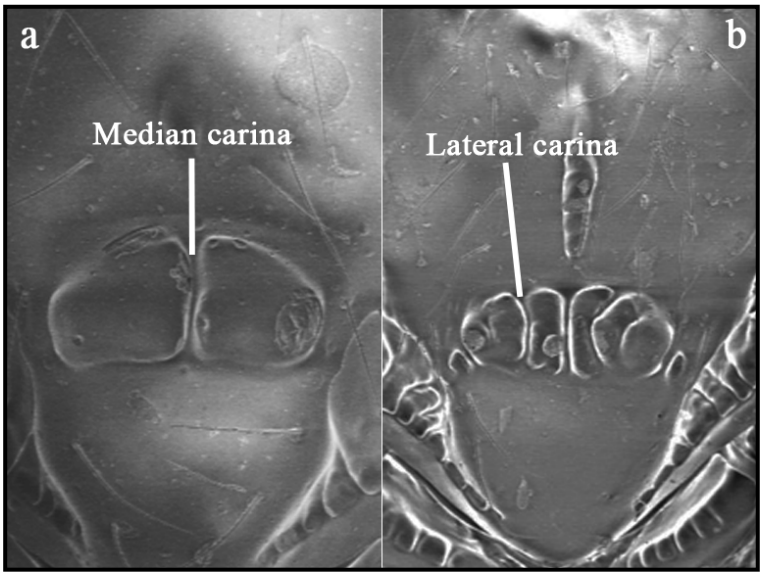


Figure 25. *Dinotrema* sp. Prescutellar depression kinds. **a.** Median carina. **b.** Median and lateral carinae.

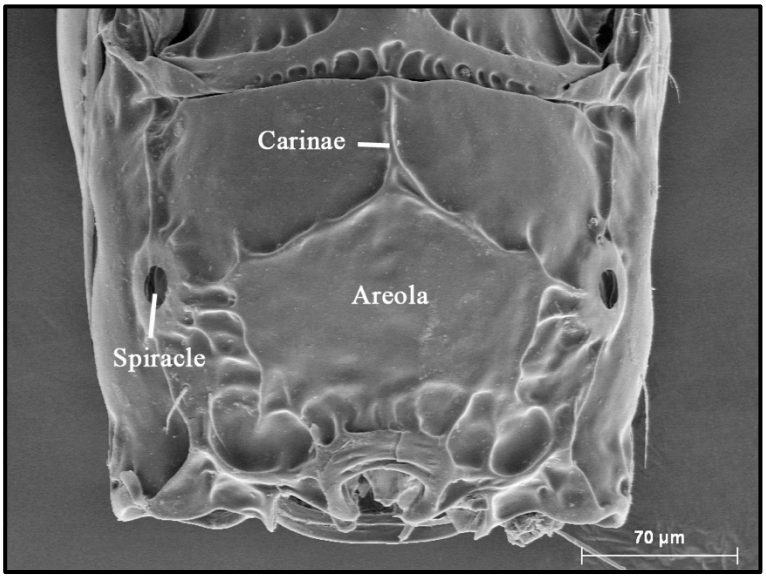


Figure 26. *Dinotrema* sp. Propodeum with areola.

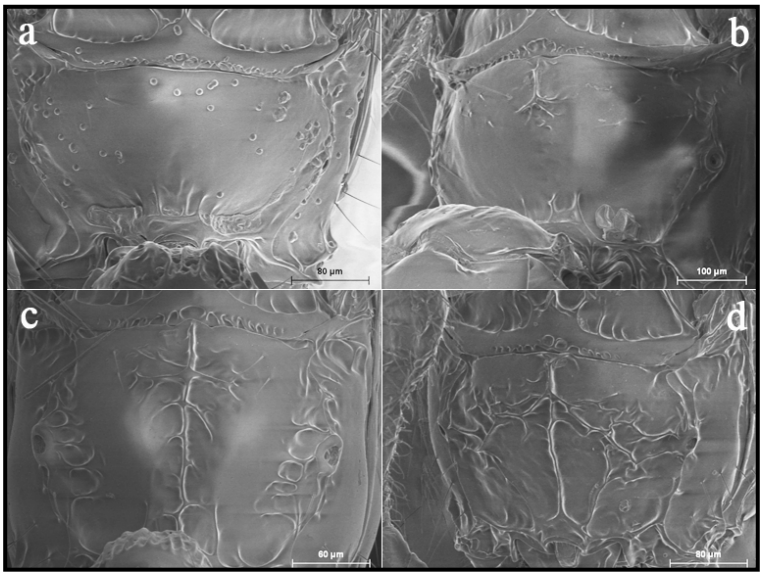


Figure 27. *Dinotrema* sp. Different sculpture of propodeum.

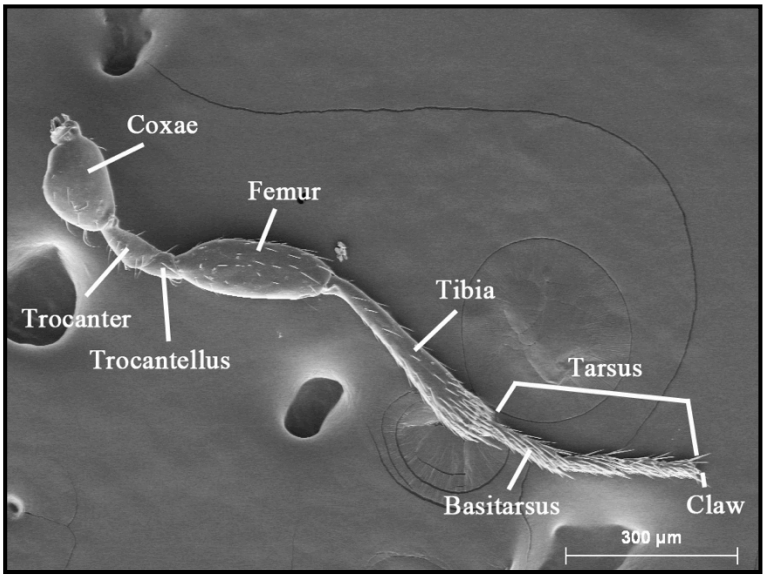


Figure 28. *Dinotrema* sp. Hind leg.

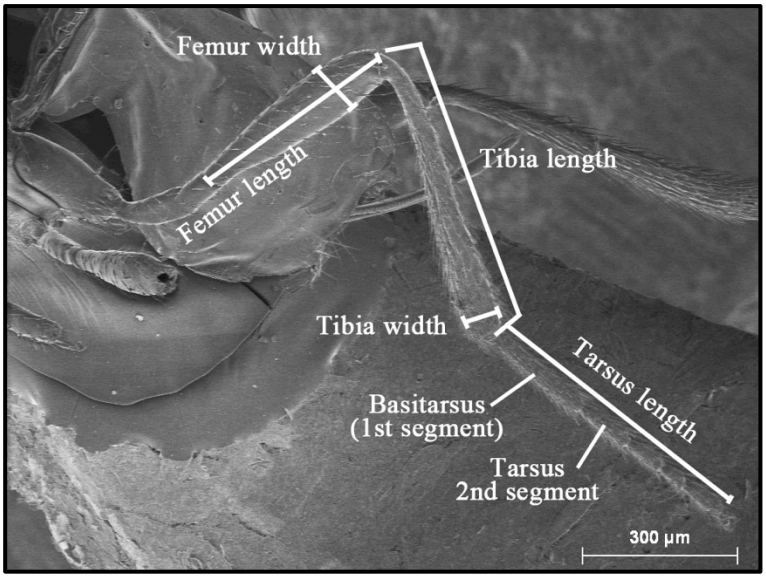


Figure 29. *Dinotrema* sp. Hing leg measurements.

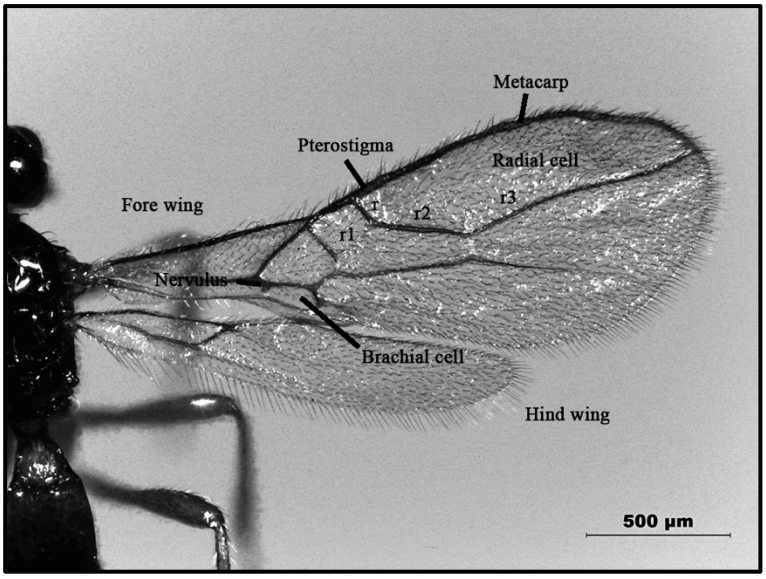


Figure 30. *Dinotrema* sp. Wings, vein and cell nomenclature.

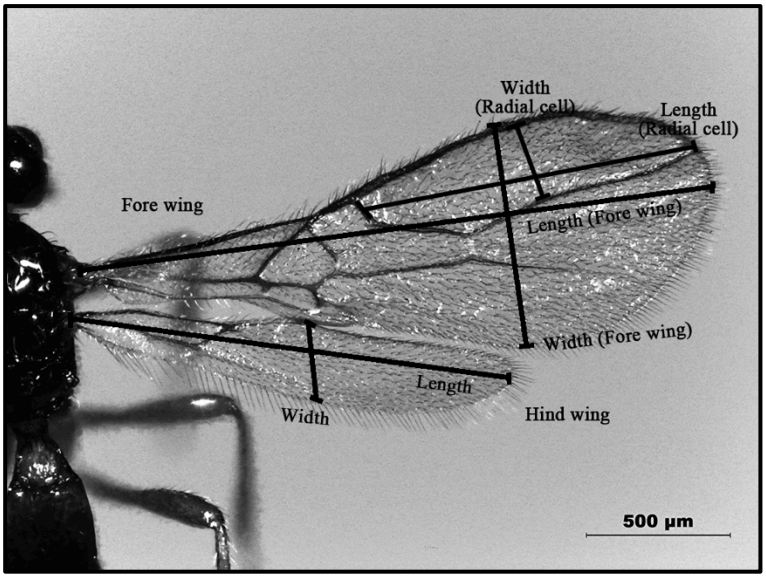


Figure 31. *Dinotrema* sp. Wings (measurements).

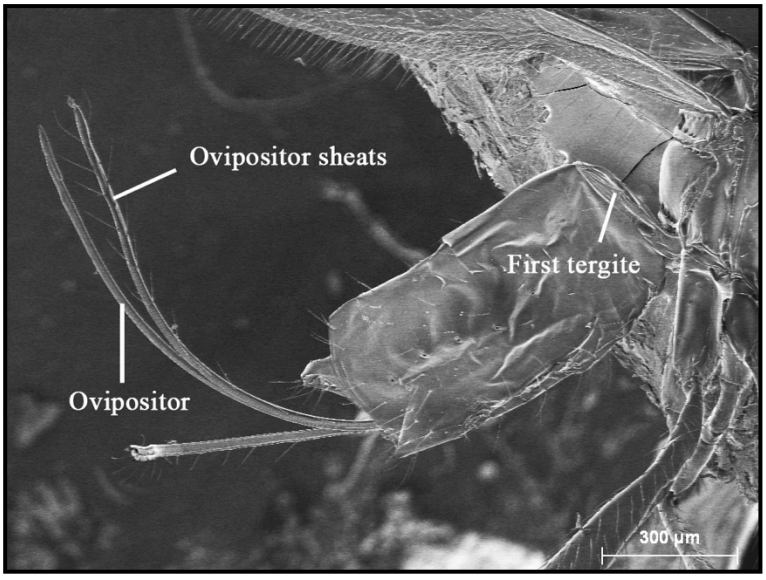


Figure 32. *Dinotrema* sp. Metasoma and ovipositor.

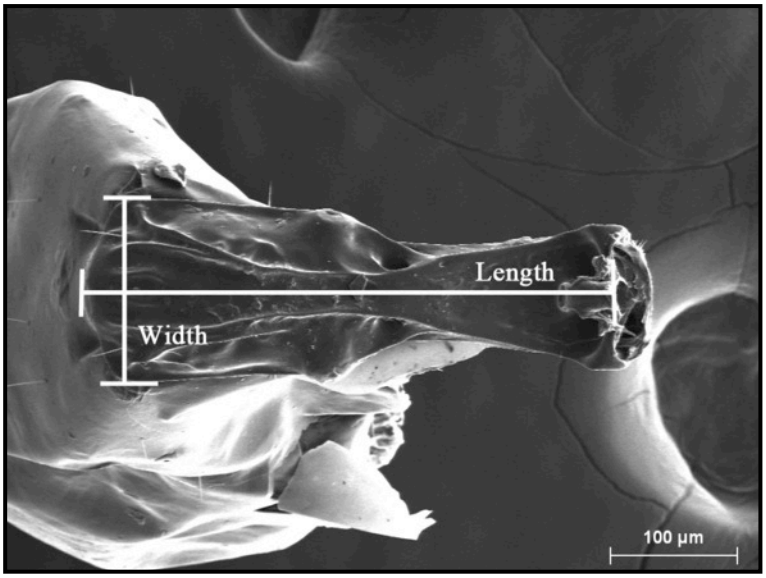


Figure 33. *Dinotrema* sp. First metasomal tergite (measurements).

5. Biodiversity indexes

To analyze diversity and network structure, specimens were organized according to the taxa present in each park. This has been reported to be the most efficient method of interspecific comparisons (Tavares *et al*. 2001).

In order to understand changes in biodiversity in relation to landscape structure, separation of components into alpha, beta and gamma was useful, as previously was described (Whittaker 1972). **Alpha diversity** (α) is a measure of species richness for a particular homogeneous group. **Beta diversity** (β) is the degree of change or species composition replacement between different networks of the landscape. Finally, **gamma diversity** (γ) means the species richness for all the ecosystems integrated in the landscape, resulting in both alpha and beta diversities (Whittaker 1972). Then, the indexes used to study alpha, beta and gamma diversity are explained following mainly the selection criteria proposed by Moreno (2001).

1. Alpha diversity (α)

To analyze alpha diversity it is possible to differentiate two types of analysis: species richness analysis and ecosystem structure analysis.

1.1. Species richness analysis

1.1.1. Specific richness (S)

Specific richness is the easiest way to measure biodiversity, and refers to the total number of species collected during the ecosystem sampling.

1.1.2. Margalef index (D_{Mg})

Taxa richness was used to evaluate richness in each sampling area using the Margalef index (Moreno 2001).

$$D_{Mg} = \frac{S - 1}{\ln N}$$

S represents the number of species and **N** represents the total number of specimens. It is a measure of richness that transforms the number of species per sample, in a rate where species are added by expanding the amount of samples. There is a functional relationship between the number of species and the total number of individuals $S = \sqrt[k]{N}$, where **k** is constant (Magurran 1998). If this is not maintained, then the index varies with the sample size as an unknown form.

1.1.3. Estimators of species richness

a. Chao 2:

$$\text{Chao 2} = S + \left(\frac{L^2}{2M}\right)$$

Meaning that **L** refers to the number of species that occur only in one sample (species "only") and **M**

represents the number of species that occur in exactly two samples. It is a nonparametric estimator that uses only incidence data (Colwell and Coddington 1994).

1.2. Community structure

The community structure can be analyzed by proportional abundance indixes or by parametric models. Afterwards, proportional abundance indexes are explained comparing the dominance indexes and equity indexes.

1.2.1. Dominance indexes

a. **Simpson index (λ)**

Dominance was calculated by measuring genera and species abundance using the Simpson index, which is often used to measure species dominance values in a given network; negative values represent equity (Magurran 1998).

$$\lambda = \Sigma P_i^2$$

This dominance index estimates the probability of two random individuals belonging to the same species during the sample. It is strongly influenced by the importance of the dominant species (Magurran 1998) and its value to reverse equity.

Several authors proposed a modification in order to interpret the existence of a direct relationship between the increase in the index with the increase in the biodiversity (Kindt and Coe 2005). This modification,

known as the Simpson reciprocal Index (λ_R), can be calculated using the following equation

$$\lambda_R = \frac{1}{1 - \lambda}$$

b. Berger–Parker index (d)

$$d = \frac{N_{max}}{N}$$

Where $\mathbf{N_{max}}$ is the number of specimens in the most abundant category in the species. The higher this index, the higher the equity and the lower the dominance (Magurran 1998).

1.2.2. Equity indexes

- **Shannon–Wiener index**

Abundance refers to faunal composition in each area (Magurran 1998), and was measured using the Shannon index, which estimates equity and indicates the degree of uniformity in species representation (in abundance), taking into consideration all data (Magurran 1998, Moreno 2001, Villareal *et al.* 2004).

$$H' = -\Sigma p_i \ln p_i$$

This index refers to the uniformity of the importance values across all species in the sample. It measures the average degree, predicting to which species it will belong taking a random specimen from a

collection (Magurran 1998). Let us assume that specimens are randomly sampled and that all species are represented in the sample. It shows a value of zero, when there is a single species the logarithm of S, when all species are represented by the same number of specimens (Magurran 1998).

1.2.3. Parametric model:

For the analysis of the community structure, log–series, log–normal and broken–stick models were also applied (Magurran 1998). The log–series model represents an unstable network, composed of a few abundant species and a high number of rare species. The broken–stick model refers to the maximum occupation of an environment with equitable sharing of resources between species. Finally, the log–normal reflects an intermediate situation between the previous two models (Soares *et al*. 2010).

Using the data obtained from the 3 parks, each of these models was applied in order to calculate the expected number of species –log2, grouping species according to abundance (Tokeshi 1993; Magurran 1998; Krebs 1999). To test the statistical significance of each model, the number of expected species was compared to those observed using a chi–squared test (Zar 1999).

These models are calculated following different steps. Firstly, data must be ordered according to rate of abundance. Secondly, data must be classified in order to know the number of species observed. Finally, each model is calculated as follows:

- **Log–series model:** This model predicts a small number of occurring (abundant) species and a large proportion of rare species. Consequently, it is applicable when one or a few factors dominate the network ecology. The log number is set by two parameters: x and α. **α** is obtained through testing different values in the following equation:

$$\frac{S}{N} = \left[\frac{1-x}{x}\right] * [-\ln(1-x)]$$

Where **S** is the total number of species and **N** is the total number of specimens. To obtain a α value, the following formula was used:

$$\alpha = \frac{N * (1-x)}{x}$$

To calculate the number of expected species, the series αx, $\alpha x^2/2$, $\alpha x^3/3$, $\alpha x^4/4$,… $\alpha x^n/n$ is applied, where αx is the number of expected species in one specimen, $\alpha x^2/2$ is the number of expected species in two specimens, etc.

Finally, a chi-squared test was used to compare the number of expected and observed species.

- **Log–normal model:** When a large number of factors determine the number of specimens per species (standardized by log transformation), random variations of these factors will result in the normal distribution of the number of specimens per species. In order to calculate the expected value of this distribution, it is necessary to obtain the abundance logarithms for the species ($x = \log n_i$) and to obtain the mean and variance of these logarithms. The next step is to calculate the average () and the variance () and γ,

where $\mathbf{x_0}$ is the breaking point of the Gaussian curve since the information is incomplete.

$$\bar{x} = \frac{\Sigma x}{S}$$

$$\sigma^2 = \frac{\Sigma(x - \bar{x})^2}{S}$$

$$\gamma = \frac{\sigma^2}{(\bar{x} - x_0)}$$

A value for parameter θ was obtained from the Cohen table (Magurran 1998). To estimate μ_x and V_x, the following equations were used:

$$\mu_x = \bar{x} - \theta * (\bar{x} - x_0)$$

$$V_x = \sigma^2 + \theta * (\bar{x} - x_0)^2$$

Then, the standardized normal variable is achieved,

$$Z_0 = \frac{X_0 - \mu_x}{\sqrt{V_x}}$$

This parameter Z_0 is checked in Tables Z for the possibility of obtaining the proportion of the normal curve below this value, resulting in Z. With this table, the value p_0 is obtained. This p_0 value is used to estimate the total number of species in the network (S^*) using the following equation:

$$S^* = (1 - p_0)$$

When all these values are calculated, it is possible to estimate the amount of abundance of expected species for each class. Finally, the values of the expected species

are compared with values of the observed species abundance in each class by the chi–squared test.

• **Broken–stick model:** This model assumes that the limits of the ecological niches of species are set randomly. Biologically, this model corresponds to a community in which a unique resource will be colonized and divided by all species randomly.

It is possible to calculate the number of species that are expected to be individual, or to come in pairs, etc using the following formula:

$$S(n) = \frac{S\,(S-1)}{N} * \left(1 - \frac{n}{N}\right)^{S-2}$$

Where **S(n)** is the number of species according to the type of abundance and n the individual species. Furthermore, as in the previous cases, we obtain the values of expected species abundance for each type and compare these values with the observed data using a chi–square.

2. Beta diversity (β)

2.1. Similarity/dissimilarity and distance indexes

These indexes indicate the degree of similarity between two samples in terms of the amount of species present in them. As such, they are an inverse measure of beta diversity, which refers to the change of species between two samples (Magurran 1998). From the similarity value (s) the dissimilarity can be easily calculated (d) between the samples: d = 1 – s (Magurran 1998).

a. Jaccard similarity index (I_J)

$$I_J = \frac{c}{a + b - c}$$

where **a** is the number of species present at site A, **b** is the number of species present at site B and **c** is the number of species present in both sites (A and B). It is a qualitative index, ranging from 0 (when no species are shared between both sites) to 1 (when the two sites contain the same species).

2.2. Replacement of species

To determine the degree of replacement of species, the Whittaker index is used (β):

$$\beta = \frac{S}{\alpha - 1}$$

Where **S** is the number of species recorded in a set of samples and **α** represents the average number of species in the samples (average alpha) (Magurran 1998). Through a modification in this index, Schulter and Ricklefs (1993) obtained the average beta diversity using the following formula:

$$\beta = \frac{1}{c}$$

Where **c** is the average number of samples happening by a particular species.

2.3. Complementarity index:

This index is used to determine the degree of dissimilarity in the composition of the species between pairs of biota (Colwell and Coddington 1994). To calculate the complementarity value, the following values must first be estimated:

1. The total richness for both sites combined:

$$S_{AB} = a + b - c$$

Where **a** is the number of species on one site A, **b** is the number of species on another site B and **c** is the number of species happening in both sites A and B.

2. The number of individual species in either sites:

$$U_{AB} = a + b - 2c$$

The complementary value from sites A and B can then be calculated using the following equation:

$$C_{AB} = \frac{U_{AB}}{S_{AB}}$$

Complementarity values range from 0 (when the two sites are identical specifically in composition) to 1 (when species are completely different) (Colwell and Coddington 1994).

3. Gamma diversity (γ)

Whittaker (1972) defined gamma diversity as the richness of a species within a habitat group (a landscape, a geographical area, an island) that is due to the alpha diversity of individual communities and the degree of differentiation between them (beta diversity). The

modification of this index was proposed by Schluter and Ricklefs (1993), who besides adding the spatial dimension, yielded a value of gamma diversity in the number of species and, considered the biology originally analyzed by Whittaker (1972) (Moreno, 2001; Villareal *et al.* 2004).

Gamma (y) = average alpha diversity (α) x beta diversity (β) x sample size

Where the **average alpha diversity** (α) is the average number of species in a network, **beta diversity** (β) is calculated as the inverse of the specified dimension, i.e. 1/average number of communities occupied by a species, and the **sample size** refers to the total number of communities studied. The biodiversity value for gamma (γ) tends to approximate the total number of species recorded in all communities.

6. Material analysis by electronic microscopy

With the material collected during sampling, and with the type of material (*holotype, paratype* or *allotype*) borrowed from each of the Natural History museums visited, pictures were taken by scanning electron microscopy in the Electron Microscopy Service at the University of Valencia (SCSIE). The scanning microscopes were a Hitachi S–4100 and Hitachi S–4800 with an intensity of 2 kV and with no gold covering. This intensity allowed us to take pictures without damaging the specimens. Several photographs of the characteristics each species were taken in order to determinate the taxonomic identification of the species.

7. Keys processing

The limitation limitation existing for keys of *Dinotrema* genera and the fact that renewed keys belong to different geographical regions (Tobias 2003a, 2003b, 2004a, 2004b, 2007), the elaboration of dichotomous keys for the West Palaearctic region were needed.

Previously, the revision of all original descriptions and check the characters used by specialists of this group to prepare keys were needed. So, references of Achterberg (1988b, 1993), Belokobylskij (2002, 2004a, 2004b, 2005), Fischer (1972, 1993b, 1995, 2003, 2008a) and Tobias (1986, 2003a, 2004a, 2007) were revised. When all the species were checked, all the characteristics were analyzed to separate the species into groups, in order to find the easiest way to identify them. This separation of the specimens into groups was carried out by propodeum sculptures, differentiating species with: propodeum that are completely smooth, propodeum that are smooth with short median carina, propodeum that are smooth with median longitudinal carina, propodeum that are sculptured with pentagonal areola, propodeum that are sculptured with median longitudinal carinae and propodeum that are sculptured without median longitudinal carinae.

4. Results

4.1. RESULTS I.
ASPILOTA-GROUP IN NATURAL PARKS

In this first chapter of the results section, the *Aspilota*-group will be studied in each park sampled (Natural Park of Carrascal de La Font Roja, Natural Park of La Tinença de Benifassà and Natural Park of Las Lagunas de La Mata-Torrevieja). As such, different types of analysis were carried out.

First, **faunistic analysis** was performed to identify each species found in the parks mentioned above. Second, a **phenological analysis** of the previously identified species was done. Knowing the date of capture of each specimen, we can set the period when the adult specimens of each species were present in the habitat. Moreover, phenological analysis at the group level can reveal in which period of the year more adult activity appears and to know whether any correlation exists between their presence and the climatic conditions. Finally, **diversity analysis** was performed to investigate alpha, beta and gamma diversity, as well as community behavior, in each natural park.

4.1.1. Faunistic Analysis

This section describes the collection of specimens belonging to the *Aspilota*-group during the sampling of three natural parks.

During the sampling period, a total of 52 species belonging to 6 genera (*Adelphenaldis, Aspilota, Dinotrema, Eudinostigma, Orthostigma* and *Synaldis*) were collected. Among all these, the capture of 31 new species distributed in different genera was stressed: 1 new species for *Adelphenaldis*, 2 for *Aspilota*, 21 for *Dinotrema* and 7 for *Synaldis*. However, due to the complexity of the *Aspilota*-group, the only species from the genera *Adelphenaldis* and *Dinotrema* were included in the study.

Furthermore, the genera and its species were alphabetically listed, providing information about the material captured (number of specimens collected, place and date), world distribution and a brief description of the main characters employed for their identification is given. Moreover, in the case of a new species (**sp. nov.**) being captured, a complete description and information of the diagnosis of taxonomically closer species is provided.

Genus *ADELPHENALDIS* Fischer 2003

Adelphenaldis maxfischeri PERIS–FELIPO 2012

Adelphenaldis maxfischeri Peris–Felipo 2012: 288.

Material captured. Holotype: 1 female, Spain, Alicante Province, Alcoi, Natural Park of Carrascal de La Font Roja, 25.06.2007 (F.J. Peris–Felipo leg.) (ENV). Paratype: 1 female, same label, but 02.07.2007 (ENV).
Distribution. Spain.
Description. Female.

Head. In dorsal view, 1.85–1.90 times as long as its median length, 1.50–1.55 times as wide as mesoscutum, smooth, with rounded temples behind eyes. Eye in lateral view as high as wide and as wide as temple. POL about 2.00 times OD; OOL 6.50 times OD. Face 1.80 times as high as wide; inner margins of eyes subparallel. Clypeus 2.50 times as wide as high, slightly curved ventrally. Mandible weakly widened towards apex, 1.35–1.40 times as long as its maximum width. Upper tooth small, distinctly shorter than middle tooth. Middle tooth the longest, wide basally, distinctly narrowed towards apex and pointed apically. Lower tooth relatively short, longer than upper tooth, subpointed apically. Antennae thick, with 14 segments, shorter than body. Scape 1.70–1.80 times as long as pedicel. First flagellar segment 1.05–1.10 times as long as its apical width, about 0.70 times as long as second segment; second segment 1.55–1.60 times as long as its maximum width. Third and fourth flagellar segments 1.40–1.45 times, fifth and sixth segments 1.20–1.30 times as long as their width respectively. Flagellar segments from seventh to twelve 1.25–1.35 times as long as their width.

Mesosoma. In lateral view, 1.55–1.60 times as long as high. Mesoscutum 1.10–1.20 times as long as wide. Notauli absent for the most part. Mesoscutal pit absent. Prescutellar depression rectangular and smooth, with coarse median carina. Sternaulus (precoxal suture) absent. Posterior mesopleural furrow slightly crenulate below. Propodeum smooth, with short carina and with rugosity in basomedial quarter. Propodeal spiracles relatively small.

Legs. Hind femur 2.60–2.70 times as long as its maximum width. Hind tibia weakly widened to apex, about 5.00 times as long as its maximum subapical width, 0.90–0.95 times as long as hind tarsus. First segment of hind tarsus 1.40–1.45 times as long as second segment.

Wings. Length of fore wing 2.40–2.50 times its maximum width. Vein r1 absent. Radial vein arising from the anterior part of pterostigma. Radial cell reaching to apex of wing, 4.00–4.20 times as long as its maximum width. Brachial cell closed. Nervulus distinctly postfurcal. Brachial cell 4.00 times as long as its maximum width. Hind wing 6.30 times as long as its maximum width.

Metasoma. Distinctly compressed. First metasomal tergite weakly widened towards apex, 2.30–2.35 times as long as its apical width, almost entirely smooth. Ovipositor short, its sheath 0.70–0.75 times as long as first metasomal tergite, 0.50–0.55 times as long as hind femur.

Colour. Body and legs brown to dark brown. Wings hyaline. Pterostigma brown.

Length. Body 1.30–1.40 mm; fore wing 1.20–1.25 mm.

Male. Unknown.

Diagnosis. This species resembles South African *A. brunicorpus* Fischer, but differs in having the first flagellar segment 1.05–1.10 times as long as wide (3.00 times in *A. brunicorpus*) and the hind femur 2.50 times as long as wide (5.00 times in *A. brunicorpus*). On the other hand, *A. maxfischeri* is similar to African (Congo) *A. resurrectionis* Fischer because propodeum has smooth margins, but in the last species the first flagellar segment 2.50 times as long as wide (1.05–1.10 times in *A. maxfischeri*), the middle flagellar segments about twice as long as wide (1.20–1.45 times in *A. maxfischeri*), the mandible 1.25 times its maximum width (1.35–1.40 times in *A. maxfischeri*), the hind femur 3.00–3.50 times longer than maximum width and the ovipositor long. *Adelphenaldis maxfischeri* differs from the Palaearctic *A. globipes* (Fischer) (**comb. nov.**) by propodeum without areola, by short scape, more long and slender first flagellar segment, and long mandible.

Genus *ASPILOTA* Foerster 1862

Aspilota anaphoretica FISCHER 1973

Aspilota anaphoretica Fischer 1973b: 99.
Aspilota anaphoretica: Yu *et al.* 2005; 2011.

Material captured. 1 female, Spain, Alicante Province, Alcoi, Natural Park of Carrascal de La Font Roja, 23.10.2006; 1 female, same label but 28.05.2007; 2 females, same label but 04.06.2007 (ENV).
Distribution. Austria, Greece, Hungary, Korea and Spain.
Main characters of the species. Body length: 1.80 mm. Head in dorsal view 2.00 times as wide as its median length and 1.55 times as wide as mesoscutum. Eye in lateral view 1.10 times as wide as temple. Face 1.40 times as wide as high. Mandible 1.80 times as long as wide. Antennae 18–segmented. First flagellar segment 5.00 times as long as its apical width. Middle flagellar segments 2.00 times as long as their width. Mesosoma in lateral view 1.30 times as long as high. Mesoscutum 1.30 times as long as wide. Notauli mainly absent. Mesoscutal pit absent. Prescutellar depression smooth, without lateral carinae. Sternaulus (precoxal suture) present, reaching anterior part of mesopleuron. Posterior mesopleural furrow smooth. Propodeum with pentagonal areola with smooth fields. Propodeal spiracles relatively small. Hind femur 5.00 times as long as its maximum width. First metasomal tergite 2.00 times as long as its apical width. Ovipositor 1.30 times as long as first metasomal tergite. Main colour brown.

Aspilota delicata FISCHER 1973

Aspilota delicata Fischer 1973c: 248.
Aspilota delicata: Yu *et al.* 2005.
Aspilota delicata: Papp 2007b: 100.
Aspilota delicata: Yu *et al.* 2011.

Aspilota delicata: Broad *et al.* 2012: 8.

Material captured. 1 female, Spain, Alicante Province, Torrevieja, Natural Park of Lagunas de La Mata–Torrevieja, 29.05.2007 (ENV); 2 females, Spain, Castellon Province, Pobla de Benifassà, Natural Park of Tinença de Benifassà, 11.09.2006 (ENV).
Distribution. Austria, Greece, Hungary, Iran and Spain **(new record)**.
Main characters of the species. Body length: 1.80 mm. Head in dorsal view 1.80 times as wide as its median length and 1.40 times as wide as mesoscutum. Face 1.40 times as wide as high. Mandible 1.40 times as long as wide. Antennae 18–19–segmented. First flagellar segment 3.50 times as long as its apical width. Middle flagellar segments 1.80 times as long as their width. Mesosoma in lateral view 1.30 times as long as high. Mesoscutum 1.25 times as long as wide. Notauli mainly absent. Mesoscutal pit absent. Prescutellar depression smooth, without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum with pentagonal areola with sculptured fields. Propodeal spiracles relatively small. Hind femur 4.50 times as long as its maximum width. First metasomal tergite 2.00 times as long as its apical width. Ovipositor shorter than first metasomal tergite. Main colour brown.

Aspilota flagimilis FISCHER 1996

Aspilota flagimilis Fischer 1996: 660.
Aspilota flagimilis: Yu *et al.* 2005; 2011.

Material captured. 2 females, Spain, Alicante Province, Alcoi, Natural Park of Carrascal de La Font Roja, 27.11.2006; 1 female, same label but 25.06.2007 (ENV).
Distribution. Spain.

Main characters of the species. Body length: 1.90 mm. Head in dorsal view 2.00 times as wide as its median length and 1.40 times as wide as mesoscutum. Face 1.40 times as wide as high. Mandible 1.50 times as long as wide. Antennae 16–segmented. First flagellar segment 4.00 times as long as its apical width. Middle flagellar segments 1.70 times as long as their width. Mesosoma in lateral view 1.30 times as long as high. Mesoscutum 1.25 times as long as wide. Notauli mainly absent. Mesoscutal pit absent. Prescutellar depression smooth, without lateral carinae. Sternaulus (precoxal suture) present, reaching anterior part of mesopleuron. Posterior mesopleural furrow crenulated. Propodeum with pentagonal areola with finely sculptured fields. Propodeal spiracles small. Hind femur 4.50 times as long as its maximum width. First metasomal tergite 2.50 times as long as its apical width. Ovipositor as long as first metasomal tergite. Main colour brown.

Aspilota insolita (TOBIAS) 1962

Orthostigma insolita Tobias 1962: 98.
Aspilota insolita: Yu *et al*. 2005; 2011.
Aspilota insolita: Broad *et al*. 2012: 9.

Material captured. 1 female, Spain, Castellon Province, Pobla de Benifassà, Natural Park of Tinença de Benifassà, 21.03.2006; 1 female, same label but 12.06.2006 (ENV).
Distribution. Former Czechoslovakia, Hungary, Russia and Spain.
Main characters of the species. Body length: 1.80 mm. Head in dorsal view 2.00 times as wide as its median length and 1.65 times as wide as mesoscutum. Face 2.00 times as wide as high. Mandible 1.50 times as long as wide. Antennae 21–segmented. First flagellar segment 2.00 times as long as its apical width. Middle flagellar segments 1.50–1.70 times as long as their width. Mesosoma in lateral

view 1.40–1.50 times as long as high. Mesoscutum 1.10 times as long as wide. Notauli mainly absent. Mesoscutal pit absent. Prescutellar depression almost smooth, without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum basally smooth, mostly not coarsely sculptured, with wide smooth median area delineated by fine carinae. Propodeal spiracles relatively small. Hind femur 4.00–5.00 times as long as its maximum width. First metasomal tergite 3.00 times as long as its apical width. Main colour black.

Aspilota procreata FISCHER 1976

Aspilota procreata Fischer 1976: 397.
Aspilota procreata: Yu *et al.* 2005.
Aspilota procreata: Lozan *et al.* 2010: 18.
Aspilota procreata: Yu *et al.* 2011.

Material captured. 1 female, Spain, Alicante Province, Torrevieja, Natural Park of Lagunas de La Mata–Torrevieja, 04.05.2004; 2 females, same label but 18.05.2004; 1 female, same label but 25.05.2004; 3 females, same label but 01.06.2004; 2 males, same label but 01.06.2004; 1 female, same label but 08.06.2004; 1 male, same label but 15.06.2004; 1 male, same label but 22.06.2004; 1 female, same label but 14.12.2004; 1 female, same label but 04.03.2005; 1 male, same label but 23.03.2005; 1 female, same label but 26.04.2005; 1 female, same label but 12.12.2005; 1 female, same label but 01.05.2006; 2 females, same label but 06.06.2006; 1 female, same label but 26.06.2006; 1 male, same label but 20.03.2007; 1 female, same label but 03.04.2007; 1 female, same label but 16.04.2007; 1 female, same label but 01.05.2007; 2 females, same label but 08.05.2007; 1 male, same label but 08.05.2007; 1 female, same label

15.05.2007; 3 males, same label but 15.05.2007; 2 females, same label but 29.05.2007 (ENV).

Distribution. Austria, Czech Republic, Hungary and Spain **(new record)**.

Main characters of the species. Body length: 1.60 mm. Head in dorsal view 1.80 times as wide as its median length and 1.50 times as wide as mesoscutum. Face 1.60 times as wide as high. Mandible 1.50 times as long as wide. Antennae 16–segmented. First flagellar segment 3.30 times as long as its apical width. Middle flagellar segments 2.20 times as long as their width. Mesosoma in lateral view 1.30 times as long as high. Mesoscutum 1.10 times as long as wide. Notauli mainly absent. Mesoscutal pit absent. Prescutellar depression smooth, without lateral carinae. Sternaulus (precoxal suture) present, reaching anterior part of mesopleuron. Posterior mesopleural furrow smooth. Propodeum sculptured with median carina and basal carina. Propodeal spiracles relatively small. Hind femur 3.20 times as long as its maximum width. First metasomal tergite 2.00 times as long as its apical width. Ovipositor as long as first metasomal tergite. Main colour brown.

Aspilota propedaemon FISCHER 1996

Aspilota propedaemon Fischer 1996: 662.

Aspilota propedaemon: Yu *et al.* 2005; 2011.

Material captured. 1 female, Spain, Alicante Province, Alcoi, Natural Park of Carrascal de La Font Roja, 06.05.2004; 1 female, same label but 04.12.2006 (ENV); 1 female, Spain, Castellon Province, Pobla de Benifassà, Natural Park of Tinença de Benifassà, 29.03.2005; 1 female, same label but 12.06.2006; 1 female, same label but 19.06.2006; 1 female, same label but 20.08.2006 (ENV); 1 female,

Spain, Alicante Province, Torrevieja, Natural Park of Lagunas de La Mata–Torrevieja, 23.03.2005; 1 male, same label 23.03.2005 (ENV).

Distribution. Spain.

Main characters of the species. Body length: 1.50 mm. Head in dorsal view 1.70 times as wide as its median length and 1.50 times as wide as mesoscutum. Face 1.50–1.65 times as wide as high. Mandible 1.20 times as long as wide. Antennae 14–segmented. First flagellar segment 3.50 times as long as its apical width. Middle flagellar segments 1.30 times as long as their width. Mesosoma in lateral view 1.25 times as long as high. Mesoscutum 1.30 times as long as wide. Notauli mainly absent. Mesoscutal pit absent. Prescutellar depression smooth, without lateral carinae. Sternaulus (precoxal suture) present, reaching anterior part of mesopleuron. Posterior mesopleural furrow crenulated. Propodeum with pentagonal areola with sculptured fields. Propodeal spiracles small. Hind femur 4.00 times as long as its maximum width. First metasomal tergite 1.50 times as long as its apical width. Ovipositor as long as first metasomal tergite. Main colour brown.

Aspilota propeminimam FISCHER, TORMOS, PARDO et ASIS 2008

Aspilota propeminimam Fischer *et al*. 2008b: 249.

Aspilota propeminimam: Yu *et al*. 2011.

Material captured. 1 female, Spain, Alicante Province, Alcoi, Natural Park of Carrascal de La Font Roja, 18.06.2007 (ENV); 1 female, Spain, Castellon Province, Pobla de Benifassà, Natural Park of Tinença de Benifassà, 23.05.2005; 1 female, same label but 14.03.2006; 2 females, same label but 17.04.2006; 4 females, same label but 05.06.2006; 1 female, same label but 17.07.2006; 1 male, same label but 27.11.2006; 1 female, same label but 26.02.2007; 1 female, same label but 23.04.2007; 1 female, same label but

14.05.2007; 1 female, same label but 28.05.2007; 1 female, same label but 18.06.2007 (ENV); 1 male, Spain, Alicante Province, Torrevieja, Natural Park of Lagunas de La Mata–Torrevieja, 15.05.2007 (ENV).

Distribution. Spain.

Main characters of the species. Body length: 1.20 mm. Head in dorsal view 1.90 times as wide as its median length and 1.40 times as wide as mesoscutum. Face 1.40 times as wide as high. Mandible 1.80 times as long as wide. Antennae 14–15–segmented. First flagellar segment 3.00 times as long as its apical width. Middle flagellar segments 1.80 times as long as their width. Mesosoma in lateral view 1.30 times as long as high. Mesoscutum 1.40 times as long as wide. Notauli mainly absent. Mesoscutal pit absent. Prescutellar depression smooth, without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow crenulated. Propodeum with pentagonal areola with finely sculptured fields. Propodeal spiracles small. Hind femur 5.00 times as long as its maximum width. First metasomal tergite 2.00 times as long as its apical width. Ovipositor as long as first metasomal tergite. Main colour brown.

Aspilota valenciensis FISCHER 1996

Aspilota valenciensis Fischer 1996: 664.

Aspilota valenciensis: Yu *et al.* 2005; 2011.

Material captured. 1 female, Spain, Alicante Province, Alcoi, Natural Park of Carrascal de La Font Roja, 21.05.2007 (ENV); 1 female, Spain, Castellon Province, Pobla de Benifassà, Natural Park of Tinença de Benifassà, 18.05.2004; 4 females, same label but 01.06.2004; 1 female, same label but 07.10.2004; 1 female, same label but 18.01.2005; 1 female, same label but 04.05.2005; 2 females, same label but 31.05.2005; 1 female, same label but 13.06.2005; 1 female,

same label but 19.06.2005; 1 female, same label but 27.06.2005; 1 female, same label but 17.04.2006; 1 female, same label but 24.04.2006; 1 female, same label but 01.05.2006; 1 female, same label but 15.05.2006; 1 female, same label but 29.05.2006; 1 female, same label but 06.06.2006; 1 female, same label but 20.08.2006; 1 female, same label but 30.04.2007; 1 female, same label but 15.05.2007 (ENV); 1 female, Spain, Alicante Province, Torrevieja, Natural Park of Lagunas de La Mata–Torrevieja, 08.03.2005; 1 male, same label but 14.03.2006; 1 female, same label but 09.10.2006; 1 female, same label but 23.10.2006 (ENV).

Distribution. Hungary and Spain.

Main characters of the species. Body length: 2.00 mm. Head in dorsal view 1.60 times as wide as its median length and 1.40 times as wide as mesoscutum. Face 1.60 times as wide as high. Mandible 1.50 times as long as wide. Antennae 16–18–segmented. First flagellar segment 3.00 times as long as its apical width. Middle flagellar segments 1.25 times as long as their width. Mesosoma in lateral view 1.30 times as long as high. Mesoscutum 1.25 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit absent. Prescutellar depression smooth, without lateral carinae. Sternaulus (precoxal suture) present, reaching anterior part of mesopleuron. Posterior mesopleural furrow crenulated. Propodeum with pentagonal areola with sculptured fields. Propodeal spiracles small. Hind femur 4.30 times as long as wide. First metasomal tergite 1.65 times as long as its apical width. Ovipositor shorter than first metasomal tergite. Main colour brown.

Besides the above mentioned *Aspilota* species, also two new species were identified: *Aspilota* sp1 and *Aspilota* sp2. Information about material studied was given.

***Aspilota* sp1**

Material captured. 1 female, Spain, Castellon Province, Pobla de Benifassà, Natural Park of Tinença de Benifassà, 12.06.2006 (EVN); 1 female, Spain, Alicante Province, Torrevieja, Natural Park of Lagunas de La Mata–Torrevieja, 18.05.2004; 2 females, same label but 01.06.2004; 1 female, same label but 27.06.2005; 1 female, same label but 15.05.2006; 1 female, same label but 05.06.2006; 1 female, same label but 15.06.2006; 1 female, same label but 15.05.2007; 1 female, same label but 28.05.2007 (ENV).

***Aspilota* sp2**

Material captured. 1 female, Spain, Alicante Province, Torrevieja, Natural Park of Lagunas de La Mata–Torrevieja, 08.06.2004; 1 female, same label but 04.04.2006 (ENV).

Genus *DINOTREMA* Foerster 1862

***Dinotrema achterbergi* sp. nov.**

Material captured. Holotype: 1 female, Spain, Castellon Province, Pobla de Benifassà, Natural Park of Tinença de Benifassà, 10.06.2004 (F.J. Peris–Felipo leg.) (ENV). Paratype: 1 female, same label as in holotype but 03.06.2004 (ENV).

Other material captured. 1 female, Spain, Alicante Province, Alcoi, Natural Park of Carrascal de La Font Roja, 17.10.2005; 1 female, same label but 27.11.2005 (ENV); 1 female, Spain, Castellon Province, Pobla de Benifassà, Natural Park of Tinença de Benifassà, 05.06.2006; 1 female, same label but 19.06.2006; 1 female, same label but 30.10.2006; 3 females, same label but 13.11.2006; 2 females, same label but 04.12.2006; 1 female, same label but 26.02.2007 (ENV); 1

female, Spain, Alicante Province, Torrevieja, Natural Park of Lagunas de La Mata–Torrevieja, 30.11.2004; 1 female, same label but 26.12.2006; 1 female, same label but 09.10.2007 (ENV).

Description. Female.

Head. In dorsal view, 1.70 times as wide as its median length, 1.45–1.50 times as wide as mesoscutum, smooth, with rounded temples behind eye. Eye in lateral view 1.50 times as high as wide and 1.15 times as wide as temple. POL 2.70 times OD; OOL 2.60 times OD. Face 1.25 times as wide as high; inner margins of eyes subparallel. Clypeus 3.10–3.15 times as wide as high, slightly curved ventrally. Paraclypeal fovea elongated, reaching the middle distance between clypeus and eye. Mandible widened towards apex, 1.20–1.25 times as long as its maximum width. Upper tooth large, but shorter than middle tooth. Middle tooth the longest, wide basally and narrowed towards apex, rounded apically. Lower tooth short and wide, weakly longer than upper tooth, rounded apically. Antennae thick, 18–segmented. Scape 1.70–1.80 times as long as pedicel. First flagellar segment 2.50–2.60 times as long as its apical width, 1.35–1.40 times as long as second segment; second segment 2.05–2.10 times as long as its maximum width. Middle flagellar segments about 1.50 times as long as their width.

Mesosoma. In lateral view, 1.05 times as long as high. Mesoscutum 1.10–1.20 times as long as wide, with numerous setae in its middle part. Notauli mainly absent. Mesoscutal pit present and elongated. Prescutellar depression weakly and sparsely sculptured, with fine median carina. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow slightly crenulate below. Propodeum smooth, with median longitudinal carina crossing from anterior to posterior margins, with usually short carinae emerging from longitudinal carina far not reaching propodeal margins. Propodeal spiracles relatively small.

Legs. Hind femur 4.25 times as long as its maximum width. Hind tibia weakly widened to apex, about 10.00 times as long as its maximum subapical width, 1.20–1.25 times as long as hind tarsus. First segment of hind tarsus 2.10 times as long as second segment.
Wings. Length of fore wing 2.50 times its maximum width. Vein r1 present. Radial cell reaching to apex of wing, 3.60–3.70 times as long as its maximum width. Nervulus weakly postfurcal. Brachial cell closed, short, distinctly widened apically, 2.05–2.10 times as long as its maximum width. Hind wing 8.30 times as long as its maximum width.
Metasoma. Distinctly compressed. First metasomal tergite weakly widened towards apex, 2.60 times as long as its apical width, entirely almost smooth. Ovipositor 1.30 times as long as first metasomal tergite, distinctly shorter than metasoma, 0.65–0.70 times as long as hind femur.
Colour. Body and legs brown to dark brown. Wings hyaline. Pterostigma brown.
Length. Body 1.95–2.00 mm; fore wing 1.80–1.85 mm.
Male. Unknown.
Diagnosis. This species resembles *D. propodeale* (Tobias) but differs in having the mandible 1.20 times as long as wide (1.70 times in *D. propodeale*), first flagellar segment 2.50–2.60 times as long as wide (3.20 times in *D. propodeale*) and first metasomal tergite 2.60 times as long as its apical width (2.00 times in *D. propodeale*).

***Dinotrema amparoae* sp. nov.**

Material captured. Holotype: 1 female, Spain, Alicante Province, Torrevieja, Natural Park of Lagunas de La Mata–Torrevieja, 08.02.2005 (F.J. Peris–Felipo leg.) (ENV). Paratypes: 1 female, same label as in holotype, but 04.03.2005 (ENV); 1 female, same label as in

holotype but 05.04.2005 (ENV); 1 female, same label as in holotype but 28.03.2006 (ZISP); 1 male, same label as in holotype but 30.11.2004 (ENV).

Description. Female.

Head. In dorsal view, 1.70 times as wide as its median length, 1.45 times as wide as mesoscutum, smooth, with rounded temples behind eye. Eye in lateral view 1.60 times as high as wide and 0.80–0.85 times as wide as temple. POL 3.20 times OD; OOL 3.50 times OD. Face 1.60 times as wide as high; inner margins of eyes subparallel. Clypeus 3.00 times as wide as high, slightly curved ventrally. Paraclypeal fovea elongated, reaching the middle distance between clypeus and eye. Mandible widened towards apex, 1.20 times as long as its maximum width. Upper tooth the longest, wider than lower tooth. Middle tooth wide basally and narrowed towards apex, rounded apically. Lower tooth short, rounded apically. Antennae thick, 17–18–segmented. Scape 2.00 times as long as pedicel. First flagellar segment 3.10 times as long as its apical width, 1.10 times as long as second segment; second segment 1.95–2.00 times as long as its maximum width. Third to ninth flagellar segments about 1.85–1.95 times as long as their width, tenth to fifteenth flagellar segments 1.40–1.50 times as long as their width, sixteenth flagellar segment 1.85–1.90 times as long as its width.

Mesosoma. In lateral view, as long as high. Mesoscutum 1.20 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present and rounded. Prescutellar depression smooth, without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum sculptured, with median longitudinal carina crossing from anterior to posterior margins, with emerging lateral carinae reaching propodeal edges. Propodeal spiracles small.

Legs. Hind femur 3.60 times as long as its maximum width. Hind tibia weakly widened to apex, about 10.20–10.30 times as long as its maximum subapical width, 0.90–0.95 times as long as hind tarsus. First segment of hind tarsus 2.00 times as long as second segment.
Wings. Length of fore wing 2.60–2.70 times its maximum width. Vein r1 present. Radial cell reaching to apex of wing, 4.00 times as long as its maximum width. Nervulus weakly postfurcal. Brachial cell closed, short, widened apically, 2.50 times as long as its maximum width. Hind wing 5.30–5.40 times as long as its maximum width.
Metasoma. Distinctly compressed. First metasomal tergite weakly widened towards apex, 1.55–1.60 times as long as its apical width, apical half very finely striated. Ovipositor 2.00 times as long as first metasomal tergite, distinctly shorter than metasoma, 1.15–1.20 times as long as hind femur.
Colour. Body and legs brown to dark brown. Wings hyaline. Pterostigma brown.
Length. Body 2.40–2.50 mm; fore wing 2.20–2.25 mm.
Male. Body 1.80–1.90 mm; fore wing 2.00–2.10 mm. Antenna more than 17–segmented (broken apical segments). First flagellar segment 3.50 times as long as wide, second flagellar segment 3.00 times as long as wide. Third to fifteenth flagellar segment 2.60–2.70 times as long as their width.
Diagnosis. This new species resembles *D. flagelliforme* (Fischer), *D. paludellae* (Munk et Peris-Felipo) and *D. haeselbarthi* (Munk et Peris-Felipo). New species differs from *D. flagelliforme* in having the first flagellar segment 3.10 times as long as wide (2.00 times in *D. flagelliforme*), first metasomal tergite 1.55–1.60 times as long as its apical width (2.50 times in *D. flagelliforme*), and mesoscutal pit oval (elongate in *D. flagelliforme*). On the other hand, *D. amparoae* sp. nov. differs from *D. paludellae* in having the mandible 1.20 times as long as wide (1.90 times in *D. paludellae*), first flagellar segment 3.10

times as long as wide (2.30–2.40 times in *D. paludellae*), middle flagellar segments 1.40–1.95 times as long as their width (1.10 times in *D. paludellae*), and first metasomal tergite 1.55–1.60 times as long as its apical width (2.25–2.30 times in *D. paludellae*). Finally, new species differs from *D. haeselbarthi* in having the mandible widened towards apex and 1.20 times as long as wide (weakly widened towards apex and 1.50 times as long as wide in *D. haeselbarthi*), hind femur 3.60 times as long as its maximum width (4.00 times in *D. haeselbarthi*), first metasomal tergite 1.55–1.60 times as long as its apical width and finely striated in apical half (2.00 times and distinctly striate in apical half in *D. haeselbarthi*), and sternaulus not reaching anterior margin of mesopleuron (reaching anterior margin of mesopleuron in *D. haeselbarthi*).

***Dinotrema belokobylskiji* sp. nov.**

Material captured. Holotype: 1 female, Spain, Castellon Province, Pobla de Benifassà, Natural Park of Tinença de Benifassà, 21.10.2006 (F.J. Peris–Felipo leg.) (ENV). Paratype: 1 female, same label as holotype but 30.10.2006 (ENV).

Description. Female.

Head. In dorsal view, 1.55–1.60 times as wide as its median length, 1.50 times as wide as mesoscutum, smooth, with rounded temples behind eye. Eye in lateral view 1.50 times as high as wide and nearly as wide as temple. POL 2.60 times OD; OOL 2.75 times OD. Face 1.40 times as wide as high; inner margins of eyes subparallel. Clypeus 2.35 times as wide as high, slightly curved ventrally. Paraclypeal fovea rounded, not reaching middle distance between clypeus and eye. Mandible widened towards apex, 1.20 times as long as its maximum width. Upper tooth wide, almost as long as middle tooth. Middle tooth the longest, wide basally and pointed apically. Lower tooth short,

longer and wider than upper tooth, rounded. Antennae thick, 16–segmented. Scape 1.95–2.00 times as long as pedicel. First flagellar segment 2.75 times as long as its apical width, 1.20–1.25 times as long as second segment; second segment 1.90 times as long as its maximum width. Third to thirteenth flagellar segments 1.20–1.30 times and fourteenth segment 2.90–3.00 times as long as wide.

Mesosoma. In lateral view, 1.05 times as long as high. Mesoscutum 1.05–1.10 times as long as wide, with two rows of double setae in middle part. Notauli mainly absent. Mesoscutal pit present and rounded. Prescutellar depression smooth, without lateral carina. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow slightly crenulate below. Propodeum with median longitudinal carina crossing from anterior to posterior margins, with small carinae emerging from median carina not reaching the propodeal edges. Propodeal spiracles relatively small.

Legs. Hind femur 4.30 times as long as its maximum width. Hind tibia weakly widened to apex, 8.50 times as long as its maximum subapical width, 1.10 times as long as hind tarsus. First segment of hind tarsus 1.45–1.50 times as long as second segment.

Wings. Length of fore wing 3.40–3.50 times its maximum width. Vein r1 present. Radial cell reaching to apex of wing, 4.45–4.50 times as long as its maximum width. Nervulus distinctly postfurcal. Brachial cell closed, widened apically, 3.15–3.20 times as long as its maximum width. Hind wing 4.65–4.70 times as long as its maximum width.

Metasoma. Distinctly compressed. First metasomal tergite weakly widened towards apex, 1.80 times as long as its apical width, with two main carinae and striation in apical half. Ovipositor 1.40 times as long as first metasomal tergite, shorter than metasoma, 1.05 times as long as hind femur.

Colour. Body dark brown. Mandible, first metasomal tergite and legs brown. Wings hyaline. Pterostigma brown.
Length. Body 1.60 mm; fore wing 1.85–1.90 mm.
Male. Unknown.
Diagnosis. This species resembles *D. caesum* Tobias, *D. propodeale* (Tobias) and *D. sessile* van Achterberg. *Dinotrema belokobylskiji* differs from *D. caesum* in having the middle flagellar segments 1.20–1.30 times as long as wide (1.80–2.00 times in *D. caesum*), mesosoma 1.05 times as long as high (1.30 times in *D. caesum*), first metasomal tergite 1.80 times as long as its apical width (1.50 times in *D. caesum*) and ovipositor shorter than metasoma (longer in *D. caesum*). On the other hand, *D. belokobylskiji* differs from *D. propodeale* in having the mandible 1.20 times as long as wide (1.70 times in *D. propodeale*), upper tooth shorter than lower tooth (in *D. propodeale* as long as lower tooth), first flagellar segment 2.75 times as long as wide (3.20 times in *D. propodeale*), middle flagellar segments 1.20–1.30 times as long as wide (1.70 times in *D. propodeale*) and mesosoma 1.05 times as long as high (1.20 times in *D. propodeale*). Finally, *D. belokobylskiji* differs from *D. sessile* in having the first flagellar segment 2.75 times as long as wide (3.40 times in *D. sessile*), middle flagellar segments 1.20–1.30 times as long as wide (2.00 times in *D. sessile*), mesosoma 1.05 times as long as high (1.20 times in *D. sessile*) and ovipositor shorter than metasoma (longer in *D. sessile*).

***Dinotrema benifassaense* sp. nov.**

Material captured. Holotype: 1 female, Spain, Castellon Province, Pobla de Benifassà, Natural Park of Tinença de Benifassà, 11.06.2007 (F.J. Peris–Felipo leg.) (ENV). Paratype: 1 female, same label as in holotype but 14.05.2007 (ENV).

Description. Female.

Head. In dorsal view, 1.55 times as wide as its median length, 1.40–1.45 times as wide as mesoscutum, smooth, with rounded temples behind eye. Eye in lateral view 1.65–1.70 times as high as wide and 0.85–0.90 times as wide as temple. POL 2.75 times OD; OOL 2.50 times OD. Face 1.35 times as wide as high; inner margins of eyes subparallel. Clypeus 3.00 times as wide as high, slightly curved ventrally. Paraclypeal fovea elongated, reaching the middle distance between clypeus and eye. Mandible widened towards apex, 0.85–0.90 times as long as its maximum width. Upper tooth large, wider than lower tooth. Middle tooth the longest, wide basally and narrowed towards apex, rounded apically. Lower tooth short, rounded apically. Antennae thick, 17–segmented. Scape 1.80–1.85 times as long as pedicel. First flagellar segment 1.95–2.00 times as long as its apical width, 1.25 times as long as second segment; second segment 1.20 times as long as its maximum width. Third to fourteenth flagellar segments about 1.00 times as long as their width, fifteenth flagellar segment 2.00 times as long as its width.

Mesosoma. In lateral view, 1.10 times as long as high. Mesoscutum as long as wide. Notauli mainly absent. Mesoscutal pit present and oval. Prescutellar depression smooth, with lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow crenulate below. Propodeum sculptured, with short median longitudinal carina, with emerging lateral carinae reaching propodeal edges. Propodeal spiracles small.

Legs. Hind femur 3.40 times as long as its maximum width. Hind tibia weakly widened to apex, about 8.60 times as long as its maximum subapical width, 0.90 times as long as hind tarsus. First segment of hind tarsus 1.95–2.00 times as long as second segment.

Wings. Length of fore wing 2.40–2.45 times its maximum width. Vein r1 present. Radial cell reaching to apex of wing, 3.85–3.90 times as long as its maximum width. Nervulus weakly postfurcal. Brachial cell closed, short, widened apically, 2.75 times as long as its maximum width. Hind wing 8.20 times as long as its maximum width.

Metasoma. Distinctly compressed. First metasomal tergite weakly widened towards apex, 1.75 times as long as its apical width, entirely almost smooth. Ovipositor 1.50–1.55 times as long as first metasomal tergite, distinctly shorter than metasoma, 1.05–1.10 times as long as hind femur.

Colour. Body and legs brown to dark brown. Wings hyaline. Pterostigma brown.

Length. Body 2.10–2.15 mm; fore wing 1.95–2.00 mm.

Male. Unknown.

Diagnosis. This species resembles *D. agaricophagum* Munk et Peris–Felipo and *D. concinnum* (Haliday). *Dinotrema benifassaense* differs from *D. agaricophagum* in having the first flagellar segment 1.95–2.00 times as long as wide (2.50 times in *D. agaricophagum*), middle flagellar segments as long as their width (1.75–1.85 times in *D. agaricophagum*), hind femur 3.40 times as long as its maximum width (4.50 times in *D. agaricophagum*), and first metasomal tergite 1.75 times as long as its apical width and smooth on wide median area in apical half (2.15 times and striated on median apical half in *D. agaricophagum*). On the other hand, *D. benifassaense* differs from *D. concinnum* in having the first metasomal tergite almost smooth in apical half and 1.75 times as long as its apical width (striate in apical half and 1.95–2.00 times in *D. concinnum*) and middle flagellar segments 1.00 times as long as their width (1.30–1.40 times in *D. concinnum*).

***Dinotrema broadi* sp. nov.**

Material captured. Holotype: 1 female, Spain, Castellon Province, Pobla de Benifassà, Natural Park of Tinença de Benifassà, 30.10.2006 (F.J. Peris–Felipo leg.) (ENV). Paratypes: 1 female, same label as in holotype, but 03.07.2006 (ENV); 1 female, same label as in holotype, but 06.11.2006 (ZISP); 1 female, same label as in holotype, but 26.02.2007 (ENV); 1 male, same label as in holotype, but 01.05.2006 (ZISP); 1 male, same label as in holotype, but 29.05.2006 (ENV).
Other material captured. 3 females, Spain, Castellon Province, Pobla de Benifassà, Natural Park of Tinença de Benifassà, 30.10.2006; 1 male, same label, but 08.01.2007; 2 males, same label, but 26.02.2007 (ENV).
Description. Female.
Head. In dorsal view, 1.70 times as wide as its median length, 1.40–1.50 times as wide as mesoscutum, smooth, with rounded temples behind eyes. Eye in lateral view 1.35–1.40 times as high as wide and 1.05–1.10 times as wide as temple. POL about 3.00 times OD; OOL 3.10 times OD. Face 1.60 times as wide as high; inner margins of eyes subparallel. Clypeus 2.50 times as wide as high, slightly curved ventrally. Paraclypeal fovea loarger than middle distance between clypeus and eye but far separated from eye. Mandible weakly widened towards apex, 1.30 times as long as its maximum width. Upper tooth rather small, distinctly shorter than middle tooth. Middle tooth the longest, wide basally and narrowed apically. Lower tooth very short. Antennae thick, 17–segmented, shorter than body. Scape 3.25 times as long as pedicel. First flagellar segment 3.20–3.25 times as long as its apical width, 1.30–1.35 times as long as second segment; second segment 1.65–1.70 times as long as its maximum width. Third to twelfth flagellar segments about 2.00 times, thirteenth segment 1.80

times, fourteenth segment 2.25 times and fifteenth segment 2.80–2.90 times as long as their maximum width.

Mesosoma. In lateral view, 1.20–1.30 times as long as high. Mesoscutum about as long as wide, with two rows of setae in middle part. Notauli mainly absent. Mesoscutal pit present and elongated. Prescutellar depression almost smooth, with median carina. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum mainly smooth, with median longitudinal carina crossing from its anterior to posterior margins, with only single short carina emerging from median carina and not reaching propodeal edges. Propodeal spiracles relatively small.

Legs. Hind femur 4.25 times as long as its maximum width. Hind tibia weakly widened to apex, 8.90–9.00 times as long as its maximum subapical width, 1.15–1.20 times as long as hind tarsus. First segment of hind tarsus 1.50–1.55 times as long as second segment.

Wings. Length of fore wing 2.40–2.50 times its maximum width. Vein r1 present but hyaline. Radial cell reaching to apex of wing, 4.75 times as long as its maximum width. Nervulus distinctly postfurcal. Brachial cell closed, short, widened apically, 2.50–2.60 times as long as its maximum width. Hind wing 9.50–10.00 times as long as its maximum width.

Metasoma. Distinctly compressed. First metasomal tergite weakly widened towards apex, 2.25 times as long as its apical width, very finely striate or almost smooth in apical half. Ovipositor 1.90–2.00 times as long as first metasomal tergite, shorter than metasoma, 1.25–1.30 times as long as hind femur.

Colour. Body and legs brown to dark brown. Wings hyaline. Pterostigma brown.

Length. Body 1.60–1.70 mm; fore wing 1.80–1.90 mm.

Male. Body length 1.80–1.85 mm; fore wing 2.00 mm. Mandible 1.20–1.30 times as long as wide. Antenna 18–21–segmented. First flagellar segment 3.0 times as long as its maximum width. Hind femur 4.20–4.30 times as long as wide. Vein r1 present but not colored as others veins. Otherwise similar to female.

Diagnosis. This species resembles *D. paucicrene* (Fischer) but differs in having the first flagellar segment 3.20 times as long as wide (4.00 times in *D. paucicrene*), first metasomal tergite 2.25 times as long as its apical width (2.00 times in *D. paucicrene*), with distinctly two dorsal carinae (these carinae absent in *D. paucicrene*) and upper tooth wider than lower tooth (lower tooth wider than upper tooth in *D. paucicrene*).

Dinotrema castaneithorax (FISCHER)

Aspilota castaneithorax Fischer 1973d: 107.
Dinotrema castaneithorax: Papp 2003a: 125.
Dinotrema castaneithorax: Yu *et al.* 2005; 2011.

Material captured. 1 female, Spain, Castellon Province, Pobla de Benifassà, Natural Park of Tinença de Benifassà, 01.05.2006; 2 females, same label but 08.05.2006; 1 female, same label but 22.05.2006; 1 female, same label but 29.05.2006; 2 females, same label but 12.06.2006; 1 female, same label but 01.08.2006; 1 female, same label but 12.02.2007; 1 female, same label but 30.04.2007; 2 females, same label but 07.05.2007; 1 female, same label but 28.05.2007; 1 female, same label but 04.06.2007; 4 females, same label but 12.06.2007; 1 female, same label but 25.06.2006; 1 female, same label but 13.08.2007; 2 females, same label but 10.09.2007; 1 female, same label but 17.09.2007 (ENV).

Distribution. Austria, Hungary, Korea, Romania **(new record)** and Spain.

Main characters of the species. Body length: 2.10 mm. Head in dorsal view 1.80 times as wide as its median length and 1.65 times as wide as mesoscutum. Eye in lateral view as wide as temple. Face 1.40 times as wide as high. Mandible 1.50 times as long as wide. Upper tooth wider than lower tooth. Antennae 21–segmented. First flagellar segment 2.00 times as long as its apical width. Middle flagellar segments 1.50–1.70 times as long as their width. Mesosoma in lateral view 1.40 times as long as high. Mesoscutum 1.10 times as long as wide. Notauli mainly absent. Mesoscutal pit present, elongated. Prescutellar depression smooth, with lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum smooth, with median longitudinal carina crossing from anterior to posterior margins, with parallel longitudinal carinae arriving to posterior margin. Propodeal spiracles relatively small. Hind femur 4.00 times as long as its maximum width. First metasomal tergite 1.90 times as long as its apical width, finely striated. Ovipositor 1.35 times as long as first metasomal tergite, shorter than metasoma, 0.90–0.95 times as long as hind femur. Main colour brown.

Dinotrema costulatum (THOMSON)

Alysia (*Aspilota*) *costulata* Thomson 1895: 2306.
Aspilota costulata: Fischer 1972: 356.
Aspilota naeviformis: Fischer 1973d: 113. **syn. nov.**
Aspilota costulata: Yu *et al.* 2005.
Aspilota naeviformis: Yu *et al.* 2005; 2011.
Dinotrema costulata: Yu *et al.* 2011.

Material captured. 1 female, Spain, Castellon Province, Pobla de Benifassà, Natural Park of Tinença de Benifassà, 29.07.2004; 1 female, same label but 28.10.2004; 1 female, same label but

04.11.2004; 1 female, same label but 18.11.2004; 2 females, same label but 27.06.2005; 1 female, same label but 11.07.2005; 2 females, same label but 17.04.2006; 1 female, same label but 24.04.2006; 3 females, same label but 01.05.2006; 1 female, same label but 08.05.2006; 1 female, same label but 22.05.2006; 2 females, same label but 29.05.2006; 1 female, same label but 05.06.2006; 3 females, same label but 12.06.2006; 1 female, same label but 26.06.2006; 1 female, same label but 25.09.2006; 1 female, same label but 02.10.2006; 2 females, same label but 23.10.2006; 3 females, same label but 30.10.2006; 1 female, same label but 01.01.2007; 1 female, same label but 22.01.2007; 1 female, same label but 19.02.2007; 1 female, same label but 05.03.2007; 1 female, same label but 12.03.2007; 1 female, same label but 26.03.2007; 1 female, same label but 02.04.2007; 7 females, same label but 23.04.2007; 2 females, same label but 30.04.2007; 2 females, same label but 14.05.2007; 2 females, same label but 04.06.2007; 1 female, same label but 11.06.2007; female, same label but 18.06.2007; 1 female, same label but 24.09.2007; 2 females, same label but 08.10.2007; 1 male, same label but 08.10.2007; 1 female, same label but 15.10.2007; 2 females, same label but 22.10.2007; 3 females, same label but 19.11.2007; 1 female, same label but 26.11.2007 (ENV).

Distribution. Former Czechoslovakia, Denmark, Georgia **(new record)**, Germany **(new record)**, Hungary, Italy, Macedonia, Netherlands **(new record)**, Romania **(new record)**, Slovakia **(new record)**, Spain **(new record)**, Sweden and former Yugoslavia.

Main characters of the species. Body length: 2.80 mm. Head in dorsal view 1.90 times as wide as its median length and 1.35 times as wide as mesoscutum. Face 1.70 times as wide as high. Mandible 1.30 times as long as wide. Antennae 20–22–segmented. First flagellar segment 4.50 times as long as its apical width. Middle flagellar segments 1.80 times as long as their width. Mesosoma in lateral view

1.30 times as long as high. Mesoscutum 1.10 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, elongated. Prescutellar depression almost smooth, without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow crenulated below. Propodeum with median longitudinal carina, with emerging carinae in third apical part reaching propodeal edges, with parallel median longitudinal carinae. Propodeal spiracles small. Hind femur 4.00 times as long as its maximum width. First metasomal tergite 1.90 times as long as its apical width. Ovipositor shorter than first metasomal tergite. Main colour brown.

Dinotrema crassicostum (THOMSON)

Alysia (*Aspilota*) *crassicosta* Thomson 1895: 2305.
Aspilota crassicosta: Fischer 1972: 358.
Dinotrema crassicosta: Papp 2003a: 125.
Aspilota crassicosta: Yu *et al.* 2005.
Dinotrema crassicosta: Yu *et al.* 2011.
Dinotrema crassicosta: Broad *et al.* 2012: 10.

Material captured. 2 females, Spain, Castellon Province, Pobla de Benifassà, Natural Park of Tinença de Benifassà, 10.06.2004; 1 female, same label but 17.06.2004; 1 female, same label but 05.08.2004; 1 female, same label but 16.09.2004; 1 female, same label but 14.10.2004; 1 female, same label but 28.10.2004; 1 female, same label but 13.06.2005; 1 female, same label but 26.09.2005; 1 female, same label but 24.04.2006; 1 female, same label but 01.05.2006; 1 male, same label but 15.05.2006; 2 females, same label but 22.05.2006; 1 male, same label but 22.05.2006; 1 male, same label but 29.05.2006; female, same label but 12.06.2006; 1 female, same label but 26.06.2006; 1 female, same label but 03.07.2006; 1 female, same

label but 06.09.2006; 1 female, same label but 25.09.2006; 2 males, same label but 25.09.2006; 1 female, same label but 02.10.2006; 1 male, same label but 19.03.2007; 1 female, same label but 30.04.2007; 1 female, same label but 14.05.2007; 2 females, 11.06.2007; 1 male, same label 11.06.2007; 1 male, same label but 17.09.2007; 1 female, same label but 08.10.2007 (ENV).

Distribution. Austria, Denmark, Hungary, Korea, Romania **(new record)**, Russia and Spain **(new record)**.

Main characters of the species. Body length: 3.70 mm. Head in dorsal view 1.80 times as wide as its median length and 1.35 times as wide as mesoscutum. Face 1.70 times as wide as high. Mandible 1.50 times as long as wide. Antennae 23–26–segmented. First flagellar segment 1.40 times as long as its apical width. Middle flagellar segments as long as their width. Mesosoma in lateral view 1.30 times as long as high. Mesoscutum 1.05 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, elongated. Prescutellar depression almost sculptured, with lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow crenulated. Propodeum completely sculptured. Propodeal spiracles small. Hind femur 4.00 times as long as its maximum width. First metasomal tergite 1.50 times as long as its apical width. Ovipositor as long as first metasomal tergite. Main colour brown.

***Dinotrema enanum* sp. nov.**

Material captured. Holotype: 1 female, Spain, Castellon Province, Pobla de Benifassà, Natural Park of Tinença de Benifassà, 11.12.2006 (F.J. Peris–Felipo leg.) (ENV). Paratypes: 1 male, same label as in holotype, but 14.05.2007 (ENV); 1 male, Spain, Alicante Province,

Alcoi, Natural Park of Carrascal de la Font Roja, 13.04.2006 (F.J. Peris–Felipo leg.) (ENV).

Description. Female.

Head. In dorsal view, 1.60 times as wide as its median length, 1.40 times as wide as mesoscutum, smooth, with rounded temples behind eyes. Eye in lateral view 1.50 times as high as wide, 1.15–1.20 times as wide as temple. POL 3.20–3.25 times OD; OOL 2.80–2.85 times OD. Face 1.60 times as wide as high; inner margins of eyes subparallel. Clypeus 2.50 times as wide as high, slightly curved ventrally. Paraclypeal fovea small and oval, not reaching middle distance between clypeus and eye. Mandible distinctly widened towards apex, 1.15–1.20 times as long as wide. Upper tooth rather small, distinctly shorter than middle tooth. Middle tooth the longest, wide basally and pointed apically. Lower tooth rounded, almost as long as upper tooth. Antennae thick, 18–segmented, longer than body. Scape 2.20–2.25 times as long as pedicel. First flagellar segment 3.00 times as long as its apical width, 1.15–1.20 times as long as second segment; second segment 1.70–1.75 times as long as its maximum width. Third to thirteenth flagellar segments 1.85–2.00 times, fourteenth segment 1.55 times, fifteenth and sixteenth segments 2.15 times as long as their maximum width.

Mesosoma. In lateral view, 1.20 times as long as high. Mesoscutum 1.10 times as long as its maximum width with rows of setae in middle part. Notauli mainly absent. Mesoscutal pit present, oval. Prescutellar depression smooth, without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior part of mesopleura. Posterior mesopleural furrow crenulated. Propodeum mainly smooth, with median longitudinal carina crossing from anterior to posterior margins, with short transverse carinae emerging from median carina and not reaching propodeal edges. Propodeal spiracles relatively small.

Legs. Hind femur 3.85–4.00 times as long as its maximum width. Hind tibia weakly widened to apex, 9.80–9.90 times as long as its maximum subapical width, 1.15–1.20 times as long as hind tarsus. First segment of hind tarsus 1.50–1.55 times as long as second segment.

Wings. Length of fore wing 2.45–2.50 times its maximum width. Vein r1 present. Radial cell reaching to apex of wing, 5.00 times as long as its maximum width. Nervulus distinctly postfurcal. Brachial cell closed, short, distinctly widened apically, 2.60 times as long as its maximum width. Hind wing 6.5 times as long as its maximum width.

Metasoma. Distinctly compressed. First metasomal tergite weakly widened towards apex, 1.90 times as long as its apical width, almost entirely smooth, with two dorsal carinae. Ovipositor 2.15–2.20 times as long as first metasomal tergite, shorter than metasoma, 1.20 times as long as hind femur.

Colour. Body and legs brown to dark brown. Wings hyaline. Pterostigma brown. Vein r1 hyaline.

Length. Body 1.55–1.60 mm; fore wing 2.10–2.15 mm.

Male. Body length 1.45 mm; fore wing 2.15 mm. Mandible 1.15–1.20 times as long as wide. Antenna 22–segmented. First flagellar segment 3.00 times as long as its maximum width. Third to eighteenth flagellar segments about 2.60 times as long as its maximum width, nineteenth segment 3.50 times and twentieth segment 4.00 times as long as their maximum width. Hind femur 4.10 times as long as its maximum width. Otherwise similar to female.

Diagnosis. This species resembles *D. belokobylskiji* Peris–Felipo but differs in having the middle flagellar segments 2.25 times as long as wide (1.20 times in *D. belokobylskiji*), mesosoma 1.20 times as long as high (1.05 times in *D. belokobylskiji*), hind femur 3.85–4.00 times as long as its maximum width (4.30 times in *D. belokobylskiji*), first metasomal tergite almost smooth (striated in apical half in *D.*

belokobylskiji) and lower tooth wider than upper tooth (lower tooth as wide as upper tooth in *D. belokobylskiji*).

***Dinotrema fischerianum* sp. nov.**

Material captured. Holotype: female, Spain, Alicante Province, Alcoi, Natural Park of Carrascal de la Font Roja, 25.04.2007 (F.J. Peris–Felipo leg.) (ENV). Paratypes: female, same label as in holotype, but 13.05.2004 (ZISP); female, Spain, Castellon Province, Pobla de Benifassà, Natural Park of Tinença de Benifassà, 23.04.2007 (F.J. Peris–Felipo leg.) (ENV).

Description. Female.

Head. In dorsal view, 1.80 times as wide as its median length, 1.35–1.40 times as wide as mesoscutum, smooth, with rounded temples behind eyes. Eye in lateral view 1.40 times as high as wide and 1.05–1.10 times as wide as temple. POL about 3.60–3.70 times OD; OOL 3.50–3.55 times OD. Face 2.00 times as wide as high; inner margins of eyes subparallel. Clypeus 3.50 times as wide as high, slightly curved ventrally. Paraclypeal fovea rounded, not reaching the middle distance between clypeus and eye. Mandible widened towards apex, 1.55–1.60 times as long as its maximum width. Upper tooth small, distinctly shorter than middle tooth. Middle tooth the longest, wide basally and pointed apically. Lower tooth rounded, weakly longer than upper tooth. Antennae thick, 16–segmented, shorter than body. Scape 2.40–2.45 times as long as pedicel. First flagellar segment 2.70–2.80 times as long as its apical width, 1.35–1.40 times as long as second segment; second segment 1.60–1.65 times as long as its maximum width. Third flagellar segments 1.50 times. fourth to eleven segment 1.20–1.30 times, twelve and thirteenth segments 1.05–1.10 times, and fourteenth segment 1.75–1.80 times as long as their maximum width.

Mesosoma. In lateral view, 1.20 times as long as high. Mesoscutum as long as its maximum width with two rows of couple setae around notauli. Notauli mainly absent. Mesoscutal pit present, oval. Prescutellar depression smooth, with lateral carinae. Sternaulus (precoxal suture) present, distinct, reached anterior and posterior parts of mesopleuron. Posterior mesopleural furrow crenulate in lower half. Propodeum mainly smooth, with median longitudinal carina crossing from anterior to posterior its margins, with short carinae emerging from median carina and not reaching propodeal edges. Propodeal spiracles relatively small.

Legs. Hind femur 4.00 times as long as its maximum width. Hind tibia weakly widened to apex, 7.05–7.15 times as long as its maximum subapical width, 1.00–1.05 times as long as hind tarsus. First segment of hind tarsus 3.25–3.30 times as long as second segment.

Wings. Length of fore wing 2.50–2.60 times its maximum width. Vein r1 present. Radial cell reaching to apex of wing, 3.70 times as long as its maximum width. Nervulus distinctly postfurcal. Brachial cell closed, short, distinctly widened apically, 2.50–2.60 times as long as its maximum width. Hind wing 5.90–6.00 times as long as its maximum width.

Metasoma. Distinctly compressed. First metasomal tergite weakly widened towards apex, 1.70–1.75 times as long as its apical width, smooth medioposteriorly, finely rugulose basally and laterally. Ovipositor 1.80–1.90 times as long as first metasomal tergite, shorter than metasoma, almost as long as hind femur.

Colour. Body and legs brown to dark brown. Wings hyaline. Pterostigma brown.

Length. Body 1.90–2.00 mm; fore wing 2.15–2.20 mm.

Male. Unknown.

Diagnosis. This species resembles *D. jimenezi* sp. nov. and *D. vituperatum* (Fischer). *Dinotrema fischerianum* differs from *D.*

jimenezi in having the mandible 1.70 times as long as wide (1.25 times in *D. jimenezi*), middle flagellar segments 1.20–1.30 times as long as wide (1.80 times in *D. jimenezi*), hind femur 4.00 times as long as its maximum width (3.60 times in *D. jimenezi*), sternaulus (precoxal suture) reaching anterior and posterior part of mesopleuron (not reaching anterior and posterior part in *D. jimenezi*) and lower tooth longer and wider than upper tooth (upper tooth wider than lower tooth in *D. jimenezi*). On the other hand, *D. fischerianum* differs from *D. vituperatum* in having the mandible 1.70 times as long as wide (1.10 times in *D. vituperatum*), first flagellar segment 2.70–2.80 times as long as wide (3.60 times in *D. vituperatum*), middle flagellar segments 1.20–1.30 times as long as wide (2.50 times in *D. vituperatum*), first metasomal tergite 1.70 times as long as its apical width (2.00 times in *D. vituperatum*) and lower tooth longer and wider than upper tooth (upper tooth wider than lower tooth in *D. vituperatum*).

***Dinotrema jimenezi* sp. nov.**

Material captured. Holotype: 1 female, Spain, Castellon Province, Pobla de Benifassà, Natural Park of Tinença de Benifassà, 25.09.2006 (F.J. Peris–Felipo leg.) (ENV). Paratype: 1 female, same label as in holotype, but 30.10.2006 (ENV).

Description. Female.

Head. In dorsal view, 1.80 times as wide as its median lenght, 1.35–1.40 times as wide as mesoscutum, smooth, with temples rounded behind eyes. Eye in lateral view 1.40–1.45 times as high as wide and 1.35 times as wide as temple. POL about 3.00 times OD; OOL about 3.00 times OD. Face 1.55 times as wide as high and covered completely by numerous setae; inner margins of eyes subparallel. Clypeus 2.10 times as wide as high, slightly curved ventrally. Paraclypeal fovea reaching middle of distance between clypeus and

eye. Mandible weakly widened towards apex, 1.20–1.25 times as long as its maximum width. Upper tooth medium sized, wide, shorter than middle tooth. Middle tooth rather small, weakly longer than upper tooth, wide basally and pointed apically. Lower tooth short, wide, as long as upper tooth, rounded. Antennae thick, 20–segmented, longer than body. Scape 1.90–1.95 times as long as pedicel. First flagellar segment 2.60 times as long as its apical width, 1.15–1.20 times as long as second segment; second segment 1.60–1.65 times as long as its maximum width. Third to twelfth flagellar segments about 1.80 times, thirteenth to seventeenth segments about 1.50, and eighteenth segment 2.00 times as long as their width.

Mesosoma. In lateral view, 1.25–1.30 times as long as high. Mesoscutum (dorsal view) nearly as long as its maximum width, with two rows of setae located on middle part of mesoscutum. Notauli mainly absent. Mesoscutal pit present and oval. Prescutellar depression smooth, with lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow finely crenulate in lower half. Propodeum mainly smooth, with complete longitudinal carina crossing from anterior to posterior margins, with subtransverse carinae in basal one–third emerging from longitudinal carina but far not reaching propodeum lateral edge. Propodeal spiracles small.

Legs. Hind femur 3.60–3.70 times as long as its maximum width. Hind tibia weakly widened to apex, 7.00–7.10 times as long as its maximum subapical width, 1.05–1.10 times as long as hind tarsus. First segment of hind tarsus about twice as long as second segment.

Wings. Length of fore wing 2.50–2.55 times its maximum width. Vein r1 present and sclerotised. Radial cell reaching apex of wing, 3.90–3.95 times as long as its maximum width. Nervulus distinctly postfurcal. Brachial cell closed distally, 3.80 times as long as its maximum width. Hind wing 7.80 times as long as its maximum width.

Metasoma. Distinctly compressed. First metasomal tergite weakly widened towards apex, 1.80 times as long as its apical width, almost entirely smooth, but finely or very finely and sparsely striate in apical half, with two distinct dorsal carinae. Ovipositor 1.70–1.75 times as long as first metasomal tergite, shorter than metasoma, nearly as long as hind femur.

Colour. Body and legs brown to dark brown. Wings hyaline. Pterostigma brown.

Length. Body 2.10–2.20 mm; fore wing 2.55–2.60 mm.

Male. Unknown.

Diagnosis. This species resembles *D. caesum* Tobias, *D. sauricum* Tobias, *D. stigmaticum* (Tobias) and *D. vituperatum* (Fischer). *Dinotrema jimenezi* differs from *D. caesum* in having the first flagellar segment 2.60 times as long as wide (5.00 times in *D. caesum*), hind femur 3.60 times as long as its maximum width (4.00 times in *D. caesum*) and first metasomal tergite 1.80 times as long as its apical width (1.50 times in *D. caesum*). On the other hand, *D. jimenezi* differs from *D. sauricum* in having the first flagellar segment 2.60 times as long as wide (3.00 times in *D. sauricum*), mandible 1.20–1.25 times longer than wide (1.50 times in *D. sauricum*), first metasomal tergite 1.80 times longer than apical width (1.50 times in *D. sauricum*) and ovipositor distinctly shorter than metasoma (longer than metasoma in *D. sauricum*). Furthermore, *D. jimenezi* differs from *D. stigmaticum* in having the mandible 1.20–1.25 times longer than wide (1.50 times in *D. stigmaticum*) and propodeum with numerous subtransverse carinae in basal one–third of the complete median longitudinal carina (without subtransverse carinae in basal one–third of the complete median longitudinal carina in *D. stigmaticum*). Finally, *D. jimenezi* differs from *D. vituperatum* in having the first flagellar segment 2.60 times as long as wide (3.60 times in *D. vituperatum*), middle flagellar segments 1.80 times as long as wide

(2.50 times in *D. vituperatum*), hind femur 3.60 times as long as its maximum width (4.00 times in *D. vituperatum*) and first metasomal tergite 1.80 times as long as its apical width (2.00 times in *D. vituperatum*).

***Dinotrema lagunasense* sp. nov.**

Material captured. Holotype: 1 female, Spain, Alicante Province, Torrevieja, Natural Park of Lagunas de La Mata–Torrevieja, 23.03.2005 (F.J. Peris–Felipo leg.) (ENV). Paratypes. 1 male, same label as in holotype, but 16.11.2004 (ENV); 3 females, 3 males, same label as in holotype, but 30.11.2004 (ENV); 3 females, same label, but 18.01.2005 (ENV); 1 male, same label as in holotype, but 26.01.2005 (ENV); 1 male, same label as in holotype, but 15.02.2005 (ENV); 1 female, same label as in holotype, but 04.03.2005 (ENV); 1 male, same label as in holotype, but 18.03.2005 (ENV); 4 males, same label as in holotype, but 23.03.2005 (ENV); 7 females, 3 males, same label as in holotype, but 29.03.2005 (ENV); 1 female, 1 male, same label as in holotype, but 05.04.2005 (ENV); 1 female, 1 male, same label as in holotype, but 26.04.2005 (ENV); 1 male, same label as in holotype, but 01.11.2005 (ENV); 1 male, same label as in holotype, but 15.11.2005 (ENV); 4 females, same label as in holotype, but 02.12.2005 (ENV); 1 female, same label as in holotype, but 12.12.2005 (ENV); 2 females, same label as in holotype, but 27.12.2005 (ENV); 1 male, same label as in holotype, but 31.01.2006 (ENV); 1 female, 1 male, same label as in holotype, but 07.02.2006 (ENV); 1 male, same label as in holotype, but 14.03.2006 (ENV); 3 males, same label as in holotype, but 28.03.2006 (ENV); 2 males, same label as in holotype, but 23.05.2006 (ENV); 4 females, 2 males, same label as in holotype, but 28.11.2006 (ENV); 5 females, same label as in holotype, but 05.12.2006 (ENV); 2 males, same label as in

holotype, but 05.12.2006 (ENV); 1 male, same label as in holotype, but 20.03.2007 (ENV); 1 male, same label as in holotype, but 15.05.2007 (ENV); 1 male, same label as in holotype, but 30.10.2007 (ENV); 1 female, 1 male, same label as in holotype, but 06.11.2007 (ENV); 1 female, same label as in holotype, but 02.02.2005 (ZISP); 1 female, same label as in holotype, but 23.03.2005 (ZISP); 1 female, 2 males, same label as in holotype, but 29.03.2005 (ZISP); 1 male, same label as in holotype, but 05.04.2005 (NHMW); 1 female, same label as in holotype, but 01.11.2005 (NHMW); 1 female, same label as in holotype, but 15.11.2005 (BMNH); 1 male, same label as in holotype, but 29.11.2005 (BMNH); 1 male, same label as in holotype, but 04.04.2006 (HNHM); 1 female, same label as holotype, but 05.12.2006 (HNHM).

Description. Female.

Head. In dorsal view, 1.95–2.00 times as wide as its median length, 1.30 times as wide as mesoscutum, smooth, with rounded temples behind eye. Eye in lateral view 1.45 times as high as wide and 1.25–1.30 times as wide as temple. POL 3.50–3.55 times OD; OOL 3.45–3.50 times OD. Face 1.75 times as wide as high; inner margins of eyes subparallel. Clypeus 3.00 times as wide as high, slightly curved ventrally. Paraclypeal fovea elongated, reaching the middle distance between clypeus and eye. Mandible widened towards apex, as long as its maximum width. Upper tooth large. Middle tooth the longest, wide basally and narrowed towards apex, rounded apically. Lower tooth short and wide, wider than upper tooth, rounded apically. Antennae thick, 13–16–segmented. Scape 1.55–1.60 times as long as pedicel. First flagellar segment 3.00 times as long as its apical width, 1.20 times as long as second segment; second segment 2.50 times as long as its maximum width. Third to sixth flagellar segments about 1.60 times as long as their width, seventh to fifteenth flagellar segments

1.75 times as long as their width, sixteenth flagellar segment 2.50 times as long as its width.

Mesosoma. In lateral view, 1.25 times as long as high. Mesoscutum as long as its maximum width. Notauli mainly absent. Mesoscutal pit present and rounded. Prescutellar depression smooth, without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth below. Propodeum sculptured, with pentagonal areola crossed by median longitudinal carina, areola margins sculptured with emerging carinae reaching propodeal margins. Propodeal spiracles relatively small.

Legs. Hind femur 3.90–4.00 times as long as its maximum width. Hind tibia weakly widened to apex, about 7.90–8.00 times as long as its maximum subapical width, 0.90 times as long as hind tarsus. First segment of hind tarsus 1.90 times as long as second segment.

Wings. Length of fore wing 2.50 times its maximum width. Vein r1 present. Radial cell reaching to apex of wing, 4.50 times as long as its maximum width. Nervulus weakly postfurcal. Brachial cell closed, short, widened apically, 2.50 times as long as its maximum width. Hind wing 5.30–5.40 times as long as its maximum width.

Metasoma. Distinctly compressed. First metasomal tergite weakly widened towards apex, 1.80 times as long as its apical width, finely striated. Ovipositor 1.65–1.70 times as long as first metasomal tergite, distinctly shorter than metasoma, 1.15–1.20 times as long as hind femur.

Colour. Body and legs brown to dark brown. Wings hyaline. Pterostigma brown.

Length. Body 1.85–1.95 mm; fore wing 1.90–1.95 mm.

Male. Body 1.75–1.80 mm; fore wing 2.05–2.10 mm. Antenna 16–20–segmented. First flagellar segment 3.25 times as long as wide. Second flagellar segment 2.00 times as long as wide. Third to seventeenth

flagellar segment 1.90–2.00 times as long as their width, eighteenth flagellar segment 3.00 times as long as wide.

Diagnosis. TThis species resembles *D. adventum* (Fischer), *D. sternaulicum* (Fischer) and *D. torreviejaense* sp. nov.. *Dinotrema lagunasense* differs from *D. adventum* in having the mandible as long as wide (1.45 times in *D. adventum*), first flagellar segment 3.25 times as long as wide (2.00 times in *D. adventum*) and sternaulus (precoxal suture) not reaching anterior part of mesopleuron (reaching in *D. adventum*). On the other hand, *D. lagunasense* differs from *D. sternaulicum* in having the mandible as long as wide (1.40 times in *D. sternaulicum*), hind femur 3.90 times as long as its maximum width (3.50 times in *D. sternaulicum*), middle flagellar segments 1.75–2.00 times as long as their width (1.50 times in *D. sternaulicum*) and mesoscutal pit rounded (elongated in *D. sternaulicum*). Finally, *D. lagunasense* differs from *D. torreviejaense* in having the first metasomal tergite 1.80 times as long as its apical width and finely striated in apical half (2.30 times and smooth in *D. torreviejaense*), hind femur 3.90 times as long as its maximum width (3.60 times in *D. torreviejaense*) and mesoscutal pit rounded (oval in *D. torreviejaense*).

***Dinotrema mareum* sp. nov.**

Material captured. Holotype: 1 female, Spain, Castellon Province, Pobla de Benifassà, Natural Park of Tinença de Benifassà, 15.05.2006 (F.J. Peris–Felipo leg.) (ENV). Paratype: 1 female, same label as holotype, but 03.07.2006 (ENV).

Description. Female.

Head. In dorsal view, 2.00 times as wide as its median length, 1.50 times as wide as mesoscutum, smooth, with rounded temples behind eye. Eye in lateral view 1.50 times as high as wide and 1.10–1.15 times as wide as temple. POL 2.70 times OD; OOL 2.90–3.00 times

OD. Face 1.70 times as wide as high; inner margins of eyes subparallel. Clypeus 3.10–3.15 times as wide as high, slightly curved ventrally. Paraclypeal fovea crossing middle distance between clypeus and eye, but far not reaching eye. Mandible weakly widened towards apex, 1.50 times as long as its maximum width. Upper tooth small, distinctly shorter than middle tooth. Middle tooth the longest, wide basally and pointed apically, wider than upper tooth. Lower tooth rounded, longer and wider than upper tooth. Antennae thick, 20–segmented, shorter than body. Scape 2.25 times as long as pedicel. First flagellar segment 2.30 times as long as its apical width, 1.20–1.25 times as long as second segment; second segment 1.50–1.55 times as long as its maximum width. Third to twelfth flagellar segments 1.25–1.30 times, thirteenth to seventeenth segment 1.60 times, and eighteenth segment 1.80 times as long as their maximum width correspondingly.

Mesosoma. In lateral view, 1.05 times as long as high. Mesoscutum about as long as its maximum width, with two rows of double setae in middle part. Notauli mainly absent. Mesoscutal pit present and elongated. Prescutellar depression smooth, without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum with median longitudinal carina crossing from anterior to posterior margins, with single carina emerging from median carina not reaching the propodeal edges. Propodeal spiracles small.

Legs. Hind femur 4.00 times as long as its maximum width. Hind tibia weakly widened to apex, 8.25–8.30 times as long as its maximum subapical width, 1.05–1.10 times as long as hind tarsus. First segment of hind tarsus 1.70 times as long as second segment.

Wings. Length of fore wing 2.45 times its maximum width. Vein r1 present. Radial cell reaching to apex of wing, 4.00 times as long as its maximum width. Nervulus distinctly postfurcal. Brachial cell, closed,

widened apically, 3.25–3.30 times as long as its maximum width. Hind wing 6.10 times as long as its maximum width.

Metasoma. Distinctly compressed. First metasomal tergite weakly widened towards apex, 1.60 times as long as its apical width, entirely striate. Ovipositor 1.55–1.60 times as long as first metasomal tergite, shorter than metasoma, 0.85–0.90 as long as hind femur.

Colour. Body and legs brown to dark brown. Wings hyaline. Pterostigma and veins brown.

Length. Body 1.95–2.00 mm; fore wing 2.50–2.60 mm.

Male. unknown.

Diagnosis. This species resembles *D. enanum* sp. nov., *D. affine* (Fischer) and *D. puliciforme* (Fischer). *Dinotrema mareum* differs from *D. enanum* in having the mandible 1.50 times as long as wide (1.18–1.20 times in *D. enanum*), first flagellar segment 2.30 times as long as wide (3.00 times in *D. enanum*), middle flagellar segments 1.60 times as long as wide (1.20 times in *D. enanum*) and first metasomal tergite 1.60 times as long as its apical width (1.90 times in *D. enanum*). On the other hand, *D. mareum* differs from *D. affine* in having the first flagellar segment 2.30 times as long as wide (3.50 times in *D. affine*), lower tooth wider than upper tooth (lower tooth as wide as upper tooth in *D. affine*) and first metasomal tergite very striated (striated in apical half in *D. affine*). Finally, *D. mareum* differs from *D. puliciforme* in having the first flagellar segment 2.30 times as long as wide (4.00 times in *D. puliciforme*), middle flagellar segments 1.60 times as long as wide (2.00 times in *D. puliciforme*), hind femur 4.00 times as long as its maximum width (4.50 times in *D. puliciforme*) and first metasomal tergite 1.60 times as long as its apical width and very striated (1.90 times and striated in *D. puliciforme*).

***Dinotrema munki* sp. nov.**

Material captured. Holotype: 1 female, Spain, Castellon Province, Pobla de Benifassà, Natural Park of Tinença de Benifassà, 15.10.2007 (F.J. Peris–Felipo leg.) (ENV). Paratype: 1 male, same label as in holotype, but 28.10.2004 (ENV).

Other material captured. Female, Spain, Castellon Province, Pobla de Benifassà, Natural Park of Tinença de Benifassà, 29.05.2006 (ENV).

Description. Female.

Head. In dorsal view, 1.90 times as wide as its median length, 1.45–1.50 times as wide as mesoscutum, smooth, with rounded temples behind eyes. Eye in lateral view 1.80–1.85 times as high as wide, 0.70–0.75 times as wide as temple. POL 3.25–3.30 times OD; OOL 3.30–3.35 times OD. Face 1.60 times as wide as high; inner margins of eyes subparallel. Clypeus 2.50 times as wide as high, slightly curved ventrally. Paraclypeal fovea elongated, reaching middle distance between clypeus and eye. Mandible distinctly widened towards apex, 0.80–0.85 times as long as its maximum width. Upper tooth large, weakly shorter than middle tooth. Middle tooth rather short, wide basally and pointed apically. Lower tooth rather long, rounded apically, not longer than upper tooth. Antennae thick, 17–segmented, shorter than body. Scape 1.90–1.95 times as long as pedicel. First flagellar segment 2.35–2.40 times as long as its apical width, 1.30–1.35 times as long as second segment; second segment 1.60 times as long as its maximum width. Third to fourteenth flagellar segments 2.00 times and fifteenth segment 2.30 times as long as their maximum width.

Mesosoma. In lateral view, 1.10–1.15 times as long as high. Mesoscutum as long as its maximum width, with two rows of single setae around trace of notauli. Notauli mainly absent. Mesoscutal pit

present, oval. Prescutellar depression smooth, with distinct median carina. Sternaulus (precoxal suture) present, short, far not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow entirely smooth. Propodeum mainly smooth, with median longitudinal carina crossing from anterior to posterior its margins, with transverse carinae emerging from median carina in its anterior half and not reaching propodeal edges. Propodeal spiracles relatively small.

Legs. Hind femur 3.90–4.00 times as long as its maximum width. Hind tibia weakly widened to apex, 9.90–10.00 times as long as its maximum subapical width, 1.00–1.05 times as long as hind tarsus. First segment of hind tarsus 1.60–1.65 times as long as second segment.

Wings. Length of fore wing 2.30–2.40 times its maximum width. Vein r1 present but hyaline. Radial cell reaching to apex of wing, 4.15–4.20 times as long as its maximum width. Nervulus distinctly postfurcal. Brachial cell closed, short, widened apically, about 2.80 times as long as its maximum width. Hind wing 5.40–5.50 times as long as its maximum width.

Metasoma. Distinctly compressed. First metasomal tergite weakly widened towards apex, 1.90 times as long as its apical width, rather distinctly striate in apical half. Ovipositor 2.80–3.00 times as long as first metasomal tergite, shorter than metasoma, 1.45–1.50 times as long as hind femur.

Colour. Body and legs brown to dark brown. Wings hyaline. Pterostigma brown.

Length. Body 1.95–2.00 mm; fore wing 2.00 mm.

Male. Body length 1.90 mm; fore wing length 2.15 mm. Antenna 22–segmented. First flagellar segment 3.10 times as long as its maximum width. Middle flagellar segments about 2.00 times as long its

maximum width. Hind femur 3.85 times as long as its maximum width. Otherwise similar to female.

Diagnosis. This species resembles *D. calamitosum* Tobias, *D. brevisulcus* Tobias and *D. puliciforme* (Fischer). *Dinotrema munki* differs from *D. calamitosum* in having the mandible 0.80–0.85 times as long as wide (1.10 times in *D. calamitosum*) and middle flagellar segments 2.00 times as long as their width (1.50–1.70 times in *D. calamitosum*) . On the other hand, *D. munki* differs from *D. brevisulcus* in having the mandible 0.80–0.85 times as long as wide (1.10 times in *D. brevisulcus*) and ovipositor distinctly shorter than metasoma (longer than metasoma in *D. brevisulcus*). Finally, *D. munki* differs from *D. puliciforme* in having the first flagellar segment 2.35–2.40 times as long as its maximum width (4.00 times in *D. puliciforme*) and mandible 0.80–0.85 times as long as wide (1.60 times in *D. puliciforme*).

***Dinotrema pappi* sp. nov.**

Material captured. Holotype: 1 female, Spain, Alicante Province, Alcoi, Natural Park of Carrascal de la Font Roja, 02.01.2007 (F.J. Peris–Felipo leg.) (ENV). Paratype: 1 female, same label, but 13.01.2005 (ENV).

Other material captured. 1 female, Spain, Castellon Province, Pobla de Benifassà, Natural Park of Tinença de Benifassà, 15.05.2006 (ENV).

Description. Female.

Head. In dorsal view, 1.60 times as wide as its median length, 1.35–1.40 times as wide as mesoscutum, smooth, with rounded temples behind eyes. Eye in lateral view 1.75 times as high as wide, 1.20 times as wide as temple. POL 2.80–2.85 times OD; OOL 2.65–2.70 times OD. Face 1.40 times as wide as high; inner margins of eyes

subparallel. Clypeus 2.50 times as wide as high, slightly curved ventrally. Paraclypeal fovea elongate, reaching middle distance between clypeus and eye. Mandible distinctly widened towards apex, 1.35–1.40 times as long as its maximum width. Upper tooth rather large, distinctly shorter than middle tooth, pointed apically. Middle tooth the longest, relatively narrow, pointed apically. Lower tooth rounded, short, smaller than upper tooth. Antennae thick, 18–segmented, shorter than body. Scape 3.00 times as long as pedicel. First flagellar segment 3.00 times as long as its apical width, 1.20–1.25 times as long as second segment; second segment 2.45–2.50 times as long as its maximum width. Third to tenth flagellar segments 1.60–1.70 times, eleven and twelve segment 1.90–2.00 times, thirteenth – 2.20 times, fourteenth – 2.00 times, fifteenth – 2.10 times, and sixteenth segment 2.00 times as long as their maximum width.

Mesosoma. In lateral view, as long as high. Mesoscutum as long as its maximum width with two rows of double setae around trace of notauli. Notauli mainly absent. Mesoscutal pit present, elongate. Prescutellar depression smooth, with distinct median carina. Sternaulus (precoxal suture) present, short, far not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow crenulate in lower half. Propodeum narrowly smooth, with median longitudinal carina crossing from anterior to posterior its margins, with numerous transverse carinae emerging from median carina and not reaching the propodeal edges. Propodeal spiracles relatively small.

Legs. Hind femur 4.90–5.00 times as long as its maximum width. Hind tibia weakly widened to apex, 12.30 times as long as its maximum subapical width, 1.00–1.05 times as long as hind tarsus. First segment of hind tarsus 2/00 times as long as second segment.

Wings. Length of fore wing 2.85–2.90 times its maximum width. Vein r1 present. Radial cell reaching to apex of wing, 6.10–6.15 times as long as its maximum width. Nervulus distinctly postfurcal. Brachial

cell closed, rather long, widened apically, 3.20 times as long as its maximum width. Hind wing 6.50 times as long as its maximum width.
Metasoma. Distinctly compressed. First metasomal tergite weakly widened towards apex, 2.00 times as long as its apical width, almost entirely smooth in apical half. Ovipositor 1.50–1.55 times as long as first metasomal tergite, distinctly shorter than metasoma, 0.90–0.95 times as long as hind femur.
Colour. Body and legs brown to dark brown. Wings hyaline. Pterostigma brown.
Length. Body 2.25–2.30 mm; fore wing 3.00 mm.
Male. Unknown.
Diagnosis. This species resembles *D. cruciforme* (Fischer) but differs in having the first metasomal tergite smooth (striated in apical half in *D. cruciforme*), mesoscutal pit elongated (oval in *D. cruciform*e), upper tooth wider than lower tooth (lower tooth wider than upper tooth in *D. cruciforme*), first flagellar segment 3.00 times as long as wide (2.70 times in *D. cruciforme*) and middle flagellar segments 1.60 times as long as wide (2.00 times in *D. cruciforme*).

***Dinotrema paquitae* sp. nov.**

Material captured. Holotype: 1 female, Spain, Castellon Province, Pobla de Benifassà, Natural Park of Tinença de Benifassà, 17.07.2006 (F.J. Peris–Felipo leg.) (ENV). Paratypes: 1 female, same label as in holotype, but 07.10.2004; 1 male, same label as in holotype, but 29.05.2006; 1 female, same label as in holotype, but 15.10.2007 (ENV). Additional material: 1 male, Spain, Alicante Province, Torrevieja, Natural Park of Las Lagunas de La Mata–Torrevieja, 30.11.2004 (F.J. Peris–Felipo leg.) (ENV).
Description. Female.

Head. In dorsal view, 1.50–1.60 times as wide as its median length, 1.40 times as wide as mesoscutum, smooth, with rounded temples behind eye. Eye in lateral view 1.40–1.45 times as high as wide and 1.15–1.20 times as wide as temple. POL 3.00–3.05 times OD; OOL 2.75–2.80 times OD. Face 1.80–1.85 times as wide as high; inner margins of eyes subparallel. Clypeus 3.50 times as wide as high, slightly curved ventrally. Paraclypeal fovea elongate, reaching middle distance between clypeus and eye. Mandible not widened towards apex, 1.60 times as long as its maximum width. Upper tooth distinctly shorter, but as wide as base of middle tooth. Middle tooth the longest, wide basally and pointed apically. Lower tooth longer and wider than upper tooth. Antennae thick, 19–20–segmented, as long as body. Scape 4.35–4.40 times as long as pedicel. First flagellar segment 2.20–2.30 times as long as its apical width, 1.20–1.25 times as long as second segment; second segment 2.50 times as long as its maximum width. Third to eighth flagellar segments 2.00 times as long as their width, ninth to twelfth flagellar segments 1.85 times, thirteenth to fifteenth segments 1.25–1.30 times, sixteenth segment 0.90 times and seventeenth flagellar segment 1.25 times as long as wide.

Mesosoma. In lateral view, 1.20 times as long as high. Mesoscutum about as long as its maximum width with two rows of couple setae. Notauli mainly absent. Mesoscutal pit present, rounded. Prescutellar depression smooth, without lateral carinae. Sternaulus (precoxal suture) present very weakly, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum with median longitudinal carina crossing from anterior to posterior margins, with couple short carinae emerging from media carina not reaching the propodeal edges. Propodeal spiracles small.

Legs. Hind femur 4.00–4.10 times as long as its maximum width. Hind tibia weakly widened towards apex, 8.65–8.70 times as long as

its maximum subapical width, 1.50 times as long as hind tarsus. First segment of hind tarsus as long as second segment.

Wings. Length of fore wing 2.75–2.80 times its maximum width. Vein r1 present. Radial cell reaching to apex of wing, 4.45–4.50 times as long as its maximum width. Nervulus distinctly postfurcal. Brachial cell, closed, widened apically, 2.30–2.35 times as long as its maximum width. Hind wing 6.30–6.35 times as long as its maximum width.

Metasoma. Distinctly compressed. First metasomal tergite weakly widened towards apex, 1.40–1.45 times as long as its apical width, almost entirely smooth with some fine striation in apical half. Ovipositor 1.25–1.30 times as long as first metasomal tergite, shorter than metasoma, 0.75–0.80 times as long as hind femur.

Colour. Body and legs brown to dark brown. Wings hyaline. Pterostigma brown.

Length. Body 2.20–2.30 mm; fore wing 2.25–2.30 mm.

Male. Body length 2.15 mm, fore wing length 2.20 mm. First flagellar segment 3.80 times as long as its apical width, 1.10 times as long as second segment; second segment 2.90 times as long as its maximum width. Middle flagellar segments about 2.20 times as long as wide.

Diagnosis. This species resembles *D. hodiense* (Fischer) and *D. parapunctatum* (Fischer). *Dinotrema paquitae* differs from *D. hodiense* in having the mandible 1.60 times as long as wide (1.40 times in *D. hodiense*), first flagellar segment 2.20–2.30 times as long as wide (2.40 times in *D. hodiense*), middle flagellar segments 2.00 times as long as wide (1.70 times in *D. hodiense*) and first metasomal tergite 1.40–1.45 times as long as its apical width (1.90 times in *D. hodiense*). On the other hand, *D. paquitae* differs from *D. parapunctatum* in having the mandible 1.60 times as long as wide (1.15 times in *D. parapunctatum*), first flagellar segment 2.20–2.30 times as long as wide (3.00 times in *D. parapunctatum*) and first

metasomal tergite 1.40–1.45 times as long as its apical width (2.00 times in *D. parapunctatum*).

Dinotrema parapunctatum (FISCHER)

Aspilota parapunctata Fischer 1976: 391.
Aspilota parapunctata: Francès *et al.* 1989: 206.
Dinotrema parapunctatum: Yu *et al.* 2005; 2011.

Material captured. 1 female, Spain, Alicante Province, Alcoi, Natural Park of Carrascal de La Font Roja, 02.08.2004; 2 females, same label but 09.08.2004; 1 female, same label but 16.08.2004; 1 female, same label but 23.08.2004; 2 females, same label but 30.08.2004; 1 female, same label but 13.09.2004; 1 female, same label but 12.06.2005; 1 female, same label but 29.08.2005; 2 females, same label but 12.09.2005; 1 female, same label but 10.07.2006; 1 female, same label but 25.07.2006; 2 females, same label but 07.08.2006; 2 females, same label but 14.08.2006; 1 female, same label but 21.08.2006; 1 male, same label but 21.08.2006; 1 female, same label but 28.08.2006; 2 females, same label but 11.09.2006; 3 females, same label but 25.09.2006; 1 female, same label but 02.10.2006; 1 male, same label but 02.07.2007; 1 female, same label but 23.07.2007; 1 female, same label but 30.07.2007 (ENV); 1 female, Spain, Castellon Province, Pobla de Benifassà, Natural Park of Tinença de Benifassà, 12.08.2004; 1 female, same label but 02.09.2004; 1 female, same label but 25.07.2005; 1 female, same label but 26.09.2005; 1 female, same label but 28.08.2006 (ENV).

Distribution. Austria, Bulgaria **(new record)**, Hungary **(new record)** and Spain.

Main characters of the species. Body length: 1.50 mm. Head in dorsal view 1.60 times as wide as its median length and 1.90 times as wide as mesoscutum. Eye in lateral view 0.60–0.65 times as wide as

temple. Face 1.25–1.30 times as wide as high. Mandible 1.15 times as long as wide. Upper tooth as wide as lower tooth. Antennae 19–segmented. First flagellar segment 3.00 times as long as its apical width. Middle flagellar segments 2.00 times as long as their width. Mesosoma in lateral view 1.35 times as long as high. Mesoscutum as long as its maximum width. Notauli mainly absent. Notauli mainly absent. Mesoscutal pit present, elongated. Prescutellar depression smooth, without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum smooth, with median longitudinal carina crossing from anterior to posterior margins, with short emerging carinae not reaching the propodeal edges. Propodeal spiracles small. Hind femur 4.00 times as long as its maximum width. First metasomal tergite 2.00 times as long as its apical width, almost entirely smooth. Ovipositor 1.35–1.40 times as long as first metasomal tergite, shorter than metasoma, 0.85–0.90 times as long as hind femur. Main colour brown and dark brown.

***Dinotrema pareum* sp. nov.**

Material captured. Holotype: 1 female, Spain, Castellon Province, Pobla de Benifassà, Natural Park of Tinença de Benifassà, 17.04.2006 (F.J. Peris–Felipo leg.) (ENV). Paratypes: 1 female, same label as in holotype, but 31.10.2005; 1 female, same label as in holotype, but 26.02.2007; 1 female, same label as in holotype, but 19.03.2007; 1 female, same label as in holotype, but 16.04.2007; 1 female, same label as in holotype, but 23.04.2007 (F.J. Peris–Felipo leg.) (ZISP).
Other material captured. 1 female, Spain, Castellon Province, Pobla de Benifassà, Natural Park of Tinença de Benifassà, 19.03.2004; 1 female, same label but 06.11.2006; 1 female, same label but 01.01.2007 (ENV).

Description. Female.

Head. In dorsal view, 1.80 times as wide as its median length, 1.30–1.35 times as wide as mesoscutum, smooth, with rounded temples behind eye. Eye in lateral view 1.45–1.50 times as high as wide and 1.10–1.15 times as wide as temple. POL 3.15–3.20 times OD; OOL 3.00–3.05 times OD. Face 2.00 times as wide as high; inner margins of eyes subparallel. Clypeus 2.20 times as wide as high, slightly curved ventrally. Paraclypeal fovea elongate, reaching middle distance between clypeus and eye. Mandible widened towards apex, 1.00–1.05 times as long as its maximum width. Upper tooth almost as long as and about as wide as base of middle tooth. Middle tooth the longest, wide basally and pointed apically. Lower tooth rounded and longer and wider than upper tooth. Antennae thick, 19–segmented, shorter than body. Scape 2.80–2.85 times as long as pedicel. First flagellar segment 3.00 times as long as its apical width, 1.30 times as long as second segment; second segment 1.70 times as long as its maximum width. Third to sixteenth flagellar segments 1.40–1.50 times and seventeenth flagellar segments 2.30–2.35 times as long as their width correspondingly.

Mesosoma. In lateral view, 1.15–1.20 times as long as high. Mesoscutum as long as its maximum width with two rows of couple setae. Notauli mainly absent. Mesoscutal pit present, thin and elongated. Prescutellar depression smooth, without lateral carinae. Sternaulus (precoxal suture) present, very marked and reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum with median longitudinal carina crossing from anterior to posterior margins, with small carinae emerging from median carina in the half anterior part not reaching the propodeal edges. Propodeal spiracles small.

Legs. Hind femur 3.75–3.80 times as long as its maximum width. Hind tibia weakly widened towards apex, 10.30–10.40 times as long

as its maximum subapical width, 1.00–1.05 times as long as hind tarsus. First segment of hind tarsus 1.60–1.70 times as long as second segment.

Wings. Length of fore wing 2.50–2.60 times its maximum width. Vein r1 present. Radial cell reaching to apex of wing, 4.50–4.55 times as long as its maximum width. Nervulus distinctly postfurcal. Brachial cell closed, widened apically, 2.50–2.55 times as long as its maximum width. Hind wing 4.80–4.90 times as long as its maximum width.

Metasoma. Distinctly compressed. First metasomal tergite weakly widened towards apex, 2.00 times as long as its apical width, entirely smooth. Ovipositor 1.60–1.65 times as long as first metasomal tergite, shorter than metasoma, as long as hind femur.

Colour. Body and legs brown to dark brown. Wings hyaline. Pterostigma brown.

Length. Body 2.20–2.30 mm; fore wing 2.50 mm.

Male. Unknown.

Diagnosis. This species resembles *D. semicompressum* (Stelfox et Graham) and *D. broadi* sp. nov.. *Dinotrema pareum* differs from *D. semicompressum* in having the first flagellar segment 3.00 times as long as wide (2.50 times in *D. semicompressum*), middle flagellar segments 1.40–1.50 times as long as wide (1.70 in *D. semicompressum*), hind femur 3.75 times as long as its maximum width (5.00 times in *D. semicompressum*) and mesoscutum as long as its maximum width (1.15 times in *D. semicompressum*). On the other hand, *D. pareum* differs from *D. broadi* in having the mandible 1.00–1.05 times as long as wide (1.30 times in *D. broadi*), middle flagellar segments 1.40–1.50 times as long as wide (2.00 times in *D. broadi*), hind femur 3.75 times as long as its maximum width (4.25 times in *D. broadi*) and first metasomal tergite 2.00 times as long as its apical width (2.25 times in *D. broadi*).

***Dinotrema pilarae* sp. nov.**

Material captured. Holotype: 1 female, Spain, Alicante Province, Alcoi, Natural Park of Carrascal de La Font Roja, 13.01.2005 (F.J. Peris–Felipo leg.) (ENV). Paratype: 1 female, same label as in holotype, but 02.01.2007 (ENV).

Description. Female.

Head. In dorsal view, 1.80 times as wide as its median length, 1.50–1.55 times as wide as mesoscutum, smooth, with rounded temples behind eye. Eye in lateral view 1.50 times as high as wide and 1.05 times as wide as temple. POL 2.60 times OD; OOL 3.40 times OD. Face 1.80 times as wide as high; inner margins of eyes subparallel. Clypeus 3.00 times as wide as high, slightly curved ventrally. Paraclypeal fovea short, not reaching the middle distance between clypeus and eye. Mandible widened towards apex, 1.20 times as long as its maximum width. Upper tooth longest than middle tooth and wider than lower tooth. Middle tooth the longest, wide basally and narrowed towards apex, rounded apically. Lower tooth short, rounded apically. Antennae thick, 19–segmented. Scape 1.95–2.00 times as long as pedicel. First flagellar segment 3.25 times as long as its apical width, 1.15 times as long as second segment; second segment 2.15–2.20 times as long as its maximum width. Third to fifth flagellar segments 2.10–2.30 times as long as their width, sixth to seventeenth flagellar segments 1.90–2.00 times as long as their width.

Mesosoma. In lateral view, 1.05 times as long as high. Mesoscutum as long as its maximum width. Notauli mainly absent. Mesoscutal pit present and oval. Prescutellar depression smooth, with lateral carinae. Sternaulus (precoxal suture) present, reaching anterior part of mesopleuron. Posterior mesopleural furrow crenulate below. Propodeum sculptured, with median longitudinal carina crossing from anterior to posterior margins, with emerging lateral carina from third

apical part reaching propodeal edges in spiracles place. Propodeal spiracles relatively small.

Legs. Hind femur 4.10 times as long as its maximum width. Hind tibia weakly widened to apex, about 8.30–8.40 times as long as its maximum subapical width, as long as hind tarsus. First segment of hind tarsus 2.15–2.20 times as long as second segment.

Wings. Length of fore wing 2.40 times its maximum width. Vein r1 present. Radial cell reaching to apex of wing, 4.30–4.35 times as long as its maximum width. Nervulus weakly postfurcal. Brachial cell closed, short, widened apically, 2.75 times as long as its maximum width. Hind wing 5.10–5.15 times as long as its maximum width.

Metasoma. Distinctly compressed. First metasomal tergite weakly widened towards apex, 1.80 times as long as its apical width, striated. Ovipositor 1.80–1.85 times as long as first metasomal tergite, shorter than metasoma, 1.15 times as long as hind femur.

Colour. Body and legs brown to dark brown. Wings hyaline. Pterostigma brown.

Length. Body 2.20–2.25 mm; fore wing 2.25 mm.

Male. Unknown.

Diagnosis. This species resembles *D. nervosum* (Haliday) and *D. lineolum* (Thomson). *Dinotrema pilarae* differs from *D. nervosum* in having the mandible 1.20 times as long as wide (1.50 times in *D. nervosum*), middle flagellar segments 1.90–2.00 times as long as their width (1.50 times in *D. nervosum*), sternaulus (precoxal suture) reaching anterior part of mesopleron (not reaching in *D. nervosum*) and ovipositor shorter than metasoma (longer in *D. nervosum*). Finally, *D. pilarae* differs from *D. lineolum* in having the mandible 1.20 times as long as wide (1.70 times in *D. nervosum*), first flagellar segment 3.25 times as long as wide (2.50 times in *D. lineolum*), middle flagellar segments 1.90–2.00 times as long as their width (1.50 times in *D. lineolum*), first metasomal tergite 1.80 times as long as its

apical width (1.50 times in *D. lineolum*) and sternaulus (precoxal suture) reaching anterior part of mesopleuron (not reaching in *D. lineolum*).

***Dinotrema robertoi* sp. nov.**

Material captured. Holotype: 1 female, Spain, Castellon Province, Pobla de Benifassà, Natural Park of Tinença de Benifassà, 22.07.2004 (F.J. Peris–Felipo leg.) (ENV). Paratypes: 1 female, same label as in holotype but 05.08.2004 (ENV); 1 female, same label as in holotype but 16.09.2004 (ENV).

Description. Female.

Head. In dorsal view, 1.55–1.60 times as wide as its median length, 1.55–1.60 times as wide as mesoscutum, smooth, with rounded temples behind eye. Eye in lateral view 1.35–1.40 times as high as wide and 0.80 times as wide as temple. POL 3.60 times OD; OOL 4.75 times OD. Face 1.20 times as wide as high; inner margins of eyes subparallel. Clypeus 3.75 times as wide as high, slightly curved ventrally. Paraclypeal fovea short, not reaching the middle distance between clypeus and eye. Mandible widened towards apex, 0.95 times as long as its maximum width. Upper tooth larger than middle tooth and wider than lower tooth. Middle tooth wide basally and rounded apically. Lower tooth rounded apically. Antennae thick, 12–segmented. Scape 1.65 times as long as pedicel. First flagellar segment 2.60–2.65 times as long as its apical width, as long as second segment; second segment 2.10 times as long as its maximum width. Third to nineteenth flagellar segments about 1.65–1.70 times as long as their width, tenth flagellar segment 2.00 times as long as its width.

Mesosoma. In lateral view, 1.30 times as long as high. Mesoscutum 1.05 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit absent. Prescutellar depression smooth, without lateral

carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow slightly crenulate below. Propodeum sculptured, with short median longitudinal carina, with emerging lateral carinae reaching propodeal edges. Propodeal spiracles relatively small.

Legs. Hind femur 3.50 times as long as its maximum width. Hind tibia weakly widened to apex, about 7.90 times as long as its maximum subapical width, 0.90 times as long as hind tarsus. First segment of hind tarsus 1.75 times as long as second segment.

Wings. Length of fore wing 2.65–2.70 times its maximum width. Vein r1 present. Radial cell reaching to apex of wing, 4.00 times as long as its maximum width. Nervulus weakly postfurcal. Brachial cell closed, short, widened apically, 1.50 times as long as its maximum width. Hind wing 7.20–7.30 times as long as its maximum width.

Metasoma. Distinctly compressed. First metasomal tergite weakly widened towards apex, 2.50 times as long as its apical width, entirely smooth. Ovipositor 0.75 times as long as first metasomal tergite, distinctly shorter than metasoma, 0.40–0.45 times as long as hind femur.

Colour. Body and legs dark brown. Wings hyaline. Pterostigma brown.

Length. Body 1.00–1.05 mm; fore wing 1.10–1.15 mm.

Male. Unknown.

Diagnosis. This species resembles *D. compressum* (Haliday) but differs in having hind femur 3.50 times as long as its maximum width (4.00 times in *D. compressum*), first metasomal tergite 2.50 times as long as its apical width and smooth (2.35 times and striated in *D. compressum*), prescutellar depression rectangular with lateral carinae (square without lateral carinae in *D. compressum)* and middle tooth short and apically rounded (large and very pointed in *D. compressum*).

***Dinotrema teresae* sp. nov.**

Material captured. Holotype: 1 female, Spain, Castellon Province, Pobla de Benifassà, Natural Park of Tinença de Benifassà, 30.04.2007 (F.J. Peris–Felipo leg.) (ENV). Paratype: 1 female, same label as in holotype but 24.04.2006 (ENV).

Description. Female.

Head. In dorsal view, 1.65 times as wide as its median length, 1.55 times as wide as mesoscutum, smooth, with rounded temples behind eye. Eye in lateral view 1.65 times as high as wide and 0.90 times as wide as temple. POL 3.75 times OD; OOL 4.00 times OD. Face 1.95–2.00 times as wide as high; inner margins of eyes subparallel. Clypeus 3.00 times as wide as high, slightly curved ventrally. Paraclypeal fovea elongated, reaching the middle distance between clypeus and eye. Mandible widened towards apex, 1.05 times as long as its maximum width. Upper tooth large, but shorter than middle tooth. Middle tooth the longest, wide basally and narrowed towards apex, rounded apically. Lower tooth short and wider than upper tooth, rounded apically. Antennae thick, more than 13–segmented (apical segments missing). Scape 2.45–2.50 times as long as pedicel. First flagellar segment 2.85–2.90 times as long as its apical width, 1.15 times as long as second segment; second segment 2.00 times as long as its maximum width. Third to tenth flagellar segments about 1.50–1.65 times as long as their width.

Mesosoma. In lateral view, 1.05 times as long as high. Mesoscutum 0.95 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present and elongated. Prescutellar depression smooth, without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum sculptured, with median longitudinal carina crossing from anterior to posterior margins, with

emerging carinae from longitudinal carina reaching propodeal margins. Propodeal spiracles relatively small.

Legs. Hind femur 4.00 times as long as its maximum width. Hind tibia weakly widened to apex, about 8.75 times as long as its maximum subapical width, 0.95 times as long as hind tarsus. First segment of hind tarsus 0.90 times as long as second segment.

Wings. Length of fore wing 2.80 times its maximum width. Vein r1 present. Radial cell reaching to apex of wing, 4.50 times as long as its maximum width. Nervulus weakly postfurcal. Brachial cell closed, short, widened apically, 2.30 times as long as its maximum width. Hind wing 6.50 times as long as its maximum width.

Metasoma. Distinctly compressed. First metasomal tergite weakly widened towards apex, 2.20 times as long as its apical width, apical half striated. Ovipositor 0.50 times as long as first metasomal tergite, distinctly shorter than metasoma, 0.40 times as long as hind femur.

Colour. Body and legs dark brown. Wings hyaline. Pterostigma brown.

Length. Body 1.70–1.75 mm; fore wing 2.10–2.20 mm.

Male. Unknown.

Diagnosis. This species resembles *D. eumandibulatum* (Fischer) and *D. dentipraesens* (Fischer). *Dinotrema teresae* differs from *D. eumandibulatum* in having the mandible 1.05 times as long as wide (0.80 times in *D.* eumandibulatum), first flagellar segment 2.85–2.90 times as long as wide (3.30 times in *D. eumandibulatum*), hind femur 4.00 times as long as its maximum width (3.50 times in *D. eumandibulatum*) and first metasomal tergite striated in apical half (almost smooth in *D. eumandibulatum*). Finally, *D. teresae* differs from *D. dentipraesens* in having the first flagellar segment 2.85–2.90 times as long as wide (3.25 times in *D. dentipraesens*), middle flagellar segments 1.50–1.65 times as long as their width (2.25 times in *D. dentipraesens*), mesoscutal pit oval (rounded in *D.*

dentipraesens) and first metasomal tergite striated in apical half (smooth in *D. dentipraesens*).

***Dinotrema tinencaense* sp. nov.**

Material captured. Holotype: 1 female, Spain, Castellon Province, Pobla de Benifassà, Natural Park of Tinença de Benifassà, 10.06.2004 (F.J. Peris–Felipo leg.) (ENV). Paratypes: 1 female, same label as in holotype but 05.08.2004 (ENV); 1 female, same label but 27.09.2004 (ENV); 1 female, same label as in holotype but 04.07.2005 (ZISP). **Other material captured:** 1 female, Spain, Castellon Province, Pobla de Benifassà, Natural Park of Tinença de Benifassà, 15.07.2004; 1 female, same label but 22.07.2004; 2 females, same label but 13.06.2005; 1 female, same label but 04.07.2005 (ENV).

Description. Female.

Head. In dorsal view, 1.45–1.40 times as wide as its median length, 1.50–1.55 times as wide as mesoscutum, smooth, with rounded temples behind eye. Eye in lateral view 1.65–1.70 times as high as wide and 0.70 times as wide as temple. POL 3.30 times OD; OOL 4.05–4.10 times OD. Face 2.00–2.05 times as wide as high; inner margins of eyes subparallel. Clypeus 2.80–2.85 times as wide as high, slightly curved ventrally. Paraclypeal fovea short, not reaching the middle distance between clypeus and eye. Mandible widened towards apex, 1.10 times as long as its maximum width. Upper tooth large than middle tooth and wider than lower tooth. Middle tooth wide basally and narrowed towards apex, rounded apically. Lower tooth short, rounded apically. Antennae thick, 14–segmented. Scape 1.75 times as long as pedicel. First flagellar segment 2.50 times as long as its apical width, as long as second segment; second segment 2.00 times as long as its maximum width. Third to eleventh flagellar segments about

1.50–1.60 times as long as their width, twelfth flagellar segment 2.00 times as long as its width.

Mesosoma. In lateral view, 1.15 times as long as high. Mesoscutum 0.90 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit absent. Prescutellar depression smooth, with lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow crenulate below. Propodeum sculptured, with median longitudinal carina diverging in two carinae crossing posterior margin with carinae in propodeal fields reaching propodeal margins. Propodeal spiracles relatively small.

Legs. Hind femur 3.60–3.70 times as long as its maximum width. Hind tibia weakly widened to apex, about 9.50 times as long as its maximum subapical width, as long as hind tarsus. First segment of hind tarsus 2.05 times as long as second segment.

Wings. Length of fore wing 2.75 times its maximum width. Vein r1 present. Radial cell reaching to apex of wing, 4.00–4.10 times as long as its maximum width. Nervulus weakly postfurcal. Brachial cell closed, short, distinctly widened apically, 1.80 times as long as its maximum width. Hind wing 6.50 times as long as its maximum width.

Metasoma. Distinctly compressed. First metasomal tergite weakly widened towards apex, 1.40 times as long as its apical width, striated. Ovipositor 1.25–1.30 times as long as first metasomal tergite, distinctly shorter than metasoma, 0.65 times as long as hind femur.

Colour. Body and legs brown to dark brown. Wings hyaline. Pterostigma brown.

Length. Body 1.30–1.35 mm; fore wing 1.30–1.35 mm.

Male. Unknown.

Diagnosis. This species resembles *D. arenarium* (Tobias) and *D. falsificum* (Stelfox et Graham). *Dinotrema tinencaense* differs from *D. arenarium* in having the mandible 1.10 times as long as wide (1.40

times in *D. arenarium*), first flagellar segment 2.50 times as long as its width (4.00 times in *D. arenarium*), middle flagellar segments 1.50–1.60 times as long as their width (2.00 times in *D. arenarium*), sternaulus (precoxal suture) not reaching anterior and posterior part of mesopleuron (reaching in *D. arenarium*) and prescutellar depression with lateral carinae (without lateral carinae in *D. arenarium*). On the other hand, *D. tinencaense* differs from *D. falsificum* in having the mandible 1.10 times as long as wide (2.00 times in *D. falsificum*), first flagellar segment 2.50 times as long as wide (3.50 times in *D. falsificum*), middle flagellar segments 1.50–1.60 times as long as their width (2.00 times in *D. falsificum*), hind femur 3.60–3.70 times as long as its maximum width (5.00 times in *D. falsificum*), first metasomal tergite 1.40 times as long as its apical width (2.20 times in *D. falsificum*) and ovipositor shorter than metasoma (as long as metasoma in *D. falsificum*).

***Dinotrema torreviejaense* sp. nov.**

Material captured. Holotype: 1 female, Spain, Alicante Province, Torrevieja, Natural Park of Lagunas de La Mata–Torrevieja, 04.04.2004 (F.J. Peris–Felipo leg.) (ENV). Paratype: 1 female, same label as in holotype but 09.05.2006 (ENV).

Description. Female.

Head. In dorsal view, 1.90 times as wide as its median length, 1.50 times as wide as mesoscutum, smooth, with rounded temples behind eye. Eye in lateral view 1.75 times as high as wide and 0.75–0.80 times as wide as temple. POL 3.15 times OD; OOL 3.15 times OD. Face 1.40 times as wide as high; inner margins of eyes subparallel. Clypeus 3.00 times as wide as high, slightly curved ventrally. Paraclypeal fovea elongated, reaching the middle distance between clypeus and eye. Mandible widened towards apex, 0.90–0.95 times as

long as its maximum width. Upper tooth large, but shorter than middle tooth. Middle tooth the longest, wide basally and narrowed towards apex, rounded apically. Lower tooth short and wider than upper tooth, rounded apically. Antennae thick, more than 13–segmented (broken apical segments). Scape 2.00 times as long as pedicel. First flagellar segment 2.75–2.80 times as long as its apical width, 1.10–1.15 times as long as second segment; second segment 2.00 times as long as its maximum width. Third to eleventh flagellar segments 1.80–1.90 times as long as their width.

Mesosoma. In lateral view, 1.10 times as long as high. Mesoscutum 0.95 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present and oval. Prescutellar depression smooth, without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum sculptured, with pentagonal areola, its carinae reaching propodeal edges. Propodeal spiracles relatively small.

Legs. Hind femur 3.60 times as long as its maximum width. Hind tibia weakly widened to apex, about 8.30–8.40 times as long as its maximum subapical width, 1.20–1.25 times as long as hind tarsus. First segment of hind tarsus 2.10 times as long as second segment.

Wings. Length of fore wing 2.60–2.70 times its maximum width. Vein r1 present. Radial cell reaching to apex of wing, 4.40–4.50 times as long as its maximum width. Nervulus weakly postfurcal. Brachial cell closed, short, widened apically, 2.50 times as long as its maximum width. Hind wing 6.00 times as long as its maximum width.

Metasoma. Distinctly compressed. First metasomal tergite weakly widened towards apex, 2.30 times as long as its apical width, entirely almost smooth. Ovipositor 1.90 times as long as first metasomal tergite, shorter than metasoma, 1.40 times as long as hind femur.

Colour. Body and legs brown to dark brown. Wings hyaline. Pterostigma brown.

Length. Body 1.70–1.80 mm; fore wing 1.70–1.75 mm.

Male. Unknown.

Diagnosis. This species resembles *D. lagunasense* sp. nov., *D. adventum* (Fischer), *D. sternaulicum* (Fischer) and *D. necrophilum* (Hedqvist). *Dinotrema torreviejaense* differs from *Dinotrema lagunasense* in having the first metasomal tergite 2.30 times as long as its apical width and smooth (1.80 times and finely striated in apical half in *D. lagunasense*), hind femur 3.60 times as long as its maximum width (3.90 times in *D. lagunasense*) and mesoscutal pit oval (rounded in *D. lagunasense*). On the other hand, *D. torreviejaense* differs from *D. adventum* in having the mandible 0.90–0.95 times as long as wide (1.45 times in *D. adventum*), first flagellar segment 2.75–2.80 times as long as wide (2.00 times in *D. adventum*), hind femur 3.60 times as long as its maximum width (4.00 times in *D. adventum*) and first metasomal tergite 2.30 times as long as its apical width (2.00 times in *D. adventum*). Also, *D. torreviejaense* differs from *D. sternaulicum* in having the mandible 0.90–0.95 times as long as wide (1.40 times in *D. sternaulicum*), first flagellar segment 2.75–2.80 times as long as wide (3.00 times in *D. sternaulicum*), middle flagellar segments 1.80–1.90 times as long as their width (1.50 times in *D. sternaulicum*) and first metasomal tergite 2.30 times as long as its apical width (1.754 times in *D. sternaulicum*). Finally, *D. torreviejaense* differs from *D. necrophilum* in having the mandible 0.90–0.95 times as long as wide (1.45 times in *D. necrophilum*), middle flagellar segments 1.80–1.90 times as long as their width (1.30 times in *D. necrophilum*), hind femur 3.60 times as long as its maximum width (4.10 times in *D. necrophilum*) and first metasomal tergite 2.30 times as long as its apical width (1.60 times in *D. necrophilum*).

***Dinotrema vitobiasi* sp. nov.**

Material captured. Holotype: 1 female, Spain, Alicante Province, Alcoi, Natural Park of Carrascal de La Font Roja, 13.04.2006 (F.J. Peris–Felipo leg.) (ENV). Paratype: 1 female, same label as in holotype but 28.05.2007 (ENV).

Description. Female.

Head. In dorsal view, 1.60 times as wide as its median length, 1.60–1.65 times as wide as mesoscutum, smooth, with rounded temples behind eye. Eye in lateral view 1.45 times as high as wide and as wide as temple. POL 2.50 times OD; OOL 2.85 times OD. Face 1.85 times as wide as high; inner margins of eyes subparallel. Clypeus 2.50 times as wide as high, slightly curved ventrally. Paraclypeal fovea reaching the middle distance between clypeus and eye. Mandible widened towards apex, 1.05 times as long as its maximum width. Upper tooth longer than middle tooth. Middle tooth wide basally and narrowed towards apex, rounded apically. Lower tooth short, wider than upper tooth, rounded apically. Antennae thick, 18–segmented. Scape 2.00 times as long as pedicel. First flagellar segment 2.30 times as long as its apical width, 1.15 times as long as second segment; second segment 1.80 times as long as its maximum width. Third to tenth flagellar segments 1.60 times as long as their width, eleventh to thirteenth flagellar segments 1.30 times as long as their width, fourteenth segment twice as long as its widht.

Mesosoma. In lateral view, 1.15 times as long as high. Mesoscutum as long as its maximum width. Notauli mainly absent. Mesoscutal pit present and oval. Prescutellar depression smooth, with lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow crenulate. Propodeum smooth, with median longitudinal carina crossing from anterior to posterior margin, with emerging carinae in

apical half far not reaching propodeal edges. Propodeal spiracles relatively small.

Legs. Hind femur 3.90 times as long as its maximum width. Hind tibia weakly widened towards apex, 9.20 times as long as its maximum subapical width, 1.15 times as long as hind tarsus. First segment of hind tarsus 1.45 times as long as second segment.

Wings. Length of fore wing 2.80 times its maximum width. Vein r1 present. Radial cell reaching to apex of wing, 4.30–4.35 times as long as its maximum width. Nervulus weakly postfurcal. Brachial cell closed, short, widened apically, 3.00 times as long as its maximum width. Hind wing 6.00 times as long as its maximum width.

Metasoma. Distinctly compressed. First metasomal tergite weakly widened towards apex, 2.00 times as long as its apical width, finely striated in apical half. Ovipositor 1.50 times as long as first metasomal tergite, shorter than metasoma, 1.20 times as long as hind femur.

Colour. Body and legs brown to dark brown. Wings hyaline. Pterostigma brown.

Length. Body 1.65–1.70 mm; fore wing 2.30 mm.

Male. Unknown.

Diagnosis. This species resembles *D. vituperatum* (Fischer), *D. latifemur* (Fischer) and *D. carinatum* (Tobias). *Dinotrema vitobiasi* differs from *D. vituperatum* in having the first flagellar segment 2.30 times as long as wide (3.60 times in *D. vituperatum*), middle flagellar segments 1.30–1.60 times as long as wide (2.50 times in *D. vituperatum*), posterior mesopleural furrow crenulate (smooth in *D. vituperatum*), lower tooth wider than upper tooth (upper tooth wider than lower tooth in *D. vituperatum*) and propodeum with longitudinal median carina with emerging laterally carinae (only longitudinal median carina without emerging laterally carinae in *D. vituperatum*). On the other hand, *D. vitobiasi* differs from *D. latifemur* in having the mandible 1.05 times as long as wide (1.50 times in *D. latifemur*),

middle flagellar segments 1.30–1.60 times as long as wide (2.00 times in *D. latifemur*), and hind femur 3.90 times as long as its maximum width (3.15 times in *D. latifemur*). Finally, *D. vitobiasi* differs from *D. carinatum* in having the mandible 1.05 times as long as wide (2.00 times in *D carinatum*), first flagellar segment 2.30 times as long as wide (4.50 times in *D. carinatum*), middle flagellar segments 1.30–1.60 times as long as wide (2.50 times in *D. carinatum*), hind femur 3.90 times as long as its maximum width (4.50 times in *D. carinatum*), and propodeum with longitudinal median carina and emerging laterally carinae (only with longitudinal median carina in *D. carinatum*).

***Dinotrema zimmermannae* sp. nov.**

Material captured. Holotype: 1 female, Spain, Alicante Province, Alcoi, Natural Park of Carrascal de La Font Roja, 18.06.2007 (F.J. Peris–Felipo leg.) (ENV). Paratype: 1 female, Spain, Castellon Province, Pobla de Benifassà, Natural Park of Tinença de Benifassà, 17.07.2006 (ENV); 1 male, same label, 06.11.2006 (ENV); 1 female, same label, 16.04.2007 (ZISP); 1 male, same label, 23.07.2007 (F.J. Peris–Felipo leg.) (ENV).

Other material captured. 3 females, Spain, Castellon Province, Pobla de Benifassà, Natural Park of Tinença de Benifassà, 30.10.2006 (ENV).

Description. Female.

Head. In dorsal view, 1.70 times as wide as its median length, 1.30 times as wide as mesoscutum, smooth, with rounded temples behind eye. Eye in lateral view 1.60–1.65 times as high as wide and 0.90 times as wide as temple. POL 2.80–2.85 times OD; OOL 2.45–2.50 times OD. Face 1.80 times as wide as high; inner margins of eyes subparallel. Clypeus 2.50 times as wide as high, slightly curved

ventrally. Paraclypeal fovea elongate, reaching middle distance between clypeus and eye. Mandible widened towards apex, 1.00–1.05 times as long as its maximum width. Upper tooth almost as long as and as wide as base of middle tooth. Middle tooth the longest, wide basally and pointed apically. Lower tooth rounded and shorter and wider than upper tooth. Antennae thick, 14–segmented, shorter than body. Scape 1.65–1.70 times as long as pedicel. First flagellar segment 3.80–4.00 times as long as its apical width, 1.40–1.50 times as long as second segment; second segment 2.50 times as long as its maximum width. Third to eleventh flagellar segments about 2.00 times and twelfth flagellar segment 2.40–2.50 as long as their maximum width correspondingly.

Mesosoma. In lateral view, 1.05–1.10 times as long as high. Mesoscutum 1.10–1.15 times as long as its maximum width with three rows of couple setae. Notauli mainly absent. Mesoscutal pit present and elongate. Prescutellar depression smooth, without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum with incomplete median longitudinal carina with carinae emerging from medial carina not reaching with the propodeal edges. Propodeal spiracles relatively small.

Legs. Hind femur 4.00 times as long as its maximum width. Hind tibia weakly widened towards apex, 8.50–8.60 times as long as its maximum subapical width, 1.05–1.10 times as long as hind tarsus. First segment of hind tarsus 1.15–1.20 times as long as second segment.

Wings. Length of fore wing 2.50–2.60 times its maximum width. Vein r1 present. Radial vein arising from the anterior part of pterostigma. Radial cell reaching to apex of wing, 4.30–4.40 times as long as its maximum width. Nervulus distinctly postfurcal. Brachial cell closed,

widened apically, 3.10–3.15 times as long as its maximum width. Hind wing 7.10–7.20 times as long as its maximum width.

Metasoma. Distinctly compressed. First metasomal tergite weakly widened towards apex, 1.50 times as long as its apical width, almost smooth with fine striation. Ovipositor 2.00 times as long as first metasomal tergite, shorter than metasoma, 1.35–1.40 as long as hind femur.

Colour. Body and legs brown to dark brown. Wings hyaline. Pterostigma brown.

Length. Body 1.90–2.00 mm; fore wing 2.00–2.10 mm.

Male. Body length 2.20 mm, fore wing length 2.20 mm. Middle flagellar segments 2.10–2.20 times as long their maximum width.

Diagnosis. This species resembles *D. longicarinatum* (Fischer), *D. incarinatum* (Fischer) and *D. significarium* (Fischer). *Dinotrema zimmermannae* differs from *D. longicarinatum* in having the mandible 1.00–1.05 times as long as wide (1.20 times in *D. longicarinatum*), first flagellar segment 3.80–4.00 times as long as wide (3.00 times in *D. longicarinatum*), mesoscutal pit elongated (rounded in *D. longicarinatum*) and first metasomal tergite 1.50 times as long as its apical width and almost smooth (2.00 times and striated in *D. longicarinatum*). On the other hand, *D. zimmermannae* differs from *D. incarinatum* in having the mandible 1.00–1.05 times as long as wide (1.60 times in *D. incarinatum*), middle flagellar segments 2.00 times as long as wide (2.30–2.50 times in *D. incarinatum*), sternaulus (precoxal suture) not reaching anterior part of mesopleuron (reaching in *D. incarinatum*) and first metasomal tergite 1.50 times as long as its apical width (1.75 times in *D. incarinatum*). Finally, *D. zimmermannae* differs from *D. significarium* in having the mandible 1.00–1.05 times as long as wide (1.25 times in *D. significarium*), first flagellar segment 3.80–4.00 times as long as wide (2.80 times in *D. significarium*), hind femur 4.00 times as long as its maximum width

(4.50 times in *D. significarium*) and first metasomal tergite 1.50 times as long as its apical width (2.00 times in *D. significarium*).

Genus *EUDINOSTIGMA* Tobias 1986

Eudinostigma latistigma (FISCHER)

Synaldis latistigma Fischer 1962: 13.
Synaldis latistigma: Fischer 1967: 99.
Synaldis latistigma: Shenefelt 1974: 1022.
Eudinostigma latistigma: Achterberg 1988b: 39.
Eudinostigma latistigma: Yu *et al.* 2005; 2011.
Eudinostigma latistigma: Broad *et al*. 2012: 10.

Material captured. 2 females, Spain, Castellon Province, Pobla de Benifassà, Natural Park of Tinença de Benifassà, 22.07.2004; female, same label but 29.07.2004; 1 female, same label but 16.05.2005; 1 female, same label but 31.05.2005; 2 females, same label but 13.06.2005; 1 female, same label but 27.06.2005; 1 female, same label but 22.07.2007 (ENV); 1 male, Spain, Alicante Province, Torrevieja, Natural Park of Lagunas de La Mata–Torrevieja, 05.06.2007 (ENV).
Distribution. Austria, Bulgaria, China, Germany, Hungary, Mongolia, Poland, Spain and Switzerland.
Main characters of the species. Body length: 1.30 mm. Head in dorsal view 1.45 times as wide as its median length and 1.60–1.65 times as wide as mesoscutum. Eye in lateral view 0.40 times as long as temple. Face 1.50–1.55 times as wide as high. Mandible as long as wide. Antennae 14–18–segmented. First flagellar segment 3.40 times as long as its apical width. Middle flagellar segments 1.40–1.60 times as long as their width. Mesosoma in lateral view 1.25 times as long as high. Mesoscutum as long as wide. Notauli mainly absent. Mesoscutal

pit absent. Prescutellar depression smooth, without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum completely sculptured. Propodeal spiracles small. Hind femur 3.70–3.80 times as long as its maximum width. First metasomal tergite 1.60 times as long as its apical width, finely striated. Ovipositor 0.60–0.65 times as long as first metasomal tergite. Main colour brown.

Genus *ORTHOSTIGMA* Ratzeburg 1844

Orthostigma beryaslani FISCHER

Orthostigma beyarslani Fischer 1995: 681.

Orthostigma beyarslani: Yu *et al.* 2005; 2011.

Material captured. 1 female, Spain, Alicante Province, Torrevieja, Natural Park of Lagunas de La Mata–Torrevieja, 25.05.2004 (ENV).

Distribution. Iran, Spain and Turkey.

Main characters of the species. Body length: 1.60 mm. Head in dorsal view 1.90 times as wide as its median length and 1.40 times as wide as mesoscutum. Face 1.65–1.70 times as wide as high. Mandible as long as wide. Antennae 18–segmented. First flagellar segment 3.00 times as long as its apical width. Middle flagellar segments 2.00 times as long as their width. Mesosoma in lateral view 1.33 times as long as high. Mesoscutum 1.25 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, oval. Prescutellar depression smooth, without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum sculptured. Propodeal spiracles small. Hind femur 4.00 times as long as its maximum width.

First metasomal tergite 2.50 times as long as its apical width. Ovipositor as long as first metasomal tergite. Main colour brown.

Orthostigma laticeps (THOMSON)

Alysia (Orthostigma) laticeps Thomson 1895: 2201.
Alysia (Orthostigma) aequalis Thomson 1895: 2301.
Orthostigma laticeps: Fischer 1973: 256.
Orthostigma laticeps: Francés *et al*. 1989: 207.
Orthostigma laticeps: Fischer 1995: 676.
Orthostigma laticeps: Yu *et al.* 2005.
Orthostigma laticeps: Papp 2007a: 6.
Orthostigma laticeps: Papp 2009b: 6.
Orthostigma laticeps: Yu *et al.* 2011.

Material captured. 1 female, Spain, Alicante Province, Alcoi, Natural Park of Carrascal de La Font Roja, 20.05.2004; 1 female, same label but 27.05.2004; 1 female, same label but 03.06.2004; 4 females, same label but 12.06.2004; 2 females, same label but 17.06.2004; 1 female, same label but 01.07.2004; 3 females, same label but 08.07.2004; 2 females, same label but 22.07.2004; 1 female, same label but 03.07.2006; 1 female, same label but 04.09.2006; 1 female, same label but 11.09.2006; 1 female, same label but 25.09.2006; 1 female, same label but 16.10.2006; 1 female, same label but 07.05.2007; 4 females, same label but 21.05.2007; 3 females, same label but 28.05.2007; 5 females, same label but 04.06.2007; 2 females, same label but 11.06.2007; 4 females, same label but 18.06.2007; 4 females, same label but 25.06.2007; 1 female, same label but 02.07.2007; 2 females, same label but 09.07.2007; 4 females, same label but 16.07.2007 (ENV); 1 female, Spain, Castellon Province, Pobla de Benifassà, Natural Park of Tinença de Benifassà, 27.05.2004; 1 female, same label but 19.08.2004; 2 females, same label but 16.09.2004; 1 female,

same label but 07.10.2004; 1 female, same label but 21.10.2004; female, same label but 13.06.2005; 1 female, same label but 01.05.2006; 1 female, same label but 12.06.2006; 1 female, same label but 19.06.2006; 1 female, same label but 19.06.2006; 1 female, same label but 10.08.2006 (ENV); 1 female, Spain, Alicante Province, Torrevieja, Natural Park of Lagunas de La Mata–Torrevieja, 21.12.2004; 1 female, same label but 18.01.2005; 1 female, same label but 29.03.2005; 1 male, same label but 05.04.2005 (ENV).

Distribution. Austria, Belgium, Bulgaria, China, Czech Republic, former Czechoslovakia, Denmark, Germany, Greece, Hungary, Iceland, Italy, Korea, Macedonia, Netherlands, Russia, Spain, Sweden, Switzerland, Turkey, Uzbekistan and former Yugoslavia.

Main characters of the species. Body length: 1.40–1.60 mm. Head in dorsal view 2.00 times as wide as its median length and 1.50 times as wide as mesoscutum. Face 1.20 times as wide as high. Mandible 1.25 times as long as wide. Antennae 20–21–segmented. First flagellar segment 3.70 times as long as its apical width. Middle flagellar segments 1.90–2.00 times as long as their width. Mesosoma in lateral view 1.20 times as long as high. Mesoscutum 0.85 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, elongated. Prescutellar depression smooth, without lateral carinae. Sternaulus (precoxal suture) present, reaching anterior part of mesopleuron. Posterior mesopleural furrow crenulated below. Propodeum completely sculptured. Propodeal spiracles relatively small. Hind femur 4.00–4.10 times as long as its maximum width. First metasomal tergite 1.80–1.90 times as long as its apical width. Ovipositor 1.30 times as long as first metasomal tergite. Main colour brown.

Orthostigma maculipes (HALIDAY)

Alysia maculipes Haliday 1838: 246.
Aspilota maculipes: Marshall 1872: 129.
Aspilota maculipes: Marshall 1895: 438.
Alysia (Orthostigma) maculipes: Thomson 1895: 2301.
Aspilota maculipes: Marshall 1895: 380.
Aspilota maculipes: Roman 1917: 4.
Orthostigma maculipes: Fischer 1970: 332.
Orthostigma maculipes: Francés *et al*. 1989: 207.
Orthostigma maculipes: Yu *et al.* 2005.
Orthostigma maculipes: Papp 2007b: 100.
Orthostigma maculipes: Loza *et al*. 2010: 18.
Orthostigma maculipes: Yu *et al.* 2011.

Material captured. 1 female, Spain, Castellon Province, Pobla de Benifassà, Natural Park of Tinença de Benifassà, 26.09.2005; 2 females, same label but 29.05.2006; 2 females, same label but 05.06.2006; 1 female, same label but 19.06.2006; 1 female, same label but 17.07.2006 (ENV); 1 female, Spain, Alicante Province, Torrevieja, Natural Park of Lagunas de La Mata–Torrevieja, 13.03.2007 (ENV).
Distribution. Austria, Bosnia–Herzegovina, Bulgaria, Czech Republic, Faeroe Islands, Germany, Greece, Hungary, Iran, Ireland, Macedonia, Netherlands, Poland, Russia, Serbia, Spain, Sweden, Switzerland, Ukraine, United Kingdom and former Yugoslavia.
Main characters of the species. Body length: 1.10–1.40 mm. Head in dorsal view 2.00 times as wide as its median length and 1.50–1.55 times as wide as mesoscutum. Face 1.30–1.40 times as wide as high. Mandible as long as wide. Antennae 16–18–segmented. First flagellar segment 3.30 times as long as its apical width. Middle flagellar segments 2.00–2.10 times as long as their width. Mesosoma in lateral view 1.20 times as long as high. Mesoscutum 0.90 times as long as its

maximum width. Notauli mainly absent. Mesoscutal pit present, rounded. Prescutellar depression smooth, without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum completely sculptured. Propodeal spiracles relatively small. Hind femur 3.75 times as long as its maximum width. First metasomal tergite 2.00 times as long as its apical width. Ovipositor as long as first metasomal tergite. Main colour dark brown.

Orthostigma pumilum (NEES)

Alysia pumila Nees 1834: 251.
Alysia pumila: Haliday 1838: 242.
Ichneumon (Aphidius) flavipes Ratzeburg 1844: 24.
Aphidius (Orthostigma) flavipes: Ratzeburg 1844: 52.
Orthostigma flavipes: Ratzeburg 1848: 71.
Orthostigma brunnipes Ratzeburg 1852: 70.
Orthostigma pumilum: Ruthe 1859: 320.
Ischnocarpa pumila: Ferster 1862: 268.
Orthostigma pumila: Marshall 1895: 432.
Alysia (Orthostigma) pumila: Thomson 1895: 2300.
Orthostigma pumila: Marshall 1895: 373.
Orthostigma bruneipes Dalla Torre 1898: 36.
Orthostigma pumilum: Königsmann 1969: 24.
Orthostigma pumilum: Fischer 1970: 333.
Orthostigma pumilum: Fischer 1995: 676.
Orthostigma pumilum: Yu *et al.* 2005.
Orthostigma pumilum: Papp 2009b: 6.
Orthostigma pumilum: Yu *et al.* 2011.
Orthostigma pumilum: Broad *et al.* 2012: 11.

Material captured. 1 female, Spain, Castellon Province, Pobla de Benifassà, Natural Park of Tinença de Benifassà, 17.06.2004; 1 female, same label but 01.07.2004; 1 female, same label but 08.07.2004; 2 females, same label but 29.07.2004; 1 female, same label but 05.08.2004; 1 female, same label but 30.09.2004; 1 female, same label but 24.10.2005; 1 female, same label but 12.06.2006; 1 female, same label but 02.10.2006; 1 female, same label but 19.03.2007; 1 female, same label but 28.05.2007 (ENV); 1 female, Spain, Alicante Province, Torrevieja, Natural Park of Lagunas de La Mata–Torrevieja, 31.05.2005 (ENV).

Distribution. Austria, Bulgaria, China, Croatia, Czech Republic, forms Czechoslovakia, Denmark, France, Germany, Hungary, Iceland, Ireland, Italy, Lithuania, Madeira Islands, Mongolia, Montenegro, Netherlands, Poland, Russia, Slovakia, Spain, Switzerland, Ukraine, United Kingdom, former Yugoslavia and Serbia.

Main characters of the species. Body length: 1.60–2.60 mm. Head in dorsal view 2.00 times as wide as its median length and 1.60 times as wide as mesoscutum. Face 1.40–1.45 times as wide as high. Mandible 0.75 times as long as wide. Antennae 18–22–segmented. First flagellar segment 2.50 times as long as its apical width. Middle flagellar segments 1.90–2.00 times as long as their width. Mesosoma in lateral view 1.20 times as long as high. Mesoscutum 0.90 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, elongated. Prescutellar depression smooth, without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum with pentagonal areola. Propodeal spiracles relatively small. Hind femur 3.90–4.00 times as long as its maximum width. First metasomal tergite 2.00 times as long as its apical width, finely striated. Ovipositor 0.80 times as long as first metasomal tergite. Main colour brown.

Orthostigma sculpturatum (TOBIAS)

Orthostigma sculpturata Tobias 1962: 99.
Orthostigma sculpturarum: Königsmann 1969: 31.
Orthostigma sculpturatum: Fischer 1970: 333.
Orthostigma sculpturatum: Francés *et al*. 1989: 207.
Orthostigma sculpturatum: Fischer 1995: 675.
Orthostigma sculpturatum: Yu *et al.* 2005.
Orthostigma sculpturatum: Lozan *et al.* 2010: 18.
Orthostigma sculpturatum: Yu *et al.* 2011.

Material captured. 1 female, Spain, Castellon Province, Pobla de Benifassà, Natural Park of Tinença de Benifassà, 28.08.2006 (ENV).
Distribution. Austria, Bulgaria, China, Czech Republic, former Czechoslovakia, Germany, Hungary, Russia, Spain, Uzbekistan, former Yugoslavia and Serbia.
Main characters of the species. Body length: 2.00–2.30 mm. Head in dorsal view 2.00 times as wide as its median length and 1.65 times as wide as mesoscutum. Face 2.00 times as wide as high. Mandible 1.50 times as long as wide. Antennae 20–24–segmented. First flagellar segment 2.00 times as long as its apical width. Middle flagellar segments 1.50 times as long as their width. Mesosoma in lateral view 1.10 times as long as high. Mesoscutum 1.10 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, elongated. Prescutellar depression almost smooth, without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum reticulate–rugose, smooth on narrow basal stripe. Propodeal spiracles relatively small. Hind femur 5.00 times as long as its maximum width. First metasomal tergite 3.00 times as long as its apical width. Ovipositor 0.30 times as long as first metasomal tergite. Main colour black.

Genus *SYNALDIS* Foerster 1862

Synaldis concolor (NEES)

Bassus concolor Nees 1812: 213.
Alysia concolor: Nees 1834: 254.
Synaldis concolor: Foerster 1862: 273.
Synaldis concolor: Fischer 1962: 7.
Synaldis concolor: Fischer 1967: 94.
Synaldis concolor: Fischer 1970: 337.
Synaldis concolor: Francés *et al.* 1989: 209.
Synaldis concolor: Fischer 1993b: 571.
Synaldis concolor: Fischer 2003: 21.
Synaldis concolor: Yu *et al.* 2005.
Synaldis concolor: Papp 2007b: 100.
Synaldis concolor: Papp 2009b: 7.
Synaldis concolor: Lozan *et al.* 2010: 18.
Synaldis concolor: Yu *et al.* 2011.
Synaldis concolor: Broad *et al.* 2012: 12.

Material captured. 1 male, Spain, Castellon Province, Pobla de Benifassà, Natural Park of Tinença de Benifassà, 29.05.2005; 1 female, same label but 25.07.2005; 1 male, same label but 15.05.2006; 1 male, same label but 22.05.2006; 2 males, same label but 12.06.2006; 1 male, same label but 19.03.2007 (ENV); 1 male, Spain, Alicante Province, Torrevieja, Natural Park of Lagunas de La Mata–Torrevieja, 18.01.2005; 1 female, same label but 05.04.2005; 1 female, same label but 28.02.2006; 1 male, same label but 03.04.2007 (ENV).

Distribution. Afghanistan, Austria, Bulgaria, Czech Republic, former Czechoslovakia, France, Germany, Greece, Hungary, Iceland, Iran, Ireland, Italy, Korea, Lithuania, Mongolia, Netherlands, Norway,

Poland, Russia, Spain, Switzerland, United Kingdom, former Yugoslavia and Serbia.

Main characters of the species. Body length: 1.30–1.60 mm. Head in dorsal view 2.00 times as wide as its median length and 1.75 times as wide as mesoscutum. Face 1.40 times as wide as high. Mandible as long as wide. Antennae 13–17–segmented. First flagellar segment 3.00 times as long as its apical width. Middle flagellar segments 2.00 times as long as their width. Mesosoma in lateral view 1.30 times as long as high. Mesoscutum 1.10 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, oval. Prescutellar depression smooth, without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum completely sculptured. Propodeal spiracles small. Hind femur 4.00 times as long as its maximum width. First metasomal tergite 1.80 times as long as its apical width. Ovipositor as long as first metasomal tergite. Main colour brown.

Synaldis distracta (NEES)

Alysia distracta Nees 1834: 255.
Synaldis distracta: Marshall 1895: 446.
Synaldis distracta: Fischer 1962: 9.
Synaldis distracta: Fischer 1967: 97.
Synaldis distracta: Fischer 1970: 338.
Synaldis distracta: Francés *et al.* 1989: 209.
Synaldis distracta: Fischer 1993b: 571.
Synaldis distracta: Fischer 2003: 22.
Synaldis distracta: Yu *et al.* 2005.
Synaldis distracta: Papp 2007a: 6.
Synaldis distracta: Papp 2007b: 100.
Synaldis distracta: Lozan *et al.* 2010: 18.

Synaldis distracta: Yu *et al.* 2011.
Synaldis distracta: Broad *et al.* 2012: 12.

Material captured. 1 male, Spain, Alicante Province, Alcoi, Natural Park of Carrascal de La Font Roja, 11.05.2006 (ENV); 1 female, Spain, Castellon Province, Pobla de Benifassà, Natural Park of Tinença de Benifassà, 03.06.2004; 1 female, same label but 08.07.2004; 1 female, same label but 15.07.2004; 2 females, same label but 13.06.2005; 1 female, same label but 01.05.2006; 1 male, same label but 01.05.2006; 2 females, same label but 22.05.2006; 1 male, same label but 22.05.2006; 1 male, same label but 29.05.2006; 1 female, same label but 05.02.2007; 1 female, same label but 19.03.2007; 1 female, same label but 23.04.2007; 1 male, same label but 11.06.2007 (ENV); 1 female, Spain, Alicante Province, Torrevieja, Natural Park of Lagunas de La Mata–Torrevieja, 25.05.2004; 2 females, same label but 23.11.2004; 3 females, same label but 30.11.2004; 1 male, same label but 18.01.2005; 1 female, same label but 15.02.2005; 2 females, same label but 29.03.2005; 1 male, same label but 29.03.2005; 2 males, same label but 05.04.2005; 1 female, same label but 26.04.2005; 1 female, same label but 23.05.2005; 1 male, same label but 14.06.2005; 1 female, same label but 04.04.2006; 1 male, same label but 13.03.2007; 3 females, same label but 03.04.2007 (ENV).

Distribution. Austria, Bulgaria, Canary Islands, China, Croatia, Czech Republic, former Czechoslovakia, Finland, Germany, Greece, Hungary, Iceland, Iran, Ireland, Korea, Lithuania, Madeira Islands, Mongolia, Poland, Romania, Russia, Slovenia, Spain, Sweden, Switzerland, Tunisia, United Kingdom, Uzbekistan and former Yugoslavia.

Main characters of the species. Body length: 1.30–1.60 mm. Head in dorsal view 2.00 times as wide as its median length and 1.30 times as

wide as mesoscutum. Face 1.30 times as wide as high. Mandible 1.50 times as long as wide. Antennae 16–20–segmented. First flagellar segment 3.00 times as long as its apical width. Middle flagellar segments 2.00 times as long as their width. Mesosoma in lateral view 1.30 times as long as high. Mesoscutum 0.90 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, oval. Prescutellar depression smooth, without lateral carinae. Sternaulus (precoxal suture) present, reaching anterior part of mesopleuron. Posterior mesopleural furrow crenulated. Propodeum with pentagonal areola with sculptured fields. Propodeal spiracles relatively small. Hind femur 4.00 times as long as its maximum width. First metasomal tergite 2.00 times as long as its apical width. Ovipositor as long as first metasomal tergite. Main colour brown.

Synaldis lacessiva FISCHER

Synaldis lacessiva Fischer 1975: 321.
Synaldis lacessiva: Fischer 1993b: 569.
Synladis lacessiva: Fischer 2003: 22.
Synaldis lacessiva: Yu *et al.* 2005; 2011.

Material captured. 1 female, Spain, Alicante Province, Alcoi, Natural Park of Carrascal de La Font Roja, 27.05.2004; 1 female, same label but 03.06.2004; 1 female, same label but 12.06.2004; 1 female, same label but 24.06.2004; 3 females, same label but 01.07.2004; 6 females, same label but 08.07.2004; 2 females, same label but 22.07.2004; 1 female, same label but 29.07.2004; 1 female, same label but 27.09.2004; 1 female, same label but 01.11.2004; 2 females, same label but 16.05.2005; 1 female, same label but 23.05.2005; 1 female, same label but 17.10.2005; 1 female, same label but 12.06.2006; 1 male, same label but 17.07.2006; 1 female, same label but 14.08.2006; 2 females, same label but 21.08.2006; 1 female, same label but

18.09.2006; 1 female, same label but 13.11.2006; 2 females, same label but 04.06.2007; 1 male, same label but 04.06.2007; 4 females, same label but 11.06.2007; 1 female, same label but 18.06.2007; 1 male, same label but 18.06.2007; 1 male, same label but 02.07.2007; 1 female, same label but 16.07.2007 (ENV); 1 female, Spain, Castellon Province, Pobla de Benifassà, Natural Park of Tinença de Benifassà, 27.05.2004 (ENV).

Distribution. Austria, Canary Islands, Czech Republic, Hungary, Madeira Islands and Spain.

Main characters of the species. Body length: 1.50 mm. Head in dorsal view 1.60 times as wide as its median length and 1.50 times as wide as mesoscutum. Face 1.30–1.40 times as wide as high. Mandible as long as wide. Antennae 15–17–segmented. First flagellar segment 1.50 times as long as its apical width. Middle flagellar segments as long as their width. Mesosoma in lateral view 1.25 times as long as high. Mesoscutum 1.10 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, rounded. Prescutellar depression smooth, without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow weakly crenulated below. Propodeum smooth, with median longitudinal carina. Propodeal spiracles small. Hind femur 3.00 times as long as its maximum width. First metasomal tergite 2.00 times as long as its apical width. Ovipositor longer than first metasomal tergite. Main colour brown.

Besides mentioned *Synaldis* species above, also 7 new species have been identified: *Synaldis* sp1, *Synaldis* sp2, *Synaldis* sp3, *Synaldis* sp4, *Synaldis* sp5, *Synaldis* sp6 and *Synaldis* sp7. Information about material captured was given.

***Synaldis* sp1**

Material captured. 1 female, Spain, Castellon Province, Pobla de Benifassà, Natural Park of Tinença de Benifassà, 01.07.2004; 1 female, same label but 22.07.2004 (ENV).

***Synaldis* sp2**

Material captured. 1 female, Spain, Alicante Province, Alcoi, Natural Park of Carrascal de La Font Roja, 27.05.2004; 1 female same label but 03.06.2004; 1 female, same label but 12.06.2004; 1 female, same label but 19.06.2006; 1 female, same label but 01.07.2004; 1 female, same label but 16.07.2004; 1 female, same label but 14.08.2006; 1 female, same label but 28.08.2006; 1 female, same label but 11.09.2006; 1 female, same label but 04.06.2007; 2 females, same label but 11.06.2007; 3 females, same label but 18.06.2007; 1 female, same label but 25.06.2007; 1 female, same label but 16.07.2007 (ENV); 1 female, Spain, Castellon Province, Pobla de Benifassà, Natural Park of Tinença de Benifassà, 10.06.2004; 1 female, same label but 17.06.2004; 1 female, same label but 15.07.2004; 1 male, same label but 22.07.2004; 2 females, same label but 29.07.2004; 3 females, same label but 05.08.2004; 1 female, same label but 12.08.2004; 1 female, same label but 16.09.2004; 1 female, same label but 23.09.2004; 2 females, same label but 30.09.2004; 1 female, same label but 07.10.2004; 1 female, same label but 04.11.2004; 4 females, same label but 13.06.2005; 5 females, same label but 27.06.2005; 6 females, same label but 04.07.2005; 1 female, same label but 11.07.2005; 1 female, same label but 18.07.2005; 8 females, same label but 01.05.2006; 2 females, same label but 08.05.2006; 1 female, same label but 15.05.2006; 1 male, same label but 15.05.2006; 6 females, same label but 29.05.2006; 1 male, same label but 29.05.2006; 3 females, same label but 05.06.2006; 1 female, same label but 19.06.2006; 2 females, same label but 26.06.2006; 1 female

same label but 23.04.2007 (ENV); 2 females, Spain, Alicante Province, Torrevieja, Natural Park of Lagunas de La Mata–Torrevieja, 04.05.2004; 2 females, same label but 11.05.2004; 2 females, same label but 18.05.2004; 4 females, same label but 25.05.2004; 7 females, same label but 15.06.2004; 1 male, same label but 15.06.2004; 2 females, same label but 22.06.2004; 1 female, same label but 29.06.2004; 2 females, same label but 06.07.2004; 1 female, same label but 20.07.2004; 1 female, same label but 26.10.2004; 3 females, same label but 03.05.2005; 1 female, same label but 10.05.2005; 2 females, same label but 17.05.2005; 1 female, same label but 14.06.2005; 1 female, same label but 13.07.2005; 1 female, same label but 30.10.2005; 1 female, same label but 01.11.2005; 1 female, same label but 08.11.2005; 2 females, same label but 15.11.2005; 1 female, same label but 02.12.2005; 2 females, same label but 27.12.2005; 1 male, same label but 10.01.2006; 1 female, same label but 11.04.2006; 1 male, same label but 12.09.2006; 2 females, same label but 19.09.2006; 5 females, same label but 17.10.2006; 1 male, same label but 17.10.2006; 2 females, same label but 24.10.2006; 1 male, same label but 07.11.2006; 1 female, same label but 28.11.2006; 2 females, same label but 17.04.2007; 3 females, same label but 08.05.2007; 3 females, same label but 15.05.2007; 1 male, same label but 15.05.2007; 1 female, same label but 22.05.2007; 1 female, same label but 29.05.2007; females, same label but 05.06.2007; 1 female, same label but 19.06.2007; 1 female, same label but 03.07.2007; 2 females, same label but 02.10.2007; 1 female, same label but 16.10.2007 (ENV).

***Synaldis* sp3**

Material captured. 1 female, Spain, Alicante Province, Alcoi, Natural Park of Carrascal de La Font Roja, 01.11.2004 (ENV); 1 female, Spain, Castellon Province, Pobla de Benifassà, Natural Park of

Tinença de Benifassà, 11.07.2005; 1 male, same label but 11.07.2005; 1 female, same label but 18.07.2005 (ENV).

***Synaldis* sp4**

Material captured. 1 male, Spain, Alicante Province, Alcoi, Natural Park of Carrascal de La Font Roja, 12.09.2005; 1 male, same label but 17.07.2006; 1 male, same label but 25.09.2006; 1 male, same label but 23.10.2006; 1 female, same label but 04.06.2007; 1 male, same label but 02.07.2007; 1 male, same label but 30.07.2007 (ENV); 1 female, Spain, Castellon Province, Pobla de Benifassà, Natural Park of Tinença de Benifassà, 08.08.2005 (ENV).

***Synaldis* sp5**

Material captured. 1 male, Spain, Alicante Province, Alcoi, Natural Park of Carrascal de La Font Roja, 14.05.2007 (ENV); 1 female, Spain, Castellon Province, Pobla de Benifassà, Natural Park of Tinença de Benifassà, 23.05.2005; 1 female, same label but 31.05.2005; 1 female, same label but 13.06.2005; 1 female, same label but 25.07.2005; 1 male, same label but 12.06.2006; 1 female, same label but 05.02.2007 (ENV).

***Synaldis* sp6**

Material captured. 1 female, Spain, Alicante Province, Torrevieja, Natural Park of Lagunas de La Mata–Torrevieja, 25.05.2004; 1 female, same label but 22.06.2004; 2 females, same label but 12.10.2004; 1 female, same label but 19.09.2006 (ENV).

***Synaldis* sp7**

Material captured. 1 female, Spain, Alicante Province, Torrevieja, Natural Park of Lagunas de La Mata–Torrevieja, 02.02.2005; 1 male, same label but 18.03.2005 (ENV).

4.1.2. Phenological Analysis

The methodology, based on Malaise trapping, allows for continuous monitoring over a long period of time, which permits the gathering of very important biological information about families, subfamilies, genera and species by analyzing capture dates. With such information acquired for species of the *Aspilota*-group from March 2004 to November 2007, the phenology of species from each park and the phenological set of species were analyzed.

Definitions of phenological periods used in the current study are described below:

•Spring: March 23rd to June 22nd.

•Summer: June 23rd to September 22nd.

•Autumn: September 23rd to December 22nd.

•Winter: December 23rd to March 22nd.

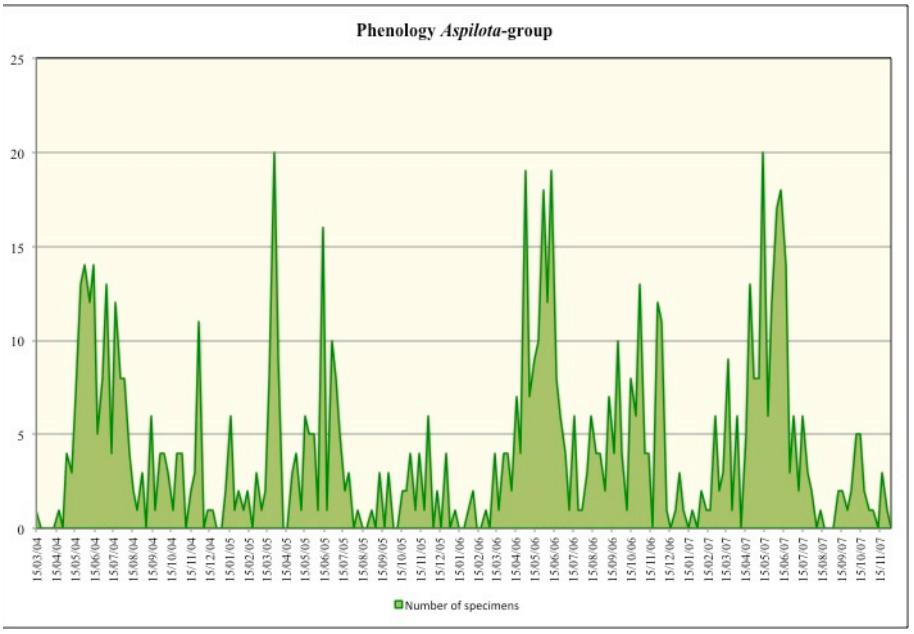
Once the period of time for each annual station is known, it is possible to begin the phenological analysis. First of all, the *Aspilota*-group analysis from the data set obtained in each natural park sampled was carried out.

As shown in Graphic 4, species from the *Aspilota*-group can be found throughout the year, but are most abundant between April and September (spring and summer).

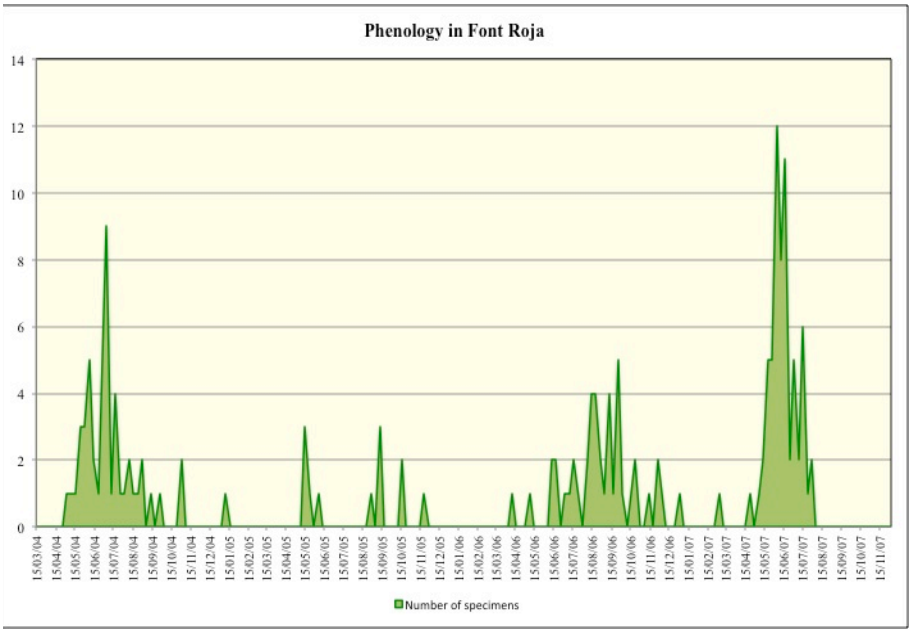
Upon closer inspection of Graphic 4, two peaks of the capture of specimens can be found. The first corresponds to spring (March–July) and the second to autumn (September–November).

From this moment, with the knowledge that it is possible to find braconids of *Aspilota*–group at any time of the year, the individual analysis for each Natural Park is done.

Graphic 4. Phenology of *Aspilota*-group.



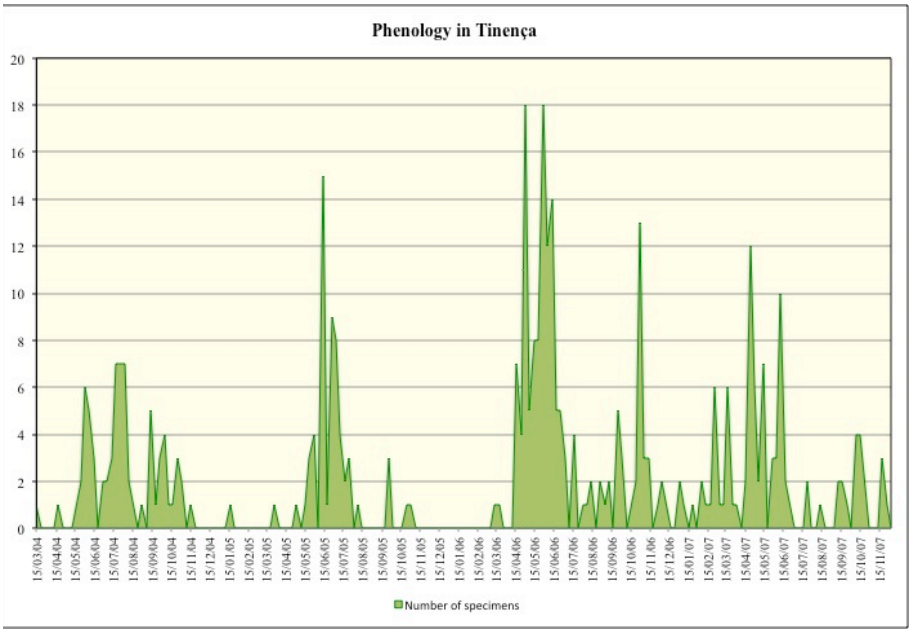
Graphic 5. Phenology of *Aspilota*-group in Natural Park of Carrascal de La Font Roja.



Analysis of the Natural Park of La Font Roja (Graphic 5) shows that there are quite a few capture peaks. Specifically, all of them are distributed between April and late September (spring and summer), the largest amount captured ended in May 2007, with 12 specimens. No specimens were found between December and April (winter and early spring).

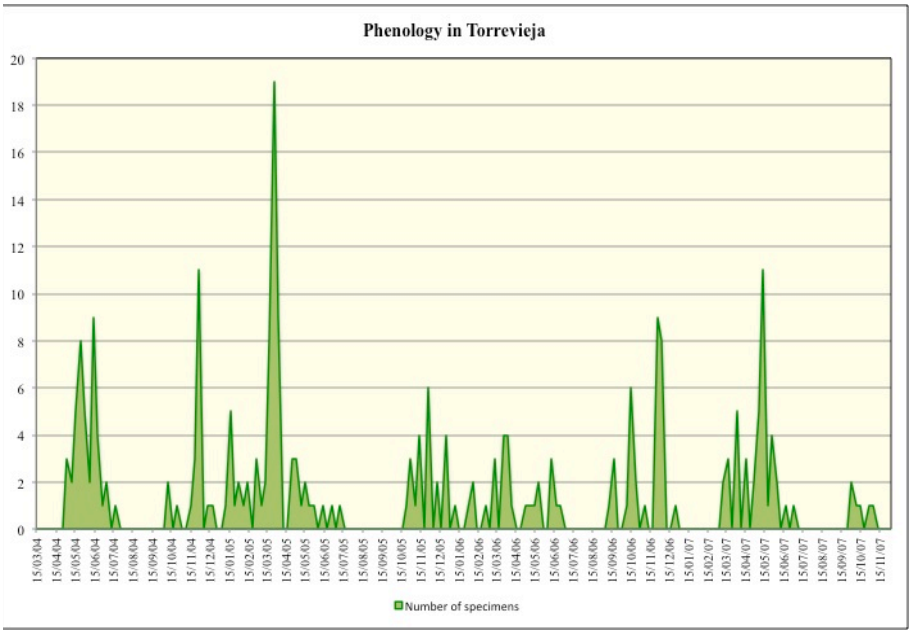
Phenology analysis of the Natural Park of La Tinença of Benifassà (Graphic 6) indicates that there are two capture peaks each year. The first peak spans from April to June (spring), while the second peak is from September to November (autumn). The specimens are captured during other months but during this period, they are rare and on winter are virtually non–existent. The highest amount captured was on May and June 2006, amounting to 18 specimens.

Graphic 6. Phenology of *Aspilota*-group in Natural Park of Tinença de Benifassà.



Similarly, the phenology analysis of the Natural Park of Las Lagunas de La Mata–Torrevieja (Graphic 7) also indicates that here are two capture peaks each year. One period is between April and June (spring), while the other period is between October andDecember (autumn). Additionally, some years can be show a third peak located between December and March (winter). During the sampling period, specimens between late July and early September were not observed. The most amount captured was on April 2005, with 19 specimens.

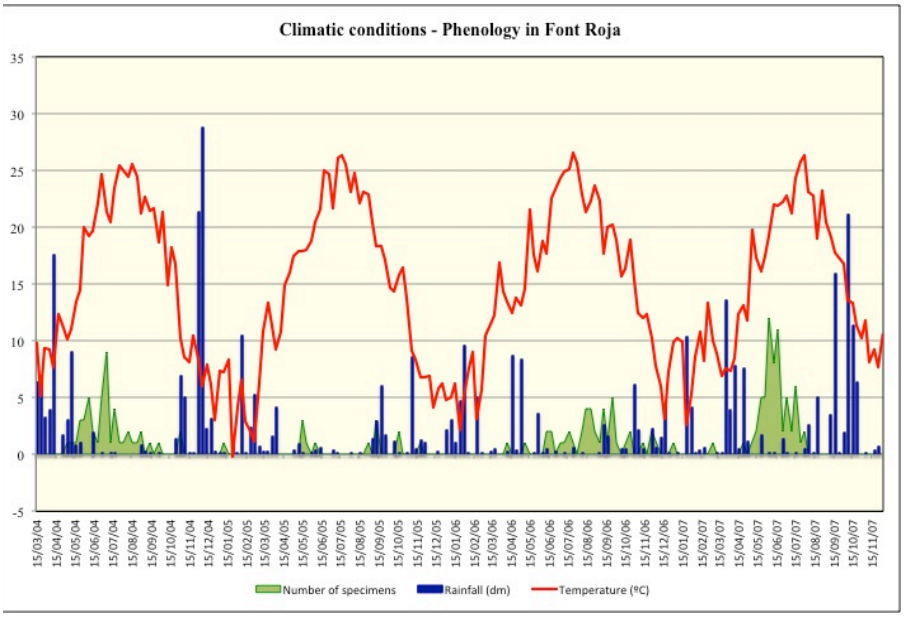
Graphic 7. Phenology of *Aspilota*-group in Natural Park of las Lagunas de La Mata–Torrevieja.



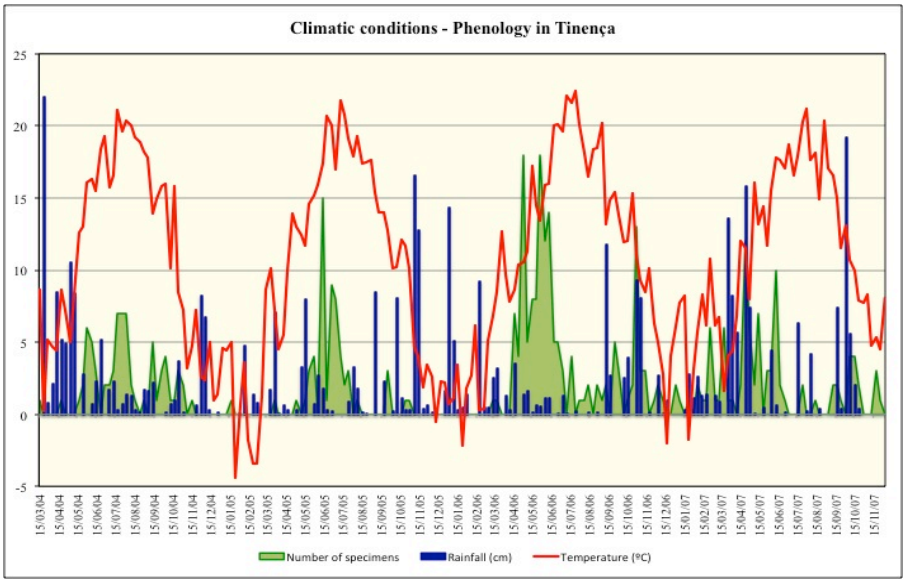
Capture peaks in each of the three natural parks appear to vary. So, to understand the reason for this, the relationship between the presence of species and the climatic conditions, of the temperature and rainfall for each habitat needs to be studied.

In Font Roja (Graphic 8), the largest catches occurred after spring rainfall, the highest number of captures happened between June and September, when temperatures remained temperate (15–25°C). Limited captures occurred during autumn and winter.

Graphic 8. Relationship between climate conditions and phenology in Natural Park of La Font Roja.

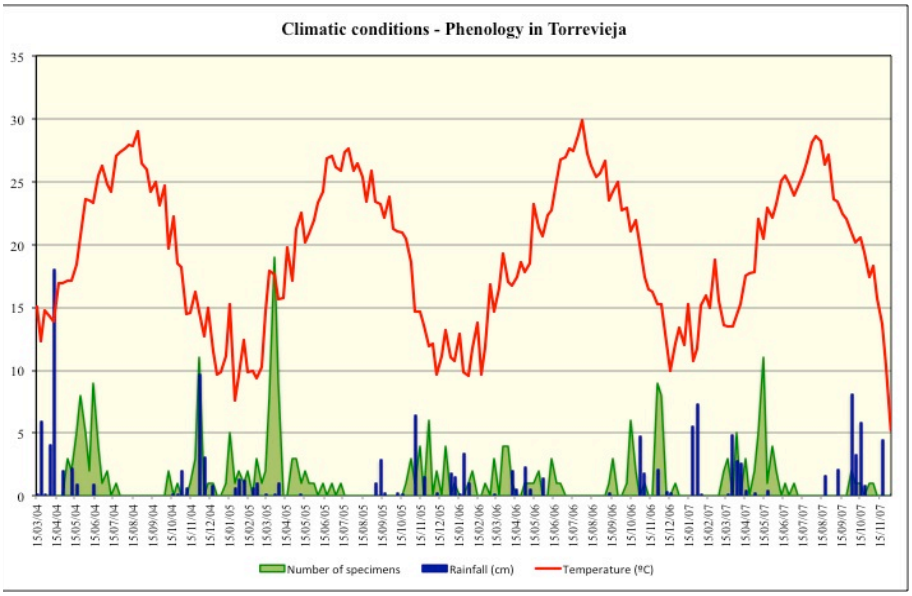


Graphic 9. Relationship between climate conditions and phenology in Natural Park of La Tinença de Benifassà.



Conversely, in Tinença, the change of average temperature and rainfall, year after year, is more or less constant. As shown in Graphic 9, after the course of a few weeks, there is a rise in temperature, and there is an increase in the number of specimen. When average temperatures exceed 20ºC (July-August), *Aspilota* populations decrease then disappear, appearing again only after a decrease in temperatures. A reduction in temperature is typically followed by rainfall, since these species are parasitoids of leaf–miner insects mainly from herbaceous, and when temperatures rise, the grass is dries and disappears until the next rainy season.

Graphic 10. Relationship between climate conditions and phenology in Natural Park of Las Lagunas de La Mata–Torrevieja.



In Torrevieja (Graphic 10), the capture of braconids is greatest when the temperature is moderate (15–20°C). On the other hand, a few weeks of rainfall creates the largest amount of specimen catches, since there is a new growth of grass.

Finally, to conclude the phenological analysis, the data for every captured species is recorded in order to understand when the species in the habitat could be found the again. Table 1 provides a summary of the months during which each species was captured. Most species were abundant during spring. However, there are species that appear in spring and autumn but not during warmer periods, such as *Aspilota procreata, Dinotrema enanum, Dinotrema fischerianum, Synaldis concolor* and *Synaldis distracta*. On the other hand, there are species that ate typical of autumn and winter climates, such as *Dinotrema lagunasense, Dinotrema pareum, Synaldis* sp7 and so on.

Moreover, some species appear throughout the whole year, such as *Aspilota propeminimam, Aspilota valenciensis, Dinotrema costulatum, Dinotrema paquitae, Orthostigma latices, Orthostigma maculipes, Orthostigma pumilum and Synaldis* sp2. Although most species were captured during three different months, three species, *Dinotrema teresae, Orthostigma beyarslani and Orthostigma sculpturatum*, were only captured during one month.

Table 1. Annual growth cycle of each species.

Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Adelphenaldis maxfischeri						■	■					
Aspilota anaphoretica					■					■		
Aspilota delicata			■						■			
Aspilota flagimilis						■					■	
Aspilota insolita			■			■						
Aspilota procreata			■	■	■	■						■
Aspilota propedaemon			■		■	■		■				■
Aspilota propeminimam		■	■	■	■	■	■				■	
Aspilota valenciensis	■		■	■	■	■		■		■		
Aspilota sp1					■	■						
Aspilota sp2				■		■						
Dinotrema achterbergi		■				■				■	■	■
Dinotrema amparoae		■	■	■							■	
Dinotrema belokobylskiji										■		
Dinotrema benifassaense				■	■	■	■					
Dinotrema broadi	■	■			■		■			■	■	
Dinotrema castaneithorax		■		■	■	■		■	■	■		
Dinotrema costulatum	■	■	■	■	■	■	■		■	■	■	
dinotrema crassicostum				■	■	■		■	■	■		
Dinotrema enanum				■	■							■
Dinotrema fischerianum				■	■							
Dinotrema jimenezi									■	■		
Dinotrema lagunasense	■	■	■	■							■	■
Dinotrema mareum					■		■					
Dinotrema munki					■					■		
Dinotrema pappi	■				■							
Dinotrema paquitae		■	■	■	■		■			■		
Dinotrema parapunctatum						■	■	■	■	■		
Dinotrema pareum	■	■	■	■						■	■	
Dinotrema pilarae	■											
Dinotrema robertoi							■	■	■			
Dinotrema teresae				■								
Dinotrema tinencaense						■	■	■				
Dinotrema torreviejaense				■	■							

Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Dinotrema vitobiasi												
Dinotrema zimmermannae												
Eudinostigma latistigma												
Orthostigma beyarslani												
Orthostigma laticeps												
Orthostigma maculipes												
Orthostigma pumilum												
Orthostigma sculpturatum												
Synaldis concolor												
Synaldis distracta												
Synaldis lacessiva												
Synaldis sp1												
Synaldis sp2												
Synaldis sp3												
Synaldis sp4												
Synaldis sp5												
Synaldis sp6												
Synaldis sp7												

*Jan (January), Feb (February), Mar (March), Apr (April), May (May), Jun (June), Jul (July), Aug (August), Sep (September), Oct (October), Nov (November), Dec (December).

4.1.3. Diversity Analysis

Diversity analysis is a tool used to study sets of similar organisms collected from locations that differ with regards to certain environmental characteristics (Moreno 2001). In this sense, many studies investigating the diversity of braconidae have been carried out worldwide, such as in Brazil (Cirelli and Penteado-Dias 2003; Scatolini and Penteado-Dias 2003) and Venezuela (Briceño et al. 2009). However, in the Iberian Peninsula (Andorra, Spain and Portugal) these communities have not been sufficiently characterised (Nieves and del Castillo 1991; Pujade-Villar 1996; Segade *et al.* 1997; Ros-Farré and Pujade-Villar 1998; González *et al.* 2000; Martínez de Murguía *et al.* 2001; Tomé *et al.* 2001), with the exception of a study about this family in the Pyrenees (Falcó-Garí *et al.* 2006). Recently, Peris-Felipo and Jiménez-Peydró (2011a) carried out diversity analysis of the subfamily Alysiinae from the Natural Park of Penya de Aya (Navarra), but was addressed only to genera level. In the same study, the authors also analyzed the diversity and community structure of the Opiinae subfamily in the same landscape (Jiménez-Peydró and Peris-Felipo 2011).

Despite the growing number of studies investigating the diversity and community structure of braconidae, very little is still known. This chapter aims to provide an analysis of alpha, beta and gamma diversity, as well as community structure of the *Aspilota*-group in three natural parks with enormous ecological value located in Tinença, Font Roja and Torrevieja.

Alpha diversity

a) Analysis of species richness

Sample collection resulted in the capture of 820 specimens of the *Aspilota*-group from the genera *Adelphenaldis* (2 specimens), *Aspilota* (108 specimens), *Dinotrema* (341 specimens), *Eudinostigma* (10

specimens), *Orthostigma* (88 specimens) and *Synaldis* (271 specimens) and represented for 52 species (Table 2).

However, the species were not evenly distributed among the different natural parks. Specifically, 39 species were identified in the Natural Park of La Tinença de Benifassà (Tinença), 22 species in the Natural Park of Carrascal de La Font Roja (Font Roja) and 21 species in the Natural Park of Las Lagunas de la Mata-Torrevieja (Torrevieja).

The *Dinotrema* genera was the most abundant with 343 specimens, followed by the genera *Synaldis* (271 specimens) and *Aspilota* (108 specimens). Overall, 383 specimens were collected in Tinença, 257 in Torrevieja and 182 in Font Roja. In Tinença, the most captured genera was *Dinotrema* with 202 specimens, followed by *Synaldis* with 95 specimens. However, in Torrevieja and Font Roja, the most captured genera was *Synaldis* with 105 and 71 specimens, respectively, followed by *Dinotrema* with 93 and 46 specimens, respectively.

Table 2. Distribution of species according to habitat.

Species	Font Roja	Tinença	Torrevieja
Adelphenaldis maxfischeri	2	0	0
Aspilota anaphoretica	4	0	0
Aspilota delicata	0	2	1
Aspilota flagimilis	3	0	0
Aspilota insolita	0	2	0
Aspilota procreata	0	0	32
Aspilota propedaemon	2	4	2
Aspilota propeminimam	1	15	1
Aspilota sp1	0	1	9
Aspilota sp2	0	0	2
Aspilota valenciensis	1	22	4
Dinotrema achterbergi	2	13	3
Dinotrema amparoae	0	0	9
Dinotrema belokobylskiji	0	2	0
Dinotrema benifassaense	0	5	0

Species	Font Roja	Tinença	Torrevieja
Dinotrema broadi	0	11	0
Dinotrema castaneithorax	0	21	0
Dinotrema costulatum	4	71	0
Dinotrema crassicostum	0	23	0
Dinotrema enanum	1	2	0
Dinotrema fischerianum	2	1	0
Dinotrema jimenezi	0	2	0
Dinotrema lagunasense	0	0	79
Dinotrema marense	0	2	0
Dinotrema munki	0	4	0
Dinotrema pappi	2	1	0
Dinotrema paquitae	0	9	0
Dinotrema parapunctatum	30	5	0
Dinotrema pareum	0	9	0
Dinotrema pilarae	2	0	0
Dinotrema robertoi	0	3	0
Dinotrema teresae	0	2	0
Dinotrema tinencaense	0	9	0
Dinotrema torreviejaense	0	0	2
Dinotrema vitobiasi	2	0	0
Dinotrema zimmermannae	1	7	0
Eudinostigma latistigma	0	9	1
Orthostigma beyarslani	0	0	1
Orthostigma laticeps	50	11	4
Orthostigma maculipes	0	7	1
Orthostigma pumilum	0	12	1
Orthostigma sculpturatum	0	1	0
Synaldis concolor	0	8	4
Synaldis distracta	1	15	21
Synaldis lacessiva	40	1	0
Synaldis sp1	0	1	0
Synaldis sp2	17	60	73
Synaldis sp3	1	3	0
Synaldis sp4	7	1	0
Synaldis sp5	5	6	0
Synaldis sp6	0	0	5
Synaldis sp7	0	0	2

b) Margalef index (D_{Mg})

The Natural Park of La Tinença de Benifassà held a higher species richness with D_{Mg} = 6.389, while Font Roja was able to reach a value of 4.044 and Torrevieja 3.604. These values may be discordant as a consequence of the identified species differing widely from Tinença (39 species) to other habitats. Font Roja and Torrevieja have a similar D_{Mg} value because their number of species is very close (22, 21 species respectively).

c) Estimates of species richness

In view of the values of the estimator used (Table 3), it is possible to conclude that the Natural Park where our sampling efforts have taken place, have enabled a closer approximation to the estimated maximum richness, in Font Roja with a value of 94.62%, followed by Tinença and Torrevieja with values of 82.97% and 79.75%, respectively. These values give an average value of 51.48% for all the natural parks included in the study, indicating the great knowledge gained from the species in these Natural Parks.

Table 3. Estimates of species richness for collected *Aspilota*-group.

Estimator	Font Roja	Tinença	Torrevieja
Chao 2	23.25 (94.62%)	47.00 (82.97%)	26.33 (79.75%)
Chao 2 (TOTAL)	101.00 (51.48%)		

(%): Percentage of maximum richness reached in sampling effort.

d) Community structure

Two types of analysis, proportional abundance indixes and parametric models, are required to analyze the structure of a community.

Proportional abundance indixes differentiate dominance indixes as Simpson or Berger–Parker and equity index as Shannon-Wiener.

The results obtained with the Simpson and Berger-Parker index (Table 4) show a dominance of the community structure by one or more species with high population abundance. This was also reflected by Shannon index suggested a similar trend in the distribution of dominant genera; discrepancies were merely due to different numbers of rare genera (those represented by few specimens).

Table 4. Diversity and abundance values for collected *Aspilota*-group.

	Font Roja	**Tinença**	**Torrevieja**
Species	22	39	21
Specimens	180	383	257
Simpson I.	0.832	0.919	0.798
Berger-Parker	0.277	0.185	0.307
Shannon I.	2.198	3.006	2.023

Table 5. Expected frequency of species (exp f) according to abundance models (log-series, log-normal and broken-stick) for the *Aspilota*-group community.

	Font Roja					
	Log-series		*Log-normal*		*Broken-stick*	
Class	Exp f	Obs f	Exp f	Obs f	Exp f	Obs f
0	–	–	2.40	0	–	–
1	9.74	13	6.74	13	4.34	13
2	3.51	3	2.97	3	3.47	3
3	3.45	2	2.65	2	4.95	2
4	2.94	0	1.87	0	5.04	0
5	2.00	2	1.02	2	2.58	2
6	0.92	2	0.43	2	0.33	2
7	0.20	0	0.15	0	0.00	0
8	0.01	0	0.05	0	0.00	0
	$X^2 = 6.192$		$X^2 = 17.118$		$X^2 = 32.723$	
	$p = 0.517$		$p = 0.028$		$p = 0.000$	

	Tinença					
	Log–series		*Log–normal*		*Broken–stick*	
Class	Exp f	Obs f	Exp f	Obs f	Exp f	Obs f
0	–	–	1.72	0	–	–
1	15.69	14	10.95	14	6.70	14
2	5.75	4	6.66	4	5.51	4
3	5.78	6	7.03	6	8.26	6
4	5.14	10	5.54	10	9.30	10
5	3.83	3	3.29	3	5.97	3
6	2.08	1	1.41	1	1.30	1
7	0.63	1	0.46	1	0.03	1
8	0.06	0	0.09	0	0.00	0
9	0.00	0	0.04	0	0.00	0
	$X^2 = 6.336$		$X^2 = 8.202$		$X^2 = 41.949$	
	p = 0.501		p = 0.513		p = 0.000	

	Torrevieja					
	Log–series		*Log–normal*		*Broken–stick*	
Class	Exp f	Obs f	Exp f	Obs f	Exp f	Obs f
0	–	–	3.12	0	–	–
1	7.89	10	5.63	10	2.92	10
2	2.94	4	2.28	4	2.52	4
3	3.01	1	2.19	1	4.03	1
4	2.79	2	1.74	2	5.14	2
5	2.25	2	1.14	2	4.16	2
6	1.42	0	0.64	0	1.34	0
7	0.57	2	0.31	2	0.06	2
8	0.10	0	0.12	0	0.00	0
9	0.00	0	0.06	0	0.00	0
	$X^2 = 7.647$		$X^2 = 19.177$		$X^2 = 87.420$	
	p = 0.364		p = 0.023		p = 0.000	

Application of parametric models (Table 5) for the analysis of the *Aspilota*-group community structure indicated that Font Roja and Torrevieja present compliance with log-series model because its p-value is greater than 0.05. This fact indicates that these communities are unstable, and are composed by few abundant species and a large number of rare species. These results show that habitat does not determine community structure because the sampling area presents very specific botanical and faunal composition and climatic conditions.

However, Tinença presents compliance with *log-series* and *log-normal* models presenting, more or less, the same p-value (0.501 and 0.513, respectively). This fact could be pointing to two types of behavior. On the one hand, this community could be unstable and composed by few abundant species and a large number of rare species. And on the other hand, it could be pointing to the fact that the number of specimens within this community is conditioned by a large number of factors associated with the high temperatures and the low rainfall in this area, causing the species to adapt to very strict conditions.

Beta diversity

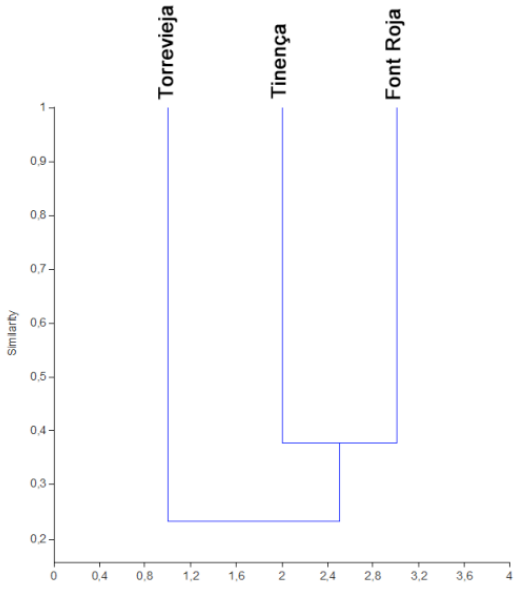
a) Indixes of similarity/dissimilarity

The Jaccard index was calculated to investigate beta diversity (similarity/dissimilarity) between the different parks included in the current study (Table 6). The resulting value indicated a certain degree of dissimilarity between the Natural Parks, although Font Roja and Tinença are the closest parks (I_J = 0.386) while Font Roja and Torrevieja are the farthest parks (I_J = 0.194). These results were also observed in the Jaccard cluster obtained through cluster analysis, of which the level of correlation was r = 0.9044 (Fig. 34).

Table 6. Jaccard index values for *Aspilota*-group species in each natural park.

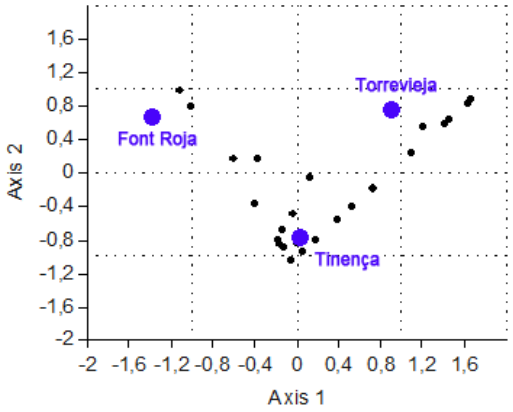
	Font Roja	**Torrevieja**
Tinença	0.386	0.276
Font Roja		0.194

Figure 34. Cluster analysis of Jaccard indixes reflecting the relationship between natural parks.



The application of Principal Component Analysis (PCA) shows that there are many own species of each natural park (16 for Tinença, 7 for Torrevieja and 6 for Font Roja), while the rest of the species are usually present shared (17 for Font Roja-Tinença, 13 for Tinença-Torrevieja and 7 for Font Roja-Torrevieja) (Fig. 35).

Figure 35. Principal Component Analysis (PCA).



b) Indixes of species replacement

The results of the Whittaker index (Table 7) show that the Natural Park of La Tinença de Benifassà has not been replaced with species from other Natural Parks, while, on the contrary, Torrevieja and Font Roja show something else, but not as high.

Table 7. Whittaker index values for *Aspilota*-group at each natural park.

	Font Roja	**Torrevieja**
Tinença	0.704	0.733
Font Roja		1.418

Applying the changes proposed by Schulter and Ricklefs (1993) the average beta diversity can be obtained if we employ the gamma diversity.

$\beta = 1 / c = 1 /$ average number of samples occupied per one species.

$c = \Sigma$ number of species in each area / number of species

$c = [22+39+21] / 52 = 82 / 52 = 1.576$

$\beta = 1 / 1.576 =$ **0.634**

c) Complementarity index

Based on the Complementarity index (C), Font Roja and Torrevieja showed the highest complementarity (0.805), followed by Tinença and Torrevieja with 0.723 then Tinença and Font Roja with 0.613 (Table 8). These results showed a fair degree of complementarity, but also indicated the presence of different species in each habitat.

Table 8. Comparison of Complementarity index for *Aspilota*-group at each natural park.

	Font Roja	**Torrevieja**
Tinença	0.613	0.723
Font Roja		0.805

Gamma Diversity

$\gamma = \alpha$ average x β x sample dimension

$\gamma = [(22 + 39 + 21) / (3)]$ x 0.634 x 3 = 51.988

Gamma diversity reached a value of 51.988, which is practically identical to the value of the total species richness caught in the three Natural Parks (species number = 52).

4.2. RESULTS II.
EUROPEAN DINOTREMA

4.2.1. European *Dinotrema* keys

EUROPEAN (WEST PALAEARTIC) DINOTREMA KEYS

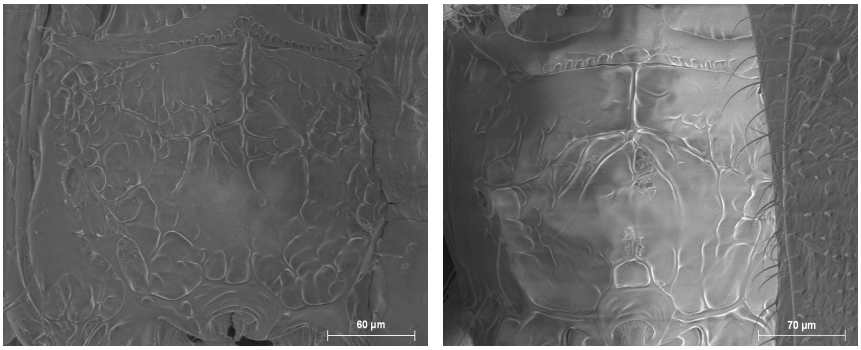
1. Propodeum completely smooth or with complete or short median carinae and with short emerging carinae separated from propodeal edges ……..…….…..... 2
- Propodeum widely or entirely sculptured and with carinae reaching propodeal edges, or with large and distinctly delineated areola …….....……. 4

2(1). Propodeum completely smooth ……...……... **A**
- Propodeum with complete or short median carinae .....…..... 3

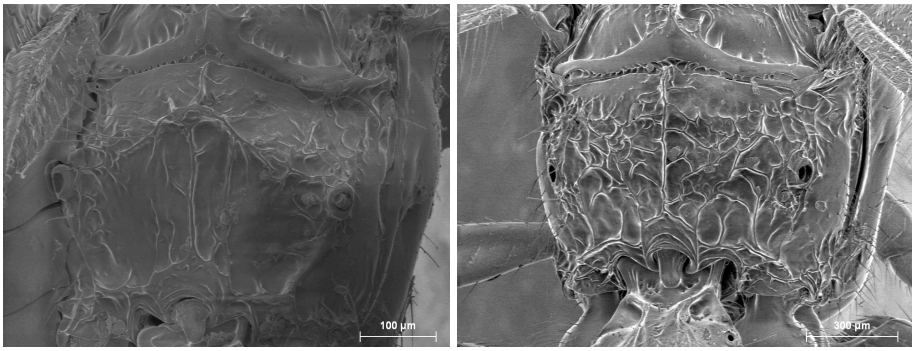
3(2). Propodeum with short median carinae, sometimes divergent posteriorly in two carinae …….....….. **B**
- Propodeum with complete median longitudinal carinae ...…. **C**

4(1). Propodeum widely or almost entirely sculptured and with pentagonal areola ..... **D**
- Propodeum widely or almost entirely sculptured and without areola ..….....……. 5

5(4). Propodeum widely or almost entirely sculptured and without median longitudinal carina or with short basal carina (figures 36, 37) …….....……... **E**
- Propodeum widely or almost entirely sculptured and with complete median longitudinal carina (figures 38, 39) …….....…….....……. **F**



Figs. 36–37. Propodeum without complete median carinae.



Figs. 38–39. Propodeum with complete median carinae.

A. PROPODEUM COMPLETELY SMOOTH

1. Mesoscutum with mesoscutal pit. Antennae 20–segmented. Body length 1.60 mm. Georgia. .....…... ***D. mananae*** TOBIAS
- Mesoscutum without mesoscutal pit. …….....…….. 2

2(1). First metasomal tergite 1.90 times as long as its apical width. Hind femur 3.15 times as long as its maximum width. First flagellar segment 2.25 times as long as wide; middle segments about 1.40 times as long as their width. Antennaee 14–segmented. Body length 1.20 mm. Israel ..... ***D. sinecarinum*** (FISCHER)

- First metasomal tergite 1.30–1.50 times as long as its apical width. Hind femur 4.50 times as long as its maximum width. First flagellar segment 3.00–4.00 times as long as wide; middle segments 2.00 times as long as their width ….....… 3

3(2). Ovipositor longer than metasoma. First flagellar segment about 4.00 times as long as wide. Lower tooth of mandible wider than upper tooth. First metasomal tergite 1.30 times as long as its apical width. Head in dorsal view 2.00 times as wide as median length. Antennae 18–21–segmented. Body length 1.50–2.20 mm. Austria, Belarus, Bulgaria, China, England, Finland, Germany, Hungary, Ireland, Korea, Netherlands, Norway, Russia, Switzerland, Ukraine, United Kingdom. ……..……...… ***D. tauricum*** (TELENGA)

- Ovipositor shorter than metasoma. First flagellar segment 3.00 times as long as wide. Lower tooth of mandible as wide as upper tooth. First metasomal tergite 1.50 times as long as its apical width. Head in dorsal view 1.70 times as wide as median length. Antennaee 16–segmented. Body length 1.30 mm. Georgia ……..…….. ***D. sylvestre*** TOBIAS

B. PROPODEUM WIDELY SMOOTH, WITH SHORT MEDIAN CARINAE, WHICH IS SOMETIMES DIVERGENT POSTERIORLY IN TWO CARINAE

1. Mesoscutal pit absent ……....…… 2
- Mesoscutal pit present ……..……...……. 3

2(1). Head in dorsal view 1.20–1.40 times as wide as median length. Mandible 1.30 times as long as wide. First flagellar segment 1.25 times and second segment 1.40–1.45 times as long as wide. First metasomal tergite 2.60 times as long as its apical width. Antennae 15–segmented. Body length 1.45 mm. Former Czechoslovakia, Hungary, Ireland, Spain, United Kingdom ……...….. ***D. brevissimicorne*** (STELFOX et GRAHAM)

- Head in dorsal view 2.00 times as wide as median length. Mandible 1.70 times as long as wide. First flagellar segment 2.00 times and second segment 2.40 times as long as wide. First metasomal tergite 2.00 times as long as its apical width. Antennae 16–segmented. Body length 1.30 mm. Former Czechoslovakia, Faeroe Islands, Germany, Hungary, Romania, Sweden ……..……..... ***D. microcerum*** (THOMSON)

3(1). Prescutellar depression with distinct lateral carinae .....…….. 4
- Prescutellar depression without lateral carinae, only with median carina ……..... 8

4(3). Ovipositor longer than metasoma. Antennae 17–18–segmented. Body length 1.60 mm. Austria, Bosnia–Herzegovina, Bulgaria, former Czechoslovakia, Germany, Greece, Hungary, Italy, Ireland, Korea, Macedonia, Moldova, Romania, Russia, Spain, Switzerland, Ukraine, United Kingdom, former Yugoslavia. .... ***D. divisum*** (STELFOX et GRAHAM)
- Ovipositor distinctly shorter than metasoma. ……..……..... 5

5(4). First flagellar segment 2.10–2.40 times as long as wide; middle segments 1.50–1.70 times as long as their width ……..….. 6
- First flagellar segment 4.00–4.25 times as long as wide; middle segments 2.00–3.00 times as long as their width ……..... 7

6(5). Hind femur 3.60 times as long as its maximum width. First metasomal tergite 1.50 times as long as its apical width. Mandible 2.20 times as long as wide. Mesoscutal pit elongate–oval. Antennae 17–segmented. Body length 1.80 mm. China, Czech Republic, Hungary, Netherlands. .... ***D. mesocaudatum*** VAN ACHTERBERG
- Hind femur 4.50 times as long as its maximum width. First metasomal tergite 1.90 times as long as its apical width. Mandible 1.60 times as long as wide. Mesoscutal pit round.

Antennae 21–segmented. Body length 2.20 mm. Armenia, Austria, Romania ……. ***D. suprapuncte*** (FISCHER)

7(5). Hind femur 4.00 times as long as its maximum width. Propodeum with short median without diverging carinae. Lower tooth of mandible wider than upper tooth. Antennae 23–segmented. Body length 1.90–1.95 mm. Italy. ……..…. ***D. tirolense*** MUNK et PERIS–FELIPO

- Hind femur 5.00 times as long as its maximum width. Propodeum with short median carina with diverging carinae in middle part. Lower tooth of mandible as wide as upper tooth. Antennae 22–segmented. Body length 2.80 mm. Austria, France, Germany, Hungary, Italy …..... ….....……. ***D. amplisignatum*** (FISCHER)

8(3). Ovipositor as long as or longer than metasoma. ….....… 9

- Ovipositor distinctly shorter than metasoma. ……..….. 10

9(8). Ovipositor longer than metasoma. Upper tooth strongly widened and wider than lower tooth. First metasomal tergite 1.50 times as long as its apical width. Middle flagellar segments 1.75–2.00 times as long as their width. Hind femur 4.00 times as long as its maximum width. Antennae 16–segmented. Body length 1.40 mm. Russia …..…..... ……..…….....……..... ***D. subtauricum*** TOBIAS

- Ovipositor as long as metasoma. Upper tooth weakly widened in apical part and narrower than lower tooth. First metasomal tergite 2.50 times as long as its apical width. Middle flagellar segments 2.00–2.50 times as long as their width. Hind femur 4.50 times as long as its maximum width. Antennae 20–segmented. Body length 1.70–2.40 mm. Austria, Bulgaria, former Czechoslovakia, Hungary, Ireland, Korea, Lithuania, Mongolia, Norway, Poland, Russia .... ***D. glabrum*** (STELFOX et GRAHAM)

10(8). Mesoscutal pit round ...…….…….....…… 11
- Mesoscutal pit distinctly elongated …….....……. 12

11(10). First metasomal tergite almost smooth in apical half, 1.60 times as long as its apical width. Hind femur 4.50 times as long as its maximum width. Middle flagellar segments 1.40–2.00 times as long as their width. Antennae 18–24–segmented. Body length 1.80–2.10 mm. Czech Republic, former Czechoslovakia, Finland, Ireland, Madeira, Norway, Russia, Sweden, United Kingdom ….....… ***D. caudatum*** (THOMSON)
- First metasomal tergite striated in apical half 2.00 times as long as its apical width. Hind femur 4.20 times as long as its maximum width. Middle flagellar segments 2.20 times as long as their width. Antennae 23–segmented. Body length 1.90 mm. Austria, Denmark …..... ***D. longicarinatum*** (FISCHER)

12(10). Mandible 1.00–1.05 times as long as wide. Antennae 14–segmented. Body length 1.90–2.20 mm. Spain .... ***D. zimmermannae*** **sp. nov.**
- Mandible 1.25–1.60 times as long as wide. 13

13(12). Mandible 1.60 times as long as wide. Sternaulus reaching anterior margin of mesopleuron. First flagellar segment 3.60 times as long as wide. Hind femur 4.10 times as long as its maximum width. Antennae 22–segmented. Body length 1.80–2.00 mm. Austria, England, Hungary, Netherlands, Romania ……..... ***D. incarinatum*** (FISCHER)
- Mandible 1.25 times as long as wide. Sternaulus not reaching anterior margins of mesopleuron. First flagellar segment 2.80 times as long as wide. Hind femur 4.50 times as long as its maximum width. Antennae 22–24–segmented. Body length 2.00 mm. Armenia, Austria, Bulgaria, Denmark, Finland, Germany, Greece, Hungary, Iran, Korea, Romania, Slovakia, Spain, Tunisia ……...……..... ***D. significarium*** (FISCHER)

C. PROPODEUM MAINLY SMOOTH AND WITH COMPLETE MEDIAN LONGITUDINAL CARINAE

1. Mesoscutal pit absent ……..…….. 2
- Mesoscutal pit present …...……. 9

2(1). Prescutellar depression with lateral carinae. Antennae 23–segmented. Body length 1.70 mm. Turkey .....…. ***D. partimrufum*** FISCHER
- Prescutellar depression without lateral carinae ……....…… 3

3(2). Paraclypeal fovea long, distinctly continued behind middle distance between clypeus and eye. Antennae 24–segmented. Body length 2.30–2.50 mm. Georgia, Russia …….. ….....……..… ***D. transitum*** TOBIAS
- Paraclypeal fovea short, not continued behind middle distance between clypeus and eye …...……. 4

4(3). Mandible 0.90–1.00 times as long as wide ……...…….. 5
- Mandible 1.20–1.50 times as long as wide …….. 6

5(4). First flagellar segment 2.50–3.00 times as long as wide; middle segments 1.30–1.50 times as long as their width. Upper tooth wider than lower tooth. Ovipositor shorter than metasoma. Antennae 16–19–segmented. Body length 1.20–1.40 mm. Kazakhstan, Russia ……...……. ***D. orientale*** TOBIAS
- First flagellar segment 3.50 times as long as wide; middle segments 2.00–2.50 times as long as their width. Upper tooth as wide as lower tooth. Ovipositor as long as metasoma. Antennae more than 12–segmented (apical segments missing). Body length 1.40 mm. Georgia ...….... ***D. adzharicum*** TOBIAS

6(4). First metasomal tergite 1.30–1.50 times as long as its apical width …….....…… 7
- First metasomal tergite 2.00 times as long as its apical width 8

7(6). First flagellar segment 2.50–3.00 times as long as wide; middle segments 1.30–1.50 times as long as their width. Hind femur 5.00 times as long as its maximum width. Mandible 1.20 times as long as wide. Antennae 16–17–segmented. Body length 1.50–1.80 mm. Georgia, Kazakhstan ……. ……..…….. ***D. latitempus*** TOBIAS

- First flagellar segment 4.00 times as long as wide; middle segments 2.00–2.50 times as long as their width. Hind femur 4.50 times as long as its maximum width. Mandible 1.50 times as long as wide. Antennae 24–segmented. Body length 1.70 mm. Russia ……...…..... ***D. lugaense*** (TOBIAS)

8(6). First flagellar segment 3.00 times as long as wide. Hind femur 4.00 times as long as its maximum width. Mandible 1.50 times as long as wide. Antennae 23–segmented. Body length 1.80 mm. Bulgaria ……..... ***D. rodopiense*** FISCHER ♂

- First flagellar segment 5.00 times as long as wide. Hind femur 4.75–5.00 times as long as its maximum width. Mandible 1.30 times as long as wide. Antennae 23–24–segmented. Body length 2.00 mm. Russia …..... ***D. sylvaticum*** TOBIAS

9(1). Prescutellar depression with median and lateral carinae ….. 10

- Prescutellar depression only with median carina, without lateral carinae .....…….. 20

10(9). Ovipositor longer than metasoma (5.45 times as long as its first metasomal tergite). Antennae more than 20–segmented (apical segments missing). Body length 2.20 mm. Russia …. ……..…...… ***D. caesum*** TOBIAS

- Ovipositor distinctly shorter than metasoma (1.00-1.90 times as long as its first metasomal tergite) …..…...……..…….. 11

11(10). Mesoscutal pit round ……...…….....……... 12

- Mesoscutal pit long or elongate–oval …..…...…….... 13

12(11). Mandible 1.25 times as long as wide. First flagellar segment 2.60 times as long as wide; middle segments 1.80 times as long as their width. Hind femur 3.60 times as long as its maximum width. Antennae 18–segmented. Body length 2.10–2.20 mm. Spain ……..…….....….... ***D. jimenezi* sp. nov.**

- Mandible 2.00 times as long as wide. First flagellar segment 3.00 times as long as wide; middle segment 2.50 times as long as their width. Hind femur 4.00 times as long as its maximum width. Body length 1.50 mm. Antennae 22–segmented. Germany ……..…….…… ***D. reductidens*** (FISCHER) ♂

13(11). Sternaulus reaching anterior and posterior margins of mesopleuron. Antennae 14–segmented. Body length 1.90–2.00 mm. Spain …….....…..... ***D. fischerianum* sp. nov.**

- Sternaulus not reaching anterior and posterior margins of mesopleuron .....…. 14

14(13). Mandible short and wide, 1.05–1.10 times as long as wide .. 15

- Mandible long and narrow, 1.50–2.00 times as long as wide ….....….. 16

15(14). First flagellar segment 2.30 times as long as wide; middle segments 1.30–1.60 times as long as their width. Mesosoma 1.15 times as long as high. Lower tooth of mandible wider than upper tooth. Antennae 18–segmented. Body length 1.65–1.70 mm. Spain. ..... ***D. vitobiasi* sp. nov.**

- First flagellar segment 3.60 times as long as wide; middle segments 2.50 times as long as their width. Mesosoma 1.40 times as long as high. Lower tooth of mandible as wide as upper tooth. Antennae 22–segmented. Body length 1.60 mm. Afghanistan, Austria, England, Georgia, Greece, Hungary, Macedonia, former Yugoslavia ..... ***D. vituperatum*** (FISCHER)

16(14). Hind femur 3.20 times as long as its maximum width. Antennae 20–segmented. Body length 2.00 mm. Bulgaria, Germany, Greece, Hungary, Korea, Montenegro, Romania, former Yugoslavia ……..…… ***D. latifemur*** (FISCHER)
- Hind femur 4.00–4.50 times as long as its maximum width ……..... 17

17(16). First flagellar segment 4.50 times as long as wide; middle segments 2.50 times as long as their width. Antennae 19–24–segmented. Body length 1.70–2.40 mm. Korea, Hungary, Moldova, Russia ……..…… ***D. carinatum*** (TOBIAS)
- First flagellar segment 2.50–3.50 times as long as wide; middle segments 1.40–2.00 times as long as their width …….. 18

18(17). First flagellar segment 2.50 times as long as wide; middle segments 1.40–1.70 times as long as their width …..…….. 19
- First flagellar segment 3.50 times as long as wide; middle segments 1.90–2.00 times as long as their width. Antennae 24–25–segmented. Body length 2.30–2.40 mm. Denmark, Netherlands, Spain, United Kingdom. …..... ..... ***D. alysiae*** MUNK et PERIS–FELIPO

19(18). Hind femur 4.50 times as long as its maximum width. Mandible 1.70 times as long as wide; upper tooth wider than lower tooth. Propodeum as on Figure 40. Antennae 20–segmented. Body length 2.70 mm. Armenia, Austria, Bosnia–Herzegovina, Croatia, England, Germany, Hungary, Romania ……. ***D. cruciatum*** (FISCHER)
- Hind femur 4.00 times as long as its maximum width. Mandible 1.50 times as long as wide; lower tooth wider than upper tooth. Propodeum as on Figure 41. Antennae 23–segmented. Body length 2.30 mm. Austria, Denmark, Hungary, Netherlands .....……..…… ***D. thurnense*** FISCHER

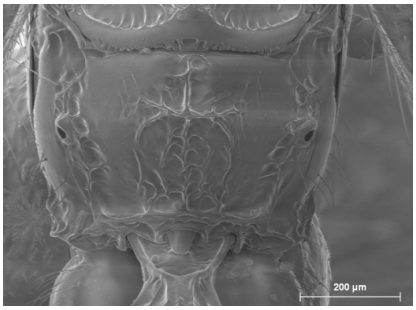


Fig. 40. *D. cruciatum*

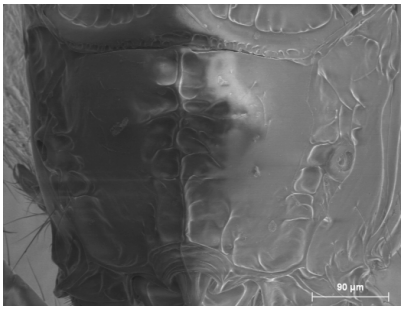


Fig. 41. *D. thurnense*

20(9). Ovipositor not shorter than metasoma ……..…..…. 21
- Ovipositor distinctly shorter than metasoma ……...…….. 29

21(19). Head with two lateral protuberances on occiput. Antennae 19–21–segmented. Body length 1.90 mm. China, Czech Republic, Finland, Hungary, Korea, Netherlands, Portugal, Russia …. ….....…. ***D. tuberculatum*** VAN ACHTERBERG
- Head without lateral protuberance on occiput ….....……. 22

22(21). Sternaulus reaching anterior part of mesopleuron. Antennae 21–segmented. Body length 2.50 mm. Austria, Georgia, Hungary, Mongolia, Serbia, Slovakia, Romania, former Yugoslavia ……...….....…. ***D. incongruens*** (FISCHER)
- Sternaulus not reaching anterior part of mesopleuron …….... 23

23(22). Mandible 0.80–1.10 times as long as wide ……...…… 24
- Mandible 1.50–1.60 times as long as wide …… 26

24(23). Mandible 0.80–0.85 times as long as wide. Middle flagellar segments 2.00 times as long as their width. Mesoscutal pit oval. Ovipositor distinctly shorter than metasoma. Antennae 15–segmented. Body length 1.95–2.00 mm. Spain ……...
…….....…. ***D. munki* sp. nov.**
- Mandible 1.10 times as long as wide. Middle flagellar segments 1.30–1.70 times as long as their width. Mesoscutal pit elongated. Ovipositor as long as or longer than metasoma
…….....……... 25

25(24). Ovipositor as long as metasoma. Sternaulus long and very weakly separated from anterior and posterior margings of mesopleuron. Propodeum basally widely and distinctly sculptured. Antennae 19–segmented. Body length 1.80–1.90 mm. Moldova, Russia. …..... ***D. calamitosum*** TOBIAS

- Ovipositor longer than metasoma. Sternaulus short, distinctly separated from anterior and posterior margins of mesopleuron. Propodeum basally weakly sculptured on very narrow median part. Antennae 16–17–segmented. Body length 1.40 mm. Russia, Ukraine …….....…….. ***D. brevisulcus*** TOBIAS

26(23). Hind femur 4.00 times as long as its maximum width. First flagellar segment 3.00 times as long as wide. First metasomal tergite 1.50 times as long as its apical width. Antennae 18–segmented. Body length 1.40 mm. Kazakhstan …… ***D. sauricum*** TOBIAS

- Hind femur 4.50–5.00 times as long as its maximum width. First flagellar segment 3.40–4.00 times as long as wide. First metasomal tergite 1.70–1.90 times as long as its apical width …….....…….. 27

27(26). First flagellar segment 4.00 times as long as wide. First metasomal tergite 1.70 times as long as its apical width. Propodeum with only single median longitudinal carinae (Fig. 42). Antennae 20–22–segmented. Body length 1.80 mm. Austria, Hungary, Russia ..... ***D. leptocaudum*** (FISCHER)

- First flagellar segment 3.40–3.70 times as long as wide. First metasomal tergite 1.90 times as long as its apical width. Propodeum with two or three longitudinal median carinae (Fig. 43) …….....……....……... 28

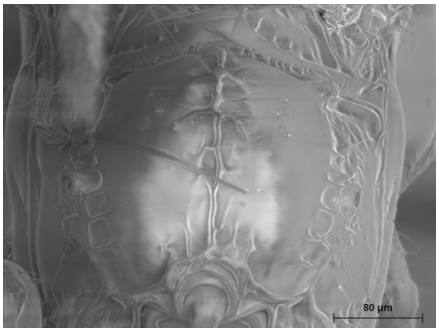


Fig. 42. Propodeum one median carinae

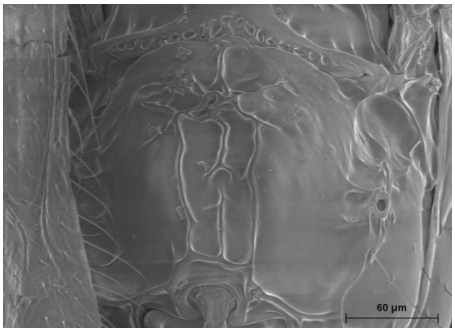


Fig. 43. Propodeum several median carinae

28(27). Ovipositor as long as metasoma. Propodeum medially with three longitudinal carinae reaching its apical margin. First flagellar segment 3.65–3.70 times as long as wide; middle segments 2.20–2.30 times as long as their width. Antennae 21–segmented. Body length 1.40–1.60 mm. Denmark, Italy …….. ……...… ***D. valvulatum*** MUNK et PERIS–FELIPO

\- Ovipositor distinctly longer than metasoma. Propodeum medially with two longitudinal carinae reaching its apical margin. First flagellar segment 3.40 times as long as wide; middle segments 2.00 times as long as their width. Antennae 20–segmented. Body length 1.30 mm. Netherlands, Russia ……...…… ***D. sessile*** VAN ACHTERBERG

29(20). Spiracles of propodeum large, its diameter 0.25-0.33 times distance from spiracle to anterior margin of propodeum (Fig. 44) ……...…..…..……. 30

\- Spiracles of propodeum small or relative small, its diameter 0.08-0.15 times distance from spiracle to anterior margin of propodeum (Fig. 45) ….....…. 31

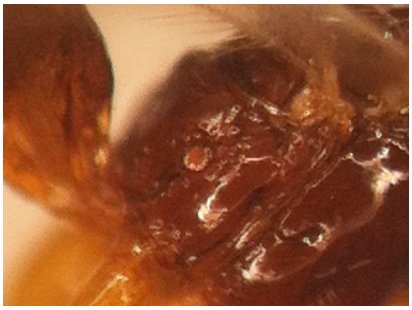


Fig. 44. Large spiracle

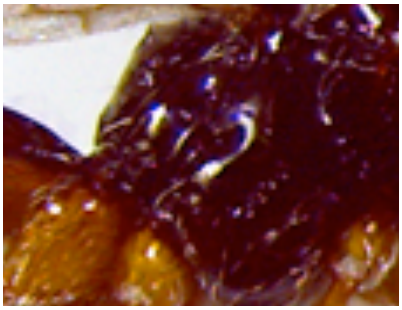


Fig. 45. Small spiracle

30(29). Lower tooth of mandible as wide as upper tooth; middle tooth with very pointed apex. Mandible 1.50 times as long as wide. Hind femur 4.60 times as long as its maximum width. First metasomal tergite 1.90 times as long as its apical width. Mesoscutal pit weakly elongate. Antennae 18–segmented. Body length 1.70–1.80 mm. Russia ……..…….
…….…… ***D. stigmaticum*** (TOBIAS)

- Lower tooth of mandible wider than upper tooth; middle tooth with rounded apex. Mandible 1.40 times as long as wide. Hind femur 4.00 times as long as its maximum width. First metasomal tergite 1.70 times as long as its apical width. Mesoscutal pit strongly elongate. Antennae 26–segmented. Body length 3.00–3.50 mm. Former Czechoslovakia, Denmark, England, Finland, Germany, Hungary, Ireland, Italy, Luxembourg, Netherlands, Poland, Spain, Sweden, United Kingdom …….....…... ***D. erythropum*** (FOERSTER)

31(29). Sternaulus reaching posterior margin of mesopleuron. First flagellar segment 4.00 times as long as wide; middle segments 2.50 times as long as their width. Hind femur 5.00 times as long as its maximum width. Antennae 21–24–segmented. Body length 1.90 mm. Austria ….…… ***D. aurelianum*** (FISCHER)

- Sternaulus not reaching anterior and posterior part of mesopleuron …..….....….. 32

32(31). Mesoscutal pit round ……..……. 33
- Mesoscutal pit long or elongated–oval ……...……... 39

33(32). First metasomal tergite 1.45–2.00 times as long as its apical width .....…..……... 34
- First metasomal tergite 2.70–2.80 times as long as its apical width ...……..... 38

34(33). First metasomal tergite 1.45 times as long as its apical width. First flagellar segment 2.20 times as long as wide. Antennae 19–20–segmented. Body length 2.20–2.30 mm. Spain …….....…....……. ***D. paquitae*** **sp. nov.**
- First metasomal tergite 1.70–2.00 times as long as its apical width. First flagellar segment 2.75–3.20 times as long as their width ……..…….....……. 35

35(34). Mandible 1.18–1.20 times as long as wide ….....…… 36
- Mandible 1.50–1.70 times as long as wide …… 37

36(35). First flagellar segment 2.75 times as long as wide. Hind femur 4.00 times as long as its maximum width. First metasomal tergite 1.70 times as long as it apical width. Lower tooth wider than upper tooth. Antennae 18–segmented. Body length 1.80 mm. Austria, Bosnia–Herzegovina, China, Denmark, Greece, Hungary, Italy, Mongolia, Poland, Romania, Russia ……...…… ***D. amoenidens*** (FISCHER)
- First flagellar segment 3.20 times as long as wide. Hind femur 4.30 times as long as its maximum width. First metasomal tergite 2.00 times as long as its apical width. Upper tooth as wide as metasoma. Antennae 19–segmented. Body length 1.50–2.00 mm. Bulgaria, Czech Republic, former Czechoslovakia, Denmark, Germany, Hungary, Korea, Russia ..….....…..... ***D. propodeale*** (TOBIAS)

37(35). Middle flagellar segments about 1.20 times as long as their width. Mesosoma 1.05 times as long as high. Hind femur 4.30 times as long as its maximum width. First metasomal tergite striate in apical half. Lower tooth as long as upper tooth. Body length 1.60 mm. Spain ..... ***D. belokobylskiji*** **sp. nov.**

- Middle flagellar segments about 2.25 times as long as their width. Mesosoma 1.20 times as long as high. Hind femur 3.85–4.00 times as long as its maximum width. First metasomal tergite smooth in apical half. Lower tooth longer than upper tooth. Body length 1.55–1.60 mm. Spain .. ***D. enanum*** **sp. nov.**

38(33). Mandible 1.20 times as long as wide. First flagellar segment 3.00 times as long as wide; middle segments 1.70–1.80 times as long as their width. First metasomal tergite smooth. Hind femur 4.15–4.20 times as long as its maximum width. Lower tooth wider than upper tooth. Antennae 23–segmented. Body length 2.70–2.80 mm. Denmark, Finland ..... ***D. paramicum*** MUNK et PERIS–FELIPO

- Mandible 1.50 times as long as wide. First flagellar segment 3.25 times as long as wide; middle segments 2.20 times as long as their width. First metasomal tergite rugose–striated. Hind femur 4.00 times as long as its maximum width. Upper tooth wider than lower tooth. Antennae 20–segmented. Body length 1.90 mm. Austria, Bosnia–Herzegovina, China, Denmark, France, Germany, Hungary, Korea ..... ***D. occipitale*** (FISCHER)

39(32). First metasomal tergite 1.60–2.00 times as long as its apical width 40

- First metasomal tergite 2.25–4.00 times as long as its apical width 54

40(39). Hind femur 3.75–4.00 times as long as its maximum width 41

- Hind femur 4.50–5.00 times as long as its maximum width 47

41(40). Mandible 1.00–1.50 times as long as wide ……...…… 42
- Mandible 2.00 times as long as wide. Antennae 21–22–segmented. Body length 2.00–3.00 mm. Armenia, Bulgaria, England, Germany, Greece, Hungary, Italy, Spain ……..…….. ***D. phoridarum*** (GOIDANICH)

42(41). First flagellar segment 2.00–2.40 times as long as wide ...… 43
- First flagellar segment 3.00–3.50 times as long as wide ...… 45

43(42). First flagellar segment 2.00 times as long as wide. Antennae 21–segmented. Body length 2.10 mm. Austria, Hungary, Korea, Romania, Spain ..... ***D. castaneithorax*** (FISCHER)
- First flagellar segment 2.30–2.40 times as long as wide ..…. 44

44(43). Upper tooth wider than lower tooth. First metasomal tergite 1.90 times as long as its apical width and smooth. Mesosoma 1.40 times as long as high. Mesoscutal pit oval. Antennae 20–segmented. Body length 2.10 mm. Austria, China, Korea …….....……. ***D. hodiense*** (FISCHER)
- Lower tooth wider than upper tooth. First metasomal tergite 1.60 times as long as its apical width and striated. Mesosoma 1.05 times as long as high. Mesoscutal pit elongated. Antennae 20–segmented. Body length 1.95–2.00 mm. Spain ..... ***D. mareum*** **sp. nov.**

45(42). Mandible 1.00–1.15 times as long as wide. First flagellar segment 3.00 times as long as wide ……...…… 46
- Mandible 1.50 times as long as wide. First flagellar segment 3.50 times as long as wide. Antennae 24–segmented. Body length 2.90 mm. Austria, Bulgaria, Hungary .....……. ***D. affine*** (FISCHER)

46(45). Middle flagellar segments 2.00 times as long as their width. Hind femur 4.00 times as long as its maximum width. Head in dorsal view 1.60 times as wide as its median length. Antennae

19–segmented. Body length 1.50 mm. Austria, Bulgaria, Hungary, Spain ……... ***D. parapunctatum*** (FISCHER)

- Middle flagellar segments 1.40–1.50 times as long as their width. Hind femur 3.75–3.80 times as long as its maximum width. Head in dorsal view 1.80 times as wide as median length. Antennae 19–segmented. Body length 2.20–2.30 mm. Spain …….....……..… ***D. pareum*** **sp. nov.**

47(43). Mandible 1.10–1.60 times as long as wide …….....…… 48

- Mandible 2.00 times as long as wide. Antennae 19–22–segmented. Body length 1.70–2.40 mm. Austria, former Czechoslovakia, Hungary, Lithuania, Poland, Russia …….....…….……..... ***D. venustum*** (TOBIAS)

48(47). First flagellar segment 2.50–3.00 times as long as wide …... 49

- First flagellar segment 3.50–4.00 times as long as wide …... 51

49(48). Mandible 1.10 times as long as wide. Antennae 15–17–segmented. Body length 1.40–1.50 mm. Austria, Bulgaria, Croatia, former Czechoslovakia, Denmark, Finland, Germany, Greece, Hungary, Ireland, Italy, Korea, Spain, United Kingdom ……..…. ***D. semicompressum*** (STELFOX et GRAHAM)

- Mandible 1.30–1.40 times as long as wide …….....…… 50

50(49). Upper tooth wider than lower tooth. Middle flagellar segments 1.60 times as long as their width. Mesosoma as long as high. Antennae 16–segmented. Body length 2.25–2.30 mm. Spain ……..…….....……. ***D. pappi*** **sp. nov.**

- Lower tooth wider than upper tooth. Middle flagellar segments 2.00 times as long as their width. Mesosoma 1.40 times as long as high. Antennae 22–25–segmented. Austria, Denmark, England, Finland, Hungary, Korea . ***D. cruciforme*** (FISCHER)

51(48). Lower tooth wider than upper tooth. Posterior mesopleural furrow crenulated. Middle flagellar segments 1.80 times as long as their width. Antennae 22–segmented. Body length

1.90–2.40 mm. China, Denmark, Netherlands ……...……. ***D. pratense*** VAN ACHTERBERG

- Upper tooth as wide or wider than lower tooth. Posterior mesopleural furrow smooth. Middle flagellar segments 2.00–2.25 times as long as their width 52

52(51). Mesoscutal pit oval. First metasomal tergite striated. Head in dorsal view 2.00 times as wide as its median length. Antennae 17–segmented. Body length 1.80 mm. Armenia, Austria, Finland, Germany, Hungary …….. ***D. puliciforme*** (FISCHER)

- Mesoscutal pit long. First metasomal tergite smooth. Head in dorsal view 1.70–1.80 times as wide as its median length 53

53(52). First flagellar segment 3.50 times as long as wide. Upper tooth as wide as lower tooth. Face 1.30–1.40 times as wide as high. Antennae 18–23–segmented. Body length 1.90–2.40 mm. Austria, Bosnia–Herzegovina, former Czechoslovakia, Germany, Hungary, Korea, Macedonia, Sweden, Romania, Turkey, former Yugoslavia …..…. ***D. nigricorne*** (THOMSON)

- First flagellar segment 4.00 times as long as wide. Upper tooth wider than lower tooth. Face 1.55 times as wide as high. Antennae 18–segmented. Body length 1.40 mm. Russia ……..... ***D. sochiense*** TOBIAS

54(39). First metasomal tergite 2.10–2.60 times as long as its apical width ……..…. 55

- First metasomal tergite 3.50–4.00 times as long as its apical width. Antennae 20–24–segmented. Body length 2.00–2.20 mm. China, Finland, Hungary, Italy, Russia, Sweden ……..…….....…… ***D. kempei*** (HEDQVIST)

55(54). First flagellar segment 2.50–2.60 times as long as wide; middle segments 1.50 times as long as their width. Mesosoma 1.05 times as long as high. Antennae more than 18–segmented (apical segments missing). Body length 2.00 mm. Spain ……..…….. ***D. achterbergi*** **sp. nov.**

- First flagellar segment 3.20–4.00 times as long as wide; middle segments 1.80–3.00 times as long as their width. Mesosoma 1.20–1.30 times as long as high 56

56(55). First flagellar segment 3.90–4.00 times as long as wide. Lower tooth wider than upper tooth …..... 57
- First flagellar segment 3.20–3.50 times as long as wide. Upper tooth wider than lower tooth …..... 58

57(56). Mandible 1.50 times as long as wide. Middle flagellar segments 3.00 times as long as their width. First metasomal tergite 2.50 times as long as its apical width. Antennae 22–segmented. Body length 1.90 mm. Austria ……..…….. ***D. leptocorne*** (FISCHER)
- Mandible 1.20 times as long as wide. Middle flagellar segments 2.00 times as long as their width. First metasomal tergite 2.10 times as long as its apical width. Antennae 20–segmented. Body length 2.00 mm. Armenia, Austria, Bulgaria, Greece, Hungary, Korea, Romania, Slovakia, Spain ..... ***D. paucicrene*** (FISCHER)

58(56). First flagellar segment 3.20 times as long as wide; middle segments 2.00 times as long as their width. Hind femur 4.25 times as long as its maximum width. First metasomal tergite 2.25 times as long as its apical width and finely striated in apical half. Antennae 15–segmented. Body length 1.60–1.70 mm. Spain …….....……..... ***D. broadi*** **sp. nov.**
- First flagellar segment 3.50 times as long as wide; middle segments 1.80 times as long as their width. Hind femur 4.00 times as long as its maximum width. First metasomal tergite 2.40 times as long as its apical width and smooth. Antennae 18–segmented. Body length 1.50 mm. Armenia, Austria, Bosnia–Herzegovina, Bulgaria, Georgia, Germany, Italy, Hungary, Korea, Macedonia, Slovakia, former Yugoslavia …….....……..... ***D. dimorphum*** (FISCHER)

D. PROPODEUM SCULPTURED AND WITH DISTINCTLY DELINEATED LARGE AREOLA

1. Mesoscutal pit absent ……..…….. 2
- Mesoscutal pit present ...……..……. 16

2(1). Sternaulus reaching anterior margin of mesopleuron ……. 3
- Sternaulus far separated from anterior margin of mesopleuron 7

3(2). Mandible 0.75–1.00 times as long as wide ….....…..... 4
- Mandible 1.25–1.35 times as long as wide ..…….....…… 5

4(3). Mandible 0.75 times as long as wide. Prescutellar depression with lateral carinae. First metasomal tergite 1.50 times as long as its apical width. Hind femur 4.50 times as long as its maximum width. Middle antennal segments about 1.60 times as long as their width. Antennae 15–20–segmented. Body length 1.60 mm. Czech Republic, former Czechoslovakia, Denmark, Germany, Kazakhstan, Kyrgyzstan, Moldova, Russia, Turkey, Uzbekistan ……..……. ……..…… ***D. dimidiatum*** (THOMSON)
- Mandible 1.00 times as long as wide. Prescutellar depression without lateral carinae. First metasomal tergite 2.00 times as long as its apical width. Hind femur 3.90 times as long as its maximum width. Middle antennal segments about 2.00 times as long as their width. Antennae 18–segmented. Body length 1.60 mm. Georgia ……..…….... ***D. borzhomii*** TOBIAS

5(2). First metasomal tergite 1.30 times as long as its apical width. Antennae 22–segmented. Body length 1.70 mm. Austria, Hungary, Poland ……..... ***D. intuendum*** (FISCHER)
- First metasomal tergite 1.60–2.20 times as long as its apical width ..….....……..… 6

6(5). Mandible narrow and long, 1.40 times as long as maximum width. First metasomal tergite narrow, 1.80 times as long as apical width (female). Hind femur 4.20 times as long as wide. Antennae 20–segmented. Kazakhstan. ……..…..… ***D. tarbagataicum*** TOBIAS

- Mandible wide and short, about as long as maximum width. First metasomal tergite wide, 1.40 times as long as apical width (female). Hind femur 4.70 times as long as wide. Antennae in female missing; in male 20–segmented. Body length 1.30–1.60 mm. Kazakhstan ……..... ……..... ***D. zaisanicum*** TOBIAS

7(2). Ovipositor longer than metasoma (3.65-4.00 times as long as its first metasomal tergite) ……..... 8

- Ovipositor distinctly shorter than metasoma (1.00-3.40 times as long as its first metasomal tergite) ...…….....……. 9

8(7). First flagellar segment 3.30 times as long as wide; middle segments about 1.60 times as long as their width. First metasomal tergite 1.45 times as long as its apical width. Hind femur 4.40 times as long as its maximum width. Antennae 22–segmented. Body length 2.30–2.40 mm. Hungary, Poland, Russia, Spain ……..…….. ***D. dentatum*** (TOBIAS)

- First flagellar segment 4.00 times as long as wide; middle segments about 2.00 times as long as their width. First metasomal tergite 2.00 times as long as its apical width. Hind femur 4.00 times as long as its maximum width. Antennae 22–segmented. Body length 3.40–3.70 mm. Belgium, former Czechoslovakia, Denmark, Hungary, Iceland, Ireland, Poland, Russia, Slovenia, United Kingdom ... ***D. jaculans*** (HALIDAY)

9(7). Prescutellar depression with lateral carinae. Antennae more than 16–segmented (apical segments missing). Body length 1.50–1.70 mm. Georgia ….……..... ***D. aestivum*** TOBIAS

- Prescutellar depression without lateral carinae .....……... 10

10(9). First metasomal tergite 1.30–1.60 times as long as its apical width ...…..…. 11
- First metasomal tergite 2.00–2.20 times as long as its apical width .....…..…..... 13

11(10). Mandible 1.15 times as long as wide. Antennae 18–22–segmented. Body length 1.60 mm. Moldova ……. ……..…….…… ***D. agnitum*** TOBIAS
- Mandible 0.60–0.88 times as long as wide ...…..…..….. 12

12(11). First metasomal tergite 1.30 times as long as its apical width. Hind femur 4.40 times as long as its maximum width. Eye in lateral view as long as temple. Upper tooth of mandible as wide as lower tooth. Antennae missing. Body length 1.85 mm. Russia ……...……..… ***D. aestuosum*** TOBIAS
- First metasomal tergite 2.00 times as long as its apical width. Hind femur 3.50 times as long as its maximum width. Eye in lateral view 0.75 times as long as temple. Upper tooth of mandible wider than lower tooth. Antennae 16–19–segmented, Body length 1.50 mm. Austria, Hungary, Russia ……...…….……. ***D. microsomum*** (FISCHER)

13(10). Mandible 2.00 times as long as wide. Hind femur 5.00 times as long as its maximum width. First flagellar segment 4.00 times as long as wide. Antennae 24–segmented. Body length 1.70 mm. Austria, former Czechoslovakia, Denmark, Spain, United Kingdom .....…. ***D. areolatum*** (STELFOX et GRAHAM)
- Mandible 1.25–1.60 times as long as wide. Hind femur 4.00–4.40 times as long as its maximum width. First flagellar segment 3.00 times as long as wide …..... 14

14(13). Antennae 13–segmented. Hind femur 4.40 times as long as its maximum width. Middle flagellar segments 1.60–1.70 times as long as their width. Mandible 1.60 times as long as wide. Body length 1.20 mm. Germany ……... ***D. pullum*** (FOERSTER)

- Antennae 17–18–segmented. Hind femur 4.00 times as long as its maximum width. Middle flagellar segments 1.80–2.00 times as long as their width. Mandible 1.25–1.40 times as long as wide ……..……..…….. 15

15(14). First metasomal tergite 2.20 times as long as its apical width. Mandible 1.25 times as long as wide. Upper tooth wider than lower tooth. Sternaulus reaching anterior part of mesopleuron. Antennae 18–segmented. Body length 1.60 mm. Denmark ……..……..…….....…. ***D. curtisetum* sp. nov.**
- First metasomal tergite 2.00 times as long as its apical width. Mandible 1.40 times as long as wide. Lower tooth wider than upper tooth. Sternaulus not reaching anterior part of mesopleuron. Antennae 17–segmented. Body length 1.30–2.10 mm. Kazakhstan ……..… ***D. alakolense*** TOBIAS

16(1). Ovipositor not shorter than metasoma ...…….....….... 17
- Ovipositor distinctly shorter than metasoma ...…….....…….... 19

17(16). Ovipositor as long as metasoma. Hind femur 4.50 times as long as its maximum width. Antennae 20–21–segmented. Body length 1.50–1.80 mm. Russia …..…….. ***D. callidium*** TOBIAS
- Ovipositor longer than metasoma. Hind femur 4.00 times as long as its maximum width .....……..... 18

18(17). Sternaulus reaching anterior margin of mesopleuron. First metasomal tergite 2.00 times as long as its apical width. Prescutellar depression without lateral carinae. First flagellar segment 4.30 times as long as wide. Mandible 1.30 times as long as wide. Antennae 21–segmented. Body length 1.80–2.00 mm. Russia ……...…….... ***D. canaliculatum*** TOBIAS
- Sternaulus not reaching anterior margin of mesopleuron. First metasomal tergite 1.45 times as long as its apical width. Prescutellar depression with lateral carinae. First flagellar segment 2.50–3.00 times as long as wide. Mandible 1.10 times

as long as wide. Antennae 20–22–segmented. Body length 1.60–2.10 mm. Russia …...……..… ***D. fungicolum*** (TOBIAS)

19(16). Mandible 0.90–1.00 times as long as wide ...….....…….. 20
- Mandible 1.30–1.60 times as long as wide ...…….....…….. 21

20(19). First metasomal tergite 1.80 times as long as its apical width. Hind femur 3.90 times as long as its maximum width. Mesoscutal pit round. Antennae 13–16–segmented. Body length 1.30–1.35 mm. Spain ..... ***D. lagunasense*** **sp. nov.**
- First metasomal tergite 2.30 times as long as its apical width. Hind femur 3.60 times as long as its maximum width. Mesoscutal pit elongate oval. Antennae more than 13–segmented (apical segments missing). Body length 1.70–1.80 mm. Spain ……...….....… ***D. torreviejaense*** **sp. nov.**

21(19). First flagellar segment 2.00 times as long as wide; middle segments about 1.80 times as long as their width. Antennae 19–21–segmented. Body length 1.80 mm. Austria ……. ……..……....…….. ***D. adventum*** (FISCHER)
- First flagellar segment 2.85–3.50 times as long as wide; middle segments 1.30–1.50 times as long as their width ..……..... 22

22(21). Sternaulus reaching anterior margin of mesopleuron. Hind femur 3.50 times as long as its maximum width. Antennae 24–26–segmented. Body length 2.50 mm. Austria, Hungary, Serbia, former Yugoslavia ...…..... ***D. sternaulicum*** (FISCHER)
- Sternaulus not reaching anterior margin of mesopleuron. Hind femur 4.00–4.10 times as long as its maximum width ...….... 23

23(22). First flagellar segment 3.50 times as long as wide. Middle flagellar segments 2.00 times as long as their width. First metasomal tergite 2.20 times as long as its apical width. Antennae 23–segmented. Austria, former Czechoslovakia, Denmark, Georgia, Germany, Hungary, Mongolia, Romania,

Serbia, Turkey, former Yugoslavia ……..... ……..... ***D. macrocerum*** (THOMSON)

- First flagellar segment 2.85–3.00 times as long as wide. Middle flagellar segments 1.30–1.70 times as long as their width. First metasomal tergite 1.60–2.00 times as its apical width ……..... 24

24(22). Hind femur 4.10 times as long as its maximum width. First flagellar segment 2.85 times as long as wide; middle segments about 1.30 times as long as their width. Head in dorsal view 1.50 times as wide as median length. Antennae 17–segmented. Body length 1.80–2.00 mm. Denmark, Hungary, Netherlands, Romania, Sweden, United Kingdom ……..... ***D. necrophilum*** (HEDQVIST)

- Hind femur 4.00 times as long as its maximum width. First flagellar segment 3.00 times as long as wide; middle segments about 1.70 times as long as their width. Head in dorsal view 1.80 times as wide as median length. Antennae 24–26–segmented. Body length 2.40 mm. Austria, Germany, Hungary, Romania, Russia ……..... ***D. varimembre*** (FISCHER)

E. PROPODEUM WIDELY SCULPTURED AND WITHOUT MEDIAN LONGITUDINAL CARINA OR AREOLA

1. Mesoscutal pit absent ..……..…….....…….. 2
- Mesoscutal pit present ..……..……... 9

2(1). First metasomal tergite 1.40–1.60 times as long as its apical width ……..... 3

- First metasomal tergite 2.00–2.50 times as long as its apical width ..……..... 6

3(2). Hind femur 5.00 times as long as its maximum width. Antennae 26–segmented. Body length 2.50 mm. Russia ……..... ***D. aquitabile*** (TOBIAS) ♂

- Hind femur 3.50–4.00 times as long as its maximum width ……..…… 4

4(3). First flagellar segment 4.00 times as long as wide; middle segments about 2.00 times as long as their width. Antennae 15–segmentes (apical segments missing). Body length 1.80 mm. Kazakhstan ……..…..……. ***D. arenarium*** TOBIAS
- First flagellar segment 2.00–2.50 times as long as wide. Middle segments 1.10–1.50 times as long as their width ……..…….....…….…….. 5

5(4). First flagellar segment 2.00 times as long as wide; middle segments about 1.10 times as long as their width. Prescutellar depression without lateral carinae. Antennae 18–segmented. Body length 2.00 mm. Kazakhstan ……..… ***D. ambiguum*** TOBIAS
- First flagellar segment 2.50 times as long as wide; middle segments 1.35–1.55 times as long as their width. Prescutellar depression with lateral carinae. Antennae 14–segmented. Body length 1.30–1.35 mm. Spain ..... ***D. tinencaense*** **sp. nov.**

6(2). Sternaulus reaching anterior parto of mesopleuron. Antennae 23–segmented. Body length 1.80 mm. Austria, Denmark, Hungary, Italy, Netherlands, Poland, United Kingdom …...….. ……...……...…... ***D. fulvicorne*** (HALIDAY)
- Sternaulus not reaching anterior part of mesopleuron ……. 7

7(6). Mandible 1.50 times as long as wide. First flagellar segment 3.30 times as long as wide. Prescutellar depression with lateral carinae. Antennae 13–segmented. Body length 1.40 mm. Austria, Hungary …..... ***D. pauciarticulatum*** (FISCHER)
- Mandible 0.75–0.95 times as long as wide. First flagellar segment 2.50–2.65 times as long as wide. Prescutellar depression without lateral carinae …….....…... 8

8(7). Mandible 0.75 times as long as wide. Hind femur 4.00 times as long as its maximum width. First metasomal tergite 2.35 times

as long as its apical width and striated. Posterior mesopleural furrow crenulated. Antennae 16–17–segmented. Body length 1.70 mm. Belgium, Hungary, Italy, Spain, Sweden, United Kingdom ……..…….... ***D. compressum*** (HALIDAY)

- Mandible 0.95 times as long as wide. Hind femur 3.50 times as long as wide. First metasomal tergite 2.50 times as long as its apical width and completely smooth. Posterior furrow slighty crenulated below. Antennae 12–segmented. Body length 1.00–1.05 mm. Spain …..……..... ***D. robertoi*** **sp. nov.**

9(1). Hind femur 3.40–3.70 times as long as its maximum width. Mandible 0.87–1.15 times as long as wide ...……..…..…..... 10

- Hind femur 4.00–5.00 times as long as its maximum width. Mandible 1.30–2.00 times as long as wide …..……..... 13

10(9). Ovipositor longer than metasoma. Antennae 22–segmented. Body length 2.00–2.30 mm. Russia…… ……..... ***D. caesennium*** TOBIAS

- Ovipositor distinctly shorter than metasoma ……...…….. 11

11(10). Mandible 1.70 times as long as wide. Antennae 17–18–segmented. Body length 1.70 mm. Austria, Germany …….. …….....… ***D. perlustrandum*** (FISCHER)

- Mandible 0.85–1.00 times as long as wide …….....….... 12

12(11). Hind femur 3.40 times as long as its maximum width. First metasomal tergite almost smooth in apical half, 1.75 times as long as its apical width. Middle antennal segments subsquare. Antennae 17–segmented. Body length 2.10–2.15 mm. Spain ……..……...…….....…….. ***D. benifassaense*** **sp. nov.**

- Hind femur 3.65–3.70 times as long as its maximum width. First metasomal tergite striate in apical half, 1.95–2.00 times as long as its apical width. Middle antennal segments 1.30–1.40 times as long as their width. Antennae 18–segmented. Body length 2.30 mm. Afghanistan, Austria, former Czechoslovakia, Faeroe Islands, Germany, Greece, Hungary, Iceland, Iran,

Ireland, Italy, Mongolia, Netherlands, Poland, Russia, Sweden, Tunisia, Turkey, United Kingdom …….. ……..…….....……... ***D. concinnum*** (HALIDAY)

13(9). Notauli complete, developed on horizontal surface of mesoscutum. Antennae 18–segmented. Body length 1.50 mm. Austria, Hungary, Mongolia .....… ***D. notaulicum*** (FISCHER)
- Notauli not complete, absent on horizontal surface of mesoscutum ….....……. 14

14(13). Hind femur 5.00 times as long as its maximum width. Sternaulus reaching anterior part of mesopleuron. Mandible 2.00 times as long as wide. Antennae 30–32–segmented. Body length 2.10 mm. Denmark, Germany, Hungary, Ireland, Lithuania, Poland, Russia, Switzerland ……..... …….....…….. ***D. falsificum*** (STELFOX et GRAHAM)
- Hind femur 4.00–4.50 times as long as wide. Sternaulus not reaching anterior part of mesopleuron. Mandible 1.50 times as long as wide. …….....……. 15

15(14). First flagellar segment 3.00–3.50 times as long as wide ….. 16
- First flagellar segment 4.00 times as long as wide ……..... 17

16(15). Hind femur 4.00 times as long as its maximum width. First flagellar segment 3.50 times as long as wide. First metasomal tergite striate in apical half. Mesoscutal pit long. Antennae 28–segmented. Body length 2.40 mm. Austria, former Czechoslovakia, Hungary, Iran, Korea, Mongolia, Romania, Sweden. ……..……...……. ***D. cratocerum*** (THOMSON)
- Hind femur 4.50 times as long as its maximum width. First flagellar segment 3.00 times as long as wide. First metasomal tergite smooth in apical half. Mesoscutal pit short and oval. Antennae 21–segmented. Body length 1.70 mm. Austria, Finland, Hungary, Mongolia …….. ***D. aureliae*** (FISCHER)

17(15). First metasomal tergite finely striate in apical half. Middle antennal segments about 1.60 times as long as their width. Propodeum without median longitudinal carina. Antennae 18–segmented. Body length 1.60 mm. Austria, Hungary, Romania, Switzerland ……...… ***D. toleratum*** (FISCHER)

- First metasomal tergite smooth in apical half. Middle antennal segments 2.00 times as long as their width. Propodeum with short median carinae divergent on two carinae reaching lateral propodeal margins. Antennae 16–segmented. Body length 1.40 mm. Austria, Czech Republic, Germany, Greece, Hungary, Romania, Spain …….…….. ***D. spitzzickense*** (FISCHER)

F. PROPODEUM SCULPTURED ON WIDE AREA AND WITH MEDIAN LONGITUDINAL CARINA

1. Mesoscutal pit absent. Antennae 14–segmented. Body length 1.70 mm. Hungary, Ireland, Romania United Kingdom ……...…… ***D. insigne*** (STELFOX et GRAHAM)

- Mesoscutal pit present ..……..……...……..… 2

2(1). Prescutellar depression with median and lateral carinae ……... 3

- Prescutellar depression with median carina and without lateral carinae ..…..... 17

3(2). Mandible 0.85–1.00 times as long as wide …..……...…... 4

- Mandible 1.15–2.00 times as long as wide ...……..... 5

4(3). Hind femur 3.50 times as long as its maximum width. First metasomal tergite 2.00 times as long as its apical width. First flagellar segment 2.00 times as long as wide; middle segments 1.25 times as long as their width. Antennae 18–segmented. Body length 1.90 mm. Austria, Czech Republic, former Czechoslovakia, Hungary, Russia ……. ……..... ***D. contracticorne*** (FISCHER)

- Hind femur 4.50 times as long as its maximum width. First metasomal tergite 2.15 times as long as its apical width. First flagellar segment 2.50 times as long as wide; middle segments 1.75–1.85 times as long as their width. Antennae 21–segmented. Body length 2.00–2.05 mm. Denmark, Ireland ……..…. ***D. agaricophagum*** **sp. nov.**

5(3). First flagellar segment 2.00–3.50 times as long as wide ....… 6
- First flagellar segment 4.00–4.10 times as long as wide ..…. 14

6(5). Hind femur 3.70–4.10 times as long as its maximum width ... 7
- Hind femur 4.50–5.00 times as long as its maximum width 11

7(6). First flagellar segment 3.30 times as long as wide. Antennae 19–segmented. Body length 1.90 mm. Austria …..……... …..... ***D. converginerve*** (FISCHER)
- First flagellar segment 2.00–2.50 times as long as wide. ….... 8

8(7). Mandible 1.15–1.20 times as long as wide ……...……. 9
- Mandible 1.50–1.70 times as long as wide ……..…. 10

9(8). First metasomal tergite 1.45–1.50 times as long as its apical width. First flagellar segment 1.80–2.00 times as long as wide; middle segments as long as their width. Sternaulus not reaching anterior margin of mesopleuron. Antennae 26–segmented. Body length 3.70 mm. Austria, Denmark, Hungary, Korea, Romania, Russia, Spain ***D. crassicostum*** (THOMSON)
- First metasomal tergite 1.80 times as long as its apical width. First flagellar segment 3.25 times as long as wide; middle segments about 2.00 times as long as their width. Sternaulus reaching anterior margin of mesopleuron. Antennae 19–segmented. Body length 2.20–2.25 mm. Spain .... ***D. pilarae*** **sp. nov.**

10(8). Mandible 1.50 times as long as wide. First flagellar segment 3.50 times as long as wide. First metasomal tergite 2.00 times as long as its apical width. Ovipositor longer than metasoma. Antennae 24–segmented. Body length 2.10 mm. Austria, Belgium, Bulgaria, former Czechoslovakia, Denmark, France, Germany, Hungary, Ireland, Italy, Korea, Mongolia, Netherlands, Poland, Romania, Russia, Slovenia, Switzerland, Ukraine, United Kingdom, former Yugoslavia ……..... ***D. nervosum*** (HALIDAY)

- Mandible 1.70 times as long as wide. First flagellar segment 2.50 times as long as wide. First metasomal tergite 1.50 times as long as its apical width. Ovipositor shorter than metasoma. Antennae 16–20–segmented. Body length 1.70–2.70 mm. Armenia, Austria, Czech Republic, Germany, Hungary, Italy, Korea, Madeira Islands, Mongolia, Romania, Russia, Slovakia, Sweden, United Kingdom …..…..... ***D. lineolum*** (THOMSON)

11(6). Mandible 1.15 times as long as wide. Antennae 18–19–segmented. Body length 2.40 mm. Former Czechoslovakia, Hungary, Korea, Mongolia, Russia ..... ***D. naevium*** (TOBIAS)

- Mandible 1.45–1.70 times as long as wide ……...……. 12

12(11). First flagellar segment 3.50 times as long as wide. First metasomal tergite 2.50 times as long as its apical width. Antennae 27–segmented. Body length 2.40 mm. Austria, Spain ……..…… ***D. latitergum*** (FISCHER)

- First flagellar segment 3.00 times as long as wide. First metasomal tergite 2.00 times as long as its apical width ……..... 13

13(12). Hind femur 5.00 times as long as its maximum width. Mandible 1.50 times as long as wide. Middle antennal segments about as longs as their width. Antennae 17–segmented. Body length 1.90 mm. Austria, Hungary, Korea, Netherlands, Romania, Serbia, former Yugoslavia …….....…. ***D. sphaerimembre*** (FISCHER)

- Hind femur 4.50 times as long as its maximum width. Mandible 1.70 times as long as wide. Middle antennal segments about 1.60 times as long as their width. Antennae 23–segmented. Body length 2.50 mm. Austria, Hungary, Russia ……..……. ***D. matridignum*** (FISCHER)

14(5). Hind femur 4.00 times as long as its maximum width …..... 15
- Hind femur 4.90–5.00 times as long as its maximum width . 16

15(14). First metasomal tergite 1.60 times as long as its apical width. Mandible 1.30 times as long as wide. Antennae 21–segmented. Body length 1.60 mm. Austria, Hungary, Italy …….....……..... ***D. praescutellare*** (FISCHER)
- First metasomal tergite 2.00 times as long as wide. Mandible 1.00 times as long as wide. Antennae 14–segmented. Body length 1.60 mm. Croatia, former Czechoslovakia, Germany, Hungary, Italy, United Kingdom, former Yugoslavia ……..…….. ***D. insidiatrix*** (MARSHALL)

16(14). First metasomal tergite 1.70 times as long as its apical width. Mandible 1.25 times as long as wide. Head in dorsal view 2.00 times as long wide as median length. Antennae 17–segmented. Body length 2.20 mm. Hungary, Slovakia, Spain …….....…..…….. ***D. propomellum*** (FISCHER)
- First metasomal tergite 2.25–2.30 times as long as its apical width. Mandible 1.40 times as long as wide. Head in dorsal view 1.40–1.45 times as wide as median length. Antennae 20–22–segmented. Body length 2.00–2.10 mm. Germany, Finland ..……...…..... ***D. setaceum*** **sp. nov.**

17(2). Mandible 0.80–1.05 times as long as wide ...……...….. 18
- Mandible 1.15–2.00 times as long as wide …… 20

18(17). First metasomal tergite 2.20 times as long as its apical width 19

- First metasomal tergite 1.70 times as long as its apical width. Antennae 27–segmented. Body length 2.10–2.15 mm. Denmark ...……..... ***D. deprane*** **sp. nov.**

19(18). First metasomal tergite 2.85 times as long as its apical width. Mesosoma 1.05 times as long as high. Mandible 1.05 times as long as wide. Antennae more than 13–segmented (apical segments missing). Body length 1.70–1.75 mm. Spain …….....…..…..… ***D. teresae*** **sp. nov.**
- First metasomal tergite 3.30 times as long as its apical width. Mesosoma 1.30 times as long as high. Mandible 0.80 times as long as wide. Antennae 16–segmented. Body length 1.40 mm. Austria, Hungary, Romania .. ***D. eumandibulatum*** (FISCHER)

20(17). Mandible 1.15–1.50 times as long as wide ……..... 21
- Mandible 1.75–2.00 times as long as wide …….....…… 39

21(20). First flagellar segment 2.00–2.50 times as long as wide ….. 22
- First flagellar segment 3.10–4.90 times as long as wide ...… 23

22(23). First metasomal tergite 1.95 times as long as its apical width. Hind femur 4.00 times as long as its maximum width. Antennae 18–segmented. Body length 1.90 mm. Austria, Iran, Turkey ……...……...…… ***D. intermissum*** (FISCHER)
- First metasomal tergite 2.50 times as long as its apical width. Hind femur 3.50 times as long as its maximum width. Antennae 27–segmented. Body length 2.00 mm. Austria, Hungary, Spain ……...……..... ***D. flagelliforme*** (FISCHER)

23(21). Hind femur 3.50–3.60 times as long as its maximum width . 24
- Hind femur 3.90–4.50 times as long as its maximum width . 25

24(23). First flagellar segment 3.10 times as long as wide. Mesosoma as long as high. Upper tooth wider than lower tooth. Mesoscutal pit oval. Mandible 1.20 times as long as wide.

Antennae 17–18–segmented. Body length 2.40–2.50 mm. Spain ……..……..... ***D. amparoae*** **sp. nov.**

- First flagellar segment 3.50 times as long as wide. Mesosoma 1.30 times as long as high. Lower tooth wider than upper tooth. Mesoscutal pit elongated. Mandible 1.40 times as long as wide. Antennae 26–segmented. Body length 2.50 mm. Austria, Denmark, Finland, Hungary, Romania …. ….....…. ***D. tergitale*** (FISCHER)

25(23). First flagellar segment 3.20–3.50 times as long as wide ….. 26
- First flagellar segment 4.00–4.90 times as long as wide ….. 30

26(25). Sternaulus reaching anterior part of mesopleuron. Antennae 17–segmented. Body length 2.00–2.10 mm. Denmark, Italy ……..…. ***D. haeselbarthi*** **sp. nov.**
- Sternaulus not reaching anterior part of mesopleuron …….... 27

27(26). First metasomal tergite rugose–striated. First flagellar segment 3.50 times as long as wide. Antennae 18–segmented. Body length 1.70 mm. Austria, Hungary, Germany, Mongolia .. ……..…….....…. ***D. catharinae*** (FISCHER)
- First metasomal tergite striated. First flagellar segment 3.20–3.30 times as long as wide ……..... 28

28(26). Lower tooth wider than upper tooth. Hind femur 4.00 times as long as its maximum width. Antennae 21–24–segmented. Body length 1.80 mm. Austria, Bulgaria, Czech Republic, former Czechoslovakia, England, Hungary, Poland Russia ……...…..... ***D. brevicaudum*** (TOBIAS)
- Upper tooth wider or as wide as lower tooth. Hind femur 4.20–4.50 times as long as its maximum width ……..... 29

29(28). Hind femur 4.20 times as long as its maximum width. First metasomal tergite 1.75 times as long as its apical width. Antennae 18–segmented. Body length 1.90 mm. Armenia, Austria, Germany ……..... ***D. cetiusmonte*** (FISCHER)

- Hind femur 4.50 times as long as its maximum width. First metasomal tergite 2.20 times as long as its apical width. Antennae 18–segmented. Body length 2.10 mm. Austria, Hungary, Spain ……...…..…… ***D. mediocorne*** (FISCHER)

30(25). First flagellar segment 4.00 times as long as wide …… 31
- First flagellar segment 4.50–4.90 times as long as wide ..… 37

31(30). Hind femur 3.90–4.00 times as long as its maximum width . 32
- Hind femur 4.50 times as long as its maximum width …….. 35

32(31). Sternaulus reaching anterior part of mesopleuron. Antennae 21–segmented. Body length 2.00 mm. Austria, Hungary …... …….....…… ***D. latidens*** (FISCHER)
- Sternaulus not reaching anterior part of mesopleuron ……... 33

33(32). First metasomal tergite 2.00 times as long as its apical width. Propodeum with median longitudinal carina with several emerging carinae. Antennae 16–segmented. Body length 1.30–2.00 mm. Austria, Bulgaria, Croatia, Czech Republic, former Czechoslovakia, Finland, Georgia, Hungary, Korea, Macedonia, Mongolia, Romania, Russia, Serbia, former Yugoslavia ……..... ***D. varipes*** (TOBIAS)
- First metasomal tergite 1.50 times as long as its apical width. Propodeum with one or several median carinae with only one emerging carinae …….....…… 34

34(33). Ovipositor longer than metasoma. Mandible 1.30 times as long as wide. Propodeum with only one median longitudinal carina. Antennae more than 17–segmented (apical segments missing). Body length 1.40 mm. Georgia …… ***D. georgicum*** TOBIAS
- Ovipositor distinctly shorter than metasoma. Mandible 1.15 times as long as wide. Propodeum with several median carinar reaching basal margin of propodeum. Antennae 27–segmented. Body length 2.50 mm. China, Netherlands …..…..... …..... ***D. multiarticulatum*** VAN ACHTERBERG

35(31). Propodeum with median longitudinal cariane and carinae in all propodeum. First metasomal tergite 2.20 times as long as its apical width. Antennae 23–segmented. Body length 1.50 mm. Austria, Hungary, Korea …..... ***D. dentipraesens*** (FISCHER)

- Propodeum with longitudinal median cariane with emerging carinae only in apical half. First metasomal tergite 1.80–2.00 times as long as its apical width ……..……. 36

36(35). First metasomal tergite 2.00 times as long as its apical width and striated in apical half. Mandible 1.50 times as long as wide. Upper tooth wider than lower tooth. Antennae 28–30–segmented. Body length 2.70 mm. Austria, former Czechoslovakia, Ireland, Slovakia ……..... ……..... ***D. denticulatum*** (STELFOX et GRAHAM)

- First metasomal tergite 1.80 times as long as its apical width and smooth. Mandible 1.30 times as long as wide. Upper tooth as wide as lower tooth. Antennae 30–segmented. Body length 2.60 mm. Austria, Bulgaria, Hungary …….....……..... ***D. acricorne*** (FISCHER)

37(30). First flagellar segment 4.80–4.90 times as long as wide. Mandible 1.15 times as long as wide. Antennae 22–segmented. Body length 2.00–2.10 mm. Denmark, Finland, Netherlands, Portugal ……..…... ***D. lobatum*** **sp. nov.**

- First flagellar segment 4.50 times as long as wide. Mandible 1.30–1.50 times as long as wide ……..……... 38

38(37). First metasomal tergite 1.90 times as long as its apical width. Hind femur 4.00 times as long as its maximum width. Middle flagellar segments 1.80 times as long as their width. Mandible 1.30 times as long as wide. Antennae 20–21–segmented. Body length 2.80 mm. Former Czechoslovakia, Denmark, Georgia, Germany, Hungary, Italy, Macedonia, Netherlands, Romania, Slovakia, Spain, Sweden, former Yugoslavia ……..... ……..... ***D. costulatum*** (THOMSON)

- First metasomal tergite 2.60 times as long as its apical width. Hind femur 4.25 times as long as its maximum width. Middle flagellar segments 2.00 times as long as their width. Mandible 1.50 times as long as wide. Antennae 24–segmented. Body length 2.00 mm. Austria, Hungary ……. ***D. florens*** (FISCHER)

39(20). Mandible 1.75 times as long as wide. First flagellar segment 4.00 times as long as wide. First metasomal tergite 2.00 times as long as its apical width. Antennae 20–segmented. Body length 2.20 mm. Austria, Hungary, Switzerland …….. ……..…… ***D. rugisignum*** (FISCHER)
- Mandibel 2.00 times as long as wide. First flagellar segment 3.00 times as long as wide. First metasomal tergite 1.70 times as long as its apical width. Antennae 18–19–segmented. Body length 1.60 mm. Austria, Czech Republic, former Czechoslovakia, Hungary, Korea, Mongolia, Poland, Russia, Serbia, Slovakia, former Yugoslavia .. …….....…..... ***D. oleraceum*** (TOBIAS)

4.2.2. European *Dinotrema* Revision

In this chapter, a revision of the European *Dinotrema* species was carried out. To realise the revision, the Natural History museums were visited, where the type of material of *Aspilota* and *Dinotrema* species were studied, due to many species having changed from one to another genera. These visits have been able to catalogue 161 species of European *Dinotrema*.

Furthermore, with the information acquired from each museum and following the International Zoological Nomenclature, it has been possible to describe new species waiting to be published (**sp. nov.**), new synonymous species (**syn. nov.)** and obtained new combinations (**comb. nov.).**

Below, information about 161 European *Dinotrema* species as material examined, their distribution, main characters and a comparative diagnosis are provided. Also, in Volume 2 – Appendix, digital pictures from main characteristics from each species are given (Figs. 1-1830).

***Dinotrema achterbergi* sp. nov.**
(Figs. 1–12)

Material examined. Holotype: 1 female, Spain, Castellon Province, Pobla de Benifassà, Natural Park of Tinença de Benifassà, 10.06.2004 (F.J. Peris–Felipo leg.) (ENV). Paratype: 1 female, same label as in holotype, but 03.06.2004 (ENV).
Distribution. Spain.
Main characters of the species. Body length: 1.95–2.00 mm. Head in dorsal view 1.70 times as wide as its median length and 1.45 times as wide as mesoscutum. Face 1.60 times as wide as high. Mandible 1.20–1.25 times as long as wide. Lower tooth wider than upper tooth. Antennae more than 18–segmented. First flagellar segment 2.50–2.60 times as long as its apical width. Middle flagellar segments about 1.50

times as long as their width. Mesosoma in lateral view 1.05 times as long as high. Mesoscutum 1.10–1.20 times as long as its maximum width, with numerous setae in its middle part. Notauli mainly absent. Mesoscutal pit present, elongated. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow slightly crenulate below. Propodeum smooth, with median longitudinal carina crossing from anterior to posterior margins, with short carinae emerging from median carina not reaching propodeal edges. Propodeal spiracles relatively small. Hind femur 4.25 times as long as its maximum width. First metasomal tergite 2.60 times as long as its apical width, almost smooth. Ovipositor 1.30 times as long as first metasomal tergite, shorter than metasoma, 0.65–0.70 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. propodeale* (Tobias) but differs in having the mandible 1.20 times as long as wide (1.70 times in *D. propodeale*), first flagellar segment 2.50–2.60 times as long as wide (3.20 times in *D. propodeale*) and first metasomal tergite 2.60 times as long as its apical width (2.00 times in *D. propodeale*).

Dinotrema acricorne (FISCHER 1973) **comb. nov.**

(Figs. 13–24)

Aspilota acricornis Fischer 1973c: 241.

Aspilota acricornis: Yu *et al.* 2005.

Dinotrema acricornis: Fischer 2009: 106.

Dinotrema acricornis: Yu *et al.* 2011.

Material examined. Holotype: 1 male, Austria, Salzburg, Parsch, Okt., 1959 (P.P. Babiy leg.) (NHMW). Additional material: 1 female, Bulgaria, Petrich, Rupite, Stroma bank, 29.06.1985 (Papp leg.)

(HNHM); 1 female, Hungary, Kam, Jeli, 25.06.1979 (Papp leg.) (HNHM).

Distribution. Austria, Bulgaria **(new record)** and Hungary.

Main characters of the species. Body length: 2.60 mm. Head in dorsal view 2.00 times as wide as its median length and 1.33 times as wide as mesoscutum. Face 1.50 times as wide as high. Mandible 1.30 times as long as wide. Upper tooth as wide as lower tooth. Antennae 30–segmented. First flagellar segment 4.00 times as long as its apical width. Middle flagellar segments about 2.00 times as long as their width. Mesosoma in lateral view 1.30 times as long as high. Mesoscutum 1.20 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, elongated. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum sculptured, with median longitudinal carina crossing from anterior to posterior margins, with emerging carinae from median carina reaching propodeal edges. Propodeal spiracles relatively small. Hind femur 4.50 times as long as its maximum width. First metasomal tergite 2.00 times as long as its apical width, almost smooth. Ovipositor 1.10 times as long as first metasomal tergite, shorter than metasoma, 0.80–0.85 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. varipes* (Tobias) but differs in having the hind femur 4.50 times as long as its maximum width (4.00 times in *D. varipes*), mesoscutal pit elongated (rounded in *D. varipes*) and head in dorsal view 1.30 times as wide as its median length (1.60 times in *D. varipes*).

Dinotrema adventum (FISCHER 1973) **comb. nov.**
(Figs. 25–36)

Aspilota adventa Fischer 1973b: 96.
Aspilota adventa: Yu *et al.* 2005; 2011.

Material examined. Holotype: 1 male, Austria, Tirol, Gurgler Tal, Piller See bei Untergurgl, 1770 m, sonnig, warm, windstill, 14.07.1969 (Fischer leg.) (NHMW). Paratypes: 1 male, same label as in holotype (NHMW); 1 male, Austria, Tirol, Piller See bei Untergurgl, schütterer W., 1660 m, schwacher, wind, mäβig, bewölk, 14.08.1970 (Fischer leg.) (NHMH); 1 male, Burgenland, Tauchenbach bei Neumarkt–Tauchental, 05.08.1963 (Fischer leg.) (NHMW).

Distribution. Austria.

Main characters of the species. Body length: 1.80 mm. Head in dorsal view 1.80 times as wide as its median length and 1.30 times as wide as mesoscutum. Face 1.25 times as wide as high. Mandible 1.45 times as long as wide. Lower tooth wider than upper tooth. Antennae 19–21–segmented. First flagellar segment 3.60 times as long as its apical width. Middle flagellar segments about 2.00 times as long as their width. Mesosoma in lateral view 1.33 times as long as high. Mesoscutum 1.20 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, rounded. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum sculptured, with pentagonal areola. Propodeal spiracles small. Hind femur 4.00 times as long as its maximum width. First metasomal tergite 2.00 times as long as its apical width, almost smooth. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. sternaulicum* (Fischer) but differs in having the hind femur 4.00 times as long as its maximum width (3.50 times in *D. sternaulicum*), first metasomal

tergite 2.00 times as long as its apical width (1.75 times in *D. sternaulicum*), first flagellar segment 3.60 times as long as wide (3.00 times in *D. sternaulicum*) and middle flagellar segments 2.00 times as long as their width (1.50 times in *D. sternaulicum*).

Dinotrema adzharicum TOBIAS 2003
(Figs. 37–47)

Dinotrema adzharicum Tobias 2003: 285.
Dinotrema adzharicum: Yu *et al.* 2005; 2011.

Material examined. Holotype: 1 female, Georgia, Adzharia, Batumi, Botanical Garden, 2.VIII.1981 (Gurasashvili leg.) (ZISP).
Distribution. Georgia.
Main characters of the species. Body length: 1.40 mm. Head in dorsal view 1.80 times as wide as its median length and 1.50 times as wide as mesoscutum. Face 1.30 times as wide as high. Mandible as long as wide. Upper tooth as wide as lower tooth. Antennae more than 12–segmented (apical segments missing). First flagellar segment 3.50 times as long as its apical width. Middle flagellar segments 2.00–2.50 times as long as their width. Mesosoma in lateral view 1.10 times as long as high. Mesoscutum as long as its maximum width. Notauli mainly absent. Mesoscutal pit absent. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum smooth, with median longitudinal carina crossing from anterior to posterior margins, with short carinae emerging from longitudinal carinae not reaching propodeal edges. Propodeal spiracles relatively small. Hind femur 4.00 times as long as its maximum width. First metasomal tergite 1.30 times as long as its apical width, almost smooth. Ovipositor 2.50 times as long as first

metasomal tergite, as long as metasoma, 1.45 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles with *D. lugaense* Tobias but differs from having the mandible as long as wide (1.50 times as long as wide in *D. lugaense*), upper tooth as wide as lower tooth (wider than lower tooth in *D. lugaense*), first flagellar segment 3.50 times as long as wide (4.00 times in *D. lugaense*) and hind femur 4.00 times as long as its maximum width (4.50 times in *D. lugaense*).

Dinotrema aestivum TOBIAS 2004

(Figs. 48–57)

Dinotrema aestivum Tobias 2004a: 227.

Dinotrema aestivum: Yu *et al.* 2011.

Material examined. Holotype: 1 female, Georgia, Borzhomi, Libani, forest, 18.08.1981 (Gurasashvili leg.) (ZISP). Paratypes: 1 female, Georgia, Borzhomi, plateau, forest, 13.08.1981 (Gurasashvili leg.) (ZISP); 1 male, same label as paratype but 28.08.1981 (Gurasashvili leg.) (ZISP).

Distribution. Georgia.

Main characters of the species. Body length: 1.50–1.70 mm. Head in dorsal view 1.80 times as wide as its median length and 1.45 times as wide as mesoscutum. Face 1.35 times as wide as high. Mandible as long as wide. Upper tooth wider than lower tooth. Antennae more than 16–segmented (apical segments missing). First flagellar segment 4.00 times as long as its apical width. Middle flagellar segments about 1.50–1.70 times as long as their width. Mesosoma in lateral view 1.25 times as long as high. Mesoscutum as long as its maximum width. Notauli mainly absent. Mesoscutal pit absent. Prescutellar depression with lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural

furrow crenulated. Propodeum sculptured, with pentagonal areola. Propodeal spiracles small. Hind femur 3.50 times as long as its maximum width. First metasomal tergite 1.80 times as long as its apical width, almost smooth. Ovipositor 1.75 times as long as first metasomal tergite, shorter than metasoma, 1.05 times times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. agnitum* Tobias but differs in having the middle flagellar segments 1.50–1.70 times as long as their width (2.00 times in *D. agnitum*), hind femur 3.50 times as long as its maximum width (4.50 times in *D. agnitum*) and first metasomal tergite 1.80 times as long as its apical width (1.50 times in *D. agnitum*) and prescutellar depression with lateral carinae (without lateral carinae in *D. agnitum*).

Dinotrema aestuosum TOBIAS 2004
(Figs. 58–66)

Dinotrema aestuosum Tobias 2004a: 227.
Dinotrema aestuosum: Yu *et al.* 2011.

Material examined. Holotype: 1 female, Russia, Novgord Prov., 20 km, NW Pestovo, Tychkino Vill., forest, 22.08.1994 (Tobias leg.) (ZISP).

Distribution. Russia.

Main characters of the species. Body length: 2.10 mm. Head in dorsal view 1.95 times as wide as its median length and 1.35 times as wide as mesoscutum. Face 1.45 times as wide as high. Mandible 0.88 times as long as wide. Upper tooth as wide as lower tooth. Antennae missing. Mesosoma in lateral view 1.45 times as long as high. Mesoscutum as long as its maximum width. Notauli mainly absent. Mesoscutal pit absent. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and

posterior parts of mesopleuron. Posterior mesopleural furrow crenulated. Propodeum sculptured, with pentagonal areola. Propodeal spiracles small. Hind femur 4.40 times as long as its maximum width. First metasomal tergite 1.30 times as long as its apical width, finely striated in apical half. Ovipositor 1.60 times as long as first metasomal tergite, shorter than metasoma, 1.10 times times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. microsomum* (Fischer) but differs in having the first metasomal tergite 1.30 times as long as its apical width (2.00 times in *D. microsomum*), hind femur 4.40 times as long as its maximum width (3.50 times in *D. microsomum*), eye in lateral view as long as temple (0.75 times in *D. microsomum*) and upper tooth as wide as lower tooth (upper tooth wider than lower tooth in *D. microsomum*).

Dinotrema affine (FISCHER 1973)

(Figs. 67–78)

Aspilota affinis Fischer 1973d: 103.

Aspilota affinis: Yu *et al*. 2005.

Dinotrema affine: Yu *et al.* 2011.

Material examined. Holotype: 1 female, Austria, Steiermark, Neumarkt, Anhöne nördlich Steindorf, Kampfwaldzone um 980 m, 05.08.1966 (Fischer leg.) (NHMW). Paratype: 1 male, Austria, Burgenland, Eisenzicken, Bez. Oberwart, 17.09.1961 (Fischer leg.) (NHMW). Allotype: 1 female, Austria, Tirol, Venter Tal zw. Zwieselstein und Hl. Kreuz, Lärchen–Fichten. Wald, 1570 m, 15.08.1958 (Fischer leg.) (NHMW). Additional material: 1 female, Hungary, Kam, Jeli, 25.06.1979 (Papp leg.) (HNHM); 1 female, Bulgaria, Petrich, Rupite Struma bank, 29.06.1985 (Papp leg.) (HNHM).

Distribution. Austria, Bulgaria **(new record)** and Hungary.

Main characters of the species. Body length: 2.90 mm. Head in dorsal view 2.00 times as wide as its median length and 1.30 times as wide as mesoscutum. Face 1.60 times as wide as high. Mandible 1.50 times as long as wide. Upper tooth as wide as lower tooth. Antennae 24–segmented. First flagellar segment 3.50 times as long as its apical width. Middle flagellar segments 1.60 times as long as their width. Mesosoma in lateral view 1.20 times as long as high. Mesoscutum 0.85 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, elongated. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum smooth, with median longitudinal carina crossing from anterior to posterior margins, with short carinae emerging from median carinae in half anterior part not reaching propodeal edges. Propodeal spiracles relatively small. Hind femur 4.00 times as long as its maximum width. First metasomal tergite 1.80 times as long as its apical width, finely striated. Ovipositor 1.65 times as long as first metasomal tergite, shorter than metasoma, 1.08 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles with *D. puliciforme* (Fischer) but differs in having the hind femur 4.00 times as long as its maximum width (4.50 times in *D. puliciforme*), first flagellar segment 3.50 times as long as wide (4.00 times in *D. puliciforme*), middle flagellar segments 1.60 times as long as wide (2.00 times in *D. puliciforme*) and sternaulus (precoxal suture) large arriving close to anterior part of mesopleuron (arriving far in *D. puliciforme*).

***Dinotrema agaricophagum* sp. nov.**
(Figs. 79–90)

Material examined. Holotype: 1 female, Denmark, E–Jutland, Mols Strandkær, 56º14'N 10º25'E, 04.10.1983 (Munk leg.) (NMA). Paratypes: 1 female, Denmark, N–Jylland, Astrup Skov, NJ67, 16.09.1982 (Munk leg.) (NHMW); 1 female, Denmark, N–Jylland, NJ77, 20.08.1985 (Munk leg.) (NHMW). Additional material: 2 females, Denmark, E–Jutland, Mols, Strandkær, 56º14'N 10º25'E, 04.10.1983 (Munk leg.) (ENV); 2 females, Ireland, N. Bull G. DU. AWS, 27.08.1951 (A.W. Stelfox Coll. 1966) (NHMW); 1 female, Ireland, Sliddery Fard, CO. DO. AWS. 28.09.1964 (A.W. Stelfox Coll. 1966) (NHMW); 1 female, Ireland, Regerstown, M. BU. AWS., 27.07.1943 (A.W. Stelfox Coll. 1966) (NHMW).
Distribution. Denmark and Ireland.
Main characters of the species. Body length: 2.00–2.05 mm. Head in dorsal view 1.65–1.70 times as wide as its median length and 1.45–1.50 times as wide as mesoscutum. Face 1.45–1.50 times as wide as high. Mandible 0.90–0.95 times as long as wide. Lower tooth wider than upper tooth. Antennae 21–segmented. First flagellar segment 2.50 times as long as its apical width. Middle flagellar segments 1.75–1.85 times as long as their width. Mesosoma in lateral view 1.15–1.20 times as long as high. Mesoscutum 1.05–1.10 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit absent. Prescutellar depression with lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum sculptured, with median longitudinal carina crossing from anterior to posterior margins, with emerging carinae reaching propodeal edges. Propodeal spiracles relatively small. Hind femur 4.50 times as long as its maximum width. First metasomal tergite 2.15 times as long as its

apical width, rugose–striated in apical half. Ovipositor 1.05–1.10 times as long as first metasomal tergite, shorter than metasoma, 0.65–0.70 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles with *D. contracticorne* (Fischer) but differs in having the hind femur 4.50 times as long as its maximum width (3.50 times in *D. contracticorne*), first metasomal tergite 2.15 times as long as its apical width (2.00 times in *D. contracticorne*), first flagellar segment 2.50 times as long as wide (2.00 times in *D. contracticorne*) and middle flagellar segments 1.75–1.85 times as long as their width (1.25 times in *D. contracticorne*).

Dinotrema agnitum TOBIAS 2004

(Figs. 91–102)

Dinotrema agnitum Tobias 2004a: 229.

Dinotrema agnitum: Yu *et al*. 2011.

Material examined. Holotype: 1 female, Moldova, Strasheny, 21.07.1961 (V. Talitskii leg.) (ZISP). Paratype: 1 female, samel labes as in holotype (ZISP).

Distribution. Moldova.

Main characters of the species. Body length: 1.60 mm. Head in dorsal view 1.70 times as wide as its median length and 1.50 times as wide as mesoscutum. Face 1.35 times as wide as high. Mandible 1.15 times as long as wide. Upper tooth wider than lower tooth. Antennae 18–22–segmented. First flagellar segment 4.00 times as long as its apical width. Middle flagellar segments 2.00 times as long as their width. Mesosoma in lateral view 1.60 times as long as high. Mesoscutum as long as its maximum width. Notauli mainly absent. Mesoscutal pit absent. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, reaching anterior part of

mesopleuron. Posterior mesopleural furrow crenualted. Propodeum sculptured, with pentagonal areola. Propodeal spiracles relatively small. Hind femur 4.50 times as long as its maximum width. First metasomal tergite 1.50 times as long as its apical width, finely striated. Ovipositor 2.65 times as long as first metasomal tergite, shorter than metasoma, 1.60 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles with *D. aestuosum* Tobias but differs in having the the middle flagellar segments 2.00 times as long as their width (1.50–1.70 times in *D. aestuosum*), hind femur 4.50 times as long as its maximum width (3.50 times in *D. aestuosum*) and first metasomal tergite 1.50 times as long as its apical width (1.80 times in *D. aestuosum*) and prescutellar depression without lateral carinae (with lateral carinae in *D. aestuosum*).

Dinotrema alakolense TOBIAS 2004

(Figs. 103–111)

Dinotrema alakolense Tobias 2004a: 225.

Dinotrema alakolense: Yu *et al*. 2011.

Material examined. Holotype: 1 male, Kazakhstan, Dzungar Ala Tau, southern part of Koktum on Alakol, 25.06.1962 (Tobias leg.) (ZISP). Paratype: 1 male, same label as in holotype (ZISP).

Distribution. Kazakhstan.

Main characters of the species. Body length: 1.30 mm. Head in dorsal view 1.90 times as wide as its median length and 1.50 times as wide as mesoscutum. Face 1.60 times as wide as high. Mandible 1.40 times as long as wide. Lower tooth wider than upper tooth. Antennae 17–segmented. First flagellar segment 3.00 times as long as its apical width. Middle flagellar segments 1.80–1.20 times as long as their width. Mesosoma in lateral view 1.30 times as long as high.

Mesoscutum 0.95 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit absent. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow crenulated. Propodeum sculptured, with pentagonal areola. Propodeal spiracles relatively small. Hind femur 4.00 times as long as its maximum width. First metasomal tergite 2.00 times as long as its apical width, almost smooth. Ovipositor 1.85 times as long as first metasomal tergite, shorter than metasoma, 1.25 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles with *D. curtisetum* sp. nov. but differs in having the first metasomal tergite 2.00 times as long as its apical width (2.20 times in *D. curtisetum*), mandible 1.40 times as long as wide (1.25 times in *D. curtisetum*), sternaulus (precoxal sture) not reaching anterior part of mesopleuron (reaching anterior part in *D. curtisetum*) and lower tooth wider than upper tooth (upper tooth wider in *D. curtisetum*).

Dinotrema alysiae MUNK et PERIS–FELIPO 2013
(Figs. 112–123)

Dinotrema alysiae Munk et Peris–Felipo 2013a: 62.

Material examined. Holotype: 1 female, Denmark, E–Jutland, Mols Strandkær, 56º14'N 10º25'E, 02.09.1991 (Munk leg.) (NMA). Paratypes: 2 females, same label as in holotype but, 30.07.1991 (Munk leg.) (NMA); 2 females, Denmark, E–Jylland, Yoling Skov sw. of Skanderborg, 06.09.1986 (Munk leg.) (NMA); 1 female, Netherlands, Waarder (Z.H.), Dosteinde, 30–31.08.1974 (Achterberg leg.) (NMA); 2 females, England, Bramham Park, Nat. hants ex. Callomyia amoena, 1985 (Evans leg.) (NMA). Additional material: 1 female, Denmark, E–Jutland, Højkol Skov, 56º05'N 9º38'E,

11.09.2000 (Munk leg.) (ENV); 1 female, Spain, Navarra, Artikutza, Mixto M–1, 16.10.1995 (L. Murguia leg.) (ENV); 1 female, Spain, Navarra, Artikutza, Mixto M–2, 24.07.1995 (L. Murguia leg.) (ENV).

Distribution. Denmark, England, Netherlands and Spain.

Main characters of the species. Body length: 2.30–2.40 mm. Head in dorsal view 1.85–1.90 times as wide as its median length and 1.40 times as wide as mesoscutum. Face 1.95–2.00 times as wide as high. Mandible 1.50 times as long as wide. Lower tooth wider than upper tooth. Antennae 24–25–segmented. First flagellar segment 3.50 times as long as its apical width. Middle flagellar segments 1.90–2.00 times as long as their width. Mesosoma in lateral view 1.30 times as long as high. Mesoscutum 1.05–1.10 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, oval. Prescutellar depression with lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth below. Propodeum smooth, with median longitudinal carina crossing from anterior to posterior margins, with transverse angulated carinae in anterior third, with additional long subparallel carinae laterally to median one; from lateral carinae emerging short carinae not reaching propodeal edges. Propodeal spiracles relatively small. Hind femur 4.10 times as long as its maximum width. First metasomal tergite 1.45 times as long as its apical width, almost smooth. Ovipositor as long as first metasomal tergite, shorter than metasoma, 0.40–0.45 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. erythropum* (Foerster) and *D. valvulatum* Munk et Peris–Felipo. *Dinotrema alysiae* differs from *D. erythopum* in having the first flagellar segments 3.50 times as long as wide (2.50 times in *D. erythopum*), middle flagellar segments 1.90–2.00 times as long as wide (1.40 times in *D. erythropum*), first metasomal tergite 1.45 times as long as apical

width (1.70 times in *D. erythropum*), mesoscutal pit oval (very elongated in *D. erythropum*), and lower tooth shorter than upper tooth (longer in *D. erythropum*). Finally, *D. alysiae* differs from *D. valvulatum* in having the first metasomal tergite almost entirely smooth (rugose–striated with two dorsal carinae in *D. valvulatum*) and ovipositor shorter than metasoma (ovipositor as long as metasoma in *D. valvulatum*).

Dinotrema ambiguum TOBIAS 2004
(Figs. 124–132)

Dinotrema ambiguum Tobias 2004a: 231.
Dinotrema ambiguum: Yu *et al.* 2011.

Material examined. Holotype: 1 female, Kazakhstan, Karaganda Prov., Karkaralinskie Mts., forest, 15.06.1959 (Tobias leg.) (ZISP).
Distribution. Kazakhstan.
Main characters of the species. Body length: 2.00 mm. Head in dorsal view 1.60 times as wide as its median length and 1.40 times as wide as mesoscutum. Face 1.60 times as wide as high. Mandible as long as wide. Lower tooth wider than upper tooth. Antennae 24–25–segmented. First flagellar segment 2.00 times as long as its apical width. Middle flagellar segments 1.10 times as long as their width. Mesosoma in lateral view 1.25 times as long as high. Mesoscutum 1.35 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit absent. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow crenulated. Propodeum sculptured, with short median carina, with emerging carinae reaching propodeal edges. Propodeal spiracles relatively small. Hind femur 3.80 times as long as its maximum width. First metasomal tergite 1.50 times as long as its apical width, almost

smooth. Ovipositor 3.90 times as long as first metasomal tergite, shorter than metasoma, 1.60 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. tinencaense* sp. nov. but differs in having the first flagellar segment 2.00 times as long as wide (2.50 times in *D. tinencaense*), middle flagellar segments 1.10 times as long as their width (1.35–1.55 times in *D. tinencaense*) and prescutellar depression without lateral carinae (with lateral carinae in *D. tinencaense*).

Dinotrema amoenidens (FISCHER 1973)
(Figs. 133–144)

Aspilota amoenidens Fischer 1973b: 98.
Dinotrema amoenidens: Yu *et al.* 2005.
Dinotrema amoenidens: Papp 2005: 225.
Dinotrema amoenidens: Papp 2009b: 5.
Dinotrema amoenidens: Yu *et al.* 2011.

Material examined. Holotype: 1 female, Austria, Tirol, S. Venter Ache, 2 km W. Zwieselstein, 1550 m, sonnig, wenig, wind, 13.08.1970 (Fischer leg.) (NHMW). Paratype: 1 female, same label as in holotype (NHMW). Additional material: 1 female, Hungary, Aggtelek Szelcepuszta, 12.06.1989 (Papp leg.) (HNHM); 1 female, Greece, Lakonia Mts. Taygetos, 1000 m, 11.06.1980 (Christensen leg.) (HNHM); 1 female, Italy, CH. Mt. Generoso, TI, Bellavista, 1200 m, 21–30.06.1982 (Rezberyai–Reser leg.) (HNHM); 1 female, Romania, Transylvania, Bethlen. Biró. 1911 (HNHM); 1 male, Romania, Transylvania, Hargita, m. Kis–Homoród–völgy, Lövéte, 03.07.1995 (Podlussány leg.) (HNHM); 5 females, Denmark, Dania, E–Jylland, Klattrup, S of Vejle, NG36, 26–27.09.1982 (Munk leg.) (NHMW); 7

females, Denmark, Dania, N–Jylland, NJ67, Slotved Skov., 21.06.1982 (Munk leg.) (NHMW).

Distribution. Austria, Bosnia–Herzegovina, China, Denmark **(new record)**, Greece, Hungary, Italy **(new record)**, Mongolia, Poland, Romania and Russia.

Main characters of the species. Body length: 1.80 mm. Head in dorsal view 1.85-1.90 times as wide as its median length and 1.40 times as wide as mesoscutum. Face 1.40 times as wide as high. Mandible 1.50-1.60 times as long as wide. Lower tooth wider than upper tooth. Antennae 18–segmented. First flagellar segment 2.75 times as long as its apical width. Middle flagellar segments 1.60 times as long as their width. Mesosoma in lateral view 1.30 times as long as high. Mesoscutum as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, rounded. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth below. Propodeum smooth, with median longitudinal carina crossing from anterior to posterior margins, with transverse carina, with additional in anterior part long subparallel carinae laterally to median one. Propodeal spiracles small. Hind femur 4.00 times as long as its maximum width. First metasomal tergite 1.70 times as long as its apical width, finely striated in apical half. Ovipositor 1.25 times as long as first metasomal tergite, shorter than metasoma, as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. castaneithorax* (Fischer) but differs in having the mesoscutal pit rounded (oval in *D. castaneithorax*), mandible 1.30 times as long as wide (1.50 times in *D. castaneithorax*), lower tooth wider than upper tooth (upper tooth wider than lower tooth in *D. castaneithorax*), first flagellar segment 2.75 times as long as wide (2.00 times in *D. castaneithorax*) and first

metasomal tergite 1.70 times as long as its apical width (1.90 times in *D. castaneithorax*).

***Dinotrema amparoae* sp. nov.**
(Figs. 145–156)

Material examined. Holotype: 1 female, Spain, Alicante Province, Torrevieja, Natural Park of Lagunas de La Mata–Torrevieja, 08.02.2005 (F.J. Peris–Felipo leg.) (ENV). Paratypes: 1 female, same label as in holotype, but 04.03.2005 (ENV); 1 female, same label as in holotype but 05.04.2005 (ENV); 1 female, same label as in holotype but 28.03.2006 (ZISP); 1 male, same label as in holotype but 30.11.2004 (ENV).
Distribution. Spain.
Main characters of the species. Body length: 2.40–2.50 mm. Head in dorsal view 1.70 times as wide as its median length and 1.45 times as wide as mesoscutum. Face 1.60 times as wide as high. Mandible 1.20 times as long as wide. Upper tooth wider than lower tooth. Antennae 17–18–segmented. First flagellar segment 3.10 times as long as its apical width. Middle flagellar segments 1.40–1.95 times as long as their width. Mesosoma in lateral view as long as high. Mesoscutum 1.20 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, rounded. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum sculptured, with median longitudinal carina crossing from anterior to posterior margins, with emerging carinae reaching propodeal edges. Propodeal spiracles small. Hind femur 3.60 times as long as its maximum width. First metasomal tergite 1.55–1.60 times as long as its apical width, finely striated in apical half. Ovipositor 2.00 times as long as first metasomal tergite,

shorter than metasoma, 1.15–1.20 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. flagelliforme* (Fischer), *D. paludellae* sp. nov. and *D. haeselbarthi* sp. nov.. *Dinotrema amparoae* differs from *D. flagelliforme* in having the first flagellar segment 3.10 times as long as wide (2.00 times in *D. flagelliforme*), first metasomal tergite 1.55–1.60 times as long as its apical width (2.50 times in *D. flagelliforme*) and mesoscutal pit oval (elongated in *D. flagelliforme*). On the other hand, *D. amparoae* differs from *D. paludellae* in having the mandible 1.20 times as long as wide (1.90 times in *D. paludellae*), first flagellar segment 3.10 times as long as wide (2.30–2.40 times in *D. paludellae*), middle flagellar segments 1.40–1.95 times as long as their width (1.10 times in *D. paludellae*) and first metasomal tergite 1.55–1.60 times as long as its apical width (2.25–2.30 times in *D. paludellae*). Finally, *D. amparoae* differs from *D. haeselbarthi* in having the mandible 1.20 times as long as wide and widened in apex (1.50 times and very weakly widened in *D. haeselbarthi*), hind femur 3.60 times as long as its maximum width (4.00 times in *D. haeselbarthi*), first metasomal tergite 1.55–1.60 times as long as its apical width and very finely striated in apical half (2.00 times and stirated in *D. haeselbarthi*) and sternaulus (precoxal suture) not reaching anterior part of mesopleuron (reaching in *D. haeselbarthi*).

Dinotrema amplisignatum (FISCHER 1973)
(Figs. 157–168)

Aspilota amplisignata Fischer 1973c: 244.
Aspilota spiniphorae Fischer 1985: 233.
Dinotrema amplisignata: Yu *et al.* 2005.
Dinotrema amplisignatum: Yu *et al.* 2011.

Material examined. Holotype: 1 female, Austria, Salzburg, Parsch, 02.06.1966 (P.P. Babiy leg.) (NHMW). Paratype: 1 female, Italy, Cortemilia prop. Asti, 02.1971 [ex *Spiniphota dorsalis*, in dead in *Helix* sp. C.v.Achterberg 1980] (NHMW). Additional material: 4 females and 5 males, Italy, same label as in paratype (HNHM); 1 female, Hungary, Sz. SztMiklós, Biró, 10.10.1911 (HNHM).

Distribution. Austria, France, Germany, Hungary **(new record)** and Italy.

Main characters of the species. Body length: 2.70 mm. Head in dorsal view 1.80 times as wide as its median length and 1.30–1.35 times as wide as mesoscutum. Face 1.50 times as wide as high. Mandible 1.40 times as long as wide. Upper tooth as wide as lower tooth. Antennae 22–segmented. First flagellar segment 4.00 times as long as its apical width. Middle flagellar segments 2.00 times as long as their width. Mesosoma in lateral view 1.30 times as long as high. Mesoscutum as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, elongated. Prescutellar depression with lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth below. Propodeum smooth, with short median carinae, with transverse carina, with additional in anterior part long subparallel carinae laterally to median one and emerging carina not reaching propodeal edges. Propodeal spiracles small. Hind femur 5.00 times as long as its maximum width. First metasomal tergite 1.50 times as long as its apical width, finely striated in apical half. Ovipositor 1.15 times as long as first metasomal tergite, shorter than metasoma, 0.75 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. tirolense* Munk et Peris–Felipo but differs in having the hind femur 5.00 times as long as its maximum width (4.00 times in *D. tirolense*), propodeum with median carina with diverging carinae (without diverging carinae in *D.*

tirolense) and upper tooth as wide as lower tooth (lower tooth wider than upper tooth in *D. tirolense*).

Dinotrema aquitabile TOBIAS 2004
(Figs. 169–177)

Dinotrema aquitabile Tobias 2004a: 228.
Dinotrema aquitabile: Yu *et al.* 2011.

Material examined. Holotype: 1 male, Russia, Leningrad Prov., Tolmachevo, 17.08.1960 (Tobias leg.) (ZISP).
Distribution. Russia.
Main characters of the species. Body length: 2.50 mm. Head in dorsal view 1.85 times as wide as its median length and 1.75 times as wide as mesoscutum. Face 1.35 times as wide as high. Mandible as long as wide. Upper tooth as wide as lower tooth. Antennae 26–segmented. First flagellar segment 4.00 times as long as its apical width. Middle flagellar segments 3.00 times as long as their width. Mesosoma in lateral view 1.30 times as long as high. Mesoscutum 1.25 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit absent. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, reaching anterior part of mesopleuron. Posterior mesopleural furrow crenulated. Propodeum sculptured, with short median carina, with emerging carinae reaching propodeal edges. Propodeal spiracles realtively small. Hind femur 5.00 times as long as its maximum width. First metasomal tergite 1.50 times as long as its apical width, striated in apical half. Main colour brown and dark brown.
Comparative diagnosis. This species resembles *D. arenarium* Tobias but differs in having the mandible as long as wide (1.40 times in *D. arenarium*), middle flagellar segments 3.00 times as long as their width (2.00 times in *D. arenarium*), hind femur 5.00 times as long as

its maximum width (3.50 times in *D. arenarium*) and sternaulus (precoxal suture) reaching anterior part of mesopleuron (reaching anterior and posterior parts in *D. arenarium*).

Dinotrema arenarium TOBIAS 2004
(Figs. 178–189)

Dinotrema arenarium Tobias 2004a: 228.
Dinotrema arenarium: Yu *et al.* 2011.

Material examined. Holotype: 1 female, Kazakhstan, E of Lake Zaisan, forest in Taskum sands, 25.05.1961 (Tobias leg.) (ZISP).
Distribution. Kazakhstan.
Main characters of the species. Body length: 1.80 mm. Head in dorsal view 1.80 times as wide as its median length and 1.40 times as wide as mesoscutum. Face 1.45 times as wide as high. Mandible as long as wide. Upper tooth as wide as lower tooth. Antennae more than 15–segmented (apical segments missing). First flagellar segment 4.00 times as long as its apical width. Middle flagellar segments 2.00 times as long as their width. Mesosoma in lateral view 1.30 times as long as high. Mesoscutum as long as its maximum width. Notauli mainly absent. Mesoscutal pit absent. Prescutellar depression with lateral carinae. Sternaulus (precoxal suture) present, reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow crenulated. Propodeum sculptured, with short median carina, with emerging carinae reaching propodeal edges. Propodeal spiracles relatively small. Hind femur 3.50 times as long as its maximum width. First metasomal tergite 1.60 times as long as its apical width, striated in apical half. Ovipositor 1.40 times as long as first metasomal tergite, shorter than metasoma, 1.15 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. aquitabile* Tobias, *D. ambiguum* Tobias and *D. tinencaense* sp. nov.. *Dinotrema arenarium* differs from *D. aquitabile* in having the mandible 1.40 times as long as wide (1.00 times in *D. aquitabile*), middle flagellar segments 2.00 times as long as their width (3.00 times in *D. aquitabile*), hind femur 3.50 times as long as its maximum width (5.00 times in *D. aquitabile*) and sternaulus (precoxal suture) reaching anterior and posterior parts of mesopleuron (only anterior part in *D. aquitabile*). On the other hand, *D. arenarium* differs from *D. ambiguum* in having the mandible 1.40 times as long as wide (1.00 times in *D. ambiguum*), first flagellar segment 4.00 times as long as wide (2.00 times in *D. ambiguum*), middle flagellar segments 2.00 times as long as their width (1.10 times in *D. ambiguum*) and sternaulus (precoxal suture) reaching anterior and posterior parts of mesopleuron (nor reaching in *D. ambiguum*). Finally, *D. arenarium* differs from *D. tinencaense* in having the mandible 1.40 times as long as wide (1.10 times in *D. tinencaense*), first flagellar segment 4.00 times as long as wide (2.50 times in *D. tinencaense*), middle flagellar segments 2.00 times as long as their width (1.50–1.60 times in *D. tinencaense*) and sternaulus (precoxal suture) reaching anterior and posterior parts of mesopleuron (not reaching in *D. tinencaense*).

Dinotrema areolatum (STELFOX et GRAHAM 1950)
(Figs. 190–201)

Aspilota areolata Stelfox et Graham 1950b: 12.
Aspilota areolata: Fischer 1972: 336.
Aspilota areolata: Frances *et al*. 1989: 205.
Aspilota areolata: Yu *et al.* 2005.
Dinotrema areolatum: Fischer 2009: 106.
Dinotrema areolatum: Yu *et al.* 2011.
Dinotrema areolata: Broad *et al*. 2012: 9.

Material examined. Type: 1 female, Surrey Ashtead, 6.08.1932, G. Nixon 'B.M. TYPE HYM 3c.1677' (BNHM). Additional material: 1 female, Hungary, Murány, Maretkina, 09.06.1977 (Papp leg.) (HNHM); 1 female, Denmark, E–Julland, Vingsted, w of Vejle, 08.06.1983 (Munk leg.) (ENV).

Distribution. Austria, former Czechoslovakia, Denmark **(new record)**, Spain and United Kingdom.

Main characters of the species. Body length: 1.70 mm. Head in dorsal view 1.70 times as wide as its median length and 1.40 times as wide as mesoscutum. Face 1.70 times as wide as high. Mandible 2.00 times as long as wide. Lower tooth wider than upper tooth. Antennae 24–segmented. First flagellar segment 4.00 times as long as its apical width. Middle flagellar segments 2.00 times as long as their width. Mesosoma in lateral view 1.30 times as long as high. Mesoscutum as long as its maximum width. Notauli mainly absent. Mesoscutal pit absent. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow crenulated. Propodeum sculptured, with pentagonal areola. Propodeal spiracles relatively small. Hind femur 5.00 times as long as its maximum width. First metasomal tergite 2.00 times as long as its apical width, striated. Ovipositor 2.15 times as long as first metasomal tergite, shorter than metasoma, 1.85 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. pullum* (Foerster) but differs in having the mandible 2.00 times as long as wide (1.60 times in *D. pullum*), first flagellar segment 4.00 times as long as wide (3.00 times in *D. pullum*), middle flagellar segments 2.00 times as long as wide (1.60–1.70 times in *D. pullum*) and hind femur 5.00 times as long as its maximum width (4.40 times in *D. pullum*).

Dinotrema aureliae (FISCHER 1973)
(Figs. 202–212)

Aspilota aureliae Fischer 1973b: 101.
Aspilota aureliae: Yu *et al.* 2005.
Dinotrema aureliae: Tobias 2006: 332.
Dinotrema aureliae: Yu *et al.* 2011.
Dinotrema aureliae: Broad *et al*. 2012: 10.

Material examined. Holotype: 1 female, Austria, Tirol, Piller See bei, Untergurgl, schütterer W., 1660 m, sochwácher, wind, mäβig, bewölk, 14.08.1970 (Fischer leg.) (NHMW). Paratypes: 1 female, Austria, Burgenland, Jabing, 28.07.1960 (Fischer leg.) (NHMW). Additional material: 1 female, Austria, Kärnten Hüttenberg–Zosem über w. sonnig 800–900 m, 17.08.1973 (Fischer leg.) (NHMW); 1 female, Austria, inf. Pitten, 28.06.1959 (Fischer leg.) (NHMW); 1 female, Finland, N. Kyrkslätt, 03.09.1980 (Vásárhenlyi leg.) (HNHM); 1 female, Hungary, Sürneg, Sarváy, 04–08.11.1968 (Papp leg.) (HNHM).
Distribution. Austria, Finland **(new record)**, Hungary **(new record)** and Mongolia.
Main characters of the species. Body length: 1.70 mm. Head in dorsal view 1.90 times as wide as its median length and 1.40 times as wide as mesoscutum. Face 1.60 times as wide as high. Mandible 1.50 times as long as wide. Lower tooth wider than upper tooth. Antennae 21–segmented. First flagellar segment 3.00 times as long as its apical width. Middle flagellar segments 1.80 times as long as their width. Mesosoma in lateral view 1.30 times as long as high. Mesoscutum as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, oval. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth

below. Propodeum sculptured, with short median carina, with emerging carinae reaching propodeal edges. Propodeal spiracles relatively small. Hind femur 4.50 times as long as its maximum width. First metasomal tergite 2.00 times as long as its apical width, finely striated. Ovipositor 1.95 times as long as first metasomal tergite, shorter than metasoma, 1.15 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. cratocerum* (Thomson) but differs in having the hind femur 4.50 times as long as its maximum width (5.00 times in *D. cratocerum*), first flagellar segment 3.00 times as long as wide (3.50 times in *D. cratocerum*) and mesoscutal pit oval (elongated in *D. cratocerum*).

Dinotrema aurelianum (FISCHER 1976) **comb. nov.**
(Figs. 213–224)

Aspilota aureliana Fischer 1976: 357.
Aspilota aureliana: Yu *et al*. 2005; 2011.

Material examined. Holotype: 1 female, Austria, Burgenland, Tauchenbach bei Neumarkt, Tauchental, 05.08.1963 (Fischer leg.) (NHMW). Paratype: 1 female, same label as in holotype (NHMW). Allotype: 1 female, same label as in holotype (NHMW).

Distribution. Austria.

Main characters of the species. Body length: 1.90 mm. Head in dorsal view 2.00 times as wide as its median length and 1.40 times as wide as mesoscutum. Face 1.50 times as wide as high. Mandible 1.50 times as long as wide. Upper tooth wider than lower tooth. Antennae 23–24–segmented. First flagellar segment 4.00 times as long as its apical width. Middle flagellar segments 2.50 times as long as their width. Mesosoma in lateral view 1.30 times as long as high. Mesoscutum 0.85 times as long as its maximum width. Notauli mainly

absent. Mesoscutal pit present, oval. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, reaching posterior part of mesopleuron. Posterior mesopleural furrow smooth below. Propodeum smooth, with median longitudinal carina crossing from anterior to posterior margins. Propodeal spiracles small. Hind femur 5.00 times as long as its maximum width. First metasomal tergite 1.70 times as long as its apical width, almost smooth. Ovipositor as long as first metasomal tergite, shorter than metasoma, 0.90 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. sochiense* Tobias but differs in having the sternaulus (precoxal suture) reaching with posterior part of mesopleuron (not reaching in *D. sochiense*), first metasomal tergite 1.70 times as long as its apical width and striated (2.00 times and smooth in *D. sochiense*) and head in dorsal view 2.00 times as long as wide (1.70–1.80 times in *D. sochiense*).

***Dinotrema belokobylskiji* sp. nov.**

(Figs. 225–236)

Material examined. Holotype: 1 female, Spain, Castellon Province, Pobla de Benifassà, Natural Park of Tinença de Benifassà, 21.10.2006 (F.J. Peris–Felipo leg.) (ENV). Paratype: 1 female, same label as in holotype, but 30.10.2006 (ENV).

Distribution. Spain.

Main characters of the species. Body length: 1.60 mm. Head in dorsal view 1.57–1.60 times as wide as its median length and 2.00 times as wide as mesoscutum. Face 1.40 times as wide as high. Mandible 1.20 times as long as wide. Lower tooth wider than upper tooth. Antennae 16–segmented. First flagellar segment 2.75 times as long as its apical width. Middle flagellar segments 1.20 times as long as their width. Mesosoma in lateral view 1.05 times as long as high.

Mesoscutum 1.05–1.10 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, rounded. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow slightly crenulate below. Propodeum smooth, with median longitudinal carina crossing from anterior to posterior margins, with short emerging carinae not reaching propodeal edges. Propodeal spiracles relatively small. Hind femur 4.30 times as long as its maximum width. First metasomal tergite 1.80 times as long as its apical width, striated in apical half. Ovipositor 1.40 times as long as first tergite, shorter than metasoma, 1.05 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. caesum* Tobias, *D. propodeale* (Tobias) and *D. sessile* van Achterberg. *Dinotrema belokobylskiji* differs from *D. caesum* in having the middle flagellar segments 1.20–1.30 times as long as wide (1.80–2.00 times in *D. caesum*), mesosoma 1.05 times as long as high (1.30 times in *D. caesum*), first metasomal tergite 1.80 times as long as its apical width (1.50 times in *D. caesum*) and ovipositor shorter than metasoma (longer in *D. caesum*). On the other hand, *D. belokobylskiji* differs from *D. propodeale* in having the mandible 1.20 times as long as wide (1.70 times in *D. propodeale*), upper tooth shorter than lower tooth (in *D. propodeale* as long as lower tooth), first flagellar segment 2.75 times as long as wide (3.20 times in *D. propodeale*), middle flagellar segments 1.20–1.30 times as long as wide (1.70 times in *D. propodeale*) and mesosoma 1.05 times as long as high (1.20 times in *D. propodeale*). Finally, *D. belokobylskiji* differs from *D. sessile* in having the first flagellar segment 2.75 times as long as wide (3.40 times in *D. sessile*), middle flagellar segments 1.20–1.30 times as long as wide (2.00 times in *D. sessile*), mesosoma 1.05 times as long as

high (1.20 times in *D. sessile*) and ovipositor shorter than metasoma (longer in *D. sessile*).

***Dinotrema benifassaense* sp. nov.**
(Figs. 237–248)

Material examined. Holotype: 1 female, Spain, Castellon Province, Pobla de Benifassà, Natural Park of Tinença de Benifassà, 11.06.2007 (F.J. Peris–Felipo leg.) (ENV). Paratype: 1 female, same label as in holotype but 14.05.2007 (ENV).
Distribution. Spain.
Main characters of the species. Body length: 2.10–2.15 mm. Head in dorsal view 1.55 times as wide as its median length and 1.40–1.45 times as wide as mesoscutum. Face 1.35 times as wide as high. Mandible 0.85–0.90 times as long as wide. Upper tooth wider than lower tooth. Antennae 17–segmented. First flagellar segment 2.75 times as long as its apical width. Middle flagellar segments 1.95–2.00 times as long as their width. Mesosoma in lateral view 1.10 times as long as high. Mesoscutum as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, oval. Prescutellar depression with lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow crenulate below. Propodeum sculptured, with short median carina, with emerging carinae reaching propodeal edges. Propodeal spiracles small. Hind femur 3.40 times as long as its maximum width. First metasomal tergite 1.75 times as long as its apical width, almost smooth. Ovipositor 1.50–1.55 times as long as first tergite, shorter than metasoma, 1.05–1.10 times as long as hind femur. Main colour brown and dark brown.
Comparative diagnosis. This species resembles *D. agaricophagum* sp. nov. but differs in having the first flagellar segment 1.95–2.00

times as long as wide (2.50 times in *D. agaricophagum*), middle flagellar segments as long as their width (1.75–1.85 times in *D. agaricophagum*), hind femur 3.40 times as long as its maximum width (4.50 times in *D. agaricophagum*) and first metasomal tergite 1.75 times as long as its apical width and almost smooth (2.15 times and striated in apical half in *D. agaricophagum*).

Dinotrema borzhomii TOBIAS 2004
(Figs. 249–259)

Dinotrema borzhomii Tobias 2004a: 222.
Dinotrema borzhomii: Yu *et al*. 2011.

Material examined. Holotype: 1 female, Georgia, Borzhomi, Kvibisi, forest, 20.08.1981 (Gurasashvili leg.) (ZISP).
Distribution. Georgia.
Main characters of the species. Body length: 1.60 mm. Head in dorsal view 1.55 times as wide as its median length and 1.55 times as wide as mesoscutum. Face 1.35 times as wide as high. Mandible as long as wide. Upper tooth wider than lower tooth. Antennae 18–segmented. First flagellar segment 4.00 times as long as its apical width. Middle flagellar segments 2.00 times as long as their width. Mesosoma in lateral view 1.40 times as long as high. Mesoscutum about 1.20 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit absent. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, reaching anterior part of mesopleuron. Posterior mesopleural furrow crenulated. Propodeum sculptured, with pentagonal areola. Propodeal spiracles small. Hind femur 3.90 times as long as its maximum width. First metasomal tergite 2.00 times as long as its apical width, striated. Ovipositor 1.80 times as long as first tergite, shorter than metasoma, 1.30 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. dimidiatum* (Thomson) but differs in having the mandible as long as wide (0.75 times in *D. dimidiatum*), prescutellar depression without lateral carinae (with lateral carina in *D. dimidiatum*), first metasomal tergite 2.00 times as long as its apical width (1.50 times in *D. dimidiatum*), hind femur 3.90 times as long as its maximum width (4.50 times in *D. dimidiatum*) and middle flagellar segments 2.00 times as long as their width (1.60 times in *D. dimidiatum*).

Dinotrema brevicaudum (TOBIAS 1962) **comb. nov.**
(Figs. 260–271)

Aspilota brevicauda Tobias 1962: 101.
Aspilota brevicauda: Fischer 1973b: 105.
Aspilota brevicauda: Yu *et al.* 2005.
Dinotrema brevicauda: Lozan *et al*. 2010: 18.
Dinotrema brevicauda: Yu *et al.* 2011.

Material examined. Holotype: 1 female, Russia, Leningrad Province, Tolmachevo, 18.08.1960 (Tobias coll.) (ZISP). Paratype: 1 female, same label as in holotype but 22.08.1960 (Tobias coll.) (ZISP). Additional materila: 1 female, Austria, Tirol, Piller See bei Untergurgl, schütterer W. 1660 m, sochwacher wind, mäβig, bewölk, 14.08.1970 (Fischer leg.) (NHMW); 1 male, Austria, Tirol, Piller See bei Untergurgl, schütterer W. 1660 m, sochwacher wind, mäβig, bewölk, 14.08.1970 (Fischer leg.) (NHMW); 1 female, Austria, Tirol, S. Venter Ache, 2 km W Zieselstein, 1550 m, sonnig, wenig, Wind, 13.08.1970 (Fischer leg.) (NHMW); 1 female, Hungary, Sürneg, Sarváy, 04–08.11.1968 (Papp leg.) (HNHM); 1 female, Bulgaria, Sofia, Mts. Vitosa, 13.07.1985 (Papp leg.) (HNHM); 1 male, England, South Wales, Coll. Marshall (HNHM).

Distribution. Austria, Bulgaria **(new record)**, Czech Republic, former Czechoslovakia, England **(new record)**, Hungary, Poland and Russia.

Main characters of the species. Body length: 2.20–2.30 mm. Head in dorsal view 1.90 times as wide as its median length and 1.40 times as wide as mesoscutum. Face 1.55 times as wide as high. Mandible 1.40 times as long as wide. Lower tooth wider than upper tooth. Antennae 21–24–segmented. First flagellar segment 3.30 times as long as its apical width. Middle flagellar segments 2.00 times as long as their width. Mesosoma in lateral view 1.30 times as long as high. Mesoscutum as long as its maximum width: Notauli mainly absent. Mesoscutal pit present, elongated. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum sculptured, with median longitudinal carina crossing from anterior to posterior margins, with emerging carinae reaching propodeal edges. Propodeal spiracles relatively small. Hind femur 4.00 times as long as its maximum width. First metasomal tergite 2.00 times as long as its apical width, very finely striate in apical half. Ovipositor 1.15 times as long as first tergite, shorter than metasoma, 0.70 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. cetiusmonte* (Fischer) but differs in having the first metasomal tergite 2.00 times as long as its apical width (1.75 times in *D. cetiusmonte*), lower tooth wider than upper tooth (upper tooth as wide as lower tooth in *D. cetiusmonte*) and hind femur 4.00 times as long as its maximum width (4.20 times in *D. cetiusmonte*).

Dinotrema brevissimicorne (STELFOX et GRAHAM 1948)
(Figs. 272–283)

Aspilota brevissimicornis Stelfox et Graham 1948: 104.
Aspilota brevissimicornis: Fischer 1972: 344.
Aspilota brevissimicornis: Yu *et al.* 2005.
Dinotrema brevissimicorne: Yu *et al.* 2011.
Dinotrema brevissimicorne: Broad *et al.* 2012: 9

Material examined. 1 female, Hungary, Szolnok, Tiszapart, 19.06.1957 (Mihályi leg.) (HNHM).

Distribution. Former Czechoslovakia, Hungary, Ireland, Spain and United Kingdom.

Main characters of the species. Body length: 1.45–1.50 mm. Head in dorsal view 1.20–1.40 times as wide as its median length and 1.50 times as wide as mesoscutum. Face 1.40–1.50 times as wide as high. Mandible 1.30 times as long as wide. Upper tooth as wide as lower tooth. Antennae 15–segmented. First flagellar segment 1.25 times as long as its apical width. Middle flagellar segments 1.60 times as long as their width. Mesosoma in lateral view 1.40 times as long as high. Mesoscutum 1.05–1.10 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit absent. Prescutellar depression with two lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth below. Propodeum smooth, with short median longitudinal carinae. Propodeal spiracles large. Hind femur 3.00 times as long as its maximum width. First metasomal tergite 2.60 times as long as its apical width, smooth. Ovipositor 1.60 times as long as first tergite, shorter than metasoma, 0.95 times as long as hind femur. Main colour brown.

Comparative diagnosis. This species resembles *D. microcerum* (Thomson) but differs in having the head in dorsal view 1.20 times as

long as wide (2.00 times in *D. microcerum*), mandible 1.30 times as long as wide (1.70 times in *D. microcerum*), first flagellar segment 1.25 times as long as wide (2.00 times in *D. microcerum*), second flagellar segment 1.40–1.45 times as long as wide (2.40 times in *D. microcerum*) and first metasomal tergite 2.60 times as long as its apical width (2.00 times in *D. microcerum*).

Dinotrema brevisulcus TOBIAS 2003
(Figs. 284–293)

Dinotrema brevisulcus Tobias 2003a: 291.
Dinotrema brevisulcus: Yu *et al.* 2005; 2011.

Material examined. Holotype: 1 female, Ukraine, Crimea, Nikitskii garden, 04.05.1972 (Tobias leg.) (ZISP). Paratype: 1 female, Russia, Primorskii Terr., 30 km E of Spassk, forest clearings, 02.06.1984 (Belokobylskij leg.) (ZISP).
Distribution. Russia and Ukraine.
Main characters of the species. Body length: 1.40 mm. Head in dorsal view 2.00 times as wide as its median length and 1.60 times as wide as mesoscutum. Face 1.40 times as wide as high. Mandible as long as wide. Upper tooth wider than lower tooth. Antennae 16–17–segmented. First flagellar segment 2.50–3.00 times as long as its apical width. Middle flagellar segments 1.30–1.50 times as long as their width. Mesosoma in lateral view 1.20 times as long as high. Mesoscutum 0.95 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, elongated. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth below. Propodeum smooth, with median longitudinal carina crossing from anterior to posterior margins, with short emerging carinae not reaching propodeal edges. Propodeal

spiracles relatively small. Hind femur 5.00 times as long as its maximum width. First metasomal tergite 1.65 times as long as its apical width, smooth. Ovipositor 3.20 times as long as first tergite, as long as metasoma, 1.90 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. calamitosum* Tobias but differs in having the sternaulus (precoxal suture) short, disctincly separated from anterior and posterior margings of mesopleuron (long and very weakly separated from anterior and posterior margings of mesopleuron in *D. calamitosum*) and propodeum basally weakly sculptured on very narrow median part (widely and disctinctly sculptured in *D. calamitosum*).

***Dinotrema broadi* sp. nov.**

(Figs. 294–305)

Material examined. Holotype: 1 female, Spain, Castellon Province, Pobla de Benifassà, Natural Park of Tinença de Benifassà, 30.10.2006 (F.J. Peris–Felipo leg.) (ENV). Paratypes: 1 female, same label as in holotype, but 03.07.2006 (ENV); 1 female, same label as in holotype, but 06.11.2006 (ZISP); 1 female, same label as in holotype, but 26.02.2007 (ENV); 1 male, same label as in holotype, but 01.05.2006 (ZISP); 1 male, same label as in holotype, but 29.05.2006 (ENV). Additional material: 1 male, Spain, Castellon Province, Pobla de Benifassà, Natural Park of Tinença de Benifassà, 02.06.2004 (F.J. Peris–Felipo leg.) (ENV); 2 males, same label, but 30.10.2004; 1 male, same label, but 06.11.2006; 1 male, same label, but 08.01.2007 (ENV); 1 female, Spain, Alicante Province, Alcoi, Natural Park of Carrascal de La Font Roja, 27.11.2005 (F.J. Peris–Felipo leg.) (ENV); 1 male, same label, but 16.05.2005 (ENV).

Distribution. Spain.

Main characters of the species. Body length: 1.60–1.70 mm. Head in dorsal view 1.70 times as wide as its median length and 1.40–1.50 times as wide as mesoscutum. Face 1.50 times as wide as high. Mandible 1.30 times as long as wide. Upper tooth wider than lower tooth. Antennae 17–segmented. First flagellar segment 3.20 times as long as its apical width. Middle flagellar segments 2.00 times as long as their width. Mesosoma in lateral view 1.20–1.30 times as long as high. Mesoscutum about as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, elongated. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum smooth, with median longitudinal carina crossing from anterior to posterior margins, with single short carina emerging from median carina not reaching propodeal edges. Propodeal spiracles relatively small. Hind femur 4.25 times as long as its maximum width. First metasomal tergite 2.25 times as long as its apical width, very finely striate in apical half. Ovipositor 1.90–2.00 times as long as first tergite, shorter than metasoma, 1.25–1.30 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. paucicrene* (Fischer) but differs in having the first flagellar segment 3.20 times as long as wide (4.00 times in *D. paucicrene*), first metasomal tergite 2.25 times as long as its apical width (2.00 times in *D. paucicrene*), with distinctly two dorsal carinae (these carinae absent in *D. paucicrene*) and upper tooth wider than lower tooth (lower tooth wider than upper tooth in *D. paucicrene*).

Dinotrema caesennium TOBIAS 2006
(Figs. 306–317)

Dinotrema caesennium Tobias 2006: 326.
Dinotrema caesennium: Yu *et al.* 2011.

Material examined. Holotype: 1 female, Russia, 20 km NW Pestovo, Tychkino Vill., 01.05.08.1990 (Tobias leg.) (ZISP). Paratypes: 2 females, same label as in holotype but 17.07.1994 and 12.08.1999 (Tobias leg.) (ZISP).
Distribution. Russia.
Main characters of the species. Body length: 2.00–2.30 mm. Head in dorsal view 1.70 times as wide as its median length and 1.40 times as wide as mesoscutum. Face 1.75–1.80 times as wide as high. Mandible 1.10–1.15 times as long as wide. Upper tooth wider than lower tooth. Antennae 22–segmented. First flagellar segment 3.00 times as long as its apical width. Middle flagellar segments 1.60–2.00 times as long as their width. Mesosoma in lateral view 1.30 times as long as high. Mesoscutum as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, elongated. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum sculptured, with short median carina, with emerging carinae reaching propodeal edges. Propodeal spiracles small. Hind femur 3.50 times as long as its maximum width. First metasomal tergite 1.50 times as long as its apical width, finely striate in apical half. Ovipositor 3.20 times as long as first tergite, longer than metasoma, 1.90 times as long as hind femur. Main colour brown.
Comparative diagnosis. This species resembles *D. perlustrandum* (Fischer) but differs in having first metasomal tergite 1.50 times as long as its apical width (2.30 times in *D. perlustrandum*) and ovipositor longer than metasoma (shorter in *D. perlustrandum*).

Dinotrema caesum TOBIAS 2006
(Figs. 318–327)

Dinotrema caesum Tobias 2006: 327.
Dinotrema caesum: Yu *et al.* 2011.

Material examined. Holotype: 1 female, Russia, 20 km NW Pestovo, Tychkino Vill., 21.08.1994 (Tobias leg.) (ZISP).
Distribution. Russia.
Main characters of the species. Body length: 2.20 mm. Head in dorsal view 1.70 times as wide as its median length and 1.20 times as wide as mesoscutum. Face 1.30 times as wide as high. Mandible 1.30 times as long as wide. Lower tooth wider than upper tooth. Antennae more than 20–segmented (apical segments missing). First flagellar segment 5.00 times as long as its apical width. Middle flagellar segments 2.00 times as long as their width. Mesosoma in lateral view 1.25 times as long as high. Mesoscutum 1.07 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, rounded. Prescutellar depression with lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum smooth, with median longitudinal carina crossing from anterior to posterior margins, with short carinae emerging from median carina not reaching propodeal edges. Propodeal spiracles relatively small. Hind femur 4.25 times as long as its maximum width. First metasomal tergite 1.50 times as long as its apical width, very finely striate. Ovipositor 5.45 times as long as first tergite, longer than metasoma, 3.00 times as long as hind femur. Main colour brown.
Comparative diagnosis. This species resembles *D. jimenezi* sp. nov. and *D. reductidens* (Fischer). *Dinotrema caesum* differs from *D. jimenezi* in having the ovipositor longer than metasoma (shorter than metasoma in *D. jimenezi*), first flagellar segment 5.00 times as long as

wide (2.60 times as long as wide in *D. jimenezi*) and first metasomal tergite 4.00 times as long as its apical width (3.60 times in *D. jimenezi*). Finally, *D. caesum* differs from *D. reductidens* in having the mandible 1.30 times as long as wide (2.00 times in *D. reductidens*), first flagellar segment 5.00 times as long as wide (3.00 times in *D. reductidens*), middle flagellar segments 1.80–2.00 times as long as their width (2.50 times in *D. reductidens*) and first metasomal tergite 1.50 times as long as its apical width (2.00 times in *D. reductidens*).

Dinotrema calamitosum TOBIAS 2006
(Figs. 328–338)

Dinotrema calamitosum Tobias 2006: 329.
Dinotrema calamitosum: Yu *et al.* 2011.

Material examined. Holotype: 1 female, Moldova, Kotovskoe, deciduous forest, 31.05.1959 (Talitskii leg.) (ZISP). Paratype: 1 female, Russia, Leningrad Prov., Tolmachevo, 20.08.1968 (Tobias leg.) (ZISP).
Distribution. Moldova and Russia.
Main characters of the species. Body length: 1.80–1.90 mm. Head in dorsal view 1.80 times as wide as its median length and 1.60 times as wide as mesoscutum. Face 1.75 times as wide as high. Mandible 1.20 times as long as wide. Upper tooth as wide as lower tooth. Antennae 19–segmented. First flagellar segment 3.50–3.60 times as long as its apical width. Middle flagellar segments 1.50–1.70 times as long as their width. Mesosoma in lateral view 1.20 times as long as high. Mesoscutum 1.05 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, elongated. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum smooth, with median

longitudinal carina crossing from anterior to posterior margins, with short emerging carinae not reaching propodeal edges. Propodeal spiracles small. Hind femur 4.00 times as long as its maximum width. First metasomal tergite 2.00 times as long as its apical width, almost smooth. Ovipositor 3.00 times as long as first tergite, as long as metasoma, 1.85 times as long as hind femur. Main colour brown.

Comparative diagnosis. This species resembles *D. brevisulcus* Tobias but differs in having the sternaulus (precoxal suture) long and very weakly separated from anterior and posterior margings of mesopleuron (short and distinctly separated form anterior and posterior margings of mesopleuron in *D. brevisulcus*) and propodeum basally widely and distinctly sculptured (basally weakly sculptured on very narrow median part in *D. brevisulcus*).

Dinotrema callidium TOBIAS 2006
(Figs. 339–349)

Dinotrema callidium Tobias 2006: 331.
Dinotrema callidium: Yu *et al.* 2011.

Material examined. Holotype: 1 female, Russia, Novgordo Prov., 20 km NW Pestovo, Tychkino Vill., 12.08.2005 (Tobias leg.) (ZISP). Paratype: 1 female, Sakhalin, Mt. of Chekhov, height 200–500 m, mixed forest, 28.07.1988 (Kotenko leg.) (ZISP).

Distribution. Russia.

Main characters of the species. Body length: 1.50–1.80 mm. Head in dorsal view 1.70 times as wide as its median length and 1.40 times as wide as mesoscutum. Face 1.75 times as wide as high. Mandible 1.25 times as long as wide. Upper tooth wider than lower tooth. Antennae 21–segmented. First flagellar segment 3.00 times as long as its apical width. Middle flagellar segments 2.00 times as long as their width. Mesosoma in lateral view 1.20 times as long as high. Mesoscutum

1.10 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, oval. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum sculptured, with pentagonal areola. Propodeal spiracles small. Hind femur 5.00 times as long as its maximum width. First metasomal tergite 2.00 times as long as its apical width, smooth. Ovipositor 3.40 times as long as first tergite, as long as metasoma, 2.20 times as long as hind femur. Main colour brown.

Comparative diagnosis. This species resembles *D. canaliculatum* Tobias and *D. fungicolum* (Tobias). *Dinotrema callidium* differs from *D. canaliculatum* in having the ovipositor as long as metasoma (longer in *D. canaliculatum*), first flagellar segment 3.00 times as long as wide (4.30 times in *D. canaliculatum*), middle flagellar segments 2.00 times as long as their width (1.50 times in *D. canaliculatum*) and sternaulus (precoxal suture) not reaching anterior part of mesoplueron (reaching in *D. canaliculatum*). Finally, *D. callidium* differs from *D. fungicolum* in having the mandible 1.25 times as long as wide (1.10 times in *D. fungicolum*), hind femur 5.00 times as long as its maximum width (4.00 times in *D. fungicolum*), first metasomal tergite 2.00 times as long as its apical width (1.45 times in *D. fungicolum*) and ovipositor as long as metasoma (longer in *D. fungicolum*).

Dinotrema canaliculatum TOBIAS 2006

(Figs. 350–359)

Dinotrema canaliculatum Tobias 2006: 330.

Dinotrema canaliculatum: Yu *et al.* 2011.

Material examined. Holotype: 1 female, Russia, 20 km NW Pestovo, Tychkino Vill., 08.08.1994 (Tobias leg.) (ZISP). Paratype: 1 female, samel label as in holotype but 13.07.1999 (Tobias leg.) (ZISP).

Distribution. Russia.

Main characters of the species. Body length: 1.80–2.00 mm. Head in dorsal view 1.50 times as wide as its median length and 1.50 times as wide as mesoscutum. Face 2.10 times as wide as high. Mandible 1.30 times as long as wide. Upper tooth wider than lower tooth. Antennae 21–segmented. First flagellar segment 4.30 times as long as its apical width. Middle flagellar segments 1.50 times as long as their width. Mesosoma in lateral view 1.30 times as long as high. Mesoscutum 0.85 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, rounded. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, reaching anterior part of mesopleuron. Posterior mesopleural furrow smooth. Propodeum sculptured, with pentagonal areola. Propodeal spiracles small. Hind femur 4.00 times as long as its maximum width. First metasomal tergite 2.00 times as long as its apical width, finely striated. Ovipositor 3.15 times as long as first tergite, longer than metasoma, 1.90 times as long as hind femur. Main colour brown.

Comparative diagnosis. This species resembles *D. fungicolum* (Tobias) but differs in having the sternaulus (precoxal suture) reaching anterior part of mesopleuron (not reaching in *D. fungicolum*), first metasomal tergite 2.00 times as long as its apical width (1.45 times in *D. fungicolum*), prescutellar depression without lateral carinae (with lateral carinae in *D. fungicolum*), first flagellar segment 4.30 times as long as wide (2.50–3.00 times in *D. fungicolum*) and mandible 1.30 times as long as wide (1.10 times in *D. fungicolum*).

Dinotrema carinatum (TOBIAS 1962)

(Figs. 360–371)

Aspilota carinata Tobias 1962: 102.

Aspilota carinata: Fischer 1972: 347.

Dinotrema carinatum: Papp 2003a: 125.

Dinotrema carinatum: Yu *et al.* 2005.
Dinotrema carinatum: Lozan *et al*. 2010: 18.
Dinotrema carinatum: Yu *et al*. 2011.

Material examined. Holotype: 1 female, Russia, Leningrad Province, Tolmachevo, 23.VIII.1960 (Tobias coll.) (ZISP); Paratypes: 1 male, same label as in holotype (Tobias coll.) (ZISP); 1 female, Russia, Leningrad Province, Tolmachevo, 20.VIII.1960 (Tobias coll.) (ZISP). Additional material: 1 female, Hungary, Csákvár park, 10.10.1961 (Sólymosné leg.) (HNHM); 1 female, England, Norfolk, Holt Lowes, on *Pezina variafungus*, 08.1984 (Evans leg.) (RMNH) .
Distribution. Korea, Hungary, Moldova and Russia.
Main characters of the species. Body length: 1.70–2.40 mm. Head in dorsal view 1.90 times as wide as its median length and 1.50 times as wide as mesoscutum. Face 1.40–1.50 times as wide as high. Mandible 2.00 times as long as wide. Lower tooth wider than upper tooth. Antennae 19–24–segmented. First flagellar segment 4.50 times as long as its apical width. Middle flagellar segments 2.50 times as long as their width. Mesosoma in lateral view 1.30 times as long as high. Mesoscutum 0.85 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, elongated. Prescutellar depression with lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum smooth, with median longitudinal carina crossing from anterior to posterior margins, with short emerging carinae not reaching propodeal edges. Propodeal spiracles relatively small. Hind femur 4.50 times as long as its maximum width. First metasomal tergite 2.00 times as long as its apical width, almost smooth. Ovipositor 1.50 times as long as first tergite, shorter than metasoma, as long as hind femur. Main colour brown.

Comparative diagnosis. This species resembles *D. latifemur* (Fischer), *D. thurnense* Fischer and *D. cruciatum* (Fischer). *Dinotrema carinatum* differs from *D. latifemur* in having the mandible 2.00 times as long as wide (1.55 times in *D. latifemur*), first flagellar segment 4.50 times as long as wide (2.50 times in *D. latifemur*), middle flagellar segments 2.50 times as long as wide (2.00 times in *D. latifemur*) and hind femur 4.50 times as long as its maximum width (3.15 times in *D. latifemur*). On the other hand, *D. carinatum* differs from *D. thurnense* in having the mandible 2.00 times as long as wide (1.50 times in *D. thurnense*), first flagellar segment 4.50 times as long as wide (2.50 times in *D. thurnense*) and middle flagellar segments 2.50 times as long as wide (1.50–1.70 times in *D. thurnense*). Finally, *D. carinatum* differs from *D. cruciatum* in having the mandible 2.00 times as long as wide (1.70 times in *D. cruciatum*), first flagellar segment 4.50 times as long as wide (2.50 times in *D. cruciatum*), middle flagellar segments 2.50 times as long as wide (1.40 times in *D. cruciatum*) and first metasomal tergite 4.50 times as long as its apical width (4.00 times in *D. cruciatum*).

Dinotrema castaneithorax (FISCHER 1973)
(Figs. 372–382)

Aspilota castaneithorax Fischer 1973d: 107.
Dinotrema castaneithorax: Papp 2003a: 125.
Dinotrema castaneithorax: Yu *et al.* 2005; 2011.

Material examined. Holotype: 1 female, Austria, Steiermark, Graz, Palttengebiet, Weizbachgraben, 25.07.1963 (Fischer leg.) (NHMW). Additional material: 1 female, Hungary, Bakonybél, Bakony hgs Gemenceptk, 20.05.1959 (Móczár L. leg.) (HNHM); 1 male, Romania, Transylvania, Rév. Biró, 02.05.1912 (HNHM); 1 female, Spain, Castellon Province, Pobla de Benifassà, Natural Park of

Tinença de Benifassà, 01.05.2006; 2 females, same label but 08.05.2006; 1 female, same label but 22.05.2006; 1 female, same label but 29.05.2006; 2 females, same label but 12.06.2006; 1 female, same label but 01.08.2006; 1 female, same label but 12.02.2007; 1 female, same label but 30.04.2007; 2 females, same label but 07.05.2007; 1 female, same label but 28.05.2007; 1 female, same label but 04.06.2007; 4 females, same label but 12.06.2007; 1 female, same label but 25.06.2006; 1 female, same label but 13.08.2007; 2 females, same label but 10.09.2007; 1 female, same label but 17.09.2007 (ENV).

Distribution. Austria, Hungary, Korea, Romania **(new record)** and Spain.

Main characters of the species. Body length: 2.10 mm. Head in dorsal view 1.80 times as wide as its median length and 1.65 times as wide as mesoscutum. Face 1.40 times as wide as high. Mandible 1.50 times as long as wide. Upper tooth wider than lower tooth. Antennae 21–segmented. First flagellar segment 2.00 times as long as its apical width. Middle flagellar segments 1.50–1.70 times as long as their width. Mesosoma in lateral view 1.40 times as long as high. Mesoscutum 1.10 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, elongated. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum smooth, with median longitudinal carina crossing from anterior to posterior margins, with parallel longitudinal carinae arriving to posterior margins. Propodeal spiracles relatively small. Hind femur 4.00 times as long as its maximum width. First metasomal tergite 1.90 times as long as its apical width, finely striated. Ovipositor 1.35 times as long as first tergite, shorter than metasoma, 0.90–0.95 times as long as hind femur. Main colour brown.

Comparative diagnosis. This species resembles *D. amoenidens* (Fischer) but differs in having the mesoscutal pit oval (rounded in *D. amoenidens*), mandible 1.50 times as long as wide (1.30 times in *D. amoenidens*), upper tooth wider than lower tooth (lower tooth wider than upper tooth in *D. amoenidens*), mandible not widened in apical part (widened in *D. amoenidens*), first flagellar segment 2.00 times as long as wide (2.75 times in *D. amoenidens*) and first metasomal tergite 1.90 times as long as its apical width (1.70 times in *D. amoenidens*).

Dinotrema catharinae (FISCHER 1973)
(Figs. 383–394)

Aspilota catharinae Fischer 1973a: 137.
Aspilota ovalisignum Fischer 1974a: 13. **syn. nov.**
Dinotrema catharinae: Papp 2005: 225.
Dinotrema catharinae: Yu *et al.* 2005; 2011.
Dinotrema ovalisignum: Yu *et al.* 2005; 2011.

Material examined. Holotype (*catharinae*): 1 female, Austria, Steiermark, Ennstaler, A. Huber, Alm–Mödlinger Hütte, 1400 m, sonnig, windstill, 28.07.1970 (Fischer leg.) (NHMW). Holotype (*ovalisignum*): 1 female, Austria, Seebenstein, NÖ, 06.06.1959 (Fischer leg.) (NHMW). Additional material (*catharinae*): 1 female, Austria, Salzburg, Parsch, 06.06.1961 (P.P. Babiy leg.) (NHMW); 1 female, Germany, Kärnten Hüttenberg–Knappenberg Wald, 900 m, sonnig, 18.08.1973 (Fischer leg.) (NHMW). Additional material (*ovalisignum*): 1 female, Hungary, Csákvár park, 28.06.1961 (Bajári leg.) (HNHM).

Distribution. Austria, Germany, Hungary **(new record)** and Mongolia.

Main characters of the species. Body length: 1.70 mm. Head in dorsal view 1.75 times as wide as its median length and 1.40 times as

wide as mesoscutum. Face 1.25 times as wide as high. Mandible 1.50 times as long as wide. Upper tooth as wide as lower tooth. Antennae 18–segmented. First flagellar segment 3.50 times as long as its apical width. Middle flagellar segments 1.60 times as long as their width. Mesosoma in lateral view 1.30 times as long as high. Mesoscutum 1.20 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, elongated. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum sculptured, with median longitudinal carina crossing from anterior to posterior margins, with emerging carinae reaching propodeal edges. Propodeal spiracles small. Hind femur 4.50 times as long as its maximum width. First metasomal tergite 1.90 times as long as its apical width, rugose–striated. Ovipositor 1.25 times as long as first tergite, shorter than metasoma, 0.85 times as long as hind femur. Main colour brown.

Comparative diagnosis. This species resembles *D. costulatum* (Thomson) but differs in having the mandible 1.30 times as long as wide (1.50 times in *D. costulatum*), first flagellar segment 3.50 times as long as wide (4.50 times in *D. costulatum*) and hind femur 4.50 times as long as its maximum width (4.00 times in *D. costulatum*).

Dinotrema caudatum (THOMSON 1895)

(Figs. 395–404)

Alysia caudata Thomson 1895: 2306.

Aspilota liosoma Stelfox et Graham 1951: 6.

Aspilota liosoma: Tobias 1962: 106.

Aspilota caudata: Fischer 1972: 348–351.

Dinotrema caudatum: Yu *et al.* 2005.

Dinotrema caudatum: Tobias 2006: 331–332.

Dinotrema caudatum: Achterberg *et al*. 2009: 794.

Dinotrema caudatum: Yu *et al.* 2011.
Dinotrema caudatum: Broad *et al.* 2012: 9.

Material examined. Lectotype: 1 female, Rsiö (M. de V.G. leg.) (MZLU). Additional material: 1 male, Norway, EIS 28; AK Frogn: Håøya, 27.06–27.07.1984 (Midtgaard leg.) (NMA); 1 female, Finland, EH Lamnl, 6773:394, 13.07.1976 (Koponen leg.) (NMA); 1 female, Finland, U. Tammisaari, 6657:302, 17.06.1980 (Koponen leg.) (NMA); 1 female, Finland, U. Helsinki, 6682: 384, 28.06.1976 (Koponen leg.) (NMA).
Distribution. Czech Republic, former Czechoslovakia, Finland **(new record)**, Ireland, Madeira, Norway **(new record)**, Russia, Sweden and United Kingdom.
Main characters of the species. Body length: 1.80–2.10 mm. Head in dorsal view 2.00 times as wide as its median length and 1.30–1.40 times as wide as mesoscutum. Face 1.55–1.60 times as wide as high. Mandible 1.10 times as long as wide. Lower tooth wider than upper tooth. Antennae 18–24–segmented. First flagellar segment 3.00–4.00 times as long as its apical width. Middle flagellar segments 1.40–2.00 times as long as their width. Mesosoma in lateral view 1.10–1.20 times as long as high. Mesoscutum as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, rounded. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum smooth, with median longitudinal carina. Propodeal spiracles relatively small. Hind femur 4.00 times as long as its maximum width. First metasomal tergite 1.60 times as long as its apical width, finely striated. Ovipositor 2.15–2.20 times as long as first tergite, shorter than metasoma, 0.80–0.85 times as long as hind femur. Main colour brown.

Comparative diagnosis. This species resembles *D. glabrum* (Stelfox et Graham) but differs in having the first metasomal tergite 1.60 times as long as its apical width (2.50 times in *D. glabrum*), hind femur 4.50 times as long as its maximum width (4.00 times in *D. glabrum*), middle flagellar segments 1.40–2.00 times as long as wide (2.00–2.50 times in *D. glabrum*) and mandible 1.10 times as long as wide and weakly widened in apical part (1.30 times and widened in apical part in *D. glabrum*).

Dinotrema cetiusmonte (FISCHER 1974) **comb. nov.**
(Figs. 405–415)

Aspilota cetiusmontis Fischer 1974a: 3.
Aspilota cetiusmontis: Yu *et al.* 2005; 2011.

Material examined. Holotype: 1 female, Austria, inf. Götzwiesen bei Unter–Oberndorf, 27.06.1961 (Fischer leg.) (NHMW). Additional material: 1 female, Germany, Schlitz, Hessen Breitenbach, Gewächshaus, 08.1970 (HNHM); 1 male, Armenia, Dilizhan, 1400 m, 06.06.1980 (Papp leg.) (HNHM).
Distribution. Armenia **(new record)**, Austria and Germany **(new record)**.
Main characters of the species. Body length: 1.90 mm. Head in dorsal view 1.75 times as wide as its median length and 1.30 times as wide as mesoscutum. Face 1.40 times as wide as high. Mandible 1.30 times as long as wide. Upper tooth as wide as lower tooth. Antennae 18–segmented. First flagellar segment 3.20 times as long as its apical width. Middle flagellar segments 1.60 times as long as their width. Mesosoma in lateral view 1.25 times as long as high. Mesoscutum 0.95 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, elongated. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching

anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum sculptured, with median longitudinal carina crossing from anterior to posterior margins, with emerging carinae reaching propodeal edges. Propodeal spiracles small. Hind femur 4.20 times as long as its maximum width. First metasomal tergite 1.75 times as long as its apical width, striated in apical half. Ovipositor 1.65 times as long as first tergite, shorter than metasoma, 1.15 times as long as hind femur. Main colour brown.

Comparative diagnosis. This species resembles *D. brevicaudum* (Tobias) but differs in having the first metasomal tergite 1.75 times as long as its apical width (2.00 times in *D. brevicaudum*), upper tooth as wide as lower tooth (lower tooth wider than upper tooth in *D. brevicaudum*) and hind femur 4.20 times as long as its maximum width (4.00 times in *D. brevicaudum*).

Dinotrema compressum (HALIDAY 1838) **comb. nov.**

(Figs. 416–427)

Alysia compressa Haliday 1838: 244.
Aspilota compressa: Stelfox et Graham 1949: 71.
Aspilota compressa: Fischer 1972: 351.
Aspilota compressa: Yu *et al.* 2005; 2011.
Dinotrema compressa: Broad *et al.* 2012: 9.

Material examined. 1 female, England, Hants., Brokenhurst, 25–30.06.1933, G. Nixon, A. W. Stelfox Collection (BMNH); 1 female, Denmark, E–Jutland, Højen Bæk, 5 km of Vejle, 21.06.1986 (Munk leg.) (ENV).

Distribution. Belgium, Hungary, Italy, Spain, Sweden and United Kingdom.

Main characters of the species. Body length: 1.70 mm. Head in dorsal view 1.65 times as wide as its median length and 1.55 times as

wide as mesoscutum. Face 1.30 times as wide as high. Mandible 0.75 times as long as wide. Upper tooth wider than lower tooth. Antennae 16–17–segmented. First flagellar segment 2.50 times as long as its apical width. Middle flagellar segments 1.80 times as long as their width. Mesosoma in lateral view 1.15 times as long as high. Mesoscutum as long as its maximum width. Notauli mainly absent. Mesoscutal pit absent. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow crenulated. Propodeum sculptured, with short median carina, with emerging carinae not reaching propodeal edges. Propodeal spiracles small. Hind femur 4.00 times as long as its maximum width. First metasomal tergite 2.35 times as long as its apical width, striated. Ovipositor as long as first tergite, shorter than metasoma, 0.70 times as long as hind femur. Main colour brown.

Comparative diagnosis. This species resembles *D. pauciarticulatum* (Fischer) but differs in having the first metasomal tergite 2.35 times as long as its apical width (2.10 times in *D. pauciarticulatum*), prescutellar depression without lateral carinae (with lateral carinae in *D. pauciarticulatum*), first flagellar segment 2.50 times as long as wide (3.30 times in *D. pauciarticulatum*) and mandible 0.75 times as long as wide (1.50 times in *D. pauciarticulatum*).

Dinotrema concinnum (HALIDAY 1838)

(Figs. 428–438)

Alysia concinna Haliday 1838: 245.
Aspilota concinna: Marshall 1895: 378.
Alysia concinna: Thomson 1895: 2305.
Aspilota concinna: Tobias 1962: 103.
Aspilota concinna: Fischer 1972: 354–356.
Aspilota concinna: Shenefelt 1974: 970.

Dinotrema concinnum: Achterberg 1997: 27.
Aspilota concinna: Yu *et al.* 2005.
Dinotrema concinna: Papp 2007b: 100.
Dinotrema concinnum: Yu *et al.* 2011.

Material examined. Paratype: 1 female, Ireland, Box 10, A.W.S. Haliday, 20.02.1882 (NHMW). Additional material: 1 female, Hungary, Ghat védett erdö, 17.06.1975 (Kaszab leg.) (HNHM); 1 female, Germany, Bongsiel, 12.08.1959 (König leg.) (HNHM); 1 male, Italy, Toggia, 20.05.1974 (Zombori leg.) (HNHM); 1 male, Tunisia, Le Sere, 03.04.1977 (Mahunka leg.) (HNHM); 1 male, Turkey, Stambul Turcia, Biró, 22.04.1925 (HNHM); 1 male, Greece, Horakleion, 25.04.1906 (HNHM).

Distribution. Afghanistan, Austria, former Czechoslovakia, Faeroe Islands, Germany, Greece, Hungary, Iceland, Iran, Ireland, Italy, Mongolia, Netherlands, Poland, Russia, Sweden, Tunisia, Turkey **(new record)** and United Kingdom.

Main characters of the species. Body length: 2.30 mm. Head in dorsal view 1.70 times as wide as its median length and 1.30 times as wide as mesoscutum. Face 1.60 times as wide as high. Mandible 1.00 times as long as wide. Upper tooth as wide as lower tooth. Antennae 18–segmented. First flagellar segment 2.50 times as long as its apical width. Middle flagellar segments 1.30–1.40 times as long as their width. Mesosoma in lateral view 1.30 times as long as high. Mesoscutum as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, elongated. Prescutellar depression with lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow crenulated. Propodeum sculptured, with short median carina, with emerging carinae reaching propodeal edges. Propodeal spiracles relatively small. Hind femur 3.65–3.75 times as long as its maximum

width. First metasomal tergite 1.95–2.00 times as long as its apical width, striated. Ovipositor as long as first tergite, shorter than metasoma, 0.75–0.80 times as long as hind femur. Main colour brown.
Comparative diagnosis. This species resembles *D. benifassaense* sp. nov. but differs in having the hind femur 3.65–3.70 times as long as its maximum width (3.40 times in *D. benifassaense*), first metasomal tergite 1.95–2.00 times as long as its apical width and striated (1.75 times and smooth in *D. benifassaense*) and middle flagellar segments 1.30–1.40 times as long as their width (1.00 times in *D. benifassaense*).

Dinotrema contracticorne (FISCHER 1974)
(Figs. 439–450)

Aspilota contracticornis Fischer 1974b: 60.
Aspilota contracticornis: Yu *et al.* 2005.
Dinotrema contracticorne: Lozan *et al.* 2010: 18.
Dinotrema contracticorne: Yu *et al.* 2011.

Material examined. Holotype: 1 female, Austria, Inf. Seebenstein, 06.06.1959 (Fischer leg.) (NHMW). Additional material: 1 female, Hungary, Fertö–Hansag N.P. Csorna, Eszteházy–madárvárta férrycsapda, 02.08.2000 (Nagy leg.) (HNHM).
Distribution. Austria, Czech Republilc, former Czechoslovakia, Hungary and Russia.
Main characters of the species. Body length: 1.90 mm. Head in dorsal view 1.75 times as wide as its median length and 1.45 times as wide as mesoscutum. Face 1.60 times as wide as high. Mandible as long as wide. Lower tooth wider than upper tooth. Antennae 18–segmented. First flagellar segment 2.00 times as long as its apical width. Middle flagellar segments 1.25 times as long as their width. Mesosoma in lateral view 1.35 times as long as high. Mesoscutum

1.05 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, elongated. Prescutellar depression with lateral carinae. Sternaulus (precoxal suture) present, reaching anterior part of mesopleuron. Posterior mesopleural furrow smooth. Propodeum sculptured, with median longitudinal carina crossing from anterior to posterior margins, with emerging carinae reaching propodeal edges. Propodeal spiracles relatively small. Hind femur 3.50 times as long as its maximum width. First metasomal tergite 2.00 times as long as its apical width, striated in apical half. Ovipositor 1.25 times as long as first tergite, shorter than metasoma, 0.95 times as long as hind femur. Main colour brown.

Comparative diagnosis. This species resembles *D. agaricophagum* sp. nov. but differs in having the hind femur 3.50 times as long as its maximum width (4.50 times in *D. agaricophagum*), first metasomal tergite 2.00 times as long as its apical width (2.15 times in *D. agaricophagum*), first flagellar segment 2.00 times as long as wide (2.50 times in *D. agaricophagum*) and middle flagellar segments 1.25 times as long as their width (1.75–1.85 times in *D. agaricophagum*).

Dinotrema converginerve (FISCHER 1973) **comb. nov.**
(Figs. 451–461)

Aspilota converginervis Fischer 1973a: 139.
Aspilota converginervis: Yu *et al.* 2005; 2011.

Material examined. Holotype: 1 female, Austria, Steiermark, Ennstaler A. Hubber, Alm–Mödlinger, Hütte, 1400 m, sonnig, widnstill, 28.07.1970 (Fischer leg.) (NHMW).

Distribution. Austria.

Main characters of the species. Body length: 1.90 mm. Head in dorsal view 1.80 times as wide as its median length and 1.50 times as wide as mesoscutum. Face 1.45 times as wide as high. Mandible 1.55

times as long as wide. Lower tooth wider than upper tooth. Antennae 19–segmented. First flagellar segment 3.30 times as long as its apical width. Middle flagellar segments 1.75 times as long as their width. Mesosoma in lateral view 1.30 times as long as high. Mesoscutum 1.07 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, rounded. Prescutellar depression with lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum sculptured, with median longitudinal carina crossing from anterior to posterior margins, with emerging carinae reaching propodeal edges. Propodeal spiracles relatively small. Hind femur 3.70 times as long as its maximum width. First metasomal tergite 2.20 times as long as its apical width, finely striated in apical half. Ovipositor 1.25 times as long as first tergite, shorter than metasoma, 0.85 times as long as hind femur. Main colour brown.

Comparative diagnosis. This species resembles *D. crassicostum* (Thomson), *D. pilarae* sp. nov., *D. nervosum* (Haliday) and *D. lineolum* (Thomson). *Dinotrema converginerve* differs from *D. crassicostum* in having the first flagellar segment 3.30 times as long as wide (2.00 times in *D. crassicostum*), middle flagellar segments 1.75 times as long as their width (1.00 times in *D. crassicostum*), hind femur 3.70 times as long as its maximum width (4.00 times in *D. crassicostum*) and first metasomal tergite 2.20 times as long as its apical width (1.50 times in *D. crassicostum*). On the other hand, *D. converginerve* differs from *D. pilarae* in having the mandible 1.55 times as long as wide (1.20 times in *D. pilarae*), middle flagellar segments 1.75 times as long as their width (1.90–2.00 times in *D. pilarae*), hind femur 3.70 times as long as its maximum width (4.10 times in *D. pilarae*) and first metasomal tergite 2.20 times as long as its apical width (1.80 times in *D. pilarae*). Also, *D. converginerve* differs from *D. nervosum* in having the middle flagellar segments 1.75

times as long as their width (1.50 times in *D. nervosum*), hind femur 3.70 times as long as its maximum width (4.00 times in *D. nervosum*) and first metasomal tergite 2.20 times as long as its apical width (2.00 times in *D. nervosum*). Finally, *D. converginerve* differs from *D. lineolum* in having the mandible 1.55 times as long as wide (1.70 times in *D. lineolum*), first flagellar segment 3.30 times as long as wide (2.50 times in *D. lineolum*), middle flagellar segments 1.75 times as long as their width (1.50 times in *D. lineolum*), hind femur 3.70 times as long as its maximum width (4.00 times in *D. lineolum*) and first metasomal tergite 2.20 times as long as its apical width (1.50 times in *D. lineolum*).

Dinotrema costulatum (THOMSON 1895) **comb. nov.**
(Figs. 462–473)

Alysia (*Aspilota*) *costulata* Thomson 1895: 2306.
Aspilota costulata: Fischer 1972: 356.
Aspilota naeviformis: Fischer 1973d: 113. **syn. nov.**
Aspilota costulata: Yu *et al.* 2005.
Aspilota naeviformis: Yu *et al.* 2005; 2011.
Dinotrema costulata: Yu *et al.* 2011.

Material examined. Lectotype (*costulatum*): 1 female, 02.10.1983 (Fischer leg.) (MZLU). Holotype (*naeviforme*): 1 female, Austria, Graz, Steiermark, Plattengebeit, Weizbachgraben, 25.07.1963 (Fischer leg.) (NHMW). Allotype (*naeviforme*): 1 female, Austria, Burgenland, Tauchenbach bei Neumarkt–Tauchental, 05.08.1963 (Fischer leg.) (NHMW). Additional material (*costulatum*): 1 female, Hungary, Fertö–Hanság NP. Csorna, Eszterházy–madárvárta férrycsapda, 03.08.2000 (Nagy leg.) (HNHM); 1 female, Romania, Transylvania, Hargita m., Hornoródkeményfalva, Homórod–patak–v., 07.07.1995 (Rozner leg.) (HNHM); 2 females, Slovakia, Barlangliget Szépligeti

(HNHM); 1 female, Germany, BRD, BW Unternmsen, Crtj, Srttelbogen, 13.08.1983 (Jonsen leg.) (HNHM); 1 female, Italy, Ch. Mts. Generoso, TI, Bellavista, 1200 m, 01–10.08.1984 (Rezbenyai–Reser leg.) (HNHM); 1 male, Georgia, Valley of Lake Ritsa, 26.05.1975 (Tóth leg.) (HNHM); 1 male, Macedonia, Mts. Galičica, 900–1400 m, Lake Prespa, Oteševó, Horvatovich, 12–13.05.1971 (Papp leg.) (HNHM); 2 females, Netherlands, Melissant (Z.H.) at light, 10.1975 (Hnisman leg.) (RMNH). Additional material (*naeviforme*): 1 female, Austria, inf. Eichgraben, 20.06.1959 (Fischer leg.) (NHMW); 1 female, Spain, Alicante Province, Alcoi, Natural Park of Carrascal de La Font Roja, 16.05.2005; 1 female, same label but 19.06.2006; 1 female, same label but 05.03.2007; 1 female, same label but 14.05.2007; 1 female, same label but 28.05.2007 (ENV); 1 female, Spain, Castellon Province, Pobla de Benifassà, Natural Park of Tinença de Benifassà, 29.07.2004; 1 female, same label but 28.10.2004; 1 female, same label but 04.11.2004; 1 female, same label but 18.11.2004; 2 females, same label but 27.06.2005; 1 female, same label but 11.07.2005; 2 females, same label but 17.04.2006; 1 female, same label but 24.04.2006; 3 females, same label but 01.05.2006; 1 female, same label but 08.05.2006; 1 female, same label but 22.05.2006; 2 females, same label but 29.05.2006; 1 female, same label but 05.06.2006; 3 females, same label but 12.06.2006; 1 female, same label but 26.06.2006; 1 female, same label but 25.09.2006; 1 female, same label but 02.10.2006; 2 females, same label but 23.10.2006; 3 females, same label but 30.10.2006; 1 female, same label but 01.01.2007; 1 female, same label but 22.01.2007; 1 female, same label but 19.02.2007; 1 female, same label but 05.03.2007; 1 female, same label but 12.03.2007; 1 female, same label but 26.03.2007; 1 female, same label but 02.04.2007; 7 females, same label but 23.04.2007; 2 females, same label but 30.04.2007; 2 females, same label but 14.05.2007; 2 females, same label but 04.06.2007; 1

female, same label but 11.06.2007; female, same label but 18.06.2007; 1 female, same label but 24.09.2007; 2 females, same label but 08.10.2007; 1 male, same label but 08.10.2007; 1 female, same label but 15.10.2007; 2 females, same label but 22.10.2007; 3 females, same label but 19.11.2007; 1 female, same label but 26.11.2007 (ENV).

Distribution. Former Czechoslovakia, Denmark, Georgia **(new record)**, Germany **(new record)**, Hungary, Italy, Macedonia, Netherlands **(new record)**, Romania **(new record)**, Slovakia **(new record)**, Spain **(new record)**, Sweden and former Yugoslavia.

Main characters of the species. Body length: 2.80 mm. Head in dorsal view 1.90 times as wide as its median length and 1.35 times as wide as mesoscutum. Face 1.70 times as wide as high. Mandible 1.30 times as long as wide. Upper tooth as wide as lower tooth. Antennae 20–21–segmented. First flagellar segment 4.50 times as long as its apical width. Middle flagellar segments 1.80 times as long as their width. Mesosoma in lateral view 1.30 times as long as high. Mesoscutum 1.10 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, elongated. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, reaching anterior part of mesopleuron. Posterior mesopleural furrow smooth. Propodeum sculptured, with median longitudinal carina crossing from anterior to posterior margins, with emerging carinae reaching propodeal edges. Propodeal spiracles small. Hind femur 4.00 times as long as its maximum width. First metasomal tergite 1.90 times as long as its apical width, finely striated in apical half. Ovipositor 0.90 times as long as first tergite, shorter than metasoma, 0.50 times as long as hind femur. Main colour brown.

Comparative diagnosis. This species resembles *D. amparoae* sp. nov. and *D. haeselbarthi* sp. nov.. *Dinotrema costulatum* differs from *D. amparoae* in having the first flagellar segment 4.50 times as long as

wide (3.10 times in *D. amparoae*), mesosoma 1.30 times as long as high (1.00 times in *D. amparoae*), hind femur 4.00 times as long as its maximum width (3.60 times in *D. amparoae*) and first metasomal tergite 1.90 times as long as its apical width (1.55 times in *D. amparoae*). Finally, *D. costulatum* differs from *D. haeselbarthi* in having the mandible 1.30 times as long as wide (1.50 times in *D. haeselbarthi*), first flagellar segment 4.50 times as long as wide (3.20–3.25 times in *D. haeselbarthi*) and mesosoma 1.30 times as long as high (1.05–1.10 times in *D. haeselbarthi*).

Dinotrema crassicostum (THOMSON 1895) **comb. nov.**
(Figs. 474–483)

Alysia (*Aspilota*) *crassicosta* Thomson 1895: 2305.
Aspilota crassicosta: Fischer 1972: 358.
Dinotrema crassicosta: Papp 2003a: 125.
Aspilota crassicosta: Yu *et al.* 2005.
Dinotrema crassicosta: Yu *et al.* 2011.
Dinotrema crassicosta: Broad *et al.* 2012: 10.

Material examined. Lectotype: 1 female (MZLU). Additional material: 1 male, Austria, Salzburg, Glasenbach, 14.05.1965 (P.P. Babiy leg.) (NHMW); 1 female, Austria, Salzburg, 14.05.1965 (P.P. Babiy leg.) (HNHM); 1 female, Romania, Transylvania, Hargita m., Hornoródkeményfalva, Homoród–patak–v., 07.07.1995 (Rozner leg.) (HNHM); 2 females, Spain, Castellon Province, Pobla de Benifassà, Natural Park of Tinença de Benifassà, 10.06.2004; 1 female, same label but 17.06.2004; 1 female, same label but 05.08.2004; 1 female, same label but 16.09.2004; 1 female, same label but 14.10.2004; 1 female, same label but 28.10.2004; 1 female, same label but 13.06.2005; 1 female, same label but 26.09.2005; 1 female, same label but 24.04.2006; 1 female, same label but 01.05.2006; 1 male, same

label but 15.05.2006; 2 females, same label but 22.05.2006; 1 male, same label but 22.05.2006; 1 male, same label but 29.05.2006; female, same label but 12.06.2006; 1 female, same label but 26.06.2006; 1 female, same label but 03.07.2006; 1 female, same label but 06.09.2006; 1 female, same label but 25.09.2006; 2 males, same label but 25.09.2006; 1 female, same label but 02.10.2006; 1 male, same label but 19.03.2007; 1 female, same label but 30.04.2007; 1 female, same label but 14.05.2007; 2 females, 11.06.2007; 1 male, same label 11.06.2007; 1 male, same label but 17.09.2007; 1 female, same label but 08.10.2007 (ENV).

Distribution. Austria, Denmark, Hungary, Korea, Romania **(new record)**, Russia and Spain **(new record)**.

Main characters of the species. Body length: 3.70 mm. Head in dorsal view 1.80 times as wide as its median length and 1.30 times as wide as mesoscutum. Face 1.70 times as wide as high. Mandible 1.50 times as long as wide. Lower tooth wider than upper tooth. Antennae 26–segmented. First flagellar segment 2.00 times as long as its apical width. Middle flagellar segments 1.00 times as long as their width. Mesosoma in lateral view 1.30 times as long as high. Mesoscutum 1.15 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, elongated. Prescutellar depression with lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow crenulated. Propodeum sculptured, with median longitudinal carina crossing from anterior to posterior margins, with emerging carinae reaching propodeal edges. Propodeal spiracles small. Hind femur 4.00 times as long as its maximum width. First metasomal tergite 1.45–1.50 times as long as its apical width, almost smooth. Ovipositor 1.20–1.25 times as long as first tergite, shorter than metasoma, 0.85–0.90 times as long as hind femur. Main colour brown.

Comparative diagnosis. This species resembles *D. pilarae* sp. nov. but differs in having the first metasomal tergite 1.45–1.50 times as long as its apical width (1.80 times in *D. pilarae*), first flagellar segment 1.80–2.00 times as long as wide (3.25 times in *D. pilarae*), middle flagellar segments 1.00 times as long as their width (2.00 times in *D. pilarae*) and sternaulus (precoxal suture) not reaching anterior part of mesopleuron (reaching in *D. pilarae*).

Dinotrema cratocerum (THOMSON 1895) **comb. nov**.
(Figs. 484–495)

Alysia (*Aspilota*) *cratocera* Thomson 1895: 2304.
Aspilota cratocera: Fischer 1972: 361.
Dinotrema cratocera: Papp 2003a: 125.
Dinotrema cratocera: Papp 2005: 225.
Dinotrema cratocera: Yu *et al.* 2005; 2011.
Dinotrema cratocera: Broad *et al.* 2012: 10.

Material examined. Lectotype: 1 female (MZLU). Additional material: 1 female, Austria, Styria, Kalkberg bei St. Blasen, NW Seite, 950 m, 11.08.1966 (Fischer leg.) (NHMW); 1 female, Austria, O–Steiermark, Lafnitz, 15.07.1964 (Fischer leg.) (NHMW); 1 female, Austria, Kärnten, 1 km O Heft bei Hüttenberg, 1000–1100 m, 25.08.1973 (Fischer leg.) (NHMW); 1 female, Hungary, Fertö–Hanság, Np. Dénesfa, fás legelö, 03.05.2000 (Rozner leg.) (HNHM); 1 male, Romania, Transylvania, Radnai, havasok Borsa, 1600 m, 30.07.1992 (Papp leg.) (HNHM).
Distribution. Austria, former Czechoslovakia, Hungary, Iran, Korea, Mongolia, Romania **(new record)** and Sweden.
Main characters of the species. Body length: 2.40 mm. Head in dorsal view 1.80 times as wide as its median length and 1.40 times as wide as mesoscutum. Face 1.70 times as wide as high. Mandible 1.50

times as long as wide. Upper tooth as wide as lower tooth. Antennae 28–segmented. First flagellar segment 3.50 times as long as its apical width. Middle flagellar segments 1.70 times as long as their width. Mesosoma in lateral view 1.30 times as long as high. Mesoscutum 1.15 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, elongated. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow crenulated below. Propodeum sculptured, with short median carina, with emerging carinae reaching propodeal edges. Propodeal spiracles small. Hind femur 4.00 times as long as its maximum width. First metasomal tergite 2.00 times as long as its apical width, striated. Ovipositor 1.30 times as long as first tergite, shorter than metasoma, 0.80 times as long as hind femur. Main colour brown.

Comparative diagnosis. This species resembles *D. aureliae* (Fischer) but differs in having the hind femur 4.00 times as long as its maximum width (4.50 times in *D. aureliae*), first flagellar segment 3.50 times as long as wide (3.00 times in *D. aureliae*), first metasomal tergite striated (smooth in *D. aureliae*) and mesoscutal pit elongated (oval in *D. aureliae*).

Dinotrema cruciatum (FISCHER 1973)

(Figs. 496–504)

Aspilota cruciatum Fischer 1973d: 111.

Aspilota isometrica Fischer 1973a: 146. **syn. nov.**

Dinotrema cruciatum: Yu *et al.* 2005.

Dinotrema isometricum: Yu *et al.* 2005

Dinotrema cruciatum: Papp 2009b: 5.

Dinotrema cruciatum: Yu *et al.* 2011.

Dinotrema isometricum: Yu *et al.* 2011.

Material examined. Holotype (*cruciatum*): 1 female, Austria, Oststeiermark, Lungitzhach, Ufer bei St. Johann i.d. Haide, 11–12.06.1966 (Fischer leg.) (NHMW). Holotype (*isometricum*): 1 female, Austria, Steiermark, Buchau 8 kn NO admont, 850 m, überwiegend sonnig windstill, 30.07.1970 (Fischer leg.) (NHMW). Paratypes (*cruciatum*): 1 female, Austria, Salzburg–Parsch, 09.06.1961 (P.P. Babiy leg.) (NHMW); 1 female, Austria, Burgenland, Tauchenbach bei Neumarkt im Tauchental, 05.08.1963 (Fischer leg.) (NHMW). Additional material (*cruciatum*): 1 female, Hungary, Uzsa, 24.05.1993 (Papp leg.) (HNHM); 1 female, Hungary, Budapest, Hárshegy, 09.06.1971 (Papp leg.) (HNHM); 1 female, Croatia, Cirkvenica Biró (HNHM); 1 female, Bosnia–Herzegovina, Krupa, Pazaric, Bosnia–Herzegovina, Podor, 05.07.1930 (HNHM); 1 female, Armenia, Karashamb, Agveran 1900 m, 02.06.1980 (Papp leg.) (HNHM). Additional material (*isometricum*): 3 females, Austria, Salzburg, Ried–Wolfgapgsee, 04.09.1956 (NHMW); 1 female, Austria, Salzburg, Parsch, 10.09.1960 (P.P. Babiy leg.) (NHMW); 1 female, same label but, 24.05.1961 (P.P. Babiy leg.) (NHMW); 1 female, same label but, 11.10.1962 (P.P. Babiy leg.) (NHMW); 1 female, same label but, 21.10.1962 (P.P. Babiy leg.) (NHMW); 1 female, same label but, 26.05.1963 (P.P. Babiy leg.) (NHMW); 1 male, Romania, Transylvania, Ár pástó D. Kiss (HNHM); 1 male, Germany, Würzburg Schraundenback, Malaise csapda, 26.09.1968 (Horstman leg.) (HNHM); 1 female, England, Coll. Marshall (HNHM).

Distribution. Armenia **(new record)**, Austria, Bosnia–Herzegovina, Croatia, England **(new record)**, Germany **(new record)**, Hungary and Romania **(new record)**.

Main characters of the species. Body length: 2.70 mm. Head in dorsal view 1.85 times as wide as its median length and 1.40 times as wide as mesoscutum. Face 1.80–1.85 times as wide as high. Mandible 1.70 times as long as wide. Upper tooth wider than lower tooth.

Antennae 20–segmented. First flagellar segment 2.50 times as long as its apical width. Middle flagellar segments 1.40 times as long as their width. Mesosoma in lateral view 1.40 times as long as high. Mesoscutum 1.05 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, elongated. Prescutellar depression with lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow slightly crenulated. Propodeum smooth, with median longitudinal carina crossing from anterior to posterior margins, with parallel longitudinal carinae arriving to posterior margins. Propodeal spiracles relatively small. Hind femur 4.00 times as long as its maximum width. First metasomal tergite 2.00 times as long as its apical width, finely striated. Ovipositor as long as first tergite, shorter than metasoma, 0.75 times as long as hind femur. Main colour brown.

Comparative diagnosis. This species resembles *D. thurnense* Fischer but differs in having the mandible 1.70 times as long as wide (1.50 times in *D. thurnense*), upper tooth wider than lower tooth (lower tooth wider than upper tooth in *D. thurnense*), hind femur 4.00 times as long as its maximum width (4.50 times in *D. thurnense*) and propodeum with several longitudinal carinae arriving apical margins (only one longitudinal carina).

Dinotrema cruciforme (FISCHER 1973)

(Figs. 505–516)

Aspilota cruciformis Fischer 1973b: 103.

Aspilota isosoma Fischer 1976: 375. **syn**. **nov.**

Dinotrema cruciforme: Papp 2003a: 125.

Aspilota cruciformis: Yu *et al.* 2005.

Aspilota isosoma: Yu *et al.* 2005.

Dinotrema cruciforme: Yu *et al.* 2011.

Dinotrema isosoma: Yu *et al.* 2011.

Material examined. Holotype (*cruciforme*): 1 female, Austria, Tirol, Piller See bei Untergurgl, Schütterer W 1660 m, schwacher wind mäβig bewölk, 14.08.1970 (Fischer leg.). Holotype (*isosomum*): 1 male, Austria, Burgenland, Spitzzicken, 11–12.07.1959 (Fisher leg.) (NHMW). Allotype (*cruciforme*): 1 female, Austria, inf. Pitten, 28.06.1959 (Fischer leg.) (NHMW). Additional material (*cruciforme*): 1 female, Hungary, Budapest, Hárshegy/Querceto–Melicetosum, 09.06.1971 (Papp leg.) (HNHM); 1 female, Denmark, E–Jutland, Højen Bæk, 5 km of Vejle, 23.08.1984 (Munk leg.) (NMA); 1 female, Finland, EP. Ylihärmä, 7011:287, 13.07.1980 (M. Koponen leg.) (NMA). Additional material (*isosomum*): 1 female, Hungary, Luczfalva, Horváth 1916 (HNHM); 1 female, England, Collection Marshall 1934 (HNHM).

Distribution. Austria, Denmark **(new record)**, England **(new record)**, Finland **(new record)**, Hungary and Korea.

Main characters of the species. Body length: 2.00–2.10 mm. Head in dorsal view 1.70 times as wide as its median length and 1.30 times as wide as mesoscutum. Face 1.60 times as wide as high. Mandible 1.30 times as long as wide. Lower tooth wider than upper tooth. Antennae 22–25–segmented. First flagellar segment 2.70 times as long as its apical width. Middle flagellar segments 2.00 times as long as their width. Mesosoma in lateral view 1.40 times as long as high. Mesoscutum 1.25 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, oval. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum smooth, with several carinae reaching apical margins, with emerging carinae not reaching propodeal edges. Propodeal spiracles relatively small. Hind femur 5.00 times as long as its maximum width. First metasomal tergite 2.00 times as long as its apical width, finely striated in apical half. Ovipositor 2.65 times as

long as first tergite, shorter than metasoma, 1.25 times as long as hind femur. Main colour brown.

Comparative diagnosis. This species resembles *D. pappi* sp. nov. but differs in having the first metasomal tergite striated in apical half (smooth in *D. pappi*), mesoscutal pit oval (elongated in *D. pappi*), lower tooth wider than upper tooth (upper tooth wider than lower tooth in *D. pappi*), first flagellar segment 2.70 times as long as wide (3.00 times in *D. pappi*) and middle flagellar segments 2.00 times as long as wide (1.60 times in *D. pappi*).

***Dinotrema curtisetum* sp. nov.**

(Figs. 517–528)

Material examined. Holotype: 1 female, Denmark, E–Jutland, Hessel s. Grenå, 56º23'N 10º52'E, 09.08.1989 (Munk leg.) (NMA). Paratypes: 1 female, same label as in holotype, but 13.08.1989 (Munk leg.) (ENV); 1 female, Denmark, S–Jutland, Klelund Plant, 23.08.1986 (Munk leg.) (NMA).

Distribution. Denmark.

Main characters of the species. Body length: 1.60–1.70 mm. Head in dorsal view 1.50 times as wide as its median length, 1.50 times as wide as mesoscutum. Face 2.10–2.20 times as wide as high. Mandible 1.25–1.30 times as long as its maximum width. Upper tooth wider than lower tooth. Antenna 18–segmented. First flagellar segment 3.00 times as long as its apical width. Middle flagellar segments 1.80–1.90 times as long as their width. Mesosoma in lateral view 1.05–1.10 times as long as high. Mesoscutum as long as wide. Notauli mainly absent. Mesoscutal pit absent. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, reaching anterior part of mesopleuron. Posterior mesopleural furrow crenulated. Propodeum sculptured, with pentagonal areola. Propodeal spiracles small. Hind

femur 4.00 times as long as wide. First metasomal tergite 2.20 times as long as its apical width, striated. Ovipositor 1.50 times as long as first tergite, shorter than metasoma, 1.05–1.10 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. areolatum* (Stelfox et Graham), *D. dimidiatum* (Thomson), *D. jaculans* (Haliday) and *D. alakolense* Tobias. *Dinotrema curtisetum* differs from *D. areolatum* in having the mandible 1.25–1.30 as long as wide (2.00 times in *D. areolatum*), first flagellar segment 3.00 times as long as wide (4.00 times in *D. areolatum*), hind femur 4.00 times as long as its maximum width (5.00 times in *D. areolatum*) and ovipositor shorter than metasoma (longer than metasoma in *D. areolatum*). On the other hand, *D. curtisetum* differs from *D. dimidiatum* in having the prescutellar depression without lateral carinae (with lateral carinae in *D. dimidiatum*), mandible 1.25–1.30 times as long as wide (0.75–0.80 times in *D. dimidiatum*), upper tooth wider than lower tooth (lower tooth wider than upper tooth in *D. dimidiatum*) and first metasomal tergite 2.20 times as long as its apical width (1.50 times in *D. dimidiatum*). Also, *D. curtisetum* differs from *D. jaculans* in having the ovipositor shorter than metasoma (longer than metasoma in *D. jaculans*), first flagellar segment 3.00 times as long as wide (4.00 times in *D. jaculans*) and precoxal suture reaching with the anterior part of mesopleuron but not with the posterior part (not reaching with anterior and posterior parts of mesopleuron in *D. jaculans*). Finally, *D. curtisetum* differs from *D. alakolense* in having the first metasomal tergite 2.20 times as long as its apical width (2.00 times in *D. alakolense*), mandible 1.25 times as long as wide (1.40 times in *D. alakolense*), sternaulus (precoxal suture) reaching anterior part of mesopleuron (not reaching in *D. alakolense*) and upper tooth wider than lower tooth (lower tooth wider than upper tooth in *D. alakolense*).

Dinotrema dentatum (TOBIAS 1962)
(Figs. 529–539)

Aspilota dentata Tobias 1962: 103.
Aspilota dentata: Fischer 1972: 366.
Aspilota dentata: Francés *et al.* 1989: 205.
Aspilota dentata: Yu *et al.* 2005.
Dinotrema dentatum: Tobias 2006: 219.
Dinotrema dentatum: Yu *et al.* 2011.

Material examined. Holotype: 1 female, Russia, Leningrad Province, Tolmachevo, 22.08. 1960 (Tobias coll.) (ZISP).
Distribution. Hungary, Poland, Russia and Spain.
Main characters of the species. Body length: 1.70 mm. Head in dorsal view 1.90 times as wide as its median length and 1.50 times as wide as mesoscutum. Face 1.80 times as wide as high. Mandible as long as wide. Lower tooth wider than upper tooth. Antennae 22–segmented. First flagellar segment 3.30 times as long as its apical width. Middle flagellar segments 1.60 times as long as their width. Mesosoma in lateral view 1.40 times as long as high. Mesoscutum 1.20 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit absent. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow crenulated. Propodeum sculptured, with pentagonal areola. Propodeal spiracles relatively small. Hind femur 4.40 times as long as its maximum width. First metasomal tergite 1.45 times as long as its apical width, finely striated in apical half. Ovipositor 4.00 times as long as first tergite, longer than metasoma, 2.60 times as long as hind femur. Main colour brown.
Comparative diagnosis. This species resembles *D. jaculans* (Haliday) but differs in having the first flagellar segment 3.30 times as

long as wide (4.00 times in *D. jaculans*), middle flagellar segments 1.60 times as long as their width (2.00 times in *D. jaculans*), first metasomal tergite 1.45 times as long as its apical width (2.00 times in *D. jaculans*) and hind femur 4.40 times as long as its maximum width (4.00 times in *D. jaculans*).

Dinotrema denticulatum (STELFOX et GRAHAM 1951)
(Figs. 540–550)

Aspilota denticulata Stelfox et Graham 1951: 4.
Aspilota denticulata: Fischer 1972: 368.
Aspilota denticulata: Fischer 1973b: 103.
Aspilota denticulata: Yu *et al.* 2005.
Dinotrema denticulatum: Tobias 2006: 329.
Dinotrema denticulatum: Yu *et al.* 2011.
Dinotrema denticulatum: Broad *et al.* 2012: 10.

Material examined. 1 female, Austria, Kärten Zosner Kogel, 1 km N Hüttenberg, sonnig, 16.08.1973 (Fischer leg.) (NHMW); 1 female and 1 male, Austria, Kärnten Huttenberg–Zosen, über W, sonnig, 800–900 m, 17.08.1973 (Fischer leg.) (NHMW); 1 female, Slovakia, Körmöcbánya, 25.08.1982 (Zombori leg.) (HNHM).
Distribution. Austria, former Czechoslovakia, Ireland and Slovakia **(new record)**.
Main characters of the species. Body length: 2.70 mm. Head in dorsal view 1.80 times as wide as its median length and 1.40 times as wide as mesoscutum. Face 1.50 times as wide as high. Mandible 1.50 times as long as wide. Upper tooth wider than lower tooth. Antennae 28–30–segmented. First flagellar segment 4.00 times as long as its apical width. Middle flagellar segments 2.00 times as long as their width. Mesosoma in lateral view 1.25 times as long as high. Mesoscutum 1.10 times as long as its maximum width. Notauli mainly

absent. Mesoscutal pit present, rounded. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum sculptured, with median longitudinal carinae from anterior to posterior margins, with emerging carinae reaching propodeal edges. Propodeal spiracles small. Hind femur 4.50 times as long as its maximum width. First metasomal tergite 1.80 times as long as its apical width, striated in apical half. Ovipositor 2.25 times as long as first tergite, shorter than metasoma, 1.60 times as long as hind femur. Main colour brown.

Comparative diagnosis. This species resembles *D. latidens* (Fischer) but differs in having the hind femur 4.50 times as long as its maximum width (4.00 times in *D. latidens*), middle tooth rounded (pointed in *D. latidens*), sternaulus (precoxal suture) not reaching anterior part of mesopleuron (reaching in *D. latidens*) and eye in lateral view 1.30 times as long as temple (1.05 times in *D. latidens*).

Dinotrema dentipraesens (FISCHER 1974)

(Figs. 551–562)

Aspilota dentipraesens Fischer 1974a: 7.
Dinotrema dentipraesens: Papp 2003a: 126.
Aspilota dentipraesens: Yu *et al.* 2005.
Dinotrema dentipraesens: Yu *et al.* 2011.

Material examined. Holotype: 1 male, Austria, inf. Pitten, 28.06.1959 (Fischer leg.) (NHMW). Additional material: 1 female, Hungary, Bárorliget Nyomási legelö, 1989 (Mahunka leg.) (HNHM).

Distribution. Austria, Hungary and Korea.

Main characters of the species. Body length: 1.50 mm. Head in dorsal view 1.75 times as wide as its median length and 1.55 times as wide as mesoscutum. Face 1.40 times as wide as high. Mandible 1.20

times as long as wide. Upper tooth wider than lower tooth. Antennae 23–segmented. First flagellar segment 4.00 times as long as its apical width. Middle flagellar segments 1.80 times as long as their width. Mesosoma in lateral view 1.25 times as long as high. Mesoscutum as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, rounded. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum sculptured, with median longitudinal carinae from anterior to posterior margins, with emerging carinae reaching propodeal edges. Propodeal spiracles small. Hind femur 4.50 times as long as its maximum width. First metasomal tergite 2.20 times as long as its apical width, almost smooth. Ovipositor 0.65 times as long as first tergite, shorter than metasoma, 0.50 times as long as hind femur. Main colour brown.

Comparative diagnosis. This species resembles *D. macrocerum* (Thomson) and *D. mediocorne* (Fischer). *Dinotrema dentipraesens* differs from *D. macrocerum* in having the mandible 1.20 times as long as wide (1.40 times in *D. macrocerum*), first flagellar segment 4.00 times as long as wide (3.50 times in *D. macrocerum*) and hind femur 4.50 times as long as its maximum width (4.00 times in *D. macrocerum*). Finally, *D. dentipraesens* differs from *D. mediocorne* in having the mandible 1.20 times as long as wide (1.45 times in *D. mediocorne*), first flagellar segment 4.00 times as long as wide (3.25 times in *D. mediocorne*) and middle flagellar segments 1.80 times as long as their width (2.00–2.25 times in *D. mediocorne*).

***Dinotrema deprane* sp. nov.**

(Figs. 563–574)

Dinotrema deprane **sp. nov.**

Material examined. Holotype: 1 female, E–Jutland, Højen Bæk, 19.09.1984 (Munk leg.) (NMA). Paratypes: 1 female, same label as in holotype but 01.07.1982 (NMA); 3 females, same label as in holotype but 06.06.1983 (NMA); 2 females, same label as in holotype but 12.06.1984 (NMA); 6 females, same label as in holotype but 16.06.1986 (NMA); 1 female, same label as in holotype but 07.07.1984 (ENV).

Distribution. Denmark.

Main characters of the species. Body length: 2.10–2.15 mm. Head in dorsal view 1.70–1.75 times as wide as its median length and 1.30–1.35 times as wide as mesoscutum. Face 1.50–1.60 times as wide as high. Mandible as long as wide. Lower tooth wider than upper tooth. Antennae 27–segmented. First flagellar segment 3.25 times as long as its apical width. Middle flagellar segments 1.70–1.80 times as long as their width. Mesosoma in lateral view 1.05–1.10 times as long as high. Mesoscutum 1.10–1.15 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, elongated. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow crenulated. Propodeum sculptured, with median longitudinal carina from anterior to posterior margins, with emerging carinae reaching propodeal edges. Propodeal spiracles small. Hind femur 4.00 times as long as its maximum width. First metasomal tergite 1.70 times as long as its apical width, rugose–striated in apical half. Ovipositor 2.15–2.20 times as long as first tergite, shorter than metasoma, 1.40 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. eumandibulatum* (Fischer) and *D. tergitale* (Fischer). *Dinotrema deprane* differs from *D. eumandibulatum* in having the hind femur 4.00 times as long as wide (3.50 times in *D. eumandibulatum*), first metasomal tergite 1.70

times as long as its apical width (2.20 times in *D. eumandibulatum*), presence several short carinae emerging form lateral carinae of propodeum (only a few carinae in *D. eumandibulatum*) and ovipositor 2.15–2.20 times as long as first metasomal tergite (1.50 times in *D. eumandibulatum*). Finally, *D. deprane* differs from *D. tergitale* in having the mandible as long as wide (1.40 times in *D. tergitale*), middle flagellar segments 1.70–1.80 times as long as their width (2.00 times in *D. tergitale*) and hind femur 4.00 times as long as its maximum width (3.50 times in *D. tergitale*).

Dinotrema dimidiatum (THOMSON 1895)
(Figs. 575–586)

Alysia (*Orthostigma*) *dimidiata* Thomson 1895: 2302.
Aspilota dimidiata: Fischer 1972: 373.
Dinotrema dimidiatum: Tobias 2004a: 218.
Aspilota dimidiata: Yu *et al.* 2005.
Dinotrema dimidiatum: Tobias 2006: 329.
Dinotrema dimidiatum: Fischer 2009: 105.
Dinotrema dimidiatum: Lozan *et al*. 2010: 18.
Dinotrema dimidiatum: Yu *et al.* 2011.
Dinotrema dimidiatum: Broad *et al.* 2012: 10.

Material examined. Lectotype: 1 female, 28.10.1960/15 (MZLU). Additional material: 1 female, Hungary, Pilisszántó Hosszúhegy, 2115 hrsz, 20.05.1991 (Papp leg.) (HNHM); 1 female, Turkey, Stambul, Turcia, Biró, 22.04.1925 (HNHM).
Distribution. Czech Republic, former Czechoslovakia, Denmark, Germany, Kazakhstan, Kyrgyzstan, Moldova, Russia, Turkey **(new record)** and Uzbekistan.
Main characters of the species. Body length: 1.30–1.70 mm. Head in dorsal view 1.80 times as wide as its median length and 1.50 times as

wide as mesoscutum. Face 1.60 times as wide as high. Mandible 0.75 times as long as wide. Lower tooth wider than upper tooth. Antennae 15–20–segmented. First flagellar segment 3.50 times as long as its apical width. Middle flagellar segments 1.60 times as long as their width. Mesosoma in lateral view 1.30 times as long as high. Mesoscutum 1.20 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit absent. Prescutellar depression with lateral carinae. Sternaulus (precoxal suture) present, reaching anterior part of mesopleuron. Posterior mesopleural furrow crenulated. Propodeum sculptured, with pentagonal areola. Propodeal spiracles small. Hind femur 4.50 times as long as its maximum width. First metasomal tergite 1.50 times as long as its apical width, striated in apical half. Ovipositor 1.35–1.40 times as long as first tergite, shorter than metasoma, 1.15 times as long as hind femur. Main colour brown.

Comparative diagnosis. This species resembles *D. borzhomii* Tobias but differs in having the mandible 0.75 times as long as wide (1.00 times in *D. borzhomii*), prescutellar depression with lateral carinae (without lateral carinae in *D. borzhomii*), first metasomal tergite 1.50 times as long as its apical width (2.00 times in *D. borzhomii*), hind femur 4.50 times as long as its maximum width (3.90 times in *D. borzhomii*), first flagellar segment 3.50 times as long as wide (4.00 times in *D. borzhomii*) and middle flagellar segments 1.60 times as long as their width (2.00 times in *D. borzhomii*).

Dinotrema dimorphum (FISCHER 1976) **comb. nov.**
(Figs. 587–598)

Aspilota dimorpha Fischer 1976: 363.
Dinotrema dimorpha: Papp 2003a: 126.
Aspilota dimorpha: Yu *et al.* 2005.
Dinotrema dimorpha: Yu *et al.* 2011.

Material examined. Holotype: 1 female, Austria, Burgenland, Eisenzicken, 04.07.1963 (Fischer leg.) (NHMW). Paratypes: 3 males, Austria, Burgenland, Jabing, 28.07.1960 (Fischer leg.) (NHMW). Allotype: 1 male, same label as in holotype (Fischer leg.) (NHMW). Additional material: 1 female, Hungary, Kám, 25.06.1979 (Papp leg.) (HNHM); 1 female, Romania, Transylvania, Kovászna m. Elöpatak, 24.08.1993 (Podlussány leg.) (HNHM); 1 female, Slovakia, Késmárk, 23.08.1982 (Zombori leg.) (HNHM); 2 females, Germany, Würzburg, Schraundenback, Malaise csapda, 26.09.1968 (Horstman leg.) (HNHM); 3 females, Georgia, Noa, Kodori Valley, 25.05.1975 (Tóth S. leg.) (HNHM); 4 females, Armenia, Djrvezh, 1300 m, 30.05.1980 (Papp leg.) (HNHM); 2 females, Bulgaria, Baskayo, 05.09.1978 (Orosz leg.) (HNHM); 1 female, Macedonia, Baba Mts. 700 m, Magarevo, 07.06.1978 (Rozner leg.) (HNHM); 1 female, Italy, CH. Mt. Generoso, TI, Bellavista, 1200 m, 21–30.06.1982 (Rezberyai–Reser leg.) (HNHM).

Distribution. Armenia **(new record)**, Austria, Bosnia–Herzegovina, Bulgaria **(new record)**, Georgia **(new record)**, Germany **(new record)**, Italy **(new record)**, Hungary, Korea, Macedonia, Slovakia **(new record)** and former Yugoslavia.

Main characters of the species. Body length: 1.50 mm. Head in dorsal view 1.80 times as wide as its median length and 1.50 times as wide as mesoscutum. Face 1.40 times as wide as high. Mandible 1.40–1.60 times as long as wide. Upper tooth wider than lower tooth. Antennae 18–segmented. First flagellar segment 3.50 times as long as its apical width. Middle flagellar segments 1.80 times as long as their width. Mesosoma in lateral view 1.30 times as long as high. Mesoscutum 1.20 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, oval. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural

furrow smooth. Propodeum smooth, with median longitudinal carinae from anterior to posterior margins. Propodeal spiracles relatively small. Hind femur 4.00 times as long as its maximum width. First metasomal tergite 2.40 times as long as its apical width, almost smooth. Ovipositor 1.45 times as long as first tergite, shorter than metasoma, 0.90–0.95 times as long as hind femur. Main colour brown.
Comparative diagnosis. This species resembles *D. paramicum* Munk et Peris–Felipo but differs in having the mandible 1.40–1.60 times as long as wide (1.20 times in *D. paramicum*), first metasomal tergite 2.40 times as long as its apical width (2.80 times in *D. paramicum*), first flagellar segment 3.50 times as long as wide (3.00 times in *D. paramicum*) and hind femur 4.00 times as long as its maximum width (4.15–4.20 times in *D. paramicum*).

Dinotrema divisum (STELFOX et GRAHAM 1950)
(Figs. 599–609)

Aspilota divisa Stelfox et Graham 1950b: 13.
Aspilota divisa: Tobias 1962: 104.
Aspilota divisa: Fischer 1972: 375.
Aspilota divisa: Yu *et al.* 2005.
Dinotrema divisum: Papp 2009b: 5.
Dinotrema divisum: Yu *et al.* 2011.
Dinotrema divisum: Broad *et al*. 2012: 10.

Material examined. Paratype: 1 female, Stenasmale, D.V.AWS (3) 18.06.1941 (Stelfox et Graham leg.) (NHMW). Additional material: 1 female, Hungary, Újszentmargita védett erdó, 07–11.07.1975 (Hámoriné & Marótiné leg.) (HNHM); 1 female, Romania, Jud. Bihor, Canton Glavoi (Ponor) 1100 m, 27.07.2005 (Orosz leg.) (HNHM); 1 female, Bulgaria, Mts. Rila, Biró, 09.1928 (HNHM); 3 males, Greece, Creta, Biró Canea, 27.03.1906 (HNHM); 1 male, Switzerland,

Dietikon, 23.05.1986 (Bächli & Papp leg.) (HNHM); 1 male, Afganistan, Prov. Kabul, Paghman 2500 m, 05.05.1974 (Papp leg.) (HNHM); 1 female, Germany, Egsdorf, 23.07.1973 (Scabó leg.) (HNHM); 1 female, Bosnia–Herzegovina, Kasan (Csiki leg.) (HNHM).

Distribution. Austria, Bosnia–Herzegovina, Bulgaria **(new record)**, former Czechoslovakia, Germany **(new record)**, Greece, Hungary, Italy **(new record)**, Ireland, Korea, Macedonia, Moldova, Romania **(new record)**, Russia, Spain, Switzerland, Ukraine, United Kingdom and former Yugoslavia.

Main characters of the species. Body length: 1.60 mm. Head in dorsal view 1.50 times as wide as its median length and 1.50 times as wide as mesoscutum. Face 1.70 times as wide as high. Mandible 1.50 times as long as wide. Upper tooth wider than lower tooth. Antennae 17–18–segmented. First flagellar segment 2.50 times as long as its apical width. Middle flagellar segments 1.70 times as long as their width. Mesosoma in lateral view 1.15 times as long as high. Mesoscutum 1.05–1.10 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, elongated. Prescutellar depression with lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum smooth, with short median longitudinal carina. Propodeal spiracles small. Hind femur 4.00 times as long as its maximum width. First metasomal tergite 1.65 times as long as its apical width, almost smooth. Ovipositor 4.00 times as long as first tergite, longer than metasoma, 2.55–2.60 times as long as hind femur. Main colour brown.

Comparative diagnosis. This species resembles *D. tirolense* Munk et Peris–Felipo but differs in having the ovipositor longer than metasoma (shorter than metasoma in *D. tirolense*), first flagellar segment 2.50 times as long as wide (4.25 times in *D. tirolense*), middle flagellar

segments 1.70 times as long as wide (3.00 times in *D. tirolense*) and hind femur 4.00 times as long as its maximum width (5.00 times in *D. tirolense*).

***Dinotrema enanum* sp. nov.**
(Figs. 610–621)

Material examined. Holotype: 1 female, Spain, Castellon Province, Pobla de Benifassà, Natural Park of Tinença de Benifassà, 11.12.2006 (F.J. Peris–Felipo leg.) (ENV). Paratypes: 1 male, same label, but 14.05.2007 (F.J. Peris–Felipo leg.) (ENV); 1 male, Spain, Alicante Province, Alcoi, Natural Park of Carrascal de la Font Roja, 13.04.2006 (F.J. Peris–Felipo leg.) (ENV).
Distribution. Spain.
Main characters of the species. Body length: 1.45–1.60 mm. Head in dorsal view 1.60 times as wide as its median length and 1.40 times as wide as mesoscutum. Face 1.50 times as wide as high. Mandible 1.18–1.20 times as long as wide. Lower tooth wider than upper tooth. Antennae 16–segmented. First flagellar segment 3.00 times as long as its apical width. Middle flagellar segments 2.25 times as long as their width. Mesosoma in lateral view 1.20 times as long as high. Mesoscutum 1.10 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, rounded. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow crenulated. Propodeum smooth, with median longitudinal carina crossing from anterior to posterior margings, with short emerging carinae not reaching propodeal edges. Propodeal spiracles relatively small. Hind femur 3.85–4.00 times as long as its maximum width. First metasomal tergite 1.90 times as long as its apical width, almost smooth. Ovipositor 2.15–2.20 times as long as

first tergite, shorter than metasoma, 1.20 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. belokobylskiji* sp. nov. but differs in having the middle flagellar segments 2.25 times as long as wide (1.20 times in *D. belokobylskiji*), mesosoma 1.20 times as long as high (1.05 times in *D. belokobylskiji*), hind femur 3.85–4.00 times as long as its maximum width (4.30 times in *D. belokobylskiji*), first metasomal tergite almost smooth (striated in apical half in *D. belokobylskiji*) and lower tooth wider than upper tooth (lower tooth as wide as upper tooth in *D. belokobylskiji*).

Dinotrema erythropum (FOERSTER 1862)
(Figs. 622–633)

Dinotrema erythropa Foerster 1862: 268.
Aspilota praecipua Marshall 1895: 380.
Alysia (*Aspilota*) *praecipua*: Thomson 1895: 2304.
Aspilota erythropa: Fischer 1972: 379.
Aspilota erythropa: Yu *et al.* 2005.
Dinotrema erythropum: Yu *et al*. 2011.
Dinotrema erythropum: Broad *et al.* 2012: 10.

Material examined. Paratypes: 1 female and 1 male, England, Coll. Marshall Cornwall, Botusfleming (HNHM). Additional material: 1 female, Hungary, Ugod, Somberek Hubertlak–Kórnyéle, 26–29.06.1967 (Papp leg.) (HNHM); 1 female, Spain, Valencia, 16.07.1942 (NHMW); 2 females, Luxembourg, Tratten, b. Murau Stmk. Coll Fulmek, 14.08.1942 and 13.10.1954 (NHMW); 1 female, Finland, Sa. Valkeala, 6772:483, 28.07.1977 (Koponen leg.) (NMA); 1 female, Finland, same label but 29.07.1977 (NMA); 1 female, Denmark, E–Jylland, Frisenborg, 28.07.1986 (Munk leg.) (NMA); 1

female, Netherlands, Wijster (Dr.) opposite Biol. Stat., 22–30.09.1975 (Achterberg leg.) (RMNH).

Distribution. Former Czechoslovakia, Denmark **(new record)**, England **(new record)**, Finland **(new record)**, Germany, Hungary, Ireland, Italy, Luxembourg **(new record)**, Netherlands **(new record)**, Poland, Spain, Sweden and United Kingdom.

Main characters of the species. Body length: 3.00–3.50 mm. Head in dorsal view 2.00 times as wide as its median length and 1.50 times as wide as mesoscutum. Face 1.90–2.00 times as wide as high. Mandible 1.40 times as long as wide. Lower tooth wider than upper tooth. Antennae 26–segmented. First flagellar segment 2.50 times as long as its apical width. Middle flagellar segments 1.40 times as long as their width. Mesosoma in lateral view 1.20 times as long as high. Mesoscutum 1.05–1.10 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, very elongated. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow crenulated. Propodeum smooth, with median longitudinal carina crossing from anterior to posterior margins, with short carinae emerging from third anterior part not reaching propodeal edges. Propodeal spiracles large. Hind femur 4.00 times as long as its maximum width. First metasomal tergite 1.70 times as long as its apical width, almost entirely smooth. Ovipositor 0.85 times as long as first tergite, shorter than metasoma, 0.55–0.60 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. stigmaticum* (Tobias) but differs in having the ovipositor shorter than metasoma (longer in *D. stigmaticum*), lower tooth wider than upper tooth (lower tooth as wide as upper tooth in *D. stigmaticum*), middle tooth with rounded apex (very pointed apex in *D. stigmaticum*), hind femur 4.00 times as long as its maximum width (3.70 times in *D. stigmaticum*),

first metasomal tergite 1.70 times as long as its apical width (1.90 times in *D. stigmaticum*) and mesoscutal pit very elongated (elongated in *D. stigmaticum*).

Dinotrema eumandibulatum (FISCHER 1976)
(Figs. 634–645)

Aspilota eumandibulata Fischer 1976: 367.
Aspilota eumandibulata: Yu *et al.* 2005.
Dinotrema eumandibulatum: Yu *et al*. 2011.

Material examined. Holotype: 1 female, Austria, Burgenland, Jabing, 28.07.1960 (Fischer leg.) (NHMW). Additional material: 1 male, Austria, Spitzzicken, Burgenland (Fischer leg.) (NHMW); 1 female, Hungary, Szilvásvárad, Tótfalu–völgy, 09.05.1985 (Rozner leg.) (HNHM); 1 female, Romania, Transylvania, Szacsva, 30.05.1992 (Zombori leg.) (HNHM).
Distribution. Austria, Hungary and Romania **(new record)**.
Main characters of the species. Body length: 1.40 mm. Head in dorsal view 1.80 times as wide as its median length and 1.25 times as wide as mesoscutum. Face 1.50 times as wide as high. Mandible 0.80 times as long as wide. Upper tooth as wide as lower tooth. Antennae 16–segmented. First flagellar segment 3.30 times as long as its apical width. Middle flagellar segments 1.60 times as long as their width. Mesosoma in lateral view 1.30 times as long as high. Mesoscutum 1.25 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, elongated. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum sculptured, with median longitudinal carina, with emerging carinae in apical third reaching propodeal edges. Propodeal spiracles small. Hind femur 3.50 times as long as its

maximum width. First metasomal tergite 2.20 times as long as its apical width, finely striated in apical half. Ovipositor 1.20 times as long as first tergite, shorter than metasoma, 0.95 times as long as hind femur. Main colour brown.

Comparative diagnosis. This species resembles *D. teresae* sp. nov. but differs in having the hind femur 3.50 times as long as its maximum width (4.00 times in *D. teresae*), mandible 0.80 times as long as wide (1.05 times in *D. teresae*), first flagellar segment 3.30 times as long as wide (2.90 times in *D. teresae*) and mesoscutal pit elongated (oval in *D. teresae*).

Dinotrema falsificum (STELFOX et GRAHAM 1950)
(Figs. 646–657)

Aspilota falsifica Stelfox et Graham 1950b: 12.
Aspilota falsifica: Tobias 1962: 104.
Aspilota falsifica: Fischer 1972: 382.
Aspilota falsifica: Yu *et al.* 2005.
Dinotrema falsificum: Yu *et al*. 2011.

Material examined. 1 female, Ireland, Trawalva, C. S.L. A.W.S., 10.07.1936 (Stelfox et Graham leg.) (NHMW); 1 female, Hungary, Kószeg, Borpha, 05.08.1981 (Papp leg.) (HNHM); 1 female, Denmark, N–Jylland, NJ 67, Baggesyougr Skov., 24.06.1994 (Munk leg.) (ENV).

Distribution. Denmark **(new record)**, Germany, Hungary, Ireland, Lithuania, Poland, Russia and Switzerland.

Main characters of the species. Body length: 2.10 mm. Head in dorsal view 1.80 times as wide as its median length and 1.30 times as wide as mesoscutum. Face 1.40 times as wide as high. Mandible 2.00 times as long as wide. Upper tooth wider than lower tooth. Antennae 30–32–segmented. First flagellar segment 3.50 times as long as its

apical width. Middle flagellar segments 2.00 times as long as their width. Mesosoma in lateral view 1.30 times as long as high. Mesoscutum as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, oval. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, reaching anterior part of mesopleuron. Posterior mesopleural furrow crenulated. Propodeum sculptured, with short median carina, with emerging carinae reaching propodeal edges. Propodeal spiracles small. Hind femur 5.00 times as long as its maximum width. First metasomal tergite 2.20 times as long as its apical width, finely striated in apical half. Ovipositor 2.20 times as long as first tergite, as long as metasoma, 1.60 times as long as hind femur. Main colour brown.

Comparative diagnosis. This species resembles *D. notaulicum* (Fischer) but differs in having the notauli not developed (developed in *D. notaulicum*), mandible 2.00 times as long as wide (1.45 times in *D. notaulicum*), middle flagellar segments 2.00 times as long as their width (1.70 times in *D. notaulicum*), hind femur 5.00 times as long as its maximum width (4.40 times in *D. notaulicum*) and first metasomal tergite 2.20 times as long as its apical width (2.00 times in *D. notaulicum*).

***Dinotrema fischerianum* sp. nov.**

(Figs. 658–669)

Material examined. Holotype: 1 female, Spain, Alicante Province, Alcoi, Natural Park of Carrascal de la Font Roja, 25.04.2007 (F.J. Peris–Felipo leg.) (ENV). Paratypes: 1 female, same label as in holotype but 13.05.2004 (ZISP); 1 female, Spain, Castellon Province, Pobla de Benifassà, Natural Park of Tinença de Benifassà, 23.04.2007 (F.J. Peris–Felipo leg.) (ENV).

Distribution. Spain.

Main characters of the species. Body length: 1.90–2.00 mm. Head in dorsal view 1.80 times as wide as its median length and 1.35–1.40 times as wide as mesoscutum. Face 2.00 times as wide as high. Mandible 1.55–1.60 times as long as wide. Lower tooth wider than upper tooth. Antennae 16–segmented. First flagellar segment 2.70–2.80 times as long as its apical width. Middle flagellar segments 1.20–1.30 times as long as their width. Mesosoma in lateral view 1.20 times as long as high. Mesoscutum as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, elongated. Prescutellar depression with two lateral carinae. Sternaulus (precoxal suture) present, reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow crenulate in lower half. Propodeum smooth, with median longitudinal carina crossing from anterior to posterior margins, with short carinae emerging from median carina not reaching propodeal edges. Propodeal spiracles relatively small. Hind femur 4.00 times as long as its maximum width. First metasomal tergite 1.70–1.75 times as long as its apical width, smooth medioposteriorly, finely rugulose basally and laterally. Ovipositor 1.80–1.90 times as long as first tergite, shorter than metasoma, as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. jimenezi* sp. nov. and *D. vituperatum* (Fischer). *Dinotrema fischerianum* differs from *D. jimenezi* in having the mandible 1.70 times as long as wide (1.25 times in *D. jimenezi*), middle flagellar segments 1.20–1.30 times as long as wide (1.80 times in *D. jimenezi*), hind femur 4.00 times as long as its maximum width (3.60 times in *D. jimenezi*), sternaulus (precoxal suture) reaching anterior and posterior part of mesopleuron (not reaching anterior and posterior part in *D. jimenezi*) and lower tooth longer and wider than upper tooth (upper tooth wider than lower tooth in *D. jimenezi*). On the other hand, *D. fischerianum* differs from *D. vituperatum* in having the mandible 1.70 times as long as wide (1.10

times in *D. vituperatum*), first flagellar segment 2.70–2.80 times as long as wide (3.60 times in *D. vituperatum*), middle flagellar segments 1.20–1.30 times as long as wide (2.50 times in *D. vituperatum*), first metasomal tergite 1.70 times as long as its apical width (2.00 times in *D. vituperatum*) and lower tooth longer and wider than upper tooth (upper tooth wider than lower tooth in *D. vituperatum*).

Dinotrema flagelliforme (FISCHER 1973)
(Figs. 670–681)

Aspilota flagelliformis Fischer 1973a: 141.
Aspilota flagelliformis: Francés *et al*. 1989: 205.
Aspilota flagelliformis: Yu *et al.* 2005
Dinotrema flagelliforme: Yu *et al*. 2011.

Material examined. Holotype: 1 female, Austria, Steiermark, Buchau, 8 km NO Admont, 850 m, überwiegend sonnig, widstill, 30.07.1970 (Fischer leg.) (NHMW). Paratype: 1 male, same label as in holotype (Fischer leg.) (NHMW). Additional material: 1 female and 1 male, Hungary, Kószeg, Alsó–rét, 04.08.1981 (Papp leg.) (HNHM).
Distribution. Austria, Hungary and Spain.
Main characters of the species. Body length: 2.00 mm. Head in dorsal view 1.85 times as wide as its median length and 1.50 times as wide as mesoscutum. Face 1.40 times as wide as high. Mandible 1.30 times as long as wide. Lower tooth wider than upper tooth. Antennae 27–segmented. First flagellar segment 2.00 times as long as its apical width. Middle flagellar segments 1.90 times as long as their width. Mesosoma in lateral view 1.25 times as long as high. Mesoscutum 1.20 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, elongated. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural

furrow crenulated below. Propodeum sculptured, with median longitudinal carina crossing from anterior to posterior margins, with emerging carinae reaching propodeal edges. Propodeal spiracles small. Hind femur 3.50 times as long as its maximum width. First metasomal tergite 2.50 times as long as its apical width, striated in apical half. Ovipositor 1.50 times as long as first tergite, shorter than metasoma, 0.95 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. florens* (Fischer) but differs in having the mandible 1.30 times as long as wide (1.50 times in *D. florens*), hind femur 3.50 times as long as its maximum width (4.25 times in *D. florens*) and first flagellar segment 2.00 times as long as wide (4.50 times in *D. florens*).

Dinotrema florens (FISCHER 1974)
(Figs. 682–693)

Aspilota florens Fischer 1974b: 62.
Aspilota florens: Yu *et al*. 2005.
Dinotrema florens: Yu *et al*. 2011.

Material examined. Holotype: 1 male, Austria, inf. Pitten, 28.06.1959 (Fischer leg.) (NHMW). Additional material: 1 male, Austria, inf. Seebenstein, 06.06.1959 (Fischer leg.) (NHMW); 1 male, Hungary, Budapest, Biró, 11.07.1919 (HNHM).

Distribution. Austria and Hungary.

Main characters of the species. Body length: 2.00 mm. Head in dorsal view 1.90 times as wide as its median length and 1.50 times as wide as mesoscutum. Face 1.60 times as wide as high. Mandible 1.50 times as long as wide. Upper tooth wider than lower tooth. Antennae 24–segmented. First flagellar segment 4.50 times as long as its apical width. Middle flagellar segments 2.00 times as long as their width. Mesosoma in lateral view 1.25 times as long as high. Mesoscutum

0.85 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, oval. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow crenulated. Propodeum sculptured, with median longitudinal carina crossing from anterior to posterior margins, with emerging carinae reaching propodeal edges. Propodeal spiracles relatively small. Hind femur 4.25 times as long as its maximum width. First metasomal tergite 2.60 times as long as its apical width, almost smooth. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. flagelliforme* (Fischer) but differs in having the mandible 1.50 times as long as wide (1.30 times in *D. flagelliforme*), hind femur 4.25 times as long as its maximum width (3.50 times in *D. flagelliforme*) and first flagellar segment 4.50 times as long as wide (2.00 times in *D. flagelliforme*).

Dinotrema fulvicorne (HALIDAY 1838)
(Figs. 694–705)

Alysia fulvicornis Haliday 1838: 244.
Aspilota fulvicornis: Marshall 1895: 435.
Aspilota fulvicornis: Marshall 1896: 378.
Aspilota fulvicornis: Fischer 1972: 384.
Aspilota claricornis Fischer 1973d: 108.
Aspilota clarimembris Fischer 1974a: 19.
Dinotrema clarimembre: Tobias 2004a: 218.
Dinotrema fulvicorne: Tobias 2004b: 674.
Aspilota fulvicorne: Yu *et al.* 2005.
Dinotrema fulvicorne: Yu *et al*. 2011.

Material examined. Paratypes: 1 female and 1 male, England, Coll. Marshall Cornwall, Botusfleming (HNHM). Additional material: 1

female, Denmark, Højen Bæk, 5 km S of Vejle, 04.06.1989 (Munk leg.) (ENV).

Distribution. Austria, Denmark **(new record)**, Hungary, Italy, Netherlands, Poland and United Kingdom.

Main characters of the species. Body length: 2.30 mm. Head in dorsal view 2.00 times as wide as its median length and 1.70 times as wide as mesoscutum. Face 1.70 times as wide as high. Mandible 1.60 times as long as wide. Upper tooth wider than lower tooth. Antennae 23–segmented. First flagellar segment 4.50 times as long as its apical width. Middle flagellar segments 1.50 times as long as their width. Mesosoma in lateral view 1.30 times as long as high. Mesoscutum as long as its maximum width. Notauli mainly absent. Mesoscutal pit absent. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, reaching anterior part of mesopleuron. Posterior mesopleural furrow crenulated. Propodeum sculptured, with short median carina, with emerging carinae reaching propodeal edges. Propodeal spiracles small. Hind femur 4.75 times as long as its maximum width. First metasomal tergite 2.50 times as long as its apical width, finely striated. Ovipositor 1.15 times as long as first tergite, shorter than metasoma, 0.75 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. pauciarticulatum* (Fischer) but differs in having the first flagellar segment 4.50 times as long as wide (3.30 times in *D. pauciarticulatum*) and hind femur 4.75 times as long as its maximum width (4.00 times in *D. pauciarticulatum*).

Dinotrema fungicolum (TOBIAS 1992) **comb. nov.**

(Figs. 706–717)

Aspilota (*Dinotrema*) *fungicola* Yakolev *et al.* 1992: 145.

Aspilota fungicola: Yu *et al*. 2005.

Dinotrema fungicola: Tobias 2006: 331.
Dinotrema fungicola: Yu *et al.* 2011.

Material examined. Holotype: 1 female, Russia, Karelia, Vendery, from mushrooms, 1978 (Yakovlev) (ZISP).
Distribution. Russia.
Main characters of the species. Body length: 1.60–2.10 mm. Head in dorsal view 1.60 times as wide as its median length and 1.70 times as wide as mesoscutum. Face 1.65 times as wide as high. Mandible 1.10 times as long as wide. Lower tooth wider than upper tooth. Antennae 20–22–segmented. First flagellar segment 2.50–3.00 times as long as its apical width. Middle flagellar segments 1.50–1.80 times as long as their width. Mesosoma in lateral view 1.20 times as long as high. Mesoscutum as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, rounded. Prescutellar depression with lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum sculptured, with pentagonal areola. Propodeal spiracles small. Hind femur 4.00 times as long as its maximum width. First metasomal tergite 1.45 times as long as its apical width, striated. Ovipositor 2.75 times as long as first tergite, longer than metasoma, 1.90 times as long as hind femur. Main colour brown and dark brown.
Comparative diagnosis. This species resembles *D. canaliculatum* Tobias but differs in having the sternaulus (precoxal suture) not reaching anterior part of mesopleuron (reaching in *D. canaliculatum*), first metasomal tregite 1.45 times as long as its apical width (2.00 times in *D. canaliculatum*), prescutellar depression with lateral carinae (without lateral carinae in *D. canaliculatum*), first flagellar segment 2.50–3.00 times as long as wide (4.30 times in *D. canaliculatum*) and mandible 1.10 times as long as wide (1.30 times in *D. canaliculatum*).

Dinotrema georgicum TOBIAS 2004
(Figs. 718–726)

Dinotrema georgicum Tobias 2004a: 228.
Dinotrema georgicum: Yu *et al*. 2011.

Material examined. Holotype: 1 female, Georgia, Bozhomi, plateau, forest, 26.08.1981 (Gurasashvili leg.) (ZISP).
Distribution. Georgia.
Main characters of the species. Body length: 1.40 mm. Head in dorsal view 1.40 times as wide as its median length and 1.50 times as wide as mesoscutum. Face 1.50 times as wide as high. Mandible 1.30 times as long as wide. Upper tooth wider than lower tooth. Antennae more than 17–segmented (apical segments missing). First flagellar segment 4.00 times as long as its apical width. Middle flagellar segments 2.00 times as long as their width. Mesosoma in lateral view 0.80 times as long as high. Mesoscutum as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, rounded. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum sculptured, with median longitudinal carina crossing from anterior to posterior margins, with emerging carinae reaching propodeal edges. Propodeal spiracles relatively small. Hind femur 4.00 times as long as its maximum width. First metasomal tergite 1.50 times as long as its apical width, almost smooth. Ovipositor 3.30 times as long as first tergite, longer than metasoma, 2.00 times as long as hind femur. Main colour brown.
Comparative diagnosis. This species resembles *D. latidens* (Fischer) and *D. denticulatum* (Stelfox et Graham). *Dinotrema georgicum* differs from *D. latidens* in having the mesosoma 0.80 times as long as high (1.30 times in *D. latidens*), mandible 1.30 times as long as wide

(1.45 times in *D. latidens*) and first metasomal tergite 1.50 times as long as its apical width (1.80 times in *D. latidens*). Finally, *D. georgicum* differs from *D. denticulatum* in having the mesosoma 0.80 times as long as high (1.25 times in *D. denticulatum*), mandible 1.30 times as long as wide (1.50 times in *D. denticulatum*), hind femur 4.00 times as long as its maximum width (4.50 times in *D. denticulatum*) and first metasomal tergite 1.50 times as long as its apical width (1.80 times in *D. denticulatum*).

Dinotrema glabrum (STELFOX et GRAHAM 1951)
(Figs. 727–738)

Aspilota glabra Stelfox et Graham 1951: 4.
Aspilota glabra: Fischer 1972: 388.
Dinotrema glabrum: Papp 2003a: 126.
Dinotrema glabrum: Yu *et al.* 2005.
Dinotrema glabrum: Papp 2009c: 159.
Dinotrema glabrum: Yu *et al.* 2011.

Material examined. 3 females, Hungaria, Fertö–Hanság Np. Dénesfa, fás legelö, 03.05.2000 (Rozner leg.) (HNHM); 1 female, Norway, Selva, 63º36'N 09º43'E, near entrance Trondheimsfjord, 150 m, 11–18.08.1973 (Achterberg leg.) (RMNH); 1 female, Bulgaria, Rkodopi Sitovo, ex. Coll. Zaykov, 16.08.1977 (Zaykov leg.) (RMNH); 2 females, Denmark, E–Jutland, Højkol Skov., 56º05'N 9º38'E, 16.07.1987 and 22.08.1987 (Munk leg.) (ENV).
Distribution. Austria, Bulgaria **(new record)**, former Czechoslovakia, Denmark **(new record)**, Hungary, Ireland, Korea, Lithuania, Mongolia, Norway **(new record)**, Poland and Russia.
Main characters of the species. Body length: 1.70–2.40 mm. Head in dorsal view 2.00 times as wide as its median length and 1.40 times as wide as mesoscutum. Face 1.40 times as wide as high. Mandible 1.30

times as long as wide. Lower tooth wider than upper tooth. Antennae 20–segmented. First flagellar segment 3.00 times as long as its apical width. Middle flagellar segments 2.00–2.50 times as long as their width. Mesosoma in lateral view 1.10 times as long as high. Mesoscutum 0.95–1.00 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, oval. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum smooth, with short median carina. Propodeal spiracles relatively small. Hind femur 4.50 times as long as its maximum width. First metasomal tergite 2.50 times as long as its apical width, striated in apical half. Ovipositor 2.90–3.00 times as long as first tergite, shorter than metasoma, 2.05–2.10 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. caudatum* (Thomson) but differs in having the first metasomal tergite 2.50 times as long as its apical width (1.60 times in *D. caudatum*), hind femur 4.00 times as long as its maximum width (4.50 times in *D. caudatum*), middle flagellar segments 2.00–2.50 times as long as wide (1.40–2.00 times in *D. caudatum*) and mandible 1.30 times as long as wide and widened in apical part (1.10 times and weakly widened in apical part in *D. caudatum*).

***Dinotrema haeselbarthi* sp. nov.**

(Figs. 739–750)

Material examined. Holotype: 1 female, Italy, St. Peter/Ahrntal, Südtirol, 1950 m., Ja./26.08.1967 (Haeselbarth leg.) (ZSSM). Paratypes: 1 female, Denmark, E–Jutland, Yding Skov, 56º00’N 9º48’E (Munk leg.) (NMA); 1 female, Denmark, Funen Fjelstedskov, 55º27’N 9º59’E, 08.06.1982 (Munk leg.) (NMA); 1 female, Denmark,

Funen Fjelstedskov, 55º27'N 9º59'E, 24.06.1985 (Munk leg.) (ENV); 1 female, Denmark, E–Jutland, Højen Bæk, 5 km s. of Vejle, 07.07.1984 (Munk leg.) (ENV).

Distribution. Denmark and Italy.

Main characters of the species. Body length: 2.00–2.10 mm. Head in dorsal view 1.75 times as wide as its median length and 1.40 times as wide as mesoscutum. Face 1.80 times as wide as high. Mandible 1.50–1.55 times as long as wide. Lower tooth wider than upper tooth. Antennae 17–segmented. First flagellar segment 3.20–3.25 times as long as its apical width. Middle flagellar segments 1.60–1.70 times as long as their width. Mesosoma in lateral view 1.05–1.10 times as long as high. Mesoscutum 1.10–1.15 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, elongated. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, reaching anterior part of mesopleuron. Posterior mesopleural furrow crenulated. Propodeum sculptured, with median longitudinal carina crossing from anterior to posterior margins, with emerging carinae reaching propodeal edges. Propodeal spiracles relatively small. Hind femur 4.00 times as long as its maximum width. First metasomal tergite 2.00 times as long as its apical width, rugose–striated in apical half. Ovipositor 1.20 times as long as first tergite, shorter than metasoma, as long as hind femur. Main colour brown.

Comparative diagnosis. This species resembles *D. falsificum* (Stelfox et Graham) and *D. amparoae* sp. nov.. *Dinotrema haeselbarthi* differs from *D. falsificum* in having the mandible 1.50 times as long as wide (2.00 times in *D. falsificum*), hind femur 4.00 times as long as its maximum width (5.00 times in *D. falsificum*) and ovipositor shorter than metasoma (longer in *D. falsificum*). Finally, *D. haeselbarthi* differs from *D. amparoae* in having the first flagellar segment 3.20–3.25 times as long as wide (3.10 times in *D. amparoae*), hind femur 4.00 times as long as its maximum width (3.60 times in *D.*

amparoae) and first metasomal tergite 2.00 times as long as its apical width and rugose–striated in apical half (1.50 times and finely striated in *D. amparoae*).

Dinotrema hodiense (FISCHER 1976)
(Figs. 751–762)

Aspilota hodiensis Fischer 1976: 373.
Dinotrema hodiense: Yu *et al.* 2005; 2011.

Material examined. Holotype: 1 female, Austria, S–Burgenland, Markt Hodis–Rechnitz, 07.08.1961 (Fischer leg.) (NHMW).
Distribution. Austria, China and Korea.
Main characters of the species. Body length: 2.10 mm. Head in dorsal view 1.80 times as wide as its median length and 1.40 times as wide as mesoscutum. Face 1.50 times as wide as high. Mandible 1.40 times as long as wide. Upper tooth wider than lower tooth. Antennae 20–segmented. First flagellar segment 2.40 times as long as its apical width. Middle flagellar segments 1.70 times as long as their width. Mesosoma in lateral view 1.40 times as long as high. Mesoscutum 1.20 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, oval. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum smooth, with median longitudinal carina crossing from anterior to posterior margins, with short emerging carinae not reaching propodeal edges. Propodeal spiracles small. Hind femur 4.00 times as long as its maximum width. First metasomal tergite 1.90 times as long as its apical width, almost smooth. Ovipositor 1.40 times as long as first tergite, shorter than metasoma, 1.05 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. parapunctatum* (Fischer) but differs in having the mandible 1.40 times as long as wide (1.15 times in *D. parapunctatum*), upper tooth wider than lower tooth (upper tooth as wide as lower tooth in *D. parapunctatum*), first flagellar segment 2.40 times as long as wide (3.00 times in *D. parapunctatum*), midlle flagellar segments 1.70 times as long as wide (2.00 times in *D. parapunctatum*) and eye in lateral view longer than temples (shorter than temples in *D. parapunctatum*).

Dinotrema incarinatum (FISCHER 1973)
(Figs. 763–772)

Aspilota incarinata Fischer 1973b: 107.
Dinotrema incarinatum: Papp 2003a: 138.
Dinotrema incarinatum: Yu *et al.* 2005; 2011.

Material examined. Holotype: 1 female, Austria, Tirol, Piller See bei Untergurgl, schütterer, 1660 m, schwacher wind, mäβig, bewölk, 14.08.1970 (Fischer leg.) (NHMW). Paratype: 1 female, same label as in holotype (NHMW). Allotype: 1 female, Austria, inf. Pitten, 28.06.1959 (Fischer leg.) (NHMW). Additional material: 1 female, Hungary, Noszvaj, Sikfökút, 09.05.1973 (Papp leg.) (HNHM); 1 male, Romania, Mt. Cerna, 300–400 m, 12 km of Baile Herculane, 15.07.2003 (A. Orosz leg.) (HNHM); 1 male, England, South Wales, Gavilon, Coll, Marshall (HNHM).
Distribution. Austria, England **(new record)**, Hungary, Netherlands and Romania **(new record)**.
Main characters of the species. Body length: 1.80–2.00 mm. Head in dorsal view 2.00 times as wide as its median length and 1.50 times as wide as mesoscutum. Face 1.50 times as wide as high. Mandible 1.60 times as long as wide. Upper tooth as wide as lower tooth. Antennae 22–segmented. First flagellar segment 3.60 times as long as its apical

width. Middle flagellar segments 2.30–2.50 times as long as their width. Mesosoma in lateral view 1.20 times as long as high. Mesoscutum 1.30 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, elongated. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, reaching anterior part of mesopleuron. Posterior mesopleural furrow smooth. Propodeum smooth, with short median carina. Propodeal spiracles relatively small. Hind femur 4.10 times as long as its maximum width. First metasomal tergite 1.75 times as long as its apical width, smooth. Ovipositor 2.20–2.25 times as long as first tergite, shorter than metasoma. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. significarium* (Fischer) but differs in having the mandible 1.60 times as long as wide (1.25 times in *D. significarium*), sternaulus (precoxal suture) reaching anterior part of mesopleuron (not reaching in *D. significarium*), first flagellar segment 3.60 times as long as wide (2.80 times in *D. significarium*), middle flagellar segment 2.30–2.50 times as long as wide (2.25 times in *D. significarium*) and hind femur 4.10 times as long as its maximum width (4.50 times in *D. significarium*).

Dinotrema incongruens (FISCHER 1973)

(Figs. 773–781)

Aspilota incongruens Fischer 1973b: 109.
Aspilota incongruens: Yu *et al.* 2005.
Dinotrema incongruens: Papp 2005: 225.
Dinotrema incongruens: Tobias 2006: 325.
Dinotrema incongruens: Papp 2009b: 5.
Dinotrema incongruens: Yu *et al.* 2011.

Material examined. Holotype: 1 female, Austria, Tirol, Piller See bei Untergurgl, schütterer, 1660 m, schwacher wind, mäβig, bewölk,

14.08.1970 (Fischer leg.) (NHMW); Paratype: 1 female, same label as in holotype (NHMW). Allotype: 1 female, same label as in holotype (NHMW). Additional material: 1 female, Austria, Burgenland, Markt Hodis–Rechnitz, 07.08.1961 (Fischer leg.) (NHMW); 1 female, Slovakia, Rimaszourat, Szabó–Patay, 1921. (HNHM); 1 female, Hungary, Nagyharsány, Szársomlyó, 24.04.1975 (Papp leg.) (HNHM); 1 male, Romania, Transylvania, Alp. Kudsir. Biró, 29.07.1913 (HNHM); 3 males, Serbia, Beograd, Avala Mt., 14.06.1986 (Cetkvic leg.) (HNHM); 1 male, Georgia, Gudauta, c. 10 km N, 27.05.1975 (Zombori leg.) (HNHM).

Distribution. Austria, Georgia **(new record)**, Hungary, Mongolia, Serbia, Slovakia **(new record)**, Romania **(new record)** and former Yugoslavia.

Main characters of the species. Body length: 2.50 mm. Head in dorsal view 1.80 times as wide as its median length and 1.30 times as wide as mesoscutum. Face 1.60 times as wide as high. Mandible 1.35–1.45 times as long as wide. Upper tooth wider than lower tooth. Antennae 21–segmented. First flagellar segment 4.00 times as long as its apical width. Middle flagellar segments 2.00 times as long as their width. Mesosoma in lateral view 1.25 times as long as high. Mesoscutum 1.05–1.10 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, elongated. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, reaching anterior part of mesopleuron. Posterior mesopleural furrow crenaulated. Propodeum smooth, with median longitudinal carina crossing from anterior to posterior margins, with short emerging carinae from third anterior part not reaching propodeal edges. Propodeal spiracles relatively small. Hind femur 4.00 times as long as its maximum width. First metasomal tergite 1.80 times as long as its apical width, finely striated in apical half. Ovipositor 2.15 times

as long as first tergite, as long as metasoma, 1.80 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. leptocaudum* (Fischer) but differs in having the mesoscutal pit elongated (oval in *D. leptocaudum*), upper tooth wider than lower tooth (lower tooth wider than upper tooth in *D. leptocaudum*), mandible 1.30 times as long as wide (1.50 times in *D. leptocaudum*), hind femur 4.00 times as long as its maximum width (4.50–5.00 times in *D. leptocaudum*) and ovipositor as long as metasoma (longer than metasoma in *D. leptocaudum*).

Dinotrema insidiatrix (MARSHALL 1895)
(Figs. 782–784)

Aspilota insidiatrix Marshall 1895: 444.
Aspilota insidiatrix: Marshall 1896: 384.
Aspilota insidiatrix: Fischer 1972: 392.
Aspilota insidiatrix: Yu *et al.* 2005.
Dinotrema insidiatrix: Yu *et al.* 2011.
Dinotrema insidiatrix: Broad *et al.* 2012: 10.

Material examined. Type: 'B.M. TYPE HYM 3c.64', ‘B.M. TYPE HYM Marshall 1895’ ‘insidiatrix Marsh.’, ‘Marshall coll. 1904-120’ (BNHM). Additional material: 1 female, Germany, Hamburg, 25.08.1929 (Wagner leg.) (HNHM); 1 female, Hungary, Snöd, 07.05.1920 (HNHM); 1 female, Hungary, Bükk, hgs Hosszubérc, 09.06.1954 (Baján leg.) (HNHM).

Distribution. Croatia, former Czechoslovakia, Germany **(new record)**, Hungary, Italy, United Kingdom and former Yugoslavia.

Main characters of the species. Body length: 1.80 mm. Head in dorsal view 1.80 times as wide as its median length and 1.40 times as wide as mesoscutum. Face 1.70 times as wide as high. Mandible as

long as wide. Antennae 14–15–segmented. First flagellar segment 4.00 times as long as its apical width. Middle flagellar segments 1.50–2.00 times as long as their width. Mesosoma in lateral view 1.30 times as long as high. Mesoscutum 0.85 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, oval. Prescutellar depression with lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow crenulated. Propodeum sculptured, with median longitudinal carina crossing from anterior to posterior margins, with emerging carinae reaching propodeal edges. Propodeal spiracles relatively small. Hind femur 4.00 times as long as its maximum width. First metasomal tergite 2.00 times as long as its apical width, almost smooth. Ovipositor 1.20 times as long as first tergite, shorter than metasoma, 0.75 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. setaceum* sp. nov. and *D. praescutellare* (Fischer). *Dinotrema insidiatrix* differs from *D. setaceum* in having the first metasomal tergite 2.00 times as long as wide and almost smooth (2.25–2.30 times and rugose–striated in *D. setaceum* and mesoscutum 0.85 times as long as wide (1.10–1.15 times in *D. setaceum*). Finally, *D. insidiatrix* differs from *D. praescutellare* in having the first metasomal tergite 2.00 times as long as its apical width (1.60 times in *D. praescutellare*) and mandible as long as wide (1.30 times in *D. praescutellare*).

Dinotrema insigne (STELFOX et GRAHAM 1950)
(Figs. 785–790)

Aspilota insignis Stelfox et Graham 1950a: 293.
Aspilota insignis: Fischer 1972: 393.
Dinotrema insigne: Tobias 2004a: 220.
Aspilota insignis: Yu *et al.* 2005.

Dinotrema insigne: Yu *et al.* 2011.

Material examined. Holotype: 1 male, England, Broadstairs, 15.08.1908, 'B.M. TYPE HYM 3c.1678' (von Kent leg.) (BMNH). Additional material: 1 female, Hungary, Rév. Fülöp, Biró, 26.08.1926 (HNHM); 1 male, Romania, Gorgova, 19.05.1992 (Andriescu leg.) (HNHM).

Distribution. Hungary, Ireland, Romania **(new record)** and United Kingdom.

Main characters of the species. Body length: 0.90 mm. Head in dorsal view 1.70 times as wide as its median length and 1.70 times as wide as mesoscutum. Face 2.00 times as wide as high. Mandible as long as wide. Antennae 13–14–segmented. First flagellar segment 2.00 times as long as its apical width. Middle flagellar segments 2.00 times as long as their width. Mesosoma in lateral view 1.30 times as long as high. Mesoscutum as long as its maximum width. Notauli mainly absent. Mesoscutal pit absent. Prescutellar depression with lateral carinae. Sternaulus (precoxal suture) present, reaching anterior part of mesopleuron. Posterior mesopleural furrow crenulated. Propodeum sculptured, with median longitudinal carina crossing from anterior to posterior margins, with emerging carinae reaching propodeal edges. Propodeal spiracles relatively small. Hind femur 4.00 times as long as its maximum width. First metasomal tergite 1.30 times as long as its apical width, striated in apical half. Ovipositor 1.15 times as long as first tergite, shorter than metasoma, 0.75 times as long as hind femur. Main colour brown.

Comparative diagnosis. This species resembles *D. dimidiatum* (Thomson) but differs in having the mandible as long as wide (0.75 times in *D. dimidiatum*), first flagellar segment 2.00 times as long as wide (3.75 times in *D. dimidiatum*), middle flagellar segments 2.00 times as long as their width (1.60 times in *D. dimidiatum*), hind femur

4.00 times as long as its maximum width (4.50 times in *D. dimidiatum*) and first metasomal tergite 1.30 times as long as its apical width (1.50 times in *D. dimidiatum*).

Dinotrema intermissum (FISCHER 1974) **comb. nov.**
(Figs. 791–802)

Aspilota intermissa Fischer 1974a: 9.
Aspilota intermissa: Yu *et al.* 2005; 2011.

Material examined. Holotype: 1 female, Austria, inf. Aspang, 25.07.1961 (Fischer leg.) (NHMW).
Distribution. Austria, Iran and Turkey.
Main characters of the species. Body length: 1.70 mm. Head in dorsal view 1.85 times as wide as its median length and 1.45 times as wide as mesoscutum. Face 1.40 times as wide as high. Mandible 1.40 times as long as wide. Lower tooth wider than upper tooth. Antennae 18–segmented. First flagellar segment 2.50 times as long as its apical width. Middle flagellar segments 1.80 times as long as their width. Mesosoma in lateral view 1.30 times as long as high. Mesoscutum 1.15 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, elongated. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum sculptured, with median longitudinal carina crossing from anterior to posterior margins, with emerging carinae reaching propodeal edges. Propodeal spiracles small. Hind femur 4.00 times as long as its maximum width. First metasomal tergite 1.95 times as long as its apical width, rugose–striated. Ovipositor 1.20 times as long as first tergite, shorter than metasoma, 0.95 times as long as hind femur. Main colour brown.

Comparative diagnosis. This species resembles *D. catharinae* (Fischer) but differs in having the the first flagellar segment 2.00 times as long as wide (3.50 times in *D. catharinae*), hind femur 4.00 times as long as its maximum width (4.50 times in *D. catharinae*) and lower tooth wider than upper tooth (upper tooth as wide as lower tooth in *D. catharinae*).

Dinotrema intuendum (FISCHER 1975)
(Figs. 803–814)

Aspilota intuenda Fischer 1975b: 306.
Aspilota intuenda: Yu *et al.* 2005.
Dinotrema intuendum: Yu *et al.* 2011.

Material examined. Holotype: 1 female, Austria, Kärnten, Hüttenberg–Zosen über W, sonnig, 800–900 m, 17.08.1973 (Fischer leg.) (NHMW). Additional material: 1 male, Hungary, Murány, Maretkiná, 09.06.1977 (Papp leg.) (HNHM).
Distribution. Austria, Hungary and Poland.
Main characters of the species. Body length: 1.70 mm. Head in dorsal view 1.80 times as wide as its median length and 1.40 times as wide as mesoscutum. Face 1.30 times as wide as high. Mandible 1.30 times as long as wide. Lower tooth wider than upper tooth. Antennae 22–segmented. First flagellar segment 5.50 times as long as its apical width. Middle flagellar segments 3.00 times as long as their width. Mesosoma in lateral view 1.20 times as long as high. Mesoscutum 1.30 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit absent. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, reaching anterior part of mesopleuron. Posterior mesopleural furrow crenulated. Propodeum sculptured, with pentagonal areola. Propodeal spiracles small. Hind femur 4.50 times as long as its maximum width. First metasomal

tergite 1.30 times as long as its apical width, striated. Ovipositor 1.85 times as long as first tergite, shorter than metasoma, 1.25 times as long as hind femur. Main colour brown.

Comparative diagnosis. This species resembles *D. zaisanicum* Tobias but differs in having the hind femur 4.50 times as long as its maximum width (4.00 times in *D. zaisanicum*) and first metasomal tergite 1.30 times as long as its apical width and striated (1.50 times and finely striated in *D. zaisanicum*).

Dinotrema jaculans (HALIDAY 1838)
(Figs. 815–825)

Alysia jaculans Haliday 1838: 246.
Aspilota jaculans: Marshall 1872: 129.
Aspilota jaculans: Marshall 1895: 438.
Aspilota jaculans: Marshall 1896: 379.
Aspilota jaculans: Stelfox et Graham 1950b: 10.
Aspilota jaculans: Tobias 1962: 104.
Aspilota jaculans: Fischer 1972: 397.
Aspilota jaculans: Achterberg 1997: 50.
Aspilota jaculans: Yu *et al.* 2005; 2011.
Dinotrema jaculans: Broad *et al.* 2012: 10.

Material examined. Type: 1 female, Ireland, 26.12.1934 (A.W.S. Collection) (BMNH). Additional material: 1 female, Denmark, E–Jutland, Rugard, Sønderskov, 56º16'N 10º49'E, 22.06.1990 (Munk leg.) (ENV).

Distribution. Belgium, former Czechoslovakia, Denmark **(new record),** Hungary, Iceland, Ireland, Poland, Russia, Slovenia and United Kingdom.

Main characters of the species. Body length: 1.50 mm. Head in dorsal view 1.70 times as wide as its median length and 1.50 times as

wide as mesoscutum. Face 1.50 times as wide as high. Mandible as long as wide. Upper tooth wider than lower tooth. Antennae 22–segmented. First flagellar segment 4.00 times as long as its apical width. Middle flagellar segments 2.00 times as long as their width. Mesosoma in lateral view 1.30 times as long as high. Mesoscutum 0.95 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit absent. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow crenulated. Propodeum sculptured, with pentagonal areola. Propodeal spiracles small. Hind femur 4.00 times as long as its maximum width. First metasomal tergite 2.00 times as long as its apical width, striated. Ovipositor 3.65 times as long as first tergite, longer than metasoma, 2.35 times as long as hind femur. Main colour brown.

Comparative diagnosis. This species resembles *D. dentatum* (Tobias) but differs in having the first flagellar segment 4.00 times as long as wide (3.30 times in *D. dentatum*), middle flagellar segments 2.00 times as long as their width (1.60 times in *D. dentatum*), first metasomal tergite 2.00 times as long as its apical width (1.45 times in *D. dentatum*) and hind femur 4.00 times as long as its maximum width (4.40 times in *D. dentatum*).

***Dinotrema jimenezi* sp. nov.**

(Figs. 826–837)

Material examined. Holotype: 1 female, Spain, Castellon Province, Pobla de Benifassà, Natural Park of Tinença de Benifassà, 25.09.2006 (F.J. Peris–Felipo leg.) (ENV). Paratype: 1 female, same label, but 30.10.2006 (ENV).

Distribution. Spain.

Main characters of the species. Body length: 2.10–2.20 mm. Head in dorsal view 1.80 times as wide as its median length and 1.35–1.40 times as wide as mesoscutum. Face 1.55 times as wide as high. Mandible 1.20–1.25 times as long as wide. Lower tooth as wide as upper tooth. Antennae 18–segmented. First flagellar segment 2.60 times as long as its apical width. Middle flagellar segments 1.80 times as long as their width. Mesosoma in lateral view 1.25–1.30 times as long as high. Mesoscutum about as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, rounded. Prescutellar depression with lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior part of mesopleuron. Posterior mesopleural furrow slightly crenulate below. Propodeum smooth, with median longitudinal carina crossing from anterior to posterior margins, with emerging carinae not reaching propodeal edges. Propodeal spiracles relatively small. Hind femur 3.60–3.70 times as long as its maximum width. First metasomal tergite 1.80 times as long as its apical width, almost entirely smooth. Ovipositor 1.70–1.75 times as long as first tergite, shorter than metasoma, nearly as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. caesum* Tobias, *D. sauricum* Tobias, *D. stigmaticum* (Tobias) and *D. vituperatum* (Fischer). *Dinotrema jimenezi* differs from *D. caesum* in having the first flagellar segment 2.60 times as long as wide (5.00 times in *D. caesum*), hind femur 3.60 times as long as its maximum width (4.00 times in *D. caesum*) and first metasomal tergite 1.80 times as long as its apical width (1.50 times in *D. caesum*). On the other hand, *D. jimenezi* differs from *D. sauricum* in having the first flagellar segment 2.60 times as long as wide (3.00 times in *D. sauricum*), mandible 1.20–1.25 times longer than wide (1.50 times in *D. sauricum*), first metasomal tergite 1.80 times longer than apical width (1.50 times in *D. sauricum*) and ovipositor distinctly shorter than metasoma (longer

than metasoma in *D. sauricum*). Furthermore, *D. jimenezi* differs from *D. stigmaticum* in having the mandible 1.20–1.25 times longer than wide (1.50 times in *D. stigmaticum*) and propodeum with numerous subtransverse carinae in basal one–third of the complete median longitudinal carina (without subtransverse carinae in basal one–third of the complete median longitudinal carina in *D. stigmaticum*). Finally, *D. jimenezi* differs from *D. vituperatum* in having the first flagellar segment 2.60 times as long as wide (3.60 times in *D. vituperatum*), middle flagellar segments 1.80 times as long as wide (2.50 times in *D. vituperatum*), hind femur 3.60 times as long as its maximum width (4.00 times in *D. vituperatum*) and first metasomal tergite 1.80 times as long as its apical width (2.00 times in *D. vituperatum*).

Dinotrema kempei (HEDQVIST 1973)
(Figs. 838–849)

Aspilota kempei Hedqvist 1973: 91.
Aspilota kempei: Fischer 1976: 348.
Aspilota (*Dinotrema*) *kempei*: Yakolev *et al.* 1992: 140.
Aspilota kempei: Yu *et al.* 2005.
Dinotrema kempei: Yu *et al.* 2011.

Material examined. 1 female, Hungary, Kószeg, Szabó–hegy, 27.06.1979 (Papp leg.) (HNHM); 2 females, Finland, P.P. Pudasjärvi 7269:480, 20.07.1980 (Koponen leg.) (NMA); 1 female, Finland, U. Espoo, 6669: 373, 27.08.1982 (Koponen leg.) (RMNH); 1 female, Fusine nv. Tarvisio, Italy, 11.08.1978 (Vlug leg.) (RMNH).
Distribution. China, Finland **(new record)**, Hungary **(new record)**, Italy **(new record)**, Russia and Sweden.
Main characters of the species. Body length: 2.00–2.20 mm. Head in dorsal view 1.60 times as wide as its median length and 1.30–1.35

times as wide as mesoscutum. Face 1.50–1.55 times as wide as high. Mandible 1.35 times as long as wide. Upper tooth as wide as lower tooth. Antennae 20–24–segmented. First flagellar segment 3.25 times as long as its apical width. Middle flagellar segments 2.00 times as long as their width. Mesosoma in lateral view 1.15 times as long as high. Mesoscutum 0.90–0.95 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, elongated. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth below. Propodeum smooth, with median longitudinal carina crossing from anterior to posterior margins. Propodeal spiracles relatively small. Hind femur 4.00 times as long as its maximum width. First metasomal tergite 3.50–4.00 times as long as its apical width, almost smooth. Ovipositor 1.05–1.10 times as long as first tergite, shorter than metasoma, 1.20–1.25 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. occipitale* (Fischer), *D. dimorphum* (Fischer) and *D. paramicum* Munk et Peris–Felipo. *Dinotrema kempei* differs from *D. occipitale* in having the first metasomal tergite 3.50–4.00 times as long as its apical width and smooth (2.70 times and completely rugose–striated in *D. occipitale*), middle flagellar segments 2.00 times as long as wide (2.20 times in *D. occipitale*), mandible 1.35 times as long as wide (1.50 times in *D. occipitale*), upper tooth as wide as lower tooth (upper tooth wider than lower tooth in *D. occipitale*) and mesoscutal pit elongated (rounded in *D. occipitale*). On the other hand, *D. kempei* differs from *D. dimorphum* in having the first metasomal tergite 3.50–4.00 times as long as its apical width (2.40 times in *D. dimorphum*). Finally, *D. kempei* differs from *D. paramicum* in having the first metasomal tergite 3.50–4.00 times as long as its apical width (2.80 times in *D. paramicum*), hind femur 4.00 times as long as its maximum width

(4.15–4.20 times in *D. paramicum*), mandible 1.35 times as long as wide (1.20 times in *D. paramicum*) and mesoscutal pit elongated (rounded in *D. paramicum*).

***Dinotrema lagunasense* sp. nov.**
(Figs. 850–861)

Material examined. Holotype: 1 female, Spain, Alicante Province, Torrevieja, Natural Park of Lagunas de La Mata–Torrevieja, 23.03.2005 (F.J. Peris–Felipo leg.) (ENV). Paratypes. 1 male, same label as in holotype, but 16.11.2004 (ENV); 3 females, 3 males, same label as in holotype, but 30.11.2004 (ENV); 3 females, same label, but 18.01.2005 (ENV); 1 male, same label as in holotype, but 26.01.2005 (ENV); 1 male, same label as in holotype, but 15.02.2005 (ENV); 1 female, same label as in holotype, but 04.03.2005 (ENV); 1 male, same label as in holotype, but 18.03.2005 (ENV); 4 males, same label as in holotype, but 23.03.2005 (ENV); 7 females, 3 males, same label as in holotype, but 29.03.2005 (ENV); 1 female, 1 male, same label as in holotype, but 05.04.2005 (ENV); 1 female, 1 male, same label as in holotype, but 26.04.2005 (ENV); 1 male, same label as in holotype, but 01.11.2005 (ENV); 1 male, same label as in holotype, but 15.11.2005 (ENV); 4 females, same label as in holotype, but 02.12.2005 (ENV); 1 female, same label as in holotype, but 12.12.2005 (ENV); 2 females, same label as in holotype, but 27.12.2005 (ENV); 1 male, same label as in holotype, but 31.01.2006 (ENV); 1 female, 1 male, same label as in holotype, but 07.02.2006 (ENV); 1 male, same label as in holotype, but 14.03.2006 (ENV); 3 males, same label as in holotype, but 28.03.2006 (ENV); 2 males, same label as in holotype, but 23.05.2006 (ENV); 4 females, 2 males, same label as in holotype, but 28.11.2006 (ENV); 5 females, same label as in holotype, but 05.12.2006 (ENV); 2 males, same label as in

holotype, but 05.12.2006 (ENV); 1 male, same label as in holotype, but 20.03.2007 (ENV); 1 male, same label as in holotype, but 15.05.2007 (ENV); 1 male, same label as in holotype, but 30.10.2007 (ENV); 1 female, 1 male, same label as in holotype, but 06.11.2007 (ENV); 1 female, same label as in holotype, but 02.02.2005 (ZISP); 1 female, same label as in holotype, but 23.03.2005 (ZISP); 1 female, 2 males, same label as in holotype, but 29.03.2005 (ZISP); 1 male, same label as in holotype, but 05.04.2005 (NHMW); 1 female, same label as in holotype, but 01.11.2005 (NHMW); 1 female, same label as in holotype, but 15.11.2005 (BMNH); 1 male, same label as in holotype, but 29.11.2005 (BMNH); 1 male, same label as in holotype, but 04.04.2006 (HNHM); 1 female, same label as holotype, but 05.12.2006 (HNHM).

Distribution. Spain.

Main characters of the species. Body length: 1.85–1.95 mm. Head in dorsal view 1.95–2.00 times as wide as its median length and 1.30 times as wide as mesoscutum. Face 1.75 times as wide as high. Mandible as long as wide. Lower tooth wider than upper tooth. Antennae 13–16–segmented. First flagellar segment 3.00 times as long as its apical width. Middle flagellar segments 1.60–1.75 times as long as their width. Mesosoma in lateral view 1.25 times as long as high. Mesoscutum as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, rounded. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth below. Propodeum sculptured, with pentagonal areola. Propodeal spiracles relatively small. Hind femur 3.90–4.00 times as long as its maximum width. First metasomal tergite 1.80 times as long as its apical width, finely striated. Ovipositor 1.65–1.70 times as long as first tergite, shorter than metasoma, 1.15–1.20 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. adventum* (Fischer), *D. sternaulicum* (Fischer) and *D. torreviejaense* sp. nov.. *Dinotrema lagunasense* differs from *D. adventum* in having the mandible as long as wide (1.45 times in *D. adventum*), first flagellar segment 3.25 times as long as wide (2.00 times in *D. adventum*) and sternaulus (precoxal suture) not reaching anterior part of mesopleuron (reaching in *D. adventum*). On the other hand, *D. lagunasense* differs from *D. sternaulicum* in having the mandible as long as wide (1.40 times in *D. sternaulicum*), hind femur 3.90 times as long as its maximum width (3.50 times in *D. sternaulicum*), middle flagellar segments 1.75–2.00 times as long as their width (1.50 times in *D. sternaulicum*) and mesoscutal pit rounded (elongated in *D. sternaulicum*). Finally, *D. lagunasense* differs from *D. torreviejaense* in having the first metasomal tergite 1.80 times as long as its apical width and finely striated in apical half (2.30 times and smooth in *D. torreviejaense*), hind femur 3.90 times as long as its maximum width (3.60 times in *D. torreviejaense*) and mesoscutal pit rounded (oval in *D. torreviejaense*).

Dinotrema latidens (FISCHER 1973)
(Figs. 862–873)

Aspilota latidens Fischer 1973b: 111.
Aspilota latidens: Yu *et al.* 2005.
Dinotrema latidens: Yu *et al.* 2011.

Material examined. Holotype: 1 female, Austria, Tirol, S. Venter Ache, 2 km W Zwieselstein, 1550 m, sonnig, wenig, wind, 13.08.1970 (Fischer leg.) (NHMW). Additional material: 1 male, Hungary, Újszentmargita, 21–23.05.1975 (Kaszab leg.) (HNHM).
Distribution. Austria and Hungary.

Main characters of the species. Body length: 2.00 mm. Head in dorsal view 1.80 times as wide as its median length and 1.30 times as wide as mesoscutum. Face 1.30 times as wide as high. Mandible 1.45 times as long as wide. Lower tooth wider than upper tooth. Antennae 21–segmented. First flagellar segment 4.00 times as long as its apical width. Middle flagellar segments 2.00 times as long as their width. Mesosoma in lateral view 1.30 times as long as high. Mesoscutum 1.20 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, rounded. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow crenulated. Propodeum sculptured, with median longitudinal carina crossing from anterior to posterior margins, with emerging carinae reaching propodeal edges. Propodeal spiracles small. Hind femur 4.00 times as long as its maximum width. First metasomal tergite 1.80 times as long as its apical width, striated. Ovipositor 2.30 times as long as first tergite, shorter than metasoma, 1.30 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. denticulatum* (Stelfox et Graham) but differs in having the hind femur 4.00 times as long as its maximum width (4.50 times in *D. denticulatum*), middle tooth pointed (rounded in *D. denticulatum*), sternaulus (precoxal suture) reaching anterior and posterior parts of mesopleuron (not reaching in *D. denticulatum*) and eye on lateral view 1.05 times as long as temple (1.30 times in *D. denticulatum*).

Dinotrema latifemur (FISCHER 1975)

(Figs. 874–884)

Aspilota latifemur Fischer 1975a: 258.

Aspilota latifemur: Yu *et al.* 2005.

Dinotrema latifemur: Papp 2007b: 118.

Dinotrema latifemur: Papp 2009b: 5.
Dinotrema latifemur: Yu *et al.* 2011.

Material examined. Holotype: 1 female, Germany, Rheinland, Ahr bei Ahrburg, ex Phoridae, 02.02.1961 (Bonesz leg.) (NHMW). Allotype: 1 male, same label as in holotype (NHMW). Additional material: 1 female, Hungary, Vértes hgs., Csókakö, 29.09.1961 (Mihályi leg.) (HNHM); 1 female, Romania, Transylvania, Szászkézd (Silbernagel leg.) (HNHM); 1 female, Romania, 06.03.1992 (Andriescu leg.) (HNHM); 1 female, Greece, Creta, Biró, Ins Dia, 03.02.1906 (HNHM); 1 female, Germany, Würzburg, Schaudenbach, Malaise csapda, 26.09.1968 (Horstmann leg.) (HNHM); 1 female, Bulgaria, Mts. Rila, Biró, 09.1928 (HNHM).
Distribution. Bulgaria **(new record)**, Germany, Greece, Hungary, Korea, Montenegro, Romania **(new record)** and former Yugoslavia.
Main characters of the species. Body length: 2.00 mm. Head in dorsal view 2.00 times as wide as its median length and 1.55–1.60 times as wide as mesoscutum. Face 1.55–1.60 times as wide as high. Mandible 1.55 times as long as wide. Upper tooth wider than lower tooth. Antennae 20–segmented. First flagellar segment 2.50 times as long as its apical width. Middle flagellar segments 2.00 times as long as their width. Mesosoma in lateral view 1.30 times as long as high. Mesoscutum 1.10 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, oval. Prescutellar depression with lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth below. Propodeum smooth, with median longitudinal carina crossing from anterior to posterior margins, with short emerging carinae in third apical part not reaching propodeal edges. Propodeal spiracles small. Hind femur 3.15 times as long as its maximum width. First metasomal tergite 1.80 times as long as its

apical width, striated in apical half. Ovipositor 1.20–1.25 times as long as first tergite, shorter than metasoma, 1.30–1.35 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. vituperatum* (Fischer) and *D. carinatum* (Tobias). *Dinotrema latifemur* differs from *D. vituperatum* in having the hind femur 3.15 times as long as its maximum width (4.00 times in *D. vituperatum*), mandible 1.55 times as long as wide (1.10 times in *D. vituperatum*), first flagellar segment 2.50 times as long as wide (3.60 times in *D. vituperatum*) and middle flagellar segments 2.00 times as long as wide (2.50 times in *D. vituperatum*). On the other hand, *D. latifemur* differs from *D. carinatum* in having the mandible 1.55 times as long as wide (2.00 times in *D. carinatum*), first flagellar segment 2.50 times as long as wide (4.50 times in *D. carinatum*), middle flagellar segments 2.00 times as long as wide (2.50 times in *D. carinatum*) and hind femur 3.15 times as long as its maximum width (4.50 times in *D. carinatum*).

Dinotrema latitempus TOBIAS 2003

(Figs. 885–896)

Dinotrema latitempus Tobias 2003a: 290.

Dinotrema latitempus: Yu *et al.* 2005; 2011.

Material examined. Holotype: 1 female, Kazakhstan, Karaganda Prov., 60 km NW of Zhana–Ark, Kagash locality, 19.05.1962 (Tobias leg.) (ZISP). Paratype: 1 female, Georgia, Borzhomi, plateau, forest, 08.06.1981 (Gurasashvili leg.) (ZISP).

Distribution. Georgia and Kazakhstan.

Main characters of the species. Body length: 1.50–1.80 mm. Head in dorsal view 1.30–1.50 times as wide as its median length and 1.30 times as wide as mesoscutum. Face 1.40 times as wide as high. Mandible 1.20 times as long as wide. Upper tooth as wide as lower

tooth. Antennae 16–17–segmented. First flagellar segment 2.50–3.00 times as long as its apical width. Middle flagellar segments 1.30–1.50 times as long as their width. Mesosoma in lateral view 1.20 times as long as high. Mesoscutum as long as its maximum width. Notauli mainly absent. Mesoscutal pit absent. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, reaching anterior part of mesopleuron. Posterior mesopleural furrow smooth below. Propodeum smooth, with longitudinal carina crossing from anterior to posterior margins of propodeum. Propodeal spiracles small. Hind femur 5.00 times as long as its maximum width. First metasomal tergite 1.50 times as long as its apical width, striated. Ovipositor 3.25 times as long as first tergite, shorter than metasoma, 2.00 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. adzharicum* Tobias and *D. lugaense* Tobias. *Dinotrema latitempus* differs from *D. adzharicum* in having the mandible 1.20 times as long as wide (as long as wide in *D. adzharicum*), first flagellar segment 2.50–3.00 times as long as wide (3.50 times in *D. adzharicum*), middle flagellar segments 1.30–1.50 times as long as wide (2.00–2.50 times in *D. adzharicum*), hind femur 5.00 times as long as its apical width (4.00 times in *D. adzharicum*) and first metasomal tergite 1.50 times as long as its apical width (1.30 times in *D. adzharicum*). On the other hand, *D. latitempus* differs from *D. lugaense* in having the mandible 1.20 times as long as wide (1.50 times in *D. lugaense*), first flagellar segment 2.50–3.00 times as long as wide (4.00 times in *D. lugaense*), middle flagellar segments 1.30–1.50 times as long as wide (2.00–2.50 times in *D. lugaense*), hind femur 5.00 times as long as its apical width (4.50 times in *D. lugaense*) and first metasomal tergite 1.50 times as long as its apical width (1.30 times in *D. lugaense*).

Dinotrema latitergum (FISCHER 1975)
(Figs. 897–908)

Aspilota latitergum Fischer 1975b: 308.
Aspilota latitergum: Yu *et al.* 2005.
Dinotrema latitergum: Yu *et al.* 2011.

Material examined. Holotype: 1 female, Austria, Kärnten, Rudolshöle zwischen Hüttenberg und Knappenberg, 900 m, NW, Hang, Wald mit viel Unterwuchs, sonnig, 18.08.1973 (Fischer leg.) (NHMW).

Distribution. Austria and Spain.

Main characters of the species. Body length: 2.40 mm. Head in dorsal view 1.75 times as wide as its median length and 1.45 times as wide as mesoscutum. Face 1.30 times as wide as high. Mandible 1.45 times as long as wide. Upper tooth wider lower tooth. Antennae 27–segmented. First flagellar segment 3.50 times as long as its apical width. Middle flagellar segments 2.00 times as long as their width. Mesosoma in lateral view 1.30 times as long as high. Mesoscutum 1.10 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, elongated. Prescutellar depression with lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum sculptured, with median longitudinal carina crossing from anterior to posterior margins of propodeum, with emerging carinae reaching propodeal edges. Propodeal spiracles relatively small. Hind femur 5.00 times as long as its maximum width. First metasomal tergite 2.50 times as long as its apical width, striated. Ovipositor 1.15 times as long as first tergite, shorter than metasoma, as long as hind femur. Main colour brown.

Comparative diagnosis. This species resembles *D. naevium* (Tobias), *D. sphaerimembre* (Fischer) and *D. matridignum* (Fischer). *Dinotrema*

latitergum differs from *D. naevium* in having the mandible 1.45 times as long as wide (1.15 times in *D. naevium*), first flagellar segment 3.50 times as long as wide (2.50 times in *D. naevium*), first metasomal tergite 2.50 times as long as its apical width (2.00 times in *D. naevium*) and sternaulus (precoxal suture) not reaching anterior part of mesopleuron (reaching in *D. naevium*). On the other hand, *D. latitergum* differs from *D. sphaerimembre* in having the first flagellar segment 3.50 times as long as wide (3.00 times in *D. sphaerimembre*), middle flagellar segments 2.00 times as long as their width (1.00 times in *D. sphaerimembre*) and first metasomal tergite 2.50 times as long as its apical width (2.00 times in *D. sphaerimembre*). Finally, *D. latitergum* differs from *D. matridignum* in having the mandible 1.45 times as long as wide (1.70 times in *D. matridignum*), first flagellar segment 3.50 times as long as wide (3.00 times in *D. matridignum*), hind femur 5.00 times as long as its maximum width (4.50 times in *D. matridignum*) and first metasomal tergite 2.50 times as long as its apical width (2.00 times in *D. matridignum*).

***Dinotrema leptocaudum* (**FISCHER 1976) **comb. nov.**
(Figs. 909–920)

Aspilota leptocauda Fischer 1976: 381.
Aspilota leptocauda: Yu *et al*. 2005.
Dinotrema leptocauda: Tobias 2006: 334.
Dinotrema leptocauda: Yu *et al.* 2011.

Material examined. Holotype: 1 female, Austria, Burgenland, Jabing, 28.07.1960 (Fischer leg.) (NHMW). Additional material: 1 female, Hungary, Bödvaszilas, Vecsem–bükk, 24.08.1989 (Papp leg.) (HNHM).
Distribution. Austria, Hungary and Russia.

Main characters of the species. Body length: 1.80 mm. Head in dorsal view 1.70–2.00 times as wide as its median length and 1.40–1.50 times as wide as mesoscutum. Face 1.50 times as wide as high. Mandible 1.50 times as long as wide. Lower tooth wider than upper tooth. Antennae 20–22–segmented. First flagellar segment 4.00 times as long as its apical width. Middle flagellar segments 2.00 times as long as their width. Mesosoma in lateral view 1.30 times as long as high. Mesoscutum 1.10 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, oval. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth below. Propodeum smooth, with median longitudinal carina crossing from anterior to posterior margins, with short emerging carinae not reaching propodeal edges. Propodeal spiracles relatively small. Hind femur 4.50–5.00 times as long as its maximum width. First metasomal tergite 1.70 times as long as its apical width, striated in apical half. Ovipositor 3.60 times as long as first tergite, longer than metasoma, 2.40 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. incongruens* (Fischer) but differs in having the mesoscutal pit oval (elongated in *D. incongruens*), lower tooth wider than upper tooth (upper tooth wider than lower tooth in *D. incongruens*), mandible 1.50 times as long as wide (1.30 times in *D. incongruens*), hind femur 4.50–5.00 times as long as its maximum width (4.00 times in *D. incongruens*) and ovipositor longer than metasoma (as long as metasoma in *D. incongruens*).

Dinotrema leptocorne **(**FISCHER 1979) **comb. nov.**
(Figs. 921–931)

Aspilota leptocornis Fischer 1976: 383.
Aspilota leptocornis: Yu *et al.* 2005; 2011.

Material examined. Holotype: 1 female, Austria, Burgenland, Jabing, 28.07.1960 (Fischer leg.) (NHMW). Paratype: 1 female, Austria, Burgenland, Markt Hodis–Rechnitz, 07.08.1961 (Fischer leg.) (NHMW). Allotype: 1 male, Austria, Spitzzicken, Burgenland, 06.08.1957 (Fischer leg.) (NHMW).
Distribution. Austria.
Main characters of the species. Body length: 1.90 mm. Head in dorsal view 2.00 times as wide as its median length and 1.40 times as wide as mesoscutum. Face 1.60 times as wide as high. Mandible 1.50 times as long as wide. Lower tooth wider than upper tooth. Antennae 22–segmented. First flagellar segment 3.90–4.00 times as long as its apical width. Middle flagellar segments 3.00 times as long as their width. Mesosoma in lateral view 1.30 times as long as high. Mesoscutum 1.10 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, elongated. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth below. Propodeum smooth, with median longitudinal carina crossing from anterior to posterior margins, with short emerging carinae not reaching propodeal edges. Propodeal spiracles relatively small. Hind femur 4.00 times as long as its maximum width. First metasomal tergite 2.50 times as long as its apical width, finely striated. Ovipositor 1.20 times as long as first tergite, shorter than metasoma, 1.05–1.10 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. aurelianum* (Fischer) and *D. sochiense* Tobias. *Dinotrema leptocorne* differs from *D. aurelianum* in having the hind femur 4.00 times as long as its maximum width (5.00 times in *D. aurelianum*), sternaulus (precoxal suture) not reaching posterior part of mesopleuron (reaching in *D. aurelianum*), lower tooth wider than upper tooth (upper tooth as wide as lower tooth in *D. aurelianum*) and first metasomal tergite 2.50 times as long as its apical width (1.70 times in *D. aurelianum*). On the other hand, *D. leptocorne* differs from *D. sochiense* in having the hind femur 4.00 times as long as its maximum width (4.50–5.00 times in *D. sochiense*), first metasomal tergite 2.50 times as long as its apical width (2.00 times in *D. sochiense*) and lower tooth wider than upper tooth (upper tooth wider than lower tooth in *D. sochiense*).

Dinotrema lineolum (THOMSON 1895)
(Figs. 932–943)

Alysia (*Aspilota*) *lineola* Thomson 1895: 2304.
Aspilota lineola: Fischer 1963: 208.
Aspilota lineola: Fischer 1972: 403.
Dinotrema lineola: Papp 2003a: 126.
Dinotrema lineola: Yu *et al.* 2005.
Dinotrema lineolum: Yu *et al.* 2011.
Dinotrema lineolum: Broad *et al.* 2012: 10.

Material examined. Lectotype: 1 female, 1984 (Achterberg) (MZLU). Additional material: 1 female, Austria, Burgenland, Spitzzicken, 11–12.07.1959 (Fischer leg.) (NHMW); 1 female, Austria, Wien, 20.06.1957 (Fischer leg.) (NHMW); 1 female, Hungary, Noszvaj Sikförut, 09.05.1973 (Papp leg.) (HNHM); 1 female, Romania, Transylvania, Dóva, 1926 (Mallász leg.) (HNHM); 1 female, Germany, Schlitz, Hessen Breitenbach, Gewächshaus,

08.1970 (HNHM); 1 male, Armenia, Dilizhan, 1400 m, 06.06.1980 (Papp leg.) (HNHM).

Distribution. Armenia **(new record)**, Austria, Czech Republic, Germany **(new record)**, Hungary, Italy, Korea, Madeira Islands, Mongolia, Romania **(new record)**, Russia, Slovakia, Sweden and United Kingdom.

Main characters of the species. Body length: 1.70–2.70 mm. Head in dorsal view 2.00 times as wide as its median length and 1.30 times as wide as mesoscutum. Face 1.30–1.40 times as wide as high. Mandible 1.70 times as long as wide. Upper tooth as wide as lower tooth. Antennae 16–20–segmented. First flagellar segment 2.50 times as long as its apical width. Middle flagellar segments 1.50 times as long as their width. Mesosoma in lateral view 1.30 times as long as high. Mesoscutum 1.20 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, elongated. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum sculptured, with median longitudinal carina crossing from anterior to posterior margins of propodeum, with emerging carinae reaching propodeal edges. Propodeal spiracles small. Hind femur 4.00 times as long as its maximum width. First metasomal tergite 1.50 times as long as its apical width, striated in apical half. Ovipositor 1.20 times as long as first tergite, shorter than metasoma, 0.75–0.80 times as long as hind femur. Main colour brown.

Comparative diagnosis. This species resembles *D. nervosum* (Haliday) but differs in having the mandible 1.70 times as long as wide (1.50 times in *D. nervosum*), first flagellar segment 2.50 times as long as wide (3.50 times in *D. nervosum*), first metasomal tergite 1.50 times as long as its apical width (2.00 times in *D. nervosum*) and

ovipositor shorter than metasoma (longer than metasoma in *D. nervosum*).

***Dinotrema lobatum* sp. nov.**
(Figs. 944–955)

Material examined. Holotype: 1 female, Denmark, E–Jutland, Højen Bæk, 5 km S of Vejle, 23.07.1984 (Munk leg.) (NHMW). Paratypes: 1 female, Denmark, N–Jutland, near Rold Skov, 25km s. Of Alborg, 27.07.1985 (Munk leg.) (NHMW); 1 female, Denmark, N–Jylland, NJ77, Sindal, 22.07.1985 (Munk leg.) (NHMW); 1 female, Denmark, N–Jylland, NJ77, Sindal, 22.07.1985 (Munk leg.) (NMA). Additional material: 1 female, Finland, Suomi, U. Helsinki, 6682:386, 20.071976 (Koponen leg.) (NMA); 3 females, Portugal, T. Geres, near Cabri, 08.07.1991 (Munk leg.) (ENV). Additional material: 1 female, Netherlands, Putten (Gld.), Malaise trap, 15–20.08.1973 (Vecht leg.) (RMNH); 1 female, Netherlands, Meyendel, near The Hague, Bierlap, inner dunes, 11–19.08.1974 (van der Zon leg.) (RMNH).
Distribution. Denmark, Finland, Netherlands **(new record)** and Portugal.
Main characters of the species. Body length: 2.00–2.10 mm. Head in dorsal view 1.85–1.90 times as wide as its median length and 1.55–1.60 times as wide as mesoscutum. Face 1.40 times as wide as high. Mandible 1.15–1.20 times as long as wide. Upper tooth wider than lower tooth. Antennae 22–segmented. First flagellar segment 4.80–4.90 times as long as its apical width. Middle flagellar segments 1.90–2.00 times as long as their width. Mesosoma in lateral view 1.10 times as long as high. Mesoscutum 0.90–0.95 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, elongated. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of

mesopleuron. Posterior mesopleural furrow smooth. Propodeum sculptured, with median longitudinal carina crossing from anterior to posterior margins of propodeu, with emerging carinae reaching propodeal edges. Propodeal spiracles relatively small. Hind femur 4.05–4.10 times as long as its maximum width. First metasomal tergite 2.40 times as long as its apical width, finely striated in apical half. Ovipositor as long as first tergite, shorter than metasoma, 0.75 times as long as hind femur. Main colour brown.

Comparative diagnosis. This species resembles *D. mediocorne* (Fischer) and *D. toleratum* (Fischer). *Dinotrema lobatum* differs from *D. mediocorne* in having the mandible 1.50 times as long as wide (1.30 times in *D. mediocorne*), first flagellar segment 4.80–4.90 times as long as wide (4.00 times in *D. mediocorne*) and hind femur 4.05–4.10 times as long as its maximum width (4.50 times in *D. mediocorne*). Finally, *D. lobatum* differs from *D. toleratum* in having the strongly develop upper tooth (not strongly in *D. toleratum*), first flagellar segment 4.80–4.90 times as long as wide (4.00 times in *D. toleratum*), middle flagellar segments 1.90–2.00 times as long as wide (1.60 times in *D. toleratum*) and the first metasomal tergite 2.40 times as long as its apical width (1.90 times in *D. toleratum*).

Dinotrema longicarinatum **(**FISCHER 1976) **comb. nov.**

(Figs. 956–966)

Aspilota longicarinata Fischer 1976: 385.

Aspilota longicarinata: Yu *et al*. 2005; 2011.

Material examined. Holotype: 1 female, Austria, Rechnitz, 02.08.1958 (Fischer leg.) (NHMW). Additional material: 1 female, Denmark, E–Jutland, Molslaboratotiet, 56º14’N 10º25’E (Munk leg.) (NHMW); 1 female and 1 male, Austria, Kärten Hüttenberg–Zosen, überw. Sonnig, 800–900 m, 17.08.1973 (Fischer leg.) (NHMW).

Distribution. Austria and Denmark **(new record)**.

Main characters of the species. Body length: 1.90 mm. Head in dorsal view 1.80 times as wide as its median length and 1.50 times as wide as mesoscutum. Face 1.40 times as wide as high. Mandible 1.20 times as long as wide. Upper tooth as wide as lower tooth. Antennae 23–segmented. First flagellar segment 3.00 times as long as its apical width. Middle flagellar segments 2.20 times as long as their width. Mesosoma in lateral view 1.30 times as long as high. Mesoscutum 1.25 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present and rounded. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum smooth, with short median carina. Propodeal spiracles relatively small. Hind femur 4.25 times as long as its maximum width. First metasomal tergite 2.00 times as long as its apical width, striated. Ovipositor 1.75 times as long as first tergite, shorter than metasoma, 1.30 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. zimmermannae* sp. nov. but differs in having the mandible 1.20 times as long as wide (1.05 times in *D. zimmermannae*), first flagellar segment 3.00 times as long as wide (3.80–4.00 times in *D. zimmermannae*), first metasomal tergite 2.00 times as long as its apical width and striated (1.50 times and smooth in *D. zimmermannae*), upper tooth as wide as lower tooth (lower tooth wider than upper tooth in *D. zimmermannae*) and mesoscutal pit rounded (elongated in *D. zimmermannae*).

Dinotrema lugaense TOBIAS 2003

(Figs. 967–978)

Dinotrema lugaense Tobias 2003a: 287.

Dinotrema luganese: Yu *et al.* 2005; 2011.

Material examined. Holotype: 1 female, Russia, Leningrad Prov., Tolmachevo, 18.08.1969 (Tobias leg.) (ZISP).

Distribution. Russia.

Main characters of the species. Body length: 1.70 mm. Head in dorsal view 1.65 times as wide as its median length and 1.50 times as wide as mesoscutum. Face 1.40 times as wide as high. Mandible 1.50 times as long as wide. Lower tooth wider than upper tooth. Antennae 24–segmented. First flagellar segment 4.00 times as long as its apical width. Middle flagellar segments 2.00–2.50 times as long as their width. Mesosoma in lateral view 1.25 times as long as high. Mesoscutum as long as its maximum width. Notauli mainly absent. Mesoscutal pit absent. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth below. Propodeum smooth, with median longitudinal carina with emerging carinae from third apical part not reaching propodeal edges. Propodeal spiracles relatively small. Hind femur 4.50 times as long as its maximum width. First metasomal tergite 1.30 times as long as its apical width, striated. Ovipositor 2.65 times as long as first tergite, shorter than metasoma, 1.60 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. adzharicum* Tobias but differs in having the mandible 1.50 times as long as wide (as long as wide in *D. adzharicum*), lower tooth wider than upper tooth (upper tooth as wide as lower tooth in *D. adzharicum*), first flagellar segment 4.00 times as long as wide (3.50 times in *D. adzharicum*) and hind femur 4.50 times as long as its maximum width (4.00 times in *D. adzharicum*).

Dinotrema macrocerum (THOMSON 1895) **comb. nov.**
(Figs. 979–990)

Alysia (*Aspilota*) *macrocera* Thomson 1895: 2306.
Aspilota macrocera: Fischer 1972: 406.
Dinotrema macrocera: Papp 2003: 134.
Dinotrema macrocera: Yu *et al.* 2005
Dinotrema macrocera: Papp 2009b: 5.
Dinotrema macrocera: Yu *et al*. 2011.

Material examined. Lectotype: 1 female (Fischer) (MZLU). Additional material: 1 female, Austria, Burgenland, Spitzzicken, 11.08.1958 (Fischer leg.) (NHMW); 1 female, Austria, inf. Dürrwien, 13.09.1959 (Fischer leg.) (NHMW); 1 male, Austria, Salzburg, Magian, 02.11.1953 (P.P. Babiy leg.) (NHMW); 1 male, Romania, Transylvania, Hargita m. Homoródfürdö, 29.05.1996 (Zombori leg.) (HNHM); 1 female, Hungary, Fertö–Hanság, N.P. Csáfordjánosfa, Csáfordi–erdö, 29.05.1996 (HNHM); 1 female, Germany, Würzburg, Schaudenbach, Malaise csapda, 26.09.1968 (Horstmann leg.) (HNHM); 1 male, Georgia, Gudauta, 10 km N, 27.05.1975 (Zombori leg.) (HNHM); 1 male, Turkey, 05.05.1984 (Rozner–Pannukkale leg.) (HNHM); 1 female, Denmark, Højen Bæk, 5 km S of Vejle, 23.08.1984 (Munk leg.) (ENV).

Distribution. Austria, former Czechoslovakia, Denmark **(new record)**, Georgia **(new record)**, Germany, Hungary, Mongolia, Romania **(new record)**, Serbia, Sweden, Turkey **(new record)** and former Yugoslavia.

Main characters of the species. Body length: 1.50 mm. Head in dorsal view 1.75 times as wide as its median length and 1.60 times as wide as mesoscutum. Face 1.50 times as wide as high. Mandible 1.40 times as long as wide. Upper tooth as wide as upper tooth. Antennae 23–segmented. First flagellar segment 3.50 times as long as its apical

width. Middle flagellar segments 2.00 times as long as their width. Mesosoma in lateral view 1.30 times as long as high. Mesoscutum as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, oval. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum sculptured, with pentagonal areola. Propodeal spiracles relatively small. Hind femur 4.00 times as long as its maximum width. First metasomal tergite 2.20 times as long as its apical width, striated in apical half. Ovipositor 1.60–1.70 times as long as first tergite, shorter than metasoma, as long as hind femur. Main colour brown.

Comparative diagnosis. This species resembles *D. mediocorne* (Fischer) but differs in having the first flagellar segment 3.50 times as long as wide (3.25 times in *D. mediocorne*), middle flagellar segments 2.00 times as long as their width (2.00–2.25 times in *D. mediocorne*) and hind femur 4.00 times as long as its maximum width (4.50 times in *D. mediocorne*).

Dinotrema mananae TOBIAS 2003

(Figs. 991–1002)

Dinotrema mananae Tobias 2003a: 283.

Dinotrema mananae: Yu *et al.* 2005; 2011.

Material examined. Holotype: 1 female, Georgia, Borzhomi, Libani forest, 18.07.1981 (Gurasashvilil leg.) (ZISP).

Distribution. Georgia.

Main characters of the species. Body length: 1.60 mm. Head in dorsal view 1.90 times as wide as its median length and 1.50 times as wide as mesoscutum. Face 1.08 times as wide as high. Mandible 1.50 times as long as wide. Lower tooth wider than upper tooth. Antennae 20–segmented. First flagellar segment 3.00 times as long as its apical

width. Middle flagellar segments 1.50–2.00 times as long as their width. Mesosoma in lateral view 1.10 times as long as high. Mesoscutum as long as its maximum width. Notauli mainly absent. Mesoscutal pit present and rounded. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth below. Propodeum completely smooth. Propodeal spiracles small. Hind femur 4.00 times as long as its maximum width. First metasomal tergite 2.00 times as long as its apical width, smooth. Ovipositor 1.50 times as long as first tergite, shorter than metasoma, 1.25 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. sinecarinum* (Fischer) but differs in having the mandible 1.50 times as long as wide (as long as wide in *D. sinecarinum*), first flagellar segment 3.00 times as long as wide (2.25 times in *D. sinecarinum*), hind femur 4.00 times as long as its maximum width (3.00 times in *D. sinecarinum*) and mesoscutal pit present and rounded (absent in *D. sinecarinum*).

***Dinotrema mareum* sp. nov.**

(Figs. 1003–1014)

Material examined. Holotype: 1 female, Spain, Castellon Province, Pobla de Benifassà, Natural Park of Tinença de Benifassà, 15.05.2006 (F.J. Peris–Felipo leg.) (ENV). Paratype: 1 female, same label as in holotype, but 03.07.2006 (ENV).

Distribution. Spain.

Main characters of the species. Body length: 1.95–2.00 mm. Head in dorsal view 2.00 times as wide as its median length and 1.50 times as wide as mesoscutum. Face 1.20 times as wide as high. Mandible 1.50 times as long as wide. Lower tooth wider than upper tooth. Antennae 20–segmented. First flagellar segment 2.30 times as long as its apical

width. Middle flagellar segments 1.60 times as long as their width. Mesosoma in lateral view 1.05 times as long as high. Mesoscutum as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, elongated. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum smooth, with median longitudinal carina crossing from anterior to posterior margins, with single carina emerging from median carina not reaching propodeal edges. Propodeal spiracles small. Hind femur 4.00 times as long as its maximum width. First metasomal tergite 1.60 times as long as its apical width, striated. Ovipositor 1.55–1.60 times as long as first tergite, shorter than metasoma, 0.85–0.90 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. enanum* sp. nov., *D. affine* (Fischer) and *D. puliciforme* (Fischer). *Dinotrema mareum* differs from *D. enanum* in having the mandible 1.50 times as long as wide (1.18–1.20 times in *D. enanum*), first flagellar segment 2.30 times as long as wide (3.00 times in *D. enanum*), middle flagellar segments 1.60 times as long as wide (1.20 times in *D. enanum*) and first metasomal tergite 1.60 times as long as its apical width (1.90 times in *D. enanum*). On the other hand, *D. mareum* differs from *D. affine* in having the first flagellar segment 2.30 times as long as wide (3.50 times in *D. affine*), lower tooth wider than upper tooth (lower tooth as wide as upper tooth in *D. affine*) and first metasomal tergite very striated (striated in apical half in *D. affine*). Finally, *D. mareum* differs from *D. puliciforme* in having the first flagellar segment 2.30 times as long as wide (4.00 times in *D. puliciforme*), middle flagellar segments 1.60 times as long as wide (2.00 times in *D. puliciforme*), hind femur 4.00 times as long as its maximum width (4.50 times in *D.*

puliciforme) and first metasomal tergite 1.60 times as long as its apical width and very striated (1.90 times and striated in *D. puliciforme*).

Dinotrema matridignum (FISCHER 1974) **comb. nov.**
(Figs. 1015–1026)

Aspilota matridigna Fischer 1974b: 67.
Dinotrema matridigna: Yu *et al.* 2005; 2011.

Material examined. Holotype: 1 female, Austria, inf. Seebenstein, 06.06.1959 (Fischer leg.) (NHMW). Additional material: 1 male, Hungary, Gyulafirátót, Kispapod, 17.08.1967 (Papp leg.) (HNHM).
Distribution. Austria, Hungary and Russia.
Main characters of the species. Body length: 2.50 mm. Head in dorsal view 2.00 times as wide as its median length and 1.40 times as wide as mesoscutum. Face 1.50 times as wide as high. Mandible 1.70 times as long as wide. Lower tooth wider than upper tooth. Antennae 23–segmented. First flagellar segment 3.00 times as long as its apical width. Middle flagellar segments 1.60 times as long as their width. Mesosoma in lateral view 1.30 times as long as high. Mesoscutum 0.90 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, elongated. Prescutellar depression with lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth below. Propodeum sculptured, with median longitudinal carina crossing from anterior to posterior margins of propodeum, with emerging carinae reaching propodeal edges. Propodeal spiracles small. Hind femur 4.50 times as long as its maximum width. First metasomal tergite 2.00 times as long as its apical width, almost smooth. Ovipositor as long as first tergite, shorter than metasoma, 0.65 times as long as hind femur. Main colour brown.

Comparative diagnosis. This species resembles *D. sphaerimembre* (Fischer) but differs in having the hind femur 4.50 times as long as its maximum width (5.00 times in *D. sphaerimembre*), mandible 1.70 times as long as wide (1.50 times in *D. sphaerimembre*) and middle flagellar segments 1.60 times as long as their width (1.00 times in *D. sphaerimembre*).

Dinotrema mediocorne (FISCHER 1973)
(Figs. 1027–1037)

Aspilota mediocornis Fischer 1973b: 113.
Dinotrema mediocorne: Papp 2003a: 136.
Dinotrema mediocorne: Yu *et al.* 2005; 2011.

Material examined. Holotype: 1 female, Austria, Tirol, Piller See bei Untergurgl, schütterer W, 1660 m, schwacher, wind, mäβig, bewölk, 14.08.1970 (Fischer leg.) (NHMW). Additional material: 2 females, Hungary, Csákvár park, 21.09.1981 (Sólymosné leg.) (HNHM).
Distribution. Austria, Hungary and Spain.
Main characters of the species. Body length: 2.10 mm. Head in dorsal view 1.80 times as wide as its median length and 1.30 times as wide as mesoscutum. Face 1.30 times as wide as high. Mandible 1.45 times as long as wide. Upper tooth wider than lower tooth. Antennae 18–segmented. First flagellar segment 3.25 times as long as its apical width. Middle flagellar segments 2.00–2.25 times as long as their width. Mesosoma in lateral view 1.30 times as long as high. Mesoscutum 1.20 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, elongated. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth below. Propodeum sculptured, with median longitudinal carinae crossing from anterior to posterior

margins of propodeum, with emerging carinae reaching propodeal edges. Propodeal spiracles small. Hind femur 4.50 times as long as its maximum width. First metasomal tergite 2.20 times as long as its apical width, striated. Ovipositor 1.75 times as long as first tergite, shorter than metasoma, 1.10 times as long as hind femur. Main colour brown.

Comparative diagnosis. This species resembles *D. macrocerum* (Thomson) but differs in having the first flagellar segment 3.25 times as long as wide (3.50 times in *D. macrocerum*), middle flagellar segments 2.00–2.25 times as long as their width (2.00 times in *D. macrocerum*) and hind femur 4.50 times as long as its maximum width (4.00 times in *D. macrocerum*).

Dinotrema mesocaudatum VAN ACHTERBERG 1988
(Figs. 1038–1049)

Dinotrema mesocaudatum van Achterberg 1988b: 24.
Dinotrema mesocaudatum: Yu *et al.* 2005.
Dinotrema mesocaudatum: van Achterberg *et al*. 2009: 794.
Dinotrema mesocaudatum: Lozan *et al.* 2010: 18.
Dinotrema mesocaudatum: Yu *et al.* 2011.
Dinotrema mesocaudatum: Broad *et al.* 2012: 10.

Material examined. Holotype: 1 female, Netherlands, Leiden, Voorschoten, ex *Collybia platyphylla* [=*Oudemansiella platyphylla* (Persoon ex Fries)], 13.08.1980 (Vet leg.) (RMNH). Paratypes: 1 female, same label as in holotype but, 25.06.1981 (NHMW); 2 females, same label holotype but, 25.06.1981 (HNHM). Additional material: 1 female, Hungary, Békés m, Szarvas, Szarvasi Arborétum autos hálózás, 03–05.08.2000 (Merkl O. leg.) (HNHM).

Distribution. China, Czech Republic, Hungary and Netherlands.

Main characters of the species. Body length: 1.80 mm. Head in dorsal view 1.65–1.70 times as wide as its median length and 1.70 times as wide as mesoscutum. Face 1.80 times as wide as high. Mandible 2.20 times as long as wide. Lower tooth wider than upper tooth. Antennae 17–segmented. First flagellar segment 2.10 times as long as its apical width. Middle flagellar segments 1.50–1.70 times as long as their width. Mesosoma in lateral view 1.20 times as long as high. Mesoscutum as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, oval. Prescutellar depression with lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum smooth, with short median carina, with emerging carinae not reaching propodeal edges. Propodeal spiracles small. Hind femur 3.60 times as long as its maximum width. First metasomal tergite 1.50 times as long as its apical width, almost smooth. Ovipositor 1.20–1.25 times as long as first tergite, shorter than metasoma, 1.10–1.15 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. suprapuncte* (Fischer) but differs in having the hind femur 3.60 times as long as its maximum width (4.50 times in *D. suprapuncte*), first metasomal tergite 1.50 times as long as its apical width (1.90 times in *D. suprapuncte*), mandible 2.20 times as long as wide (1.60 times in *D. suprapuncte*) and mesoscutal pit oval (rounded in *D. suprapuncte*).

Dinotrema microcerum (THOMSON 1895) **comb. nov.**

(Figs. 1050–1060)

Alysia (Aspilota) microcera Thomson 1895: 2307.

Aspilota microcera: Fischer 1972: 413.

Aspilota microcera: Yu *et al.* 2005.

Dinotrema microcera: Yu *et al.* 2011.

Dinotrema microcera: Broad *et al.* 2012: 10.

Material examined. Lectotype: 1 female (MZLU). Additional material: 2 females, Germany, Thürningen (Schmiedekn leg.) (NHMW); 1 female, Hungary, Budaörs, 30.08.1982 (Papp leg.) (HNHM); 1 male, Romania, Transylvania, Hargita, m. Kis–Homoród–völgy, Lövéte, 22.05.1997. (Rozner leg.) (HNHM); 1 female, Sweden, Sk. Röstanga, 06.07.1938 (HNHM).

Distribution. Former Czechoslovakia, Faeroe Islands, Germany, Hungary, Romania **(new record)** and Sweden.

Main characters of the species. Body length: 1.30 mm. Head in dorsal view 2.00 times as wide as its median length and 1.50 times as wide as mesoscutum. Face 1.40–1.45 times as wide as high. Mandible 1.70 times as long as wide. Upper tooth as wide as lower tooth. Antennae 16–segmented. First flagellar segment 2.00 times as long as its apical width. Middle flagellar segments 1.60 times as long as their width. Mesosoma in lateral view 1.25 times as long as high. Mesoscutum 1.05 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit absent. Prescutellar depression with lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum smooth, with median longitudinal carina, with emerging carina not reaching propodeal edges. Propodeal spiracles small. Hind femur 4.00 times as long as its maximum width. First metasomal tergite 2.00 times as long as its apical width, striated. Ovipositor 1.75 times as long as first tergite, shorter than metasoma, 1.20–1.25 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. brevissimicorne* (Stelfox et Graham) but differs in having the head in dorsal view 2.00 times as wide as its median length (1.20 times in *D. brevissimicorne*), mandible 1.70 times as long as wide (1.30 times in *D.*

brevissimicorne), first flagellar segment 2.00 times as long as wide (1.25 times in *D. brevissimicorne*), second flagellar segment 2.40 times as long as wide (1.40–1.45 times in *D. brevissimicorne*) and fisrt metasomal tergite 2.00 times as long as wide (2.60 times in *D. brevissimicorne*).

Dinotrema microsomum (FISCHER 1976) **comb. nov.**
(Figs. 1061–1072)

Aspilota microsoma Fischer 1976: 387.
Dinotrema microsoma: Tobias 2004a: 217.
Aspilota microsoma: Yu *et al.* 2005.
Dinotrema microsoma: Fischer 2009: 105.
Dinotrema microsoma: Yu *et al.* 2011.

Material examined. Holotype: 1 male, Austria, Spitzzicken, Burgenland, 01.08.1958 (Fischer leg.) (NHMW). Allotype: 1 female, Austria, inf. Götzwiesen bei Unter–Oberndorf, 27.06.1961 (Fischer leg.) (NHMW). Additional material: 1 female, Hungary, Bükk, hgs. Bélapátfalva, 02.07.1955 (Mihályi leg.) (HNHM).
Distribution. Austria, Hungary and Russia.
Main characters of the species. Body length: 1.30 mm. Head in dorsal view 1.65 times as wide as its median length and 1.90 times as wide as mesoscutum. Face 1.65 times as wide as high. Mandible 1.10 times as long as wide. Upper tooth wider than lower tooth. Antennae 16–19–segmented. First flagellar segment 3.00 times as long as its apical width. Middle flagellar segments 1.85–2.00 times as long as their width. Mesosoma in lateral view 1.30 times as long as high. Mesoscutum 1.25 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit absent. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow

crenulated. Propodeum sculptured, with pentagonal areola. Propodeal spiracles relatively small. Hind femur 3.50 times as long as its maximum width. First metasomal tergite 2.00 times as long as its apical width, striated. Ovipositor as long as first tergite, shorter than metasoma, 0.80 times as long as hind femur. Main colour brown.

Comparative diagnosis. This species resembles *D. aestuosum* Tobias but differs in having the first metasomal tergite 2.00 times as long as its apical width (1.30 times in *D. aestuosum*), hind femur 3.50 times as long as its maximum width (4.40 times in *D. aestuosum*), eye in lateral view 0.75 times as long as temple (1.00 time in *D aestuosum*) and upper tooth wider than lower tooth (upper tooth as wide as lower tooth in *D. aestuosum*).

Dinotrema multiarticulatum VAN ACHTERBERG 1988
(Figs. 1073–1084)

Dinotrema multiarticulatum Achterberg 1988b: 26.
Dinotrema multiarticulatum: Yu *et al.* 2005; 2011.

Material examined. Holotype: 1 female, Netherlands, Voorschotem (Horsten) (Vet leg.) [Coll. 03.08.1980, em. 15.09.1980, ex various mushrooms] (RMNH). Paratypes: 2 females, same label as in holotype (RMNH).

Distribution. China and Netherlands.

Main characters of the species. Body length: 2.50 mm. Head in dorsal view 2.00 times as wide as its median length and 1.30 times as wide as mesoscutum. Face 1.70 times as wide as high. Mandible 1.15 times as long as wide. Lower tooth wider than upper tooth. Antennae 27–segmented. First flagellar segment 3.90–4.00 times as long as its apical width. Middle flagellar segments 2.00 times as long as their width. Mesosoma in lateral view 1.30 times as long as high. Mesoscutum 0.90 times as long as its maximum width. Notauli mainly

absent. Mesoscutal pit present, oval. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow crenulated below. Propodeum sculptured, with median longitudinal carina crossing from anterior to posterior margings of propodeum, with emerging carinae reaching propodeal edges. Propodeal spiracles small. Hind femur 3.90 times as long as its maximum width. First metasomal tergite 1.50 times as long as its apical width, rugose–striated in apical half. Ovipositor 0.65 times as long as first tergite, shorter than metasoma, 0.55–0.60 times as long as hind femur. Main colour brown.

Comparative diagnosis. This species resembles *D. amparoae* sp. nov. but differs in having the first flagellar segment 3.90–4.00 times as long as wide (3.10 times in *D. amparoae*), hind femur 3.90 times as long as its maximum width (3.60 times in *D. amparoae*), lower tooth wider than upper tooth (upper tooth wider than lower tooth) and first metasomal tergite rugose–striated in apical half (finely striated in *D. amparoae*).

***Dinotrema munki* sp. nov.**

(Figs. 1085–1096)

Material examined. Holotype: 1 female, Spain, Castellon Province, Pobla de Benifassà, Natural Park of Tinença de Benifassà, 15.10.2007 (F.J. Peris–Felipo leg.) (ENV). Paratype: 1 male, same label as in holotype, but 28.10.2004 (ENV).

Distribution. Spain.

Main characters of the species. Body length: 1.90–2.00 mm. Head in dorsal view 1.90 times as wide as its median length and 1.45–1.50 times as wide as mesoscutum. Face 1.40 times as wide as high. Mandible 0.80–0.85 times as long as wide. Upper tooth wider than

lower tooth. Antennae 17–segmented. First flagellar segment 2.35–2.40 times as long as its apical width. Middle flagellar segments 2.00 times as long as their width. Mesosoma in lateral view 1.10–1.15 times as long as high. Mesoscutum as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, oval. Prescutellar depression with lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow entirely smooth. Propodeum smooth, with median longitudinal carina crossing from anterior to posterior margins, with transverse carinae emerging from median carina in anterior half part not reaching propodeal edges. Propodeal spiracles relatively small. Hind femur 3.90–4.00 times as long as its maximum width. First metasomal tergite 1.90 times as long as its apical width, striated in apical half. Ovipositor 2.80–3.00 times as long as first tergite, shorter than metasoma, 1.45–1.50 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. calamitosum* Tobias, *D. brevisulcus* Tobias and *D. puliciforme* (Fischer). *Dinotrema munki* differs from *D. calamitosum* in having the mandible 0.80–0.85 times as long as wide (1.10 times in *D. calamitosum*) and middle flagellar segments 2.00 times as long as their width (1.50–1.70 times in *D. calamitosum*) . On the other hand, *D. munki* differs from *D. brevisulcus* in having the mandible 0.80–0.85 times as long as wide (1.10 times in *D. brevisulcus*) and ovipositor distinctly shorter than metasoma (longer than metasoma in *D. brevisulcus*). Finally, *D. munki* differs from *D. puliciforme* in having the first flagellar segment 2.35–2.40 times as long as its maximum width (4.00 times in *D. puliciforme*) and mandible 0.80–0.85 times as long as wide (1.60 times in *D. puliciforme*).

Dinotrema naevium (TOBIAS 1962)
(Figs. 1097–1108)

Aspilota naevia Tobias 1962: 107.
Aspilota naevia: Fischer 1972: 417.
Dinotrema naevia: Papp 2003a: 126.
Dinotrema naevium: Yu *et al.* 2005; 2011.

Material examined. Holotype: 1 female, Russia, Leningrad Province, Tolmachevo, 18.08. 1960 (Tobias coll.) (ZISP). Additional material: 1 female, Hungary, Szilvásvárad, Gerennavár, 06.07.1982 (Papp leg.) (HNHM); 1 female, Hungary, Miskolc, Ómassa, Szentlélek, 07.05.1981 (Hámori leg.) (HNHM); 1 male, Hungary, Uzsa, 04.06.1963 (Papp leg.) (HNHM).
Distribution. Former Czechoslovakia, Hungary, Korea, Mongolia and Russia.
Main characters of the species. Body length: 2.50 mm. Head in dorsal view 1.70 times as wide as its median length and 1.50 times as wide as mesoscutum. Face 1.45 times as wide as high. Mandible 1.15 times as long as wide. Upper tooth wider than lower tooth. Antennae 18–19–segmented. First flagellar segment 2.50 times as long as its apical width. Middle flagellar segments 2.00 times as long as their width. Mesosoma in lateral view 1.30 times as long as high. Mesoscutum as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, oval. Prescutellar depression with lateral carinae. Sternaulus (precoxal suture) present, reaching anterior part of mesopleuron. Posterior mesopleural furrow smooth. Propodeum sculptured, with median longitudinal carinae crossing from anterior to posterior margins of propodeum, with emerging carinae reaching propodeal edges. Propodeal spiracles relatively small. Hind femur 5.00 times as long as its maximum width. First metasomal tergite 2.00 times as long as its apical width, striated. Ovipositor 1.25 times as

long as first tergite, shorter than metasoma, 0.85 times as long as hind femur. Main colour brown.

Comparative diagnosis. This species resembles *D. latitergum* (Fischer) but differs in having the mandible 1.15 times as long as wide (1.45 times in *D. latitergum*), first flagellar segment 2.50 times as long as wide (3.50 times in *D. latitergum*) and first metasomal tergite 2.00 times as long as its apical width (1.50 times in *D. latitergum*).

Dinotrema necrophilum (HEDQVIST 1972)
(Figs. 1109–1120)

Aspilota necrophila Hedqvist 1972: 217.
Aspilota necrophila: Yu *et al.* 2005.
Dinotrema necrophilum: Yu *et al.* 2011.
Dinotrema necrophilum: Broad *et al.* 2012: 10.

Material examined. 1 female, Hungary, Buják, 10.07.1985 (Leskó leg.) (HNHM); 1 female, Romania, Transylvania, Déva, 1926 (Mallász leg.) (HNHM); 1 female, England, Coll. Marshall, Bishops Tergnton (HNHM); 3 females, Netherlands, Waarder (Z.H.), Oosteinde, 26–28.06.1973, 9–11.07.1973 and 29–31.07.1975 (Achterberg leg.) (RMNH); 3 females, Denmark, E–Jutland, Fuglslev, 56º16'N 10º43'E, 26.05.1999 (Munk leg.) (ENV).

Distribution. Denmark **(new record)**, Hungary, Netherlands **(new record)**, Romania **(new record)**, Sweden and United Kingdom.

Main characters of the species. Body length: 1.80–2.00 mm. Head in dorsal view 1.50 times as wide as its median length and 1.20 times as wide as mesoscutum. Face 1.80 times as wide as high. Mandible 1.45 times as long as wide. Upper tooth as wide as lower tooth. Antennae 17–segmented. First flagellar segment 2.85 times as long as its apical width. Middle flagellar segments 1.30 times as long as their width. Mesosoma in lateral view 1.15 times as long as high. Mesoscutum as

long as its maximum width. Notauli mainly absent. Mesoscutal pit present, oval. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow finely crenulated below. Propodeum sculptured, with pentagonal areola. Propodeal spiracles small. Hind femur 4.10 times as long as its maximum width. First metasomal tergite 1.60 times as long as its apical width, striated. Ovipositor 1.20 times as long as first tergite, shorter than metasoma, 0.90 times as long as hind femur. Main colour brown.

Comparative diagnosis. This species resembles *D. varimembre* (Fischer) but differs in having the hind femur 4.10 times as long as its maximum width (4.00 times in *D. varimembre*), first flagellar segment 2.85 times as long as wide (3.00 times in *D. varimembre*), middle flagellar segments 1.30 times as long as their width (1.70 times in *D. varimembre*) and head in dorsal view 1.50 times as wide as its median length (1.80 times in *D. varimembre*).

Dinotrema nervosum (HALIDAY 1833)
(Figs. 1121–1132)

Alysia nervosa Haliday 1833: 265.
Aspilota nervosa: Marshall 1872: 129.
Aspilota nervosa: Stelfox et Graham 1943: 204.
Aspilota nervosa: Fischer 1972: 420–422.
Aspilota nervosa: Shenefelt 1974: 976.
Dinotrema nervosa: Fischer 1995: 723.
Dinotrema nervosum: Yu *et al.* 2005; 2011.
Dinotrema nervosum: Broad *et al.* 2012: 10.

Material examined. 1 female, Austria, Tirol, Burgenland Tai, Obergurgl Abhang Z. Ache, um 1900 m, mäβig, bewölt, 17.07.1969

(Fischer leg.) (NHMW); 1 male, Austria, NÖ, Mautern bei Krems, 30.08.1958 (Fischer leg.) (NHMW); 1 female, Hungary, Aggtelek, Szelcepuszta, 13.06.1989 (Papp leg.) (HNHM).

Distribution. Austria, Belgium, Bulgaria, former Czechoslovakia, Denmark, France, Germany, Hungary, Ireland, Italy, Korea, Mongolia, Netherlands, Poland, Romania, Russia, Slovenia, Switzerland, Ukraine, United Kingdom and former Yugoslavia.

Main characters of the species. Body length: 3.20 mm. Head in dorsal view 1.70 times as wide as its median length and 1.50 times as wide as mesoscutum. Face 1.50 times as wide as high. Mandible 1.50 times as long as wide. Upper tooth as wide as lower tooth. Antennae 24–segmented. First flagellar segment 3.50 times as long as its apical width. Middle flagellar segments 1.50 times as long as their width. Mesosoma in lateral view 1.20 times as long as high. Mesoscutum 1.30 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, elongated. Prescutellar depression with lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow crenulated. Propodeum sculptured, with median longitudinal carina crossing from anterior to posterior margins of propodeum, with emerging carinae reaching propodeal edges. Propodeal spiracles small. Hind femur 4.00 times as long as its maximum width. First metasomal tergite 2.00 times as long as its apical width, striated. Ovipositor 3.70 times as long as first tergite, longer than metasoma, 2.05 times as long as hind femur. Main colour brown.

Comparative diagnosis. This species resembles *D. lineolum* (Thomson) but differs in having the mandible 1.50 times as long as wide (1.70 times in *D. lineolum*), first flagellar segment 3.50 times as long as wide (2.50 times in *D. lineolum*), first metasomal tergite 2.00 times as long as its apical width (1.50 times in *D. lineolum*) and ovipositor longer than metasoma (shorter in *D. lineolum*).

Dinotrema nigricorne (THOMSON 1895)
(Figs. 1133–1142)

Alysia (Aspilota) nigricornis Thomson 1895: 2307.
Aspilota nigricornis: Fischer 1972: 422.
Dinotrema nigricorne: Papp 2003a: 126.
Dinotrema nigricorne: Yu *et al*. 2005.
Dinotrema nigricorne: Papp 2009b: 5.
Dinotrema nigricorne: Yu *et al.* 2011.

Material examined. Lectotype: 1 female (Fischer) (MZLU). Additional material: 1 female and 1 male, Austria, O–Steiermark, Lungitzbach, ufer bei Se Johann–Haide, 11–12.06.1966 (Fischer leg.) (NHMW); 1 male, Austria, Steiermark, Neumarkt, Anhöne Hördl, Steindorf, Kampfwaldzone um 980 m., 05.08.1966 (Fischer leg.) (NHMW); 1 female, Hungary, Újszentmargita, erdie, tisztás, 21–22.04.1975 (Horvatovich leg.) (HNHM); 1 female, Bosnia–Herzegovina, Krupa, Pazaric Fodor, 05.07.1930 (HNHM); 1 female, Germany, Würzburg, Schaudenbach, Malaise csapda, 26.09.1968 (Horstmann leg.) (HNHM); 3 females, Romania, Jud. Bihor under the Sava Sćarita, 1150 m, 25.07.2003 (Orosz leg.) (HNHM); 1 female, Turkey, Pamukkale, 05.05.1984 (Rozner leg.) (HNHM).

Distribution. Austria, Bosnia–Herzegovina **(new record)**, former Czechoslovakia, Germany **(new record)**, Hungary, Korea, Macedonia, Sweden, Romania **(new record)**, Turkey **(new record)** and former Yugoslavia.

Main characters of the species. Body length: 1.90–2.40 mm. Head in dorsal view 1.80 times as wide as its median length and 1.30 times as wide as mesoscutum. Face 1.35–1.40 times as wide as high. Mandible 1.50 times as long as wide. Upper tooth as wide as lower tooth. Antennae 18–23–segmented. First flagellar segment 3.50 times as long as its apical width. Middle flagellar segments 2.00 times as long

as their width. Mesosoma in lateral view 1.30 times as long as high. Mesoscutum as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, elongated. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow entirely smooth. Propodeum smooth, with median longitudinal carina crossing from anterior to posterior margins. Propodeal spiracles small. Hind femur 5.00 times as long as its maximum width. First metasomal tergite 2.00 times as long as its apical width, almost smooth. Ovipositor 1.15 times as long as first tergite, shorter than metasoma, 0.85–0.90 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. pratense* van Achterberg but differs in having the lower tooth as wide as upper tooth (lower tooth wider than upper tooth in *D. pratense*), first metasomal tergite 1.80 times as long as its apical width and almost smooth (2.00 times and striated apical half in *D. pratense*), mesonotum with two rows of double setae (with two rows of single setae in *D. pratense*), mesoscutal pit elongated (oval in *D. pratense*) and propodeum with only one median longitudinal carinae (one median longitudinal carinae with emerging carinae in *D. pratense*).

Dinotrema notaulicum (FISCHER 1974)
(Figs. 1143–1154)

Aspilota notaulica Fischer 1974: 10.
Dinotrema notaulicum: Yu *et al.* 2005; 2011.

Material examined. Holotype: 1 female, Austria, Pitten, NÖ, 28.06.1959 (Fischer leg.) (NHMW). Additional material: 1 female, Hungary, Iharkút Laposak, 27.06.1966 (Papp leg.) (HNHM).
Distribution. Austria, Hungary and Mongolia.

Main characters of the species. Body length: 1.50 mm. Head in dorsal view 1.80 times as wide as its median length and 1.50 times as wide as mesoscutum. Face 1.30 times as wide as high. Mandible 1.45 times as long as wide. Lower tooth wider than upper tooth. Antennae 18–segmented. First flagellar segment 3.50 times as long as its apical width. Middle flagellar segments 1.70 times as long as their width. Mesosoma in lateral view 1.50 times as long as high. Mesoscutum 0.95 times as long as its maximum width. Notauli complete, developed on horizontal surface of mesoscutum. Mesoscutal pit present, elongated. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow crenulated. Propodeum sculptured, with short median carina, with emerging carinae reaching propodeal edges. Propodeal spiracles relatively small. Hind femur 4.40 times as long as its maximum width. First metasomal tergite 2.00 times as long as its apical width, striated. Ovipositor 1.85 times as long as first tergite, shorter than metasoma, 1.20 times as long as hind femur. Main colour brown.

Comparative diagnosis. This species resembles *D. falsificum* (Stelfox et Graham) but differs in having the hind femur 4.40 times as long as its maximum width (5.00 times in *D. falsificum*), first metasomal tergite 2.00 times as long as its apical width (2.20 times in *D. falsificum*), mandible 1.45 times as long as wide (2.00 times in *D. falsificum*) and middle flagellar segments 1.70 times as long as their width (2.00 times in *D. falsificum*).

Dinotrema occipitale (FISCHER 1973)

(Figs. 1155–1164)

Aspilota occipitalis Fischer 1973a: 148.

Dinotrema occipitale: Yu *et al.* 2005.

Dinotrema occipitale: Papp 2005: 5.

Dinotrema occipitale: Yu *et al.* 2011.

Material examined. Holotype: 1 female, Austria, Steiermark, Gesäuse, Ennstaler–A., Rauchboden bei Johnsbachbrücke, 650 m, bedeck vor Gewitter, 29.07.1970 (Fischer leg.) (NHMW). Paratype: 1 male, Austria, Steiermark, Mühlau, 6 km N Admont, 800 m, überwiegend sonnig windig, 16.07.1970 (Fischer leg.) (NHMW). Allotype: 1 male, same label as in holotype (NHMW). Additional material: 1 female, Austria, Steiermark, Wetzer Leitem Teufelstein, 1000–1150 m, 10.08.1974 (Fischer leg.) (NHMW); 1 female, Hungary, Újszentmargita erdei tisztás, 21–22.04.1975 (Horvatovich leg.) (HNHM); 1 female, Bosnia–Herzegovina, Krupa, Pazaric Fodor, 05.07.1930 (HNHM); 2 females, Germany, Würzburg, Schaudenbach, Malaise csapda, 26.09.1968 (Horstmann leg.) (HNHM); 1 female, France, Sardinia, Gennargentu, Belvi, 700 m, 07.08.1976 (Gozmány leg.) (HNHM); 1 female, Denmark, N–Jutland, Tornby Plantage, 57º32'N 9º55'E, 31.07.1990 (Munk leg.) (ENV).

Distribution. Austria, Bosnia–Herzegovina, China, Denmark **(new record)**, France **(new record)**, Germany **(new record)**, Hungary and Korea.

Main characters of the species. Body length: 1.90 mm. Head in dorsal view 1.60 times as wide as its median length and 1.55 times as wide as mesoscutum. Face 1.50 times as wide as high. Mandible 1.50 times as long as wide. Upper tooth wider than lower tooth. Antennae 20–segmented. First flagellar segment 3.25 times as long as its apical width. Middle flagellar segments 2.20 times as long as their width. Mesosoma in lateral view 1.30 times as long as high. Mesoscutum 1.10 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, rounded. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural

furrow smooth. Propodeum smooth, with median longitudinal carina crossing from anterior to posterior margins, with short emerging carinae not reaching propodeal edges. Propodeal spiracles relatively small. Hind femur 4.00 times as long as its maximum width. First metasomal tergite 2.70 times as long as its apical width, rugose–striated. Ovipositor 1.20–1.25 times as long as first tergite, shorter than metasoma, 1.15–1.20 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. kempei* (Hedqvist) but differs in having the mandible 1.50 times as long as wide (1.35 times in *D. kempei*), first metasomal tergite 2.70 times as long as its apical width and rugose–striated (3.50–4.00 times and smooth in *D. kempei*) and upper tooth wider than lower tooth (upper tooth as wide than lower tooth in *D. kempei*).

Dinotrema oleraceum (TOBIAS 1962)
(Figs. 1165–1176)

Aspilota oleracea Tobias 1962: 108.
Aspilota oleracea: Fischer 1972: 425.
Dinotrema oleraceum: Yu *et al.* 2005.
Dinotrema oleracea: Papp 2009b: 5.
Dinotrema oleraceum: Yu *et al.* 2011.

Material examined. Holotype: 1 female, Russia, Leningrad Province, Tolmachevo, 19.08.1960 (Tobias coll.) (ZISP). Paratypes: 1 female, 3 males, same label as in holotype but 17, 19, 22.08.1960 (ZISP). Additional material: 1 female, Austria, Eichgraben, NÖ, 26.05.1958 (Fischer leg.) (NHMW); 3 females, Austria, Tirol, Piller See bei Untergurgl, schütterer W., 1660 m, schwacher, widn, mäβig, bewölk, 14.08.1970 (Fischer leg.) (NHMW); 2 females, Austria, Salzburg, Parsch, 24.10.1961 and 12.09.1968 (P.P. Babiy leg.) (NHMW); 1

female, Slovakia, Tátraffired, Biró, 28.08.1909 (HNHM); 1 female, Yugoslavia, Kosovo, Mts. Sar. Brezovics, 900–1200 m (Papp leg.) (HNHM).

Distribution. Austria, Czech Republic, former Czechoslovakia, Hungary, Korea, Mongolia, Poland, Russia, Serbia, Slovakia **(new record)** and former Yugoslavia.

Main characters of the species. Body length: 1.60–2.10 mm. Head in dorsal view 1.90 times as wide as its median length and 1.40 times as wide as mesoscutum. Face 1.70 times as wide as high. Mandible 2.00 times as long as wide. Upper tooth as wide as lower tooth. Antennae 18–19–segmented. First flagellar segment 3.00 times as long as its apical width. Middle flagellar segments 1.00–1.50 times as long as their width. Mesosoma in lateral view 1.30 times as long as high. Mesoscutum as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, elongated. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum sculptured, with median longitudinal carina crossing from anterior to posterior margins of propodeum, with emerging carinae reaching porpodeal edges. Propodeal spiracles relatively small. Hind femur 4.00 times as long as its maximum width. First metasomal tergite 1.70 times as long as its apical width, finely striated. Ovipositor as long as first tergite, shorter than metasoma, 0.65 times as long as hind femur. Main colour brown.

Comparative diagnosis. This species resembles *D. paludellae* sp. nov. but differs in having the first flagellar segment 3.00 times as long as wide (2.30–2.40 times in *D. paludellae*), middle flagellar segments 1.00–1.50 times as long as their width (1.10 times in *D. paludellae*), hind femur 4.00 times as long as its maximum width (3.60 times in *D. paludellae*) and first metasomal tergite 1.70 times as long as its apical width (2.25–2.30 times in *D. paludellae*).

Dinotrema orientale TOBIAS 2003
(Figs. 1177–1187)

Dinotrema orientale Tobias 2003a: 289.
Dinotrema orientale: Yu *et al.* 2005; 2011.

Material examined. Holotype: 1 female, Russia, Primorskii Terr., 30 km SE of Ussuriisk, forest margins, 12–17.07.2001 (Belokobylskij leg.) (ZISP). Paratypes: 1 female, same label as in holotype (ZISP); 1 female, Kazakhstan, floodland of Kenderlyk River, E of Lake Zaisam, 01.06.1961 (Tobias leg.) (ZISP).
Distribution. Kazakhstan and Russia.
Main characters of the species. Body length: 1.20–1.40 mm. Head in dorsal view 1.50 times as wide as its median length and 1.50 times as wide as mesoscutum. Face 1.40 times as wide as high. Mandible 0.90 times as long as wide. Upper tooth wider than lower tooth. Antennae 16–19–segmented. First flagellar segment 2.50–3.00 times as long as its apical width. Middle flagellar segments 1.30–1.50 times as long as their width. Mesosoma in lateral view 1.10–1.20 times as long as high. Mesoscutum as long as its maximum width. Notauli mainly absent. Mesoscutal pit absent. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum mainly smooth, with median longitudinal carina crossing from anterior to posterior its margins with emerging carinae from third apical part not reaching propodeal edges. Propodeal spiracles small. Hind femur 4.00 times as long as its maximum width. First metasomal tergite 1.50–1.80 times as long as its apical width, almost smooth. Ovipositor 1.65–1.70 times as long as first tergite, shorter than metasoma, as long as hind femur. Main colour brown and dark brown.
Comparative diagnosis. This species resembles *D. kempei* (Hedqvist) but differs in having the first metasomal tergite 1.50–1.80 times as

long as its apical width (3.50–4.00 times in *D. kempei*), middle flagellar segments 1.30–1.50 times as long as wide (2.00 times in *D. kempei*) and first flagellar segment 2.50–3.00 times as long as wide (3.25 times in *D. kempei*).

***Dinotrema paludellae* sp. nov.**
(Figs. 1188–1199)

Material examined. Holotype: 1 female, Denmark, W–Jutland, Sillerup 12 km SW of Silkeborg, 19.05.1986 (Munk leg.) (NMA). Paratypes: 2 females, same label as in holotype but 24.05.1986 (Munk leg.) (NMA); 1 female, Denmark, W–Jutland, Bredsgårde, 56º27'N 9º16'E, 30.05.1985 (Munk leg.) (NMA). Additional material: 1 female, Denmark, E–Jylland, Klattrup s. Vejle, 27.08.1982 (Munk leg.) (ENV); 1 female, Denmark, N–Jutland, Villestrup, 56º46'N 9º56'E, 15.06.1984 (Munk leg.) (ENV).
Distribution. Denmark.
Main characters of the species. Body length: 1.50–1.60 mm. Head in dorsal view 1.80 times as wide as its median length and 1.35–1.40 times as wide as mesoscutum. Face 1.40 times as wide as high. Mandible 1.85–1.90 times as long as wide. Lower tooth wider than upper tooth. Antennae 16–18–segmented. First flagellar segment 2.30–2.40 times as long as its apical width. Middle flagellar segments 1.10 times as long as their width. Mesosoma in lateral view 1.15–1.20 times as long as high. Mesoscutum as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, oval. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum sculptured, with median longitudinal cariane crossing from anterior to posterior margins of propodeum, with emerging carinae reaching propodeal

edges. Propodeal spiracles small. Hind femur 3.60–3.65 times as long as its maximum width. First metasomal tergite 2.25–2.30 times as long as its apical width, almost smooth. Ovipositor as long as first tergite, shorter than metasoma, 0.65 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. falsificum* (Stelfox et Graham) but differs in having the first flagellar segment 2.30–2.40 times as long as wide (3.50 times in *D. falsificum*), middle flagellar segments 1.10 times as long as wide (2.00 times in *D. falsificum*), hind femur 3.60–3.65 times as long as its maximum width (5.00 times in *D. falsificum*), paraclypeal fovea reaching the middle distance between clypeus and eye (not reaching the middle distance in *D. falsificum*) and ovipositor shorter than metasoma (as long as metasoma in *D. falsificum*).

***Dinotrema pappi* sp. nov.**

(Figs. 1200–1211)

Material examined. Holotype: 1 female, Spain, Alicante Province, Alcoi, Natural Park of Carrascal de la Font Roja, 02.01.2007 (F.J. Peris–Felipo leg.) (ENV). Paratype: 1 female, same label, but 13.01.2005 (ENV).

Distribution. Spain.

Main characters of the species. Body length: 2.25–2.30 mm. Head in dorsal view 1.60 times as wide as its median length and 1.35–1.40 times as wide as mesoscutum. Face 1.40 times as wide as high. Mandible 1.35–1.40 times as long as wide. Upper tooth wider than lower tooth. Antennae 18–segmented. First flagellar segment 3.00 times as long as its apical width. Middle flagellar segments 1.60 times as long as their width. Mesosoma in lateral view as long as high. Mesoscutum as long as its maximum width. Notauli mainly absent.

Mesoscutal pit present, elongated. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow crenulate in lower half. Propodeum smooth, with median longitudinal carina crossing from anterior to posterior margins, with numerous transverse carinae emerging from median carina not reaching propodeal edges. Propodeal spiracles relatively small. Hind femur 4.90–5.00 times as long as its maximum width. First metasomal tergite 2.00 times as long as its apical width, almost smooth in apical half. Ovipositor 1.50–1.55 times as long as first tergite, shorter than metasoma, 0.90–0.95 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. cruciforme* (Fischer) but differs in having the first metasomal tergite smooth (striated in apical half in *D. cruciforme*), mesoscutal pit elongated (oval in *D. cruciform*e), upper tooth wider than lower tooth (lower tooth wider than upper tooth in *D. cruciforme*), first flagellar segment 3.00 times as long as wide (2.70 times in *D. cruciforme*) and middle flagellar segments 1.60 times as long as wide (2.00 times in *D. cruciforme*).

***Dinotrema paquitae* sp. nov.**

(Figs. 1212–1223)

Material examined. Holotype: 1 female, Spain, Castellon Province, Pobla de Benifassà, Natural Park of Tinença de Benifassà, 17.07.2006 (F.J. Peris–Felipo leg.) (ENV). Paratypes: 1 female, same label as in holotype, but 07.10.2004; 1 male, same label as in holotype, but 29.05.2006; 1 female, same label as in holotype, but 15.10.2007 (ENV). Additional material: 1 male, Spain, Alicante Province,

Torrevieja, Natural Park of Las Lagunas de La Mata–Torrevieja, 30.11.2004 (F.J. Peris–Felipo leg.) (ENV).

Distribution. Spain.

Main characters of the species. Body length: 2.15–2.30 mm. Head in dorsal view 1.50–1.60 times as wide as its median length and 1.40 times as wide as mesoscutum. Face 1.85–1.90 times as wide as high. Mandible 1.60 times as long as wide. Lower tooth wider than upper tooth. Antennae 19–20–segmented. First flagellar segment 2.20–2.30 times as long as its apical width. Middle flagellar segments 2.00 times as long as their width. Mesosoma in lateral view 1.20 times as long as high. Mesoscutum as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, rounded. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present very weakly, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum smooth, with median longitudinal carina crossing from anterior to posterior margins, with short carinae emerging from median carina not reaching propodeal edges. Propodeal spiracles small. Hind femur 4.00–4.10 times as long as its maximum width. First metasomal tergite 1.40–1.45 times as long as its apical width, almost entirely smooth with some fine striation in apical half. Ovipositor 1.25–1.30 times as long as first tergite, shorter than metasoma, 0.75–0.80 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. hodiense* (Fischer) and *D. parapunctatum* (Fischer). *Dinotrema paquitae* differs from *D. hodiense* in having the mandible 1.60 times as long as wide (1.40 times in *D. hodiense*), first flagellar segment 2.20–2.30 times as long as wide (2.40 times in *D. hodiense*), middle flagellar segments 2.00 times as long as wide (1.70 times in *D. hodiense*) and first metasomal tergite 1.40–1.45 times as long as its apical width (1.90 times in *D. hodiense*). On the other hand, *D. paquitae* differs from *D.*

parapunctatum in having the mandible 1.60 times as long as wide (1.15 times in *D. parapunctatum*), first flagellar segment 2.20–2.30 times as long as wide (3.00 times in *D. parapunctatum*) and first metasomal tergite 1.40–1.45 times as long as its apical width (2.00 times in *D. parapunctatum*).

Dinotrema paramicum MUNK et PERIS–FELIPO 2013
(Figs. 1224–1235)

Dinotrema paramicum Munk et Peris–Felipo 2013a: 66.

Material examined. Holotype: 1 female, Denmark, E–Jutland, Mols, Strandkær 56º14'N 10º25'E, 30.09.1982 (Munk leg.) (NMA). Paratypes: 2 females, same label as in holotype (NMA); 1 female, same label as in holotype (ENV); 1 female, Finland, E.S. Ristlina, 6826:501, 06.08.1978 (Koponen leg.) (NMA); 1 female, Finland, U. Nurmijärvi, 6715:376, 05.08.1976 (Koponen leg.) (ENV).
Distribution. Denmark and Finland.
Main characters of the species. Body length: 2.70–2.80 mm. Head in dorsal view 1.60–1.65 times as wide as its median length and 1.45–1.50 times as wide as mesoscutum. Face 1.60 times as wide as high. Mandible 1.20 times as long as wide. Lower tooth wider than upper tooth. Antennae 23–segmented. First flagellar segment 3.00 times as long as its apical width. Middle flagellar segments 1.70–1.80 times as long as their width. Mesosoma in lateral view 1.10–1.15 times as long as high. Mesoscutum 1.10 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, rounded. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum smooth, with median longitudinal carina crossing from anterior to posterior margins. Propodeal spiracles small. Hind femur 4.15–4.20 times as

long as its maximum width. First metasomal tergite 2.80 times as long as its apical width, almost smooth. Ovipositor 1.90–1.95 times as long as first tergite, shorter than metasoma, 1.55–1.60 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. kempei* (Hedqvist) and *D. dimorphum* (Fischer). *Dinotrema paramicum* differs from *D. kempei* in having the first metasomal tergite 2.30–2.35 times as long as its apical width (3.50–4.00 times in *D. kempei*), mesoscutal pit rounded (elongated in *D. kempei*), prescutellar depression rectangular and without lateral carinae (square and with lateral carinae in *D. kempei*) and mesoscutum with two rows of double setae (with two rows of single setae in *D. kempei*). On the other hand, *D. paramicum* differs from *D. dimorphum* in having the mandible 1.20 times as long as wide (1.40–1.60 times in *D. dimorphum*), first metasomal tergite 2.80 times as long as its apical width (2.40 times in *D. dimorphum*), first flagellar segment 3.00 times as long as wide (3.50 times in *D. dimorphum*) and hind femur 4.15–4.20 times as long as its maximum width (4.00 times in *D. dimorphum*).

Dinotrema parapunctatum **(**FISCHER 1976)
(Figs. 1236–1247)

Aspilota parapunctata Fischer 1976: 391.
Aspilota parapunctata: Francès *et al.* 1989: 206.
Dinotrema parapunctatum: Yu *et al.* 2005; 2011.

Material examined. Holotype: 1 male, Austria, Tauchenbach bei Neumarkt–Tauchental, 05.08.1963 (Fiscehr leg.) (NHMW). Paratypes: 1 male, same label as in holotype (NHMW); 1 male, Austria, Spitzzicken, Burgenland (Ficher leg.) (NHMW). Additional material: 2 females, Austria, Ried–Wolfgang, see Salzburg, 02.09.1958 and 03.09.1958 (P.P. Babiy leg.) (NHMW); 1 female, Hungary, Felsöörs,

30.05.1966 (Papp leg.) (HNHM); 2 females, Bulgaria, Sofia, Biró, 09.1928 (HNHM); 1 female, Spain, Alicante Province, Alcoi, Natural Park of Carrascal de La Font Roja, 02.08.2004; 2 females, same label but 09.08.2004; 1 female, same label but 16.08.2004; 1 female, same label but 23.08.2004; 2 females, same label but 30.08.2004; 1 female, same label but 13.09.2004; 1 female, same label but 12.06.2005; 1 female, same label but 29.08.2005; 2 females, same label but 12.09.2005; 1 female, same label but 10.07.2006; 1 female, same label but 25.07.2006; 2 females, same label but 07.08.2006; 2 females, same label but 14.08.2006; 1 female, same label but 21.08.2006; 1 male, same label but 21.08.2006; 1 female, same label but 28.08.2006; 2 females, same label but 11.09.2006; 3 females, same label but 25.09.2006; 1 female, same label but 02.10.2006; 1 male, same label but 02.07.2007; 1 female, same label but 23.07.2007; 1 female, same label but 30.07.2007 (ENV); 1 female, Spain, Castellon Province, Pobla de Benifassà, Natural Park of Tinença de Benifassà, 12.08.2004; 1 female, same label but 02.09.2004; 1 female, same label but 25.07.2005; 1 female, same label but 26.09.2005; 1 female, same label but 28.08.2006 (ENV).

Distribution. Austria, Bulgaria **(new record)**, Hungary **(new record)** and Spain.

Main characters of the species. Body length: 1.50 mm. Head in dorsal view 1.60 times as wide as its median length and 1.90 times as wide as mesoscutum. Face 1.25–1.30 times as wide as high. Mandible 1.15 times as long as wide. Upper tooth as wide as lower tooth. Antennae 19–segmented. First flagellar segment 3.00 times as long as its apical width. Middle flagellar segments 2.00 times as long as their width. Mesosoma in lateral view 1.35 times as long as high. Mesoscutum as long as its maximum width. Notauli mainly absent. Notauli mainly absent. Mesoscutal pit present, elongated. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture)

present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum smooth, with median longitudinal carina crossing from anterior to posterior margins, with short emerging carinae not reaching propodeal edges. Propodeal spiracles small. Hind femur 4.00 times as long as its maximum width. First metasomal tergite 2.00 times as long as its apical width, almost entirely smooth. Ovipositor 1.35–1.40 times as long as first tergite, shorter than metasoma, 0.85–0.90 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. hodiense* (Fischer) but differs in having the mandible 1.15 times as long as wide (1.40 times in *D. hodiense*), upper tooth longer than and as wide as lower tooth (upper tooth wider than lower tooth in *D. hodiense*), first flagellar segment 3.00 times as long as wide (1.70 times in *D. hodiense*) and eye in lateral view shorter than temples (longer than temples in *D. hodiense*).

***Dinotrema pareum* sp. nov.**

(Figs. 1248–1259)

Material examined. Holotype: 1 female, Spain, Castellon Province, Pobla de Benifassà, Natural Park of Tinença de Benifassà, 17.04.2006 (F.J. Peris–Felipo leg.) (ENV). Paratypes: 1 female, same label as in holotype, but 31.10.2005; 1 female, same label as in holotype, but 26.02.2007; 1 female, same label as in holotype, but 19.03.2007; 1 female, same label as in holotype, but 16.04.2007; 1 female, same label as in holotype, but 23.04.2007 (F.J. Peris–Felipo leg.) (ZISP).

Distribution. Spain.

Main characters of the species. Body length: 2.20–2.30 mm. Head in dorsal view 1.80 times as wide as its median length and 1.30–1.35 times as wide as mesoscutum. Face 2.00 times as wide as high.

Mandible 1.00–1.05 times as long as wide. Lower tooth wider than upper tooth. Antennae 19–segmented. First flagellar segment 3.00 times as long as its apical width. Middle flagellar segments 1.40–1.50 times as long as their width. Mesosoma in lateral view 1.15 times as long as high. Mesoscutum as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, elongated. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum smooth, with median longitudinal carina crossing from anterior to posterior margins, with short carinae emerging from median carina in anterior half part not reaching propodeal edges. Propodeal spiracles small. Hind femur 3.75–3.80 times as long as its maximum width. First metasomal tergite 2.00 times as long as its apical width, entirely smooth. Ovipositor 1.60–1.65 times as long as first tergite, shorter than metasoma, as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. semicompressum* (Stelfox et Graham) and *D. broadi* sp. nov.. *Dinotrema pareum* differs from *D. semicompressum* in having the first flagellar segment 3.00 times as long as wide (2.50 times in *D. semicompressum*), middle flagellar segments 1.40–1.50 times as long as wide (1.70 in *D. semicompressum*), hind femur 3.75 times as long as its maximum width (5.00 times in *D. semicompressum*) and mesoscutum as long as its maximum width (1.15 times in *D. semicompressum*). On the other hand, *D. pareum* differs from *D. broadi* in having the mandible 1.00–1.05 times as long as wide (1.30 times in *D. broadi*), middle flagellar segments 1.40–1.50 times as long as wide (2.00 times in *D. broadi*), hind femur 3.75 times as long as its maximum width (4.25 times in *D. broadi*) and first metasomal tergite 2.00 times as long as its apical width (2.25 times in *D. broadi*).

Dinotrema partimrufum FISCHER 2009
(Figs. 1260–1271)

Dinotrema partimrufum Fischer 2009: 110.
Dinotrema partimrufum: Yu *et al.* 2011.

Material examined. Holotype: 1 female, Turkei, Kastamonu–Ilgaz dagi Catören, 03.07.2001 (Aydogdu leg.) (NHMW).
Distribution. Turkey.
Main characters of the species. Body length: 1.70 mm. Head in dorsal view 2.00 times as wide as its median length and 1.60 times as wide as mesoscutum. Face 1.60 times as wide as high. Mandible 1.50 times as long as wide. Lower tooth wider than upper tooth. Antennae 23–segmented. First flagellar segment 4.00 times as long as its apical width. Middle flagellar segments 3.00 times as long as their width. Mesosoma in lateral view 1.30 times as long as high. Mesoscutum 0.96 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit absent. Prescutellar depression with lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum smooth, with median longitudinal carina crossing from anterior to posterior margins. Propodeal spiracles relatively small. Hind femur 4.50 times as long as its maximum width. First metasomal tergite 2.50 times as long as its apical width, striated in apical half. Ovipositor 3.00 times as long as first tergite, longer than metasoma, 2.25 times as long as hind femur. Main colour brown and dark brown.
Comparative diagnosis. This species resembles *D. transitum* Tobias but differs in having the middle flagellar segments 3.00 times as long as wide (2.00–2.50 times in *D. transitum*) and first metasomal tergite 2.50 times as long as its apical width (2.00 times in *D. transitum*).

Dinotrema pauciarticulatum (FISCHER 1976)
(Figs. 1272–1283)

Aspilota pauciarticulata Fischer 1976: 393.
Aspilota pauciarticulata: Yu *et al.* 2005.
Aspilota pauciarticulata: Papp 2008: 262.
Dinotrema pauciarticulatum: Yu *et al.* 2011.

Material examined. Holotype: 1 female, Austria, Burgenland, Markt Hodis–Rechnitz, 07.08.1961 (Fischer leg.) (NHMW).
Distribution. Austria and Hungary.
Main characters of the species. Body length: 1.40 mm. Head in dorsal view 1.70 times as wide as its median length and 1.50 times as wide as mesoscutum. Face 1.60 times as wide as high. Mandible 1.50 times as long as wide. Lower tooth wider than upper tooth. Antennae 13–segmented. First flagellar segment 3.30 times as long as its apical width. Middle flagellar segments 1.75 times as long as their width. Mesosoma in lateral view 1.30 times as long as high. Mesoscutum 1.20 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit absent. Prescutellar depression with lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow crenulated. Propodeum sculptured, with short median carina, with emerging carinae reaching propodeal edges. Propodeal spiracles relatively small. Hind femur 4.00 times as long as its maximum width. First metasomal tergite 2.10 times as long as its apical width, almost smooth. Ovipositor as long as first tergite, longer than metasoma, 0.60 times as long as hind femur. Main colour brown.
Comparative diagnosis. This species resembles *D. compressum* (Haliday) but differs in having the first metasomal tergite 2.10 times as long as its apical width (2.35 times in *D. compressum*), prescutellar depression with lateral carinae (without lateral carinae in *D.*

compressum), first flagellar segment 3.30 times as long as wide (2.50 times in *D. compressum*) and mandible 1.50 times as long as wide (0.75 times in *D. compressum*).

Dinotrema paucicrene (FISCHER 1973) **comb. nov.**
(Figs. 1284–1293)

Aspilota paucicrenis Fischer 1973b: 115.
Aspilota paucicrenis: Francès *et al.* 1989: 206.
Dinotrema paucicrenis: Yu *et al.* 2005.
Dinotrema paucicrenis: Papp 2007: 118.
Dinotrema paucicrenis: Yu *et al.* 2011.

Material examined. Holotype: 1 female, Austria, Tirol, Piller See bei Untergurgl, schütterer W, 1660 m, schwacher, wind, mäβig, bewölk, 14.08.1970 (Fischer leg.) (NHMW). Paratypes: 3 males, same label as in holotype (NHMW). Allotype: 1 male, same label as in holotype (NHMW). Additional material: 1 female, Hungary, Bödvaszilas Kopasz–galy, 24.08.1989 (Papp leg.) (HNHM); 1 female, Romania, Jud. Prahova. Muntele, Rosu over Cheia, 1500 m, 24.07.2006 (A. Orosz leg.) (HNHM); 1 male, Slovakia, Tátrafiired, Biró, 28.08.1909 (HNHM); 1 male, Armenia, Megradzor, 1600 m, 18.07.1977 (Zombori leg.) (HNHM); 1 male, Bulgaria, Pirin Mts. Bransko, N.P., 05.08.1982 (Draskovits & Vály leg.) (HNHM); 1 female, Greece, Lakonia, Taygetos, 1090 m, Anavriti, 24–23.05.1979 (Gozmány leg.) (HNHM).
Distribution. Armenia **(new record)**, Austria, Bulgaria **(new record)**, Greece, Hungary, Korea, Romania **(new record)**, Slovakia **(new record)** and Spain.
Main characters of the species. Body length: 2.00 mm. Head in dorsal view 1.75–1.80 times as wide as its median length and 1.50 times as wide as mesoscutum. Face 1.60 times as wide as high. Mandible 1.20 times as long as wide. Lower tooth wider than upper

tooth. Antennae 20–segmented. First flagellar segment 3.80–4.00 times as long as its apical width. Middle flagellar segments 2.00 times as long as their width. Mesosoma in lateral view 1.10 times as long as high. Mesoscutum 1.20 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, oval. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum smooth, with median longitudinal carina crossing from anterior to posterior margins, with short emerging carinae from apical third not reaching propodeal edges. Propodeal spiracles small. Hind femur 4.10 times as long as its maximum width. First metasomal tergite 2.10 times as long as its apical width, finely striated. Ovipositor 1.65–1.70 times as long as first tergite, shorter than metasoma, 1.10–1.15 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. broadi* sp. nov. but differs in having the first flagellar segment 3.80–4.00 times as long as wide (3.20 times in *D. broadi*), upper tooth as wide than lower tooth (upper tooth wider than lower tooth in *D. broadi*) and mesosoma in lateral view 1.10 times as long as high (1.20–1.30 in *D. broadi*).

Dinotrema perlustrandum (FISCHER 1973) **comb. nov.**

(Figs. 1294–1305)

Aspilota perlustranda Fischer 1973a: 151.

Dinotrema perlustranda: Yu *et al.* 2005; 2011.

Material examined. Holotype: 1 female, Austria, Steiermark, Ennstaler, Huber Alm–Mödlinger Hütte, 1400 m, sonnig, windstill, 28.07.1970 (Fischer leg.) (NHMW).

Distribution. Austria and Germany.

Main characters of the species. Body length: 1.70 mm. Head in dorsal view 1.70 times as wide as its median length and 1.45 times as wide as mesoscutum. Face 1.40 times as wide as high. Mandible 1.15 times as long as wide. Lower tooth wider than upper tooth. Antennae 17–18–segmented. First flagellar segment 3.00 times as long as its apical width. Middle flagellar segments 1.65 times as long as their width. Mesosoma in lateral view 1.30 times as long as high. Mesoscutum 1.10 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, rounded. Prescutellar depression with lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum sculptured, with short median carina, with emerging carinae reaching propodeal edges. Propodeal spiracles relatively small. Hind femur 3.60 times as long as its maximum width. First metasomal tergite 2.30 times as long as its apical width, striated in apical half. Ovipositor 1.60 times as long as first tergite, shorter than metasoma, 1.15 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. benifassaense* sp. nov. and *D. concinnum* (Haliday). *Dinotrema perlustrandum* differs from *D. benifassaense* in having the mandible 1.15 times as long as wide (0.85–0.90 times in *D. benifassaense*), first flagellar segment 3.00 times as long as wide (1.95–2.00 times in *D. benifassaense*), middle flagellar segments 1.65 times as long as their width (1.00 times in *D. benifassaense*) and first metasomal tergite 2.30 times as long as its apical width (1.75 times in *D. benifassaense*). Finally, *D. perlustrandum* differs from *D. concinnum* in having the mandible 1.15 times as long as wide (1.00 times in *D. concinnum*), first flagellar segment 3.00 times as long as wide (2.50 times in *D. concinnum*) and first metasomal tergite 2.30 times as long as its apical width (1.95–2.00 times in *D. concinnum*).

Dinotrema phoridarum (GOIDANICH 1936)
(Figs. 1306–1317)

Aspilota phoridarum Goidanich 1936: 201.
Aspilota phoridarum: Fischer 1972: 427.
Dinotrema phoridarum: Yu *et al.* 2005; 2011.

Material examined. 1 female, Hungary, Nagykovácsi, Nagyszénás, 03.06.1970 (Szelényi leg.) (HNHM); 2 males, Italy, CH. Mt. Generoso, TI, Bellavista, 1200 m, 11–20.08.1982 (Rezbenyai–Reser leg.) (HNHM); 1 male, Germany, Würzburg, Schraudenback, Malaise csapda, 26.09.1968 (Horstmann leg.) (HNHM); 1 male, Bulgaria, Lozen, 800 m, 19.08.1982 (Draskovits & Vály leg.) (HNHM); 1 male, Armenia, Dilizhan, 1600 m, 21.07.1977 (Zombori leg.) (HNHM); 2 males, Greece, Lakonia, Peloponeso, 5 km NW Rikhea, 420 m, 28.07.1986 (Gittenberger leg.) (HNHM); 1 male, England, Coll. Marshall Cornwall Botusfelming (HNHM); 3 females, Greece, Lakonia, Peloponeso, 5 km NW Rikhea, 420 m, 28.07.1986 (Gittenberger leg.) (RMNH).

Distribution. Armenia **(new record)**, Bulgaria **(new record)**, England **(new record)**, Germany **(new record)**, Greece **(new record)**, Hungary, Italy and Spain.

Main characters of the species. Body length: 2.00–3.00 mm. Head in dorsal view 1.80 times as wide as its median length and 1.30 times as wide as mesoscutum. Face 1.60 times as wide as high. Mandible 2.00 times as long as wide. Upper tooth as wide as lower tooth. Antennae 21–22–segmented. First flagellar segment 2.50 times as long as its apical width. Middle flagellar segments 1.50 times as long as their width. Mesosoma in lateral view 1.20 times as long as high. Mesoscutum as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, elongated. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching

anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum smooth, with median longitudinal carina crossing from anterior to posterior margins, with short emerging carinae from apical third not reaching propodeal edges. Propodeal spiracles small. Hind femur 4.00 times as long as its maximum width. First metasomal tergite 2.00 times as long as its apical width, almost smooth. Ovipositor 0.60 times as long as first tergite, shorter than metasoma, 0.35–0.40 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. venustum* (Tobias) but differs in having the ovipositor shorter than first metasomal tergite (longer in *D. venustum*), middle flagellar segments 1.50 times as long as wide (2.00 times in *D. venustum*), hind femur 4.00 times as long as its maximum width (4.50 times in *D. venustum*) and first metasomal tergite almost smooth (striated in *D. venustum*).

***Dinotrema pilarae* sp. nov.**

(Figs. 1318–1329)

Material examined. Holotype: 1 female, Spain, Alicante Province, Alcoi, Natural Park of Carrascal de La Font Roja, 13.01.2005 (F.J. Peris–Felipo leg.) (ENV). Paratype: 1 female, same label as in holotype, but 02.01.2007 (ENV).

Distribution. Spain.

Main characters of the species. Body length: 2.20–2.25 mm. Head in dorsal view 1.80 times as wide as its median length and 1.50–1.55 times as wide as mesoscutum. Face 1.80 times as wide as high. Mandible 1.20 times as long as wide. Upper tooth wider than lower tooth. Antennae 19–segmented. First flagellar segment 3.25 times as long as its apical width. Middle flagellar segments 1.90–2.30 times as long as their width. Mesosoma in lateral view 1.05 times as long as

high. Mesoscutum as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, oval. Prescutellar depression with lateral carinae. Sternaulus (precoxal suture) present, reaching anterior part of mesopleuron. Posterior mesopleural furrow crenulated below. Propodeum sculptured, with median longitudinal carina crossing from anterior to posterior margins, with emerging carinae reaching propodeal edges. Propodeal spiracles relatively small. Hind femur 4.10 times as long as its maximum width. First metasomal tergite 1.80 times as long as its apical width, striated. Ovipositor 1.80–1.85 times as long as first tergite, shorter than metasoma, 1.15 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. nervosum* (Haliday) and *D. lineolum* (Thomson). *Dinotrema pilarae* differs from *D. nervosum* in having the mandible 1.20 times as long as wide (1.50 times in *D. nervosum*), middle flagellar segments 1.90–2.00 times as long as their width (1.50 times in *D. nervosum*), sternaulus (precoxal suture) reaching anterior part of mesopleron (not reaching in *D. nervosum*) and ovipositor shorter than metasoma (longer in *D. nervosum*). Finally, *D. pilarae* differs from *D. lineolum* in having the mandible 1.20 times as long as wide (1.70 times in *D. nervosum*), first flagellar segment 3.25 times as long as wide (2.50 times in *D. lineolum*), middle flagellar segments 1.90–2.00 times as long as their width (1.50 times in *D. lineolum*), first metasomal tergite 1.80 times as long as its apical width (1.50 times in *D. lineolum*) and sternaulus (precoxal suture) reaching anterior part of mesopleuron (not reaching in *D. lineolum*).

Dinotrema praescutellare (FISCHER 1976) **comb. nov.**
(Figs. 1330–1341)

Aspilota praescutellaris Fischer 1976: 395.
Aspilota praescutellaris: Yu *et al.* 2005.
Dinotrema praescutellaris: Yu *et al.* 2011.

Material examined. Holotype: 1 female, Austria, Burgenland, Tauchenbach bei Nermarkt–Tauchental, 05.08.1963 (Fischer leg.) (NHMW). Additional material: 1 female, Hungary, Miskolc, Bückszentlélek, Orvénykö, 16.06.1970 (Szelényi leg.) (HNHM); 1 female, Italy, Ch. Mts. Generoso, TI, Bellavista, 1200 m, 11–20.08.1982 (Rezbenyai–Reser leg.) (HNHM).
Distribution. Austria, Hungary and Italy **(new record)**.
Main characters of the species. Body length: 2.30 mm. Head in dorsal view 1.70 times as wide as its median length and 1.30 times as wide as mesoscutum. Face 1.40–1.50 times as wide as high. Mandible 1.50 times as long as wide. Lower tooth wider than upper tooth. Antennae 21–segmented. First flagellar segment 4.00 times as long as its apical width. Middle flagellar segments 1.80 times as long as their width. Mesosoma in lateral view 1.30 times as long as high. Mesoscutum 1.10 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, elongated. Prescutellar depression with lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum sculptured, with median longitudinal carina crossing from anterior to posterior margins, with emerging carinae reaching propodeal edges. Propodeal spiracles small. Hind femur 4.00 times as long as its maximum width. First metasomal tergite 1.60 times as long as its apical width, striated in apical half. Ovipositor 0.45 times as long as first tergite, shorter than metasoma, 0.30 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. propomellum* (Fischer) and *D. insidiatrix* (Marshall). *Dinotrema praescutellare* differs from *D. propomellum* in having the hind femur 4.00 times as long as its maximum width (5.00 times in *D. propomellum*), first flagellar segment 1.80 times as long as wide (2.00 times in *D. propomellum*) and mandible 1.25 times as long as wide (1.50 times in *D. propomellum*). Finally, *D. praescutellare* differs from *D. insidiatrix* in having the first metasomal tergite 1.60 times as long as its apical width (2.00 times in *D. insidiatrix*) and mandible 1.30 times as long as wide (1.00 times in *D. insidiatrix*).

Dinotrema pratense VAN ACHTERBERG 1988
(Figs. 1342–1353)

Dinotrema pratense van Achterberg 1988b: 27.
Dinotrema pratense: Yu *et al*. 2005; 2011.

Material examined. Holotype: 1 female, Netherlands, Leiden, Harich (Gaasterland), on *Agaricus sp.* in pasture, 18.07.1982 (Vet leg.) (RMNH). Paratypes: 8 females and 2 males, Netherlands, Leiden, ex *Bovista gigantea*–mushroom [= *Langermannia gigantean* (Batsch ex Persoon)], 17.07.1980 (Vet leg.) (RMNH). Additional material: 1 female, Denmark, E–Jutland, Skramsø Plantage, 56º17’N 10º40’E, 04.09.1989 (Munk leg.) (ENV).

Distribution. China, Denmark **(new record)** and Netherlands.

Main characters of the species. Body length: 1.90–2.40 mm. Head in dorsal view 1.80 times as wide as its median length and 1.40 times as wide as mesoscutum. Face 1.40 times as wide as high. Mandible 1.30 times as long as wide. Lower tooth wider than upper tooth. Antennae 22–segmented. First flagellar segment 3.70 times as long as its apical width. Middle flagellar segments 1.80 times as long as their width. Mesosoma in lateral view 1.40 times as long as high. Mesoscutum

1.05–1.10 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, oval. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow crenulated below. Propodeum smooth, with median longitudinal carina crossing from anterior to posterior margins, with short emerging carinae not reaching propodeal edges. Propodeal spiracles relatively small. Hind femur 4.70 times as long as its maximum width. First metasomal tergite 1.80 times as long as its apical width, rugose–striated in apical half. Ovipositor 1.60–1.65 times as long as first tergite, shorter than metasoma, 1.25–1.30 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. nigricorne* (Thomson) but differs in having the lower tooth wider than upper tooth (lower tooth as wide as upper tooth in *D. nigricorne*), first metasomal tergite 2.00 times as long as its apical width and striated in apical half (1.80 times and almost smooth in *D. nigricorne*), mesonotum with two rows of single setae (two rows of double setae in *D. nigricorne*), mesocutal pit oval (elongated in *D. nigricorne*) and propodeum with longitudinal carina wit emerging carinae (only median longitudinal carina in *D. nigricorne*).

Dinotrema propodeale (TOBIAS 1962)

(Figs. 1354–1365)

Aspilota propodealis Tobias 1962: 109.
Aspilota propodealis: Fischer 1972: 430.
Dinotrema propodeale: Papp 2003a: 126.
Dinotrema propodeale: Yu *et al.* 2005.
Dinotrema propodeale: Lozan *et al.* 2010: 18.
Dinotrema propodeale: Yu *et al.* 2011.

Material examined. Holotype: 1 female, Russia, Leningrad Province, Tolmachevo, 22.08.1960 (Tobias coll.) (ZISP). Paratypes: numerous paratypes, same label as in holotype (Tobias coll.) (ZISP). Additional material: 1 female, Hungary, Jósvafö Kecsö–völgy, 28.04.1989 (Papp leg.) (HNHM); 1 female, Bulgaria, Sofia, Biró, 09.1928 (HNHM); 1 female, Germany, Würzburg, Schraudenbach, Malaise csapda, 26.09.1968 (Horstmann leg.) (HNHM); 2 1 female, Denmark, Dania, E–Jutland, Grejsdalen, 1 km NE of Lerbæk Mølle, 09.08.1985 (Munk leg.) (NHMW); 4 females, Denmark, Dania, N–Jylland, NJ77, Sindal, 25.07.1985 (Munk leg.) (NHMW).

Distribution. Bulgaria **(new record)**, Czech Republich, former Czechoslovakia, Denmark **(new record)**, Germany **(new record)**, Hungary, Korea and Russia.

Main characters of the species. Body length: 1.50–2.00 mm. Head in dorsal view 1.60 times as wide as its median length and 1.50 times as wide as mesoscutum. Face 1.30 times as wide as high. Mandible 1.70 times as long as wide. Upper tooth as wide as lower tooth. Antennae 16–22–segmented. First flagellar segment 3.20 times as long as its apical width. Middle flagellar segments 1.70 times as long as their width. Mesosoma in lateral view 1.20 times as long as high. Mesoscutum as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, rounded. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth below. Propodeum smooth, with median longitudinal carina crossing from anterior to posterior margins, with short emerging carinae from apical third not reaching propodeal edges. Propodeal spiracles small. Hind femur 4.30 times as long as its maximum width. First metasomal tergite 2.00 times as long as its apical width, striated. Ovipositor 1.40–1.45 times as long as first

tergite, shorter than metasoma, 0.85–0.90 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. achterbergi* sp. nov. but differs in having the mandible 1.70 times as long as wide (1.20 times in *D. achterbergi*), first metasomal tergite 3.20 times as long as wide (2.50–2.60 times in *D. achterbergi*), mesosoma in lateral view 1.20 times as long as high (1.05 times in *D. achterbergi*) and first metasomal tergite 2.00 times as long as its apical width (2.60 times in *D. achterbergi*).

Dinotrema propomellum (FISCHER 1996) **comb. nov.**
(Figs. 1366–1377)

Dinotrema propomella Fischer 1996: 665.
Dinotrema propomella: Yu *et al.* 2005; 2011.

Material examined. Holotype: 1 female, Spain, Teruel, Alcalá de la Selva, 20.08.1960 (Docavo Alberti leg.) (NHMW). Additional material: 1 female, Slovakia, Tátrafiired, Biró, 28.08.1909 (HNHM).

Distribution. Hungary, Slovakia **(new record)** and Spain.

Main characters of the species. Body length: 2.20 mm. Head in dorsal view 2.00 times as wide as its median length and 1.40 times as wide as mesoscutum. Face 1.60 times as wide as high. Mandible 1.25 times as long as wide. Lower tooth wider than upper tooth. Antennae 17–segmented. First flagellar segment 4.00 times as long as its apical width. Middle flagellar segments 2.00 times as long as their width. Mesosoma in lateral view 1.30 times as long as high. Mesoscutum 1.20 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, elongated. Prescutellar depression with lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow crenulated. Propodeum sculptured, with median longitudinal carina

crossing from anterior to posterior margins, with emerging carinae reaching propodeal edges. Propodeal spiracles small. Hind femur 5.00 times as long as its maximum width. First metasomal tergite 1.70 times as long as its apical width, striated in apical half. Ovipositor 1.40 times as long as first tergite, shorter than metasoma, 0.95 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. praescutellare* (Fischer) and *D. setaceum* sp. nov.. *Dinotrema propomellum* differs from *D. praescutellare* in having the hind femur 5.00 times as long as its maximum width (4.00 times in *D. praescutellare*), first flagellar segment 2.00 times as long as wide (1.80 times in *D. praescutellare*) and mandible 1.25 times as long as wide (1.50 times in *D. praescutellare*). Finally, *D. praescutellare* differs from *D. setaceum* in having the first metasomal tergite 1.70 times as long as its apical width (2.25-2.30 in *D. setaceum*), mandible 1.25 times as long as wide (1.40 times in *D. setaceum*) and head in dorsal view 2.00 times as wide as its median length (1.40-1.45 times in *D. setaceum*).

Dinotrema puliciforme (FISCHER 1973)
(Figs. 1378–1386)

Aspilota puliciformis Fischer 1973d: 115.
Aspilota puliciformis: Yu *et al.* 2005.
Dinotrema puliciforme: Yu *et al*. 2011.

Material examined. Holotype: 1 female, Austria, Steiermark, Neumarkt, Anhöbe, Sördl., Steindorf, Kampfwaldzone um 980 m, 05.08.1966 (Fischer leg.) (NHMW). Paratypes: 2 females, Austria, Tirol, SO Venter Ache Bodenegg, schütterer, Fichten–Lärchen W., 1550 m, überwiegend bedeck, 16.08.1970 (Fischer leg.) (NHMW); 1 female, Austria, inf. Eichgraben, 16.09.1959 (Fischer leg.) (NHMW); 1 female, Austria, Tirol, Ötztal, Zwieselstein, Lärohenwald, 1470 m,

überwiegend, sonnig, wind, 04.07.1969 (Fischer leg.) (NHMW). Additional material: 1 female, Hungary, Sailvásvárad, Tót falu–völgu, 06.09.1982 (Papp leg.) (HNHM); 1 male, Finland, Pallastunturi, 29.07.1967 (Mihályi leg.) (HNHM); 1 male, Armenia, Tskhkadzor, 2000 m, 04.06.1980 (Papp leg.) (HNHM); 1 male, Germany, Gotha Seeberg, 19.05.1976 (Tóth leg.) (HNHM).

Distribution. Armenia **(new record)**, Austria, Finland **(new record)**, Germany **(new record)** and Hungary.

Main characters of the species. Body length: 1.80 mm. Head in dorsal view 2.00 times as wide as its median length and 1.40–1.45 times as wide as mesoscutum. Face 1.40 times as wide as high. Mandible 1.60 times as long as wide. Upper tooth wider lower tooth. Antennae 17–segmented. First flagellar segment 4.00 times as long as its apical width. Middle flagellar segments 2.00 times as long as their width. Mesosoma in lateral view 1.25 times as long as high. Mesoscutum 1.25 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, oval. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth below. Propodeum smooth, with median longitudinal carina crossing from anterior to posterior margins, with short emerging carinae from apical third not reaching propodeal edges. Propodeal spiracles small. Hind femur 4.50 times as long as its maximum width. First metasomal tergite 1.90 times as long as its apical width, striated. Ovipositor 1.25–1.30 times as long as first tergite, shorter than metasoma, 0.90–0.95 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. affine* (Fischer) but differs in having the hind femur 4.50 times as long as its maximum width (4.00 times in *D. affine*), first flagellar segment 4.00 times as long as wide (3.50 times in *D. affine*), middle flagellar

segments 2.00 times as long as wide (1.60 times in *D. affine*) and sternaulus (precoxal suture) short arriving far to anterior part of mesopleuron (large arriving close to anterior part of mesopleuron in *D. affine*).

Dinotrema pullum (FOERSTER 1862)
(Figs. 1387–1397)

Spanomeris pulla Foerster 1862: 268.
Aspilota pulla: Fischer 1972: 432.
Dinotrema pullum: Yu *et al.* 2005.
Dinotrema pulla: Fischer 2009: 105.
Dinotrema pullum: Yu *et al.* 2011.

Material examined. Lectotype: 1 female, Germany, 25/208, Aachen Luji (Foerster leg.) (NHMB).
Distribution. Germany.
Main characters of the species. Body length: 1.20 mm. Head in dorsal view 1.55 times as wide as its median length and 1.47 times as wide as mesoscutum. Face 2.40 times as wide as high. Mandible 1.60 times as long as wide. Lower tooth wider than upper tooth. Antennae 13–segmented. First flagellar segment 3.00 times as long as its apical width. Middle flagellar segments 1.60–1.70 times as long as their width. Mesosoma in lateral view 1.18 times as long as high. Mesoscutum as long as its maximum width. Notauli mainly absent. Mesoscutal pit absent. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum sculptured, with pentagonal areola. Propodeal spiracles relatively small. Hind femur 4.40 times as long as its maximum width. First metasomal tergite 2.00 times as long as its apical width, smooth.

Ovipositor as long as first tergite, shorter than metasoma, 0.68 times as long as hind femur. Main colour brown.

Comparative diagnosis. This species resembles *D. curtisetum* sp. nov. and *D. alakolense* Tobias. *Dinotrema pullum* differs from *D. curtisetum* in having the mandible 1.60 times as long as wide (1.25 times in *D. curtisetum*), hind femur 4.40 times as long as its maximum width (4.00 times in *D. curtisetum*) and first metasomal tergite 2.00 times as long as its apical width (2.20 times in *D. curtisetum*). Finally, *D. pullum* differs from *D. alakolense* in having the mandible 1.60 times as long as wide (1.40 times in *D. alakolense*) and hind femur 4.40 times as long as its maximum width (4.00 times in *D. alakolense*).

Dinotrema reductidens (FISCHER 1975)
(Figs. 1398–1409)

Aspilota redutidens Fischer 1975a: 262.
Dinotrema reductidens: Yu *et al.* 2005; 2011.

Material examined. Holotype: 1 male, Germany, Rheinlana Ahr bei Ahrburg, 22.02.1961 [ex. *Phoridae*] (Boneβ leg.) (NHMW).

Distribution. Germany.

Main characters of the species. Body length: 1.50 mm. Head in dorsal view 1.80 times as wide as its median length and 1.35 times as wide as mesoscutum. Face 1.30 times as wide as high. Mandible 2.00 times as long as wide. Lower tooth wider than upper tooth. Antennae 22–segmented. First flagellar segment 3.00 times as long as its apical width. Middle flagellar segments 2.50 times as long as their width. Mesosoma in lateral view 1.30 times as long as high. Mesoscutum 1.20 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, rounded. Prescutellar depression with lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and

posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum sculptured, with median longitudinal carina crossing from anterior to posterior margins, with emerging carinae reaching propodeal edges. Propodeal spiracles small. Hind femur 4.00 times as long as its maximum width. First metasomal tergite 2.00 times as long as its apical width, striated in apical half. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. jimenezi* sp. nov. but differs in having the mandible 2.00 times as long as wide (1.25 times in *D. jimenezi*), first flagellar segment 3.00 times as long as wide (2.60 times in *D. jimenezi*), middle flagellar segments2.50 times as long as their width (1.80 times in *D. jimenezi*), hind femur 4.00 times as long as its maximum width (3.60 times in *D. jimenezi*) and first metasomal tergite 2.70–2.80 times as long as its apical width (1.80 times in *D. jimenezi*).

***Dinotrema robertoi* sp. nov.**

(Figs. 1410–1421)

Material examined. Holotype: 1 female, Spain, Castellon Province, Pobla de Benifassà, Natural Park of Tinença de Benifassà, 22.07.2004 (F.J. Peris–Felipo leg.) (ENV). Paratypes: 1 female, same label as in holotype but 05.08.2004 (ENV); 1 female, same label as in holotype but 16.09.2004 (ENV).

Distribution. Spain.

Main characters of the species. Body length: 1.00–1.05 mm. Head in dorsal view 1.55–1.60 times as wide as its median length and 1.55–1.60 times as wide as mesoscutum. Face 1.20 times as wide as high. Mandible 0.95 times as long as wide. Upper tooth wider than lower tooth. Antennae 12–segmented. First flagellar segment 2.60–2.65 times as long as its apical width. Middle flagellar segments 1.65–1.70

times as long as their width. Mesosoma in lateral view 1.30 times as long as high. Mesoscutum 1.05 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit absent. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow slightly crenulated below. Propodeum sculptured, with short median carina, with emerging carinae reaching propodeal edges. Propodeal spiracles relatively small. Hind femur 3.50 times as long as its maximum width. First metasomal tergite 2.50 times as long as its apical width, smooth. Ovipositor 0.75 times as long as first tergite, shorter than metasoma, 0.40–0.45 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. compressum* (Haliday) but differs in having hind femur 3.50 times as long as its maximum width (4.00 times in *D. compressum*), first metasomal tergite 2.50 times as long as its apical width and smooth (2.35 times and striated in *D. compressum*), prescutellar depression rectangular with lateral carinae (square without lateral carinae in *D. compressum)* and middle tooth short and apically rounded (large and very pointed in *D. compressum*).

Dinotrema rodopiense FISCHER 2009

(Figs. 1422–1431)

Dinotrema rodopiense Fischer 2009: 114.

Dinotrema rodopiense: Yu *et al.* 2011.

Material examined. Holotype: 1 male, Bulgaria, Rodopi Studenec, 22.07.1982 (Zaykov leg.) (NHMW). Additional material: 1 male, same label as in holotype (NHMW); 1 male, Bulgaria, Rodopi, L–Zdravec, 29.07.1992 (Zaykov leg.) (NHMW).

Distribution. Bulgaria.

Main characters of the species. Body length: 1.80 mm. Head in dorsal view 1.90 times as wide as its median length and 1.75 times as wide as mesoscutum. Face 1.20 times as wide as high. Mandible 1.50 times as long as wide. Lower tooth wider than upper tooth. Antennae 23–segmented. First flagellar segment 3.00 times as long as its apical width. Middle flagellar segments 2.50 times as long as their width. Mesosoma in lateral view 1.40 times as long as high. Mesoscutum 1.40 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit absent. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth below. Propodeum smooth, with median longitudinal carina crossing from anterior to posterior margins, with emerging carinae from apical third not reaching propodeal edges. Propodeal spiracles small. Hind femur 4.00 times as long as its maximum width. First metasomal tergite 2.00 times as long as its apical width, striated in apical half. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. sylvaticum* Tobias but differs in having the first flagellar segment 3.00 times as long as wide (5.00 times in *D. sylvaticum*), hind femur 4.00 times as long as its maximum width (5.00–6.00 times in *D. sylvaticum*) and mandible 1.50 times as long as wide (1.30 times in *D. sylvaticum*).

Dinotrema rugisignum (FISCHER 1973)

(Figs. 1432–1443)

Aspilota rugisignum Fischer 1973b: 118.

Aspilota rugisignum: Yu *et al.* 2005.

Dinotrema rugisignum: Yu *et al.* 2011.

Material examined. Holotype: 1 female, Austria, Tirol, SO, Venter Ache, Bodenegg schütterer, Fichten–Lärchen W, 1550 m,

überwiegend bedeck, 16.08.1970 (Fischer leg.) (NHMW). Additional material: 1 male, Hungary, Tihany, Csúas hegy, 22.06.1967 (Móczár leg.) (HNHM); 1 male, Switzarland, Dietikon, 23.05.1986 (Bäehli & Papp leg.) (HNHM).

Distribution. Austria, Hungary and Switzerland **(new record)**.

Main characters of the species. Body length: 1.90 mm. Head in dorsal view 1.80 times as wide as its median length and 1.30 times as wide as mesoscutum. Face 1.50 times as wide as high. Mandible 1.75 times as long as wide. Lower tooth wider than upper tooth. Antennae 20–segmented. First flagellar segment 4.00 times as long as its apical width. Middle flagellar segments 1.50 times as long as their width. Mesosoma in lateral view 1.30 times as long as high. Mesoscutum 1.25 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, oval. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, reaching anterior part of mesopleuron. Posterior mesopleural furrow crenulated. Propodeum sculptured, with median longitudinal carina crossing from anterior to posterior margins, with emerging carinae reaching propodeal edges. Propodeal spiracles relatively small. Hind femur 4.50 times as long as its maximum width. First metasomal tergite 2.00 times as long as its apical width, striated in apical half. Ovipositor 1.10 times as long as first tergite, shorter than metasoma, 0.70 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. paludellae* sp. nov. and *D. oleraceum* (Tobias). *Dinotrema rugisignum* differs from *D. paludellae* in having the mandible 1.75 times as long as wide (1.90 times in *D. paludellae*), first flagellar segment 4.00 times as long as wide (2.30–2.40 times in *D. paludellae*), middle flagellar segments 1.50 times as long as their width (1.10 times in *D. paludellae*), hind femur 4.50 times as long as its maximum width (3.60–3.65 times in *D. paludellae*) and first metasomal tergite 2.00 times as long as its apical

width (2.25–2.30 times in *D. paludellae*). Finally, *D. rugisignum* differs from *D. oleraceum* in having the mandible 1.75 times as long as wide (2.00 times in *D. oleraceum*), first flagellar segment 4.00 times as long as wide (3.00 times in *D. oleraceum*), hind femur 4.50 times as long as its maximum width (4.00 times in *D. oleraceum*) and first metasomal tergite 2.00 times as long as its apical width (1.70 times in *D. oleraceum*).

Dinotrema sauricum TOBIAS 2003
(Figs. 1444–1453)

Dinotrema sauricum Tobias 2003a: 285.
Dinotrema sauricum: Yu *et al.* 2005; 2011.

Material examined. Holotype: 1 female, Kazakhstan, Saur Range, Salyk Mt., 2000 m, grassy meadow, 19.06.1961 (Tobias leg.) (ZISP).
Distribution. Kazakhstan.
Main characters of the species. Body length: 1.40 mm. Head in dorsal view 1.75 times as wide as its median length and 1.65 times as wide as mesoscutum. Face 1.50 times as wide as high. Mandible 1.50 times as long as wide. Lower tooth wider than upper tooth. Antennae 18–segmented. First flagellar segment 3.00 times as long as its apical width. Middle flagellar segments 2.00 times as long as their width. Mesosoma in lateral view 1.30 times as long as high. Mesoscutum 1.05 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, rounded. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth below. Propodeum smooth, with median longitudinal carina crossing from anterior to posterior margins, with emerging carinae from apical third not reaching propodeal edges. Propodeal spiracles relatively small. Hind femur 4.00 times as long as its

maximum width. First metasomal tergite 1.50 times as long as its apical width, almost smooth. Ovipositor 4.00 times as long as first tergite, as long as metasoma, 2.00 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. tuberculatum* van Achterberg but differs in having the mandible 1.50 times as long as wide (1.20 times in *D. tuberculatum*), first metasomal tergite 1.50 times as long as its apical width (2.00 times in *D. tuberculatum*), body without tuberculous (body with tuberculous in *D. tuberculatum*) and lower tooth wider than upper tooth (lower tooth as wide as upper tooth in *D. tuberculatum*).

Dinotrema semicompressum (STELFOX et GRAHAM 1949)
(Figs. 1454–1465)

Aspilota semicompressa Stelfox et Graham 1949: 73.
Aspilota semicompressa: Fischer 1972: 440.
Dinotrema semicompressum: Papp 2003a: 136.
Dinotrema semicompressum: Yu *et al*. 2005.
Dinotrema semicompressum: Papp 2009b: 6.
Dinotrema semicompressum: Fischer 2009: 105.
Dinotrema semicompressum: Yu *et al.* 2011.
Dinotrema semicompressum: Broad *et al.* 2012: 10.

Material examined. 1 female, Hungary, Kunfehértó, Holdrutás erdö, talajcsapda, 10.05–13.06.1979 (Tóth leg.) (HNHM); 8 males, Croatia, Mts. Velebit, Sveti Juraj, 400 m, 07.08.1999 (Rozner leg.) (HNHM); 1 male, Italy, Sicili, Polizi, Generoso, 24.06.1978 (Szabó leg.) (HNHM); 2 females, Greece, Lamia, 16.05.1977 (Zombori leg.) (HNHM); 1 female, Bulgaria, Sofia, Vrosha Mts. 1000 m, 28.08.1989 (Draskovits & Vály leg.) (HNHM); 1 female, Germany, Schlitz, Heseen, Breitenbach, Gewächshaus, 08.1970 (HNHM); 1 female, Denmark,

E–Jutland, Rugard Sønderskov, 56º16'N 10º49'E, 15.09.1996 (Munk leg.) (ENV); 1 female, Finland, U. Helsinki, 6682:382, 04.0801976 (Koponen leg.) (ENV).

Distribution. Austria, Bulgaria **(new record)**, Croatia, former Czechoslovakia, Denmark **(new record)**, Finland **(new record)**, Germany **(new record)**, Greece, Hungary, Ireland, Italy **(new record)**, Korea, Spain and United Kingdom.

Main characters of the species. Body length: 1.40–1.50 mm. Head in dorsal view 1.60 times as wide as its median length and 1.30 times as wide as mesoscutum. Face 2.00 times as wide as high. Mandible 1.10 times as long as wide. Upper tooth wider than lower tooth. Antennae 15–17–segmented. First flagellar segment 2.50 times as long as its apical width. Middle flagellar segments 1.70 times as long as their width. Mesosoma in lateral view 1.50 times as long as high. Mesoscutum 1.10–1.15 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, oval. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth below. Propodeum smooth, with median longitudinal carina crossing from anterior to posterior margins, with emerging carinae from apical third not reaching propodeal edges. Propodeal spiracles small. Hind femur 5.00 times as long as its maximum width. First metasomal tergite 2.00 times as long as its apical width, finely striated. Ovipositor 1.10–1.15 times as long as first tergite, shorter than metasoma, 0.75–0.80 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. phoridarum* (Goidanch) and *D. venustum* (Tobias). *Dinotrema semicompressum* differs from *D. phoridarum* in having the mandible 1.10 times as long as wide (2.00 times in *D. phoridarum*), hind femur 5.00 times as long as its maximum width (4.00 times in *D. phoridarum*) and upper tooth

wider than lower tooth (upper tooth as wide as lower tooth in *D. phoridarum*). On the other hand, *D. semicompressum* differs from *D. venustum* in having the mandible 1.10 times as long as wide (2.00 times in *D. venustum*), hind femur 5.00 times as long as its maximum width (4.50 times in *D. venustum*) and upper tooth wider than lower tooth (upper tooth as wide as lower tooth in *D. venustum*).

Dinotrema sessile VAN ACHTERBERG 1988
(Figs. 1466–1472)

Dinotrema sessile van Achterberg 1988b: 29.
Aspilota (*Dinotrema*) *sessilis*: Yakolev *et al.* 1992: 141.
Dinotrema sessile: Yu *et al.* 2005; 2011.

Material examined. Holotype: 1 female, Netherlands, Leiden, Voorschoten (Horsten), ex *Amanita rubescens*–mushroom, 13.08.1980 (Vet leg.) (RMNH).
Distribution. Netherlands and Russia.
Main characters of the species. Body length: 1.30 mm. Head in dorsal view 1.70 times as wide as its median length and 1.60 times as wide as mesoscutum. Face 1.95 times as wide as high. Mandible 1.60 times as long as wide. Upper tooth as wide as lower tooth. Antennae 20–segmented. First flagellar segment 3.40 times as long as its apical width. Middle flagellar segments 2.00 times as long as their width. Mesosoma in lateral view 1.20 times as long as high. Mesoscutum 0.95 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, elongated. Prescutellar depression smooth, without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth below. Propodeum smooth, with median longitudinal carina crossing from anterior to posterior margins, with emerging carinae not reaching propodeal edges, with parallel carina

reaching apical margins. Propodeal spiracles small. Hind femur 4.60 times as long as its maximum width. First metasomal tergite 1.90 times as long as its apical width, almost smooth. Ovipositor 3.40 times as long as first tergite, longer than metasoma, 2.25 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. valvulatum* Munk et Peris–Felipo but differs in having the ovipositor longer than metasoma (as long as metasoma in *D. valvulatum*), propodeum with two median longitudinal carinae reaching apical margins (three median longitudinal carinae reaching in *D. valvulatum*), first flagellar segment 3.40 times as long as wide (3.65–3.70 times in *D. valvulatum*) and middle flagellar segments 2.00 times as long as wide (2.20–2.30 times in *D. valvulatum*).

***Dinotrema setaceum* sp. nov.**

(Figs. 1473–1484)

Material examined. Holotype: 1 female, Germany, Meensen B., 04.06.1967 (Haeselbarth leg.) (ZSSM). Paratypes: 6 females, same label as in holotype (NMA). Additional material: 2 females, Germany, Meesen B., 04.06.1967 (Haeselbarth leg.) (ENV); 1 female, Finland, Suomi, U. Helsinki, 6682:382, 11.09.1976 (Koponen leg.) (ENV).

Distribution. Finland and Germany.

Main characters of the species. Body length: 2.00–2.10 mm. Head in dorsal view 1.40–1.45 times as wide as its median length and 1.40–1.45 times as wide as mesoscutum. Face 2.00 times as wide as high. Mandible 1.40 times as long as wide. Lower tooth wider than upper tooth. Antennae 20–22–segmented. First flagellar segment 4.10 times as long as its apical width. Middle flagellar segments 1.35–2.00 times as long as their width. Mesosoma in lateral view 1.15–1.20 times as long as high. Mesoscutum 1.10–1.15 times as long as its maximum

width. Notauli mainly absent. Mesoscutal pit present, elongated. Prescutellar depression with lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum sculptured, with median longitudinal carina crossing from anterior to posterior margins, with emerging carinae reaching propodeal edges. Propodeal spiracles small. Hind femur 4.90–5.00 times as long as its maximum width. First metasomal tergite 2.25–2.30 times as long as its apical width, striated. Ovipositor 1.25–1.30 times as long as first tergite, shorter than metasoma, 0.75 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. agaricophagum* sp. nov., and *D. setaceum* sp. nov. and *D. insidiatrix* (Marshall). *Dinotrema setaceum* differs from *D. agaricophagum* in having the mandible 1.40 times as long as wide (0.90 times in *D. agaricophagum*), first flagellar segment 4.10 times as long as wide (2.50 times in *D. agaricophagum*) and hind femur 4.90–5.00 times as long as its maximum width (4.50 times in *D. agaricophagum*). On the other hand, *D. setaceum* differs from *D. propomellum* in having the first metasomal tergite 2.25-2.30 times as long as its apical width (1.70 in *D. propomellum*), mandible 1.40 times as long as wide (1.25 times in *D. propomellum*) and head in dorsal view 1.40-1.45 times as wide as its median length (2.00 times in *D. propomellum*). Finally, *D. setaceum* differs from *D. insidiatrix* in having the first metasomal tergite 2.25–2.30 times as long as its apical width (2.00 times in *D. insidiatrix*) and mesoscutum 1.10–1.15 times as long as wide (0.85 times in *D. insidiatrix*).

Dinotrema significarium (FISCHER 1973)
(Figs. 1485–1496)

Aspilota significaria Fischer 1973a: 155.
Dinotrema significarium: Yu *et al.* 2005; 2011.

Material examined. Holotype: 1 male, Austria, Steiermark, Buchau, 8 km NO Admont, 850 m, überwiegend, sonnig, windstill, 30.07.1970 (Fischer leg.) (NHMW). Paratypes: 5 males, same label as in holotype (NHMW); 2 females, Austria, Steiermark, Ennstaler A., Huber, Alm–Mödlinger, Hütte, 1400 m, sonnig, windstill, 28.07.1970 (Fischer leg.). Allotype: 1 female, same label as in holotype (NHMW). Additional material: 4 females, Denamrk, E–Jutland, Højen Bæk, 5 km S of Vejle, 01.06.1984 (Munk leg.) (NHMW); 2 females, Denamrk, E–Jutland, Højen Bæk, 5 km S of Vejle, 04.06.1984 (Munk leg.) (NHMW); 1 female, Hungary, Nagyvisnyó, Taró–völgy, 08.09.1982 (Bessenyi leg.) (HNHM); 1 female, Romania, Jud Prahova, Muntele Rosu, over Cheia, 1500 m, 24.07.1006 (Orosz leg.) (HNHM); 1 female, Slovakia, Magas Tátra, Csorba–tó, 24.08.1982 (Zombori leg.) (HNHM); 1 female, Bulgaria, Mts. Rita, Biró, 09.1928 (HNHM); 1 female, Armenia, Dilizhan, 15.08.1976 (Vásárhelyi leg.) (HNHM); 1 female, Tunisia, Boughrar, 03.04.1977 (Mahunka leg.) (HNHM); 1 male, Finland, Virolathi, Harvajanniemi, 28.07.1990 (Várkonyi leg.) (HNHM); 2 males, Germany, Würzburg, Schraudenbach, Malaise csapda, 02.09.1968 (Horstmann leg.) (HNHM).

Distribution. Armenia **(new record)**, Austria, Bulgaria **(new record)**, Denmark **(new record)**, Finland **(new record)**, Germany **(new record)**, Greece, Hungary, Iran, Korea, Romania **(new record)**, Slovakia **(new record)**, Spain and Tunisia **(new record)**.

Main characters of the species. Body length: 2.00 mm. Head in dorsal view 1.80 times as wide as its median length and 1.45 times as

wide as mesoscutum. Face 1.40 times as wide as high. Mandible 1.25 times as long as wide. Lower tooth wider than upper tooth. Antennae 22–24–segmented. First flagellar segment 2.80 times as long as its apical width. Middle flagellar segments 2.25 times as long as their width. Mesosoma in lateral view 1.30 times as long as high. Mesoscutum 1.10 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, elongated. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth below. Propodeum smooth, with short median longitudinal carina, with emerging carinae not reaching propodeal edges. Propodeal spiracles small. Hind femur 4.50 times as long as its maximum width. First metasomal tergite 2.00 times as long as its apical width, almost smooth. Ovipositor 1.60–1.65 times as long as first tergite, shorter than metasoma, 0.95–1.00 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. incarinatum* (Fischer) but differs in having the mandible 1.25 times as long as wide (1.60 times in *D. incarinatum*), sternaulus (precoxal suture) not reaching anterior part of mesopleuron (reaching anterior part of mesopleuron in *D. incarinatum*), first flagellar segment 2.80 times as long as wide (3.60 times in *D. incarinatum*), middle flagellar segments 2.25 times as long as wide (2.30–2.50 times in *D. incarinatum*) and hind femur 4.50 times as long as its maximum width (4.10 times in *D. incarinatum*).

Dinotrema sinecarinum (FISCHER 1993) **comb. nov.**

(Figs. 1497–1508)

Dinotrema sinecarina Fischer 1993b: 582.

Dinotrema sinecarina: Yu *et al.* 2005; 2011.

Material examined. Holotype: 1 female, Israel, Qatif, 05.03.1996 (HNHM).

Distribution. Israel.

Main characters of the species. Body length: 1.20 mm. Head in dorsal view 1.40 times as wide as its median length and 1.90 times as wide as mesoscutum. Face 1.50 times as wide as high. Mandible 0.81 times as long as wide. Lower tooth wider than upper tooth. Antennae 14–segmented. First flagellar segment 2.25 times as long as its apical width. Middle flagellar segments 1.40 times as long as their width. Mesosoma in lateral view 1.25 times as long as high. Mesoscutum 1.25 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit absent. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth below. Propodeum completely smooth. Propodeal spiracles small. Hind femur 3.00 times as long as its maximum width. First metasomal tergite 1.90 times as long as its apical width, almost smooth. Ovipositor 0.73 times as long as first tergite, shorter than metasoma, 0.65 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. tauricum* (Telenga) and *D. sylvestre* Tobias. *Dinotrema sinecarinum* differs from *D. tauricum* in having the mandible 0.81 times as long as wide (1.30 times in *D. tauricum*), first flagellar segment 2.25 times as long as wide (3.90–4.00 times in *D. tauricum*), middle flagellar segments 1.40 times as long as wide (2.00 times in *D. tauricum*), hind femur 3.00 times as long as its maximum width (4.50 times in *D. tauricum*) and first metasomal tergite 1.90 times as long as its apical width (1.30 times *D. tauricum*). Finally, *D. sinecarinum* differs from *D. sylvestre* in having the mandible 0.81 times as long as wide (as long as wide in *D. sylvestre*), first flagellar segment 2.25 times as long as wide (3.00 times in *D. sylvestre*), middle flagellar segments 1.40 times as long as

wide (2.00 times in *D. sylvestre*), hind femur 3.00 times as long as its maximum width (4.50 times in *D. sylvestre*) and first metasomal tergite 1.90 times as long as its apical width (1.50 times in *D. sylvestre*).

Dinotrema sochiense TOBIAS 2003
(Figs. 1509–1518)

Dinotrema sochiense Tobias 2003a: 289.
Dinotrema sochiense: Yu *et al.* 2005; 2011.

Material examined. Holotype: 1 female, Russia, Krasnodar Terr., Sochi (Lazarevskoe), forest, along a brook, 27.09.1981 (Tobias leg.) (ZISP).
Distribution. Russia.
Main characters of the species. Body length: 1.40 mm. Head in dorsal view 1.75 times as wide as its median length and 1.60 times as wide as mesoscutum. Face 1.55 times as wide as high. Mandible 1.40 times as long as wide. Upper tooth wider than lower tooth. Antennae 18–segmented. First flagellar segment 4.00 times as long as its apical width. Middle flagellar segments 2.00–2.50 times as long as their width. Mesosoma in lateral view 1.25 times as long as high. Mesoscutum 1.15 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, elongated. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth below. Propodeum smooth, with median longitudinal carina. Propodeal spiracles relatively small. Hind femur 4.30 times as long as its maximum width. First metasomal tergite 2.00 times as long as its apical width, almost smooth. Ovipositor 2.50 times as long as first tergite, shorter than metasoma, 1.36 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. aurelianum* (Fischer) but differs in having the sternaulus (precoxal sututre) not reaching posterior part of mesopleuron (reaching in *D. aurelianum*), first metasomal tergite 2.00 times as long as its apical width and smooth (1.70 times and striated in *D. aurelianum*) and head in dorsal view 1.75 times as wide as its median length (2.00 times in *D. aurelianum*).

Dinotrema sphaerimembre (FISCHER 1973)
(Figs. 1519–1528)

Aspilota sphaerimembris Fischer 1973b: 120.
Dinotrema sphaerimembre: Papp 2003a: 127.
Dinotrema sphaerimembre: Yu *et al.* 2005.
Dinotrema sphaerimembre: Papp 2009b: 6.
Dinotrema sphaerimembre: Yu *et al.* 2011.
Dinotrema sphaerimembre: Broad *et al.* 2012: 10.

Material examined. Holotype: 1 female, Austria, Tirol, Piller See bei Untergurgl, schütterer W, 1660 m, schwacher wind, mäβig, bewölk, 14.08.1970 (Fischer leg.) (NHMW). Additional material: 1 female, Romania, Transylvania, Radnai, havas (Pávay leg.) (HNHM); 1 female, Romania, Jud. Bihor under the Sava Sčarita, 1150 m, 25.07.2003 (Orosz leg.) (HNHM).
Distribution. Austria, Hungary, Korea, Netherlands, Romania **(new record)**, Serbia and former Yugoslavia.
Main characters of the species. Body length: 1.90 mm. Head in dorsal view 1.85 times as wide as its median length and 1.30 times as wide as mesoscutum. Face 1.50 times as wide as high. Mandible 1.50 times as long as wide. Lower tooth wider than upper tooth. Antennae 17–segmented. First flagellar segment 3.00 times as long as its apical width. Middle flagellar segments 1.00 times as long as their width.

Mesosoma in lateral view 1.30 times as long as high. Mesoscutum 1.20 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, elongated. Prescutellar depression with lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow crenulated. Propodeum sculptured, with median longitudinal carina crossing from anterior to posterior margins of propodeum, with emerging carinae reaching propodeal edges. Propodeal spiracles small. Hind femur 5.00 times as long as its maximum width. First metasomal tergite 2.00 times as long as its apical width, striated. Ovipositor 1.15 times as long as first tergite, shorter than metasoma, as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. matridignum* (Fischer) but differs in having the hind femur 5.00 times as long as its maximum width (4.50 times in *D. matridignum*), mandible 1.50 times as long as wide (1.70 times in *D. matridignum*) and middle flagellar segments 1.00 times as long as their width (1.60 times in *D. matridignum*).

Dinotrema spitzzickense (FISCHER 1976)
(Figs. 1529–1540)

Aspilota spitzzickensis Fischer 1976: 403.
Dinotrema spitzzickense: Yu *et al.* 2005.
Dinotrema spitzzickense: Lozan *et al*. 2010: 18.
Dinotrema spitzzickense: Yu *et al*. 2011.

Material examined. Holotype: 1 female, Austria, S–Burgenland, Spitzzicken, 30.05.1966 (Fischer leg.) (NHMW): Paratype: 1 female, same label as in holotype (NHMW). Allotype: 1 male, same label as in holotype (NHMW). Additional material: 1 female, Hungary, Szóce, 30.05.1987 (Papp leg.) (HNHM); 1 female, Spain, Granada, 20 km of

Granada, Mts. Sierra Nevada, 1200 m, 24.05.2003 (Iboly & Rozner leg.) (HNHM); 1 male, Romania, Jud. Brasov, Mt. Ciucas 1600–1850 m, 28.07.2006 (Orosz leg.) (HNHM); 1 male, Greece, Prov. Attiki Paiania, 100 m, 03.04.1978 (Papp leg.) (HNHM); 1 female, Germany, Schlitz, Hessen Breitenbach, Gewächshaus, 08.1970 (HNHM).

Distribution. Austria, Czech Republic, Germany **(new record)**, Greece, Hungary, Romania **(new record)** and Spain.

Main characters of the species. Body length: 1.40 mm. Head in dorsal view 1.95 times as wide as its median length and 1.60 times as wide as mesoscutum. Face 1.25 times as wide as high. Mandible 1.30 times as long as wide. Upper tooth as wide as lower tooth. Antennae 16–segmented. First flagellar segment 4.00 times as long as its apical width. Middle flagellar segments 2.00 times as long as their width. Mesosoma in lateral view 1.30 times as long as high. Mesoscutum 1.15 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, oval. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum sculptured, with short median carina, with emerging carinae reaching propodeal edges. Propodeal spiracles relatively small. Hind femur 4.00 times as long as its maximum width. First metasomal tergite 2.00 times as long as its apical width, smooth. Ovipositor 1.40 times as long as first tergite, shorter than metasoma, 1.15 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. toleratum* (Fischer) but differs in having the first metasomal tergite smooth (finely striated in apical half in *D. toleratum*), middle flagellar segments 2.00 times as long as their width (1.60 times in *D. toleratum*) and propodeum with short median carinae diverging in two carinae reaching propodeal edges (without median longitudinal carinae in *D. toleratum*).

Dinotrema sternaulicum (FISCHER 1973)
(Figs. 1541–1552)

Aspilota sternaulica Fischer 1973a: 157.
Dinotrema sternaulicum: Papp 2005: 231.
Aspilota sternaulica: Yu *et al.* 2005.
Dinotrema sternaulicum: Papp 2009b: 6.
Dinotrema sternaulicum: Yu *et al.* 2011.

Material examined. Holotype: 1 female, Austria, Steiermark, Buchau, 8 km NO Admont, 850 m, überwiegend, sonnig, windstill, 30.07.1970 (Fischer leg.) (NHMW). Paratypes: 3 females, same label as in holotype (NHMW). Allotype: 1 male, same label as in holotype (NHMW). Additional material: 1 female, Hungary, Cserszegtomaj, Köhat, 17.05.1930 (Papp leg.) (HNHM).

Distribution. Austria, Hungary **(new record)**, Serbia and former Yugoslavia.

Main characters of the species. Body length: 2.50 mm. Head in dorsal view 1.80 times as wide as its median length and 1.25 times as wide as mesoscutum. Face 1.45 times as wide as high. Mandible 1.40 times as long as wide. Upper tooth as wide as lower tooth. Antennae 24–26–segmented. First flagellar segment 3.00 times as long as its apical width. Middle flagellar segments 1.50 times as long as their width. Mesosoma in lateral view 1.30 times as long as high. Mesoscutum 1.10 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, elongated. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, reaching anterior part of mesopleuron. Posterior mesopleural furrow smooth. Propodeum sculptured, with pentagonal areola. Propodeal spiracles small. Hind femur 3.50 times as long as its maximum width. First metasomal tergite 1.75 times as long as its apical width, striated.

Ovipositor 1.15 times as long as first tergite, shorter than metasoma, 0.70 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. necrophilum* (Hedqvist) and *D. varimembre* (Fischer). *Dinotrema sternaulicum* differs from *D. necrophilum* in having the first flagellar segment 3.00 times as long as wide (2.85 times in *D. necrophilum*), hind femur 3.50 times as long as its maximum width (4.10 times in *D. necrophilum*) and strenaulus (precoxal suture) reaching anterior part of mesopleuron (not reaching in *D. necrophilum*). Finally, *D. sternaulicum* differs from *D. varimembre* in having the mandible 1.40 times as long as wide (1.60 times in *D. varimembre*), hind femur 3.50 times as long as its maximum width (4.00 times in *D. varimembre*), first metasomal tergite 1.75 times as long as its apical width (1.80–2.00 times in *D. varimembre*) and sternaulus (precoxal suture) reaching anterior part of mesopleuron (not reaching in *D. varimembre*).

Dinotrema stigmaticum (TOBIAS 1992)

(Figs. 1553–1563)

Aspilota (*Dinotrema*) *stigmatica* Yakolev *et al.* 1992: 145.

Dinotrema stigmaticum: Yu *et al.* 2005; 2011.

Material examined. Holotype: 1 female, Russia, Krasnodar Territory, Sochi, Lazarevskoe, forest along stream, 04.05.1979 (Tobias coll.) (ZISP).

Distribution. Russia.

Main characters of the species. Body length: 1.70–1.80 mm. Head in dorsal view 1.80–1.85 times as wide as its median length and 1.55 times as wide as mesoscutum. Face 1.55 times as wide as high. Mandible 1.50 times as long as wide. Upper tooth wider than lower tooth. Antennae 18–segmented. First flagellar segment 2.25–2.50 times as long as its apical width. Middle flagellar segments 1.50–1.60

times as long as their width. Mesosoma in lateral view 1.25–1.30 times as long as high. Mesoscutum 1.10 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, elongated. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth below. Propodeum smooth, with median longitudinal carina, with short emerging carinae not propodeal edges. Propodeal spiracles large. Hind femur 4.60 times as long as its maximum width. First metasomal tergite 2.00 times as long as its apical width, almost smooth. Ovipositor 1.65 times as long as first tergite, shorter than metasoma, 1.10 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. erythropum* (Foerster) but differs in having the mandible 1.50 times as long as wide (1.40 times in *D. erythropum*), lower tooth as wide as upper tooth (lower tooth wider than upper tooh in *D. erythropum*), middle tooth with very pointed apex (rounded apex in *D. erythropum*), hind femur 4.60 times as long as its maximum width (4.00 times in *D. erythropum*), first metasomal tergite 1.90 times as long as its apical width (1.70 times in *D. erythropum*) and mesocutal pit elongated (very elongated in *D. erythropum*).

Dinotrema subtauricum TOBIAS 2003

(Figs. 1564–1573)

Dinotrema subtauricum Tobias 2003a: 286.

Dinotrema subtauricum: Yu *et al.* 2005; 2011.

Material examined. Holotype: 1 female, Russia, Leningrad Prov., Tolmachevo, 25.07.1968 (Tobias leg.) (ZISP).

Distribution. Russia.

Main characters of the species. Body length: 1.40 mm. Head in dorsal view 1.85 times as wide as its median length and 1.50 times as wide as mesoscutum. Face 1.40 times as wide as high. Mandible 1.15 times as long as wide. Upper tooth wider than lower tooth. Antennae 16–segmented. First flagellar segment 3.00 times as long as its apical width. Middle flagellar segments 1.75–2.00 times as long as their width. Mesosoma in lateral view 1.25 times as long as high. Mesoscutum as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, rounded. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth below. Propodeum smooth, with short median longitudinal carina diverging posteriorly in two carinae. Propodeal spiracles relatively small. Hind femur 4.00 times as long as its maximum width. First metasomal tergite 1.50 times as long as its apical width, almost smooth. Ovipositor 4.00 times as long as first tergite, longer than metasoma, 2.40 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. glabrum* (Stelfox et Graham) and *D. caudatum* (Thomson). *Dinotrema subtauricum* differs from *D. glabrum* in having the ovipositor longer than metasoma (shorter in *D. glabrum*), middle flagellar segments 1.30–1.50 times as long as wide (2.00–2.50 times in *D. glabrum*), hind femur 4.00 times as long as its maximum width (4.50 times in *D. glabrum*), first metasomal 1.50 times as long as its apical width (2.50 times in *D. glabrum*) and upper tooth wider than lower tooth (lower tooth wider than upper tooth in *D. glabrum*). Finally, *D. subtauricum* differs from *D. caudatum* in having the ovipositor longer than metasoma (shoter in *D. caudatum*), mandible 1.30 times as long as wide (1.10 times in *D. caudatum*) and upper tooth wider than lower tooth (lower tooth wider than upper tooth in *D. caudatum*).

Dinotrema suprapuncte (FISCHER 1973) **comb. nov.**
(Figs. 1574–1584)

Aspilota suprapunctis Fischer 1973a: 159.
Dinotrema suprapunctis: Yu *et al.* 2005, 2011.

Material examined. Holotype: 1 female, Austria, Steiermark, Mödlinger–Hütte, Ennstaler, Alpen, 1500 m, sonnig, warm, 22.07.1970 (Fischer leg.) (NHMW). Allotype: 1 male, Austria, Steiermark, Buchau, 8 km NO Admont, 850 m, überwiegend, sonnig, windstill, 30.07.1970 (Fischer leg.) (NHMW). Additional material: 1 female, Romania, Transylvania, Hargita m, Zeteväralja, Szencsed–patak, 03.07.1995 (Podlussány leg.) (HNHM); 1 female, Armenia, Dilizhan, 1400 m, 06.06.1980 (Papp leg.) (HNHM); 1 female, Armenia, Loke Sevan, 1950 m, 06.06.1980 (Papp leg.) (HNHM).

Distribution. Armenia **(new record)**, Austria and Romania **(new record)**.

Main characters of the species. Body length: 2.20 mm. Head in dorsal view 1.80 times as wide as its median length and 1.45 times as wide as mesoscutum. Face 1.30 times as wide as high. Mandible 1.60 times as long as wide. Lower tooth wider than upper tooth. Antennae 21–segmented. First flagellar segment 2.40 times as long as its apical width. Middle flagellar segments 1.60 times as long as their width. Mesosoma in lateral view 1.30 times as long as high. Mesoscutum 1.15 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, rounded. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth below. Propodeum smooth, with short median longitudinal carina, with short emerging carinae not reaching propodeal edges. Propodeal spiracles relatively small. Hind femur 4.50 times as long as its maximum width. First metasomal tergite 1.90

times as long as its apical width, smooth. Ovipositor 1.35–1.40 times as long as first tergite, shorter than metasoma, 0.75–0.80 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. mesocaudatum* van Achterberg but differs in having the hind femur 4.50 times as long as its maximum width (3.60 times in *D. mesocaudatum*), first metasomal tergite 1.90 times as long as its apical width (1.50 times in *D. mesocaudatum*), mandible 1.60 times as long as wide and very weakly widened in apical part (2.20 times and very widened in apical part in *D. mesocaudatum*) and mesoscutal pit rounded (oval in *D. mesocaudatum*).

Dinotrema sylvaticum TOBIAS 2003

(Figs. 1585–1596)

Dinotrema sylvaticum Tobias 2003a: 287.
Dinotrema sylvaticum: Yu *et al.* 2005; 2011.

Material examined. Holotype: 1 female, Russia, Novgorod Prov., Tychkino Vill., 20 km NW of Pestovo, 05.08.2001 (Tobias leg.) (ZISP). Paratype: 1 female, same label as in holotype but, 01–05.08.1990 (ZISP).

Distribution. Russia.

Main characters of the species. Body length: 2.00 mm. Head in dorsal view 1.70 times as wide as its median length and 1.40 times as wide as mesoscutum. Face 1.40 times as wide as high. Mandible 1.30 times as long as wide. Lower tooth wider than upper tooth. Antennae 23–24–segmented. First flagellar segment 5.00 times as long as its apical width. Middle flagellar segments 2.50–3.00 times as long as their width. Mesosoma in lateral view 1.10 times as long as high. Mesoscutum as long as its maximum width. Notauli mainly absent. Mesoscutal pit absent. Prescutellar depression without lateral carinae.

Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth below. Propodeum smooth, with median longitudinal carina, with short emerging carinae not reaching propodeal edges. Propodeal spiracles relatively small. Hind femur 4.75–5.00 times as long as its maximum width. First metasomal tergite 2.00 times as long as its apical width, striated in apical half. Ovipositor 3.30 times as long as first tergite, shorter than metasoma, 1.80 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. rodopiense* Fischer but differs in having the first flagellar segment 3.00 times as long as wide (5.00 times in *D. rodopiense*), hind femur 4.75–5.00 times as long as its maximum width (4.00 times in *D. rodopiense*) and mandible 1.30 times as long as wide (1.50 times in *D. rodopiense*).

Dinotrema sylvestre TOBIAS 2003

(Figs. 1597–1606)

Dinotrema sylvestre Tobias 2003a: 284.

Dinotrema sylvestre: Yu *et al.* 2005; 2011.

Material examined. Holotype: 1 female, Georgia, Borzhomi, Berdginemi, forest, 19.08.1981 (Gurasashvili leg.) (ZISP).

Distribution. Georgia.

Main characters of the species. Body length: 1.30 mm. Head in dorsal view 1.70 times as wide as its median length and 1.70 times as wide as mesoscutum. Face 1.25 times as wide as high. Mandible as long as wide. Upper tooth as wide as lower tooth. Antennae 16–segmented. First flagellar segment 3.00 times as long as its apical width. Middle flagellar segments 2.00 times as long as their width. Mesosoma in lateral view 1.15 times as long as high. Mesoscutum 0.95 times as long as its maximum width. Notauli mainly absent.

Mesoscutal pit absent. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth below. Propodeum completely smooth. Propodeal spiracles small. Hind femur 4.30 times as long as its maximum width. First metasomal tergite 1.50 times as long as its apical width, smooth. Ovipositor 1.20 times as long as first tergite, shorter than metasoma, 1.60 times as long as hind femur. Main colour brown.

Comparative diagnosis. This species resembles *D. tauricum* (Telenga) but differs in having the ovipositor shorter than metasoma (longer in *D. tauricum*), first flagellar segment 3.00 times as long as wide (3.90–4.00 times in *D. tauricum*), lower tooth as wide as upper tooth (lower tooth wider than upper tooth in *D. tauricum*), first metasomal tergite 1.50 times as long as its apical width (1.30–1.40 times in *D. tauricum*) and head in dorsal view 1.70 times as wide as its median length (2.00 times in *D. tauricum*).

Dinotrema tarbagataicum TOBIAS 2004

(Figs. 1607–1617)

Dinotrema tarbagataicum Tobias 2004a: 222.

Dinotrema tarbagataicum Yu *et al.* 2011.

Material examined. Holotype: 1 female, Kazakhstan, Tarbagatai Range, Staropyatigorskoe, 2.VII.1962 (Tobias leg.) (ZISP). Additional material: 1 female, same label as in holotype (ZISP).

Distribution. Kazakhstan.

Main characters of the species. Body length: 1.40–1.50 mm. Head in dorsal view 1.50 times as wide as its median length and 1.80 times as wide as mesoscutum. Face 1.70 times as wide as high. Mandible 1.30–1.40 times as long as wide. Upper tooth as wide as lower tooth. Antennae 20–segmented. First flagellar segment 4.00 times as long as

its apical width. Middle flagellar segments about 2.00 times as long as their width. Mesosoma in lateral view 1.30 times as long as high. Mesoscutum as long as its maximum width. Notauli mainly absent. Mesoscutal pit absent. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, reaching anterior part of mesopleuron. Posterior mesopleural furrow crenulated. Propodeum sculptured, with pentagonal areola. Propodeal spiracles small. Hind femur 4.00–4.20 times as long as its maximum width. First metasomal tergite 1.80–2.00 times as long as its apical width, almost smooth. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. zaisanicum* Tobias but differs in having the upper tooth as wide as lower tooth (upper tooth wider than lower tooth in *D. zaisanicum*) and first metasomal tergite 1.80–2.25 times as long as its apical width and smooth (1.60 times and finely striated in *D. zaisanicum*).

Dinotrema tauricum (TELENGA 1935)

(Figs. 1618–1629)

Aspilota taurica Telenga 1935: 190.
Aspilota alua Stelfox et Graham 1950b: 12 **syn. nov.**
Aspilota alua: Tobias 1962: 100.
Aspilota alua: Fischer 1972: 334.
Aspilota taurica: Fischer 1972: 444.
Aspilota taurica: Shenefelt 1974: 981.
Aspilota taurica: Fischer 1975b: 330.
Dinotrema tauricum: van Achterberg 1988b: 31.
Aspilota (*Dinotrema*) *taurica*: Yakolev *et al.* 1992: 141.
Dinotrema tauricum: Papp 2003a: 127.
Dinotrema alua: Yu *et al.* 2005.
Dinotrema tauricum: Yu *et al.* 2005.
Dinotrema alua: Yu *et al.* 2011.

Dinotrema tauricum: Yu *et al.* 2011.
Dinotrema tauricum: Broad *et al*. 2012: 10.

Material examined. Paratype (*alua*): 1 female, Austria, Tirol, Oberau, 07.1938 (Nixon leg.) (BNHM); 1 female, Switzerland, Grindelwald, 07–14.08.1937 (Nixon leg.) (BMNH). Additional material: (*tauricum*), 1 female, England, New Forest, 14.07.1980 (Vet leg.) (BMNH); 1 female, Netherlands, Voorschoten, 10.09.1980 (Vet. leg.) (RMNH); 1 female, Norway, AK Berum; Ostoya, 01–24.07.1984 (Midtgaard leg.) (ENV). Additional material (*alua*): 1 female, Russia, Leningrad Province, Tolmachevo, 22.08. 1960 (Tobias coll.) (ZISP); 1 female, Russia, Krasnodar Territory, Sochi, Lazarevskoe, 26.09.1981 (Tobias coll.) (ZISP); 1 female, Finland (Suomi), U: Nurmijarvi, 08.08.1986 (M. Koponen leg.) (ZISP); 1 male, Austria, Steiermark, Gesäuse, Ennstaler A., Räuchboden bei Johnbachbrücke, 650 m, bedeck vor Gewitter, 29.07.1970 (Fischer leg.) (NHMW); 1 male, Austria, Kärten, Hüttenberg–Knappenberg, wald, 900 m, sonnig, 18.08.1973 (Fischer leg.); 1 male, Austria, Steiermark, Wetzer Leiten, Teufelstein, 1000–1150 m, 10.08.1974 (Fischer leg.) (NHMW); 1 female, Hungary, Köszeg, Szabó–hegy, 27.06.1979 (Papp leg.) (HNHM); 1 female, Germany, Egsdorf, 23.07.1983 (Szabó leg.) (HNHM); 1 male, Bulgaria, Sofia, Mts. Vitosa, 13.07.1985 (Papp leg.) (HNHM); 1 female, England, New forest, ex mushrooms 14.07.1989 (Vet. leg.) (RMNH); 1 female, Netherlands, Voorschoten, ex *Collybia platyphylla*, 10.09.1980 (Vet. leg.) (RMNH).

Distribution. Austria, Belarus, Bulgaria **(new record)**, China, England **(new record)**, Finland **(new record)**, Germany **(new record)**, Hungary, Ireland, Korea, Netherlands, Norway **(new record)**, Russia, Switzerland, Ukraine and United Kingdom.

Main characters of the species. Body length: 1.50–2.20 mm. Head in dorsal view 2.00 times as wide as its median length and 1.45–1.50

times as wide as mesoscutum. Face 1.60–2.00 times as wide as high. Mandible 1.20–1.40 times as long as wide. Lower tooth wider than upper tooth. Antennae 18–21–segmented. First flagellar segment 3.90–4.00 times as long as its apical width. Middle flagellar segments 2.00–2.50 times as long as their width. Mesosoma in lateral view 1.30 times as long as high. Mesoscutum 1.05–1.10 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit absent. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth below. Propodeum completely smooth. Propodeal spiracles relatively small. Hind femur 4.00–4.50 times as long as its maximum width. First metasomal tergite 1.30–1.40 times as long as its apical width, smooth. Ovipositor 4.20–4.30 times as long as first tergite, longer than metasoma, 2.10–2.20 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. sylvestre* Tobias but differs in having the ovipositor longer than metasoma (shorter in *D. sylvestre*), first flagellar segment 3.90–4.00 times as long as wide (3.00 times in *D. sylvestre*), lower tooth wide upper tooth (lower tooth as wide as upper tooth in *D. sylvestre*), first metasomal tergite 1.30–1.40 times as long as its apical width (1.50 times in *D. sylvestre*) and head in dorsal view 2.00 times as wide as its median length (1.70 times in *D. sylvestre*).

***Dinotrema teresae* sp. nov.**

(Figs. 1630–1641)

Material examined. Holotype: 1 female, Spain, Castellon Province, Pobla de Benifassà, Natural Park of Tinença de Benifassà, 30.04.2007 (F.J. Peris–Felipo leg.) (ENV). Paratype: 1 female, same label as in holotype but 24.04.2006 (ENV).

Distribution. Spain.

Main characters of the species. Body length: 1.70–1.75 mm. Head in dorsal view 1.65 times as wide as its median length and 1.55 times as wide as mesoscutum. Face 1.95–2.00 times as wide as high. Mandible 1.05 times as long as wide. Lower tooth wider than upper tooth. Antennae more than 13–segmented (apical segments missing). First flagellar segment 2.85–2.90 times as long as its apical width. Middle flagellar segments 1.50–1.65 times as long as their width. Mesosoma in lateral view 1.05 times as long as high. Mesoscutum 0.95 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, elongated. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum sculptured, with median longitudinal carina crossing from anterior to posterior margins of propodeum, with emerging carinae reaching propodeal edges. Propodeal spiracles relatively small. Hind femur 4.00 times as long as its maximum width. First metasomal tergite 2.20 times as long as its apical width, striated in apical half. Ovipositor 0.50 times as long as first tergite, shorter than metasoma, 0.40 times as long as hind femur. Main colour dark brown.

Comparative diagnosis. This species resembles *D. eumandibulatum* (Fischer) and *D. dentipraesens* (Fischer). *Dinotrema teresae* differs from *D. eumandibulatum* in having the mandible 1.05 times as long as wide (0.80 times in *D.* eumandibulatum), first flagellar segment 2.85–2.90 times as long as wide (3.30 times in *D. eumandibulatum*), hind femur 4.00 times as long as its maximum width (3.50 times in *D. eumandibulatum*) and first metasomal tergite striated in apical half (almost smooth in *D. eumandibulatum*). Finally, *D. teresae* differs from *D. dentipraesens* in having the first flagellar segment 2.85–2.90 times as long as wide (3.25 times in *D. dentipraesens*), middle flagellar segments 1.50–1.65 times as long as their width (2.25 times

in *D. dentipraesens*), mesoscutal pit oval (rounded in *D. dentipraesens*) and first metasomal tergite striated in apical half (smooth in *D. dentipraesens*).

Dinotrema tergitale (FISCHER 1973)
(Figs. 1642–1653)

Aspilota tergitalis Fischer 1973b: 122.
Aspilota tergitalis: Yu *et al.* 2005.
Dinotrema tergitale: Yu *et al.* 2011.

Material examined. Holotype: 1 female, Austria, Tirol, Piller See bei Untergurgl, schütterer W, 1660 m, schwacher, wind, mäβig, bewölk, 14.08.1970 (Fischer leg.) (NHMW). Additional material: 1 female, Hungary, Aggtelek, Szelcepuszta, 12.06.1989 (Papp leg.) (HNHM); 1 male, Hungary, Cserépfalv Alsó–Csákány in *Quercetum petraceae–cerris*, 02.06.1984 (Merkl & Korsós leg.) (HNHM); 1 female, Romania, Jud. Bihor over the Pestera Meziad, 460 m, 26.07.2005 (Orosz leg.) (HNHM); 1 female, Finland, V. Vihti, 6716:366, 19.09.1979 (Koponen leg.) (RMNH); 2 females, Denmark, E–Jutland, Herstenhaven, S of Rønde, 20.07.2000 (Munk leg.) (ENV).
Distribution. Austria, Denmark **(new record)**, Finland **(new record)**, Hungary and Romania **(new record)**.
Main characters of the species. Body length: 2.50 mm. Head in dorsal view 2.00 times as wide as its median length and 1.30 times as wide as mesoscutum. Face 1.45 times as wide as high. Mandible 1.40 times as long as wide. Lower tooth wider than upper tooth. Antennae 26–segmented. First flagellar segment 3.50 times as long as its apical width. Middle flagellar segments 2.00 times as long as their width. Mesosoma in lateral view 1.30 times as long as high. Mesoscutum 1.20 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, elongated. Prescutellar depression without

lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth below. Propodeum sculptured, with median longitudinal carina crossing from anterior to posterior margins of propodeum, with emerging carinae reaching propodeal edges. Propodeal spiracles relatively small. Hind femur 3.50 times as long as its maximum width. First metasomal tergite 1.60 times as long as its apical width, striated in apical half. Ovipositor 1.10 times as long as first tergite, shorter than metasoma, 0.60 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. brevicaudum* (Tobias) and *D. cetiusmonte* (Fischer). *Dinotrema tergitale* differs from *D. brevicaudum* in having the first flagellar segment 3.50 times as long as wide (3.30 times in *D. brevicaudum*), hind femur 3.50 times as long as its maximum width (4.00 times in *D. brevicaudum*) and first metasomal tergite 1.60 times as long as its apical width (2.00 times in *D. brevicaudum*). Finally, *D. tergitale* differs from *D. cetiusmonte* in having the first flagellar segment 3.50 times as long as wide (3.20 times in *D. cetiusmonte*), middle flagellar segments 2.00 times as long as their width (1.60 times in *D. cetiusmonte*) and hind femur 3.50 times as long as its maximum width (4.20 times in *D. cetiusmonte*).

***Dinotrema thurnense* (**FISCHER 1977) **comb. nov.**

(Figs. 1654–1665)

Aspilota thurnensis Fischer 1977: 151.

Aspilota thurnensis: Yu *et al.* 2005; 2011.

Material examined. Holotype: 1 female, Austria, Osttirol, Thurn bei Lienz, 800 m, 06.07.1976 (Fischer leg.) (NHMW). Additional material: 1 female, Denmark, W–Jutland, Klelund Plantage, 55º34'N 08º55'E, 30.06.1986 (Munk leg.) (NHMW); 1 female, Denmark, E–

Jutland, Højen Bæk, 5 km S of Vejle, 16.06.1986 (Munk leg.) (NHMW); 1 female, Denmark, Dania, E–Jutland, Højen Bæk, S of Vejle, 14.07.1984 (Munk leg.) (NHMW); 1 female, Denmark, E–Jutland, Hesset s. Grenä, 55º23'N 10º52'E, 13.08.1989 (Munk leg.) (HNHM); 1 female, Hungary, Ocsa, védtt erdö talajc sapda, 22.09.1978 (Hámori leg.) (HNHM); 1 female, Netherlands, Waarder (z.H.), Oosteinde, 16–29.08.1974 (Achterberg leg.) (RMNH); 1 female, Netherlands, same label but, 04–11.06.1974 (RMNH); 1 female, Netherlands, same label but, 19–21.05.1972 (RMNH).

Distribution. Austria, Denmark **(new record)**, Hungary **(new record)** and Netherlands **(new record)**.

Main characters of the species. Body length: 2.30 mm. Head in dorsal view 1.80 times as wide as its median length and 1.35 times as wide as mesoscutum. Face 1.60 times as wide as high. Mandible 1.50 times as long as wide. Lower tooth wider than upper tooth. Antennae 23–segmented. First flagellar segment 2.50 times as long as its apical width. Middle flagellar segments 1.50–1.70 times as long as their width. Mesosoma in lateral view 1.30 times as long as high. Mesoscutum 1.05 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, elongated. Prescutellar depression with lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth below. Propodeum smooth, with median longitudinal carina crossing from anterior to posterior margins, with emerging lateral carinae not reaching propodeal edges. Propodeal spiracles small. Hind femur 4.50 times as long as its maximum width. First metasomal tergite 2.10 times as long as its apical width, striated. Ovipositor 1.50–1.55 times as long as first tergite, shorter than metasoma, 1.05–1.10 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. cruciatum* (Fischer) but differs in having the mandible 1.50 times as long as wide (1.70 times in *D. cruciatum*), lower tooth wider than upper tooth (upper tooth wider than lower tooth in *D. cruciatum*), hind femur 4.50 times as long as tis maximum width (4.00 times in *D. cruciatum*) and propodeum with only one carina reaching apical margins (more than one carina reaching apical margins in *D. cruciatum*).

***Dinotrema tinencaense* sp. nov.**
(Figs. 1666–1677)

Material examined. Holotype: 1 female, Spain, Castellon Province, Pobla de Benifassà, Natural Park of Tinença de Benifassà, 10.06.2004 (F.J. Peris–Felipo leg.) (ENV). Paratypes: 1 female, same label as in holotype but 05.08.2004 (ENV); 1 female, same label but 27.09.2004 (ENV); 1 female, same label as in holotype but 04.07.2005 (ZISP). Additional material: 1 female, Spain, Castellon Province, Pobla de Benifassà, Natural Park of Tinença de Benifassà, 15.07.2004; 1 female, same label but 22.07.2004; 2 females, same label but 13.06.2005; 1 female, same label but 04.07.2005 (ENV).
Distribution. Spain.
Main characters of the species. Body length: 1.30–1.35 mm. Head in dorsal view 1.45–1.40 times as wide as its median length and 1.50–1.55 times as wide as mesoscutum. Face 2.00–2.05 times as wide as high. Mandible 1.10 times as long as wide. Upper tooth wider than lower tooth. Antennae 14–segmented. First flagellar segment 2.50 times as long as its apical width. Middle flagellar segments 1.50–1.60 times as long as their width. Mesosoma in lateral view 1.15 times as long as high. Mesoscutum 0.90 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit absent. Prescutellar depression with lateral carinae. Sternaulus (precoxal suture) present, not reaching

anterior and posterior parts of mesopleuron. Posterior mesopleural furrow crenulated below. Propodeum sculptured, with median longitudinal carina crossing from anterior to posterior margins, with emerging lateral carinae reaching propodeal edges. Propodeal spiracles relatively small. Hind femur 3.60–3.70 times as long as its maximum width. First metasomal tergite 1.40 times as long as its apical width, striated. Ovipositor 1.25–1.30 times as long as first tergite, shorter than metasoma, 0.65 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. arenarium* (Tobias) and *D. falsificum* (Stelfox et Graham). *Dinotrema tinencaense* differs from *D. arenarium* in having the mandible 1.10 times as long as wide (1.40 times in *D. arenarium*), first flagellar segment 2.50 times as long as its width (4.00 times in *D. arenarium*), middle flagellar segments 1.50–1.60 times as long as their width (2.00 times in *D. arenarium*), sternaulus (precoxal suture) not reaching anterior and posterior part of mesopleuron (reaching in *D. arenarium*) and prescutellar depression with lateral carinae (without lateral carinae in *D. arenarium*). On the other hand, *D. tinencaense* differs from *D. falsificum* in having the mandible 1.10 times as long as wide (2.00 times in *D. falsificum*), first flagellar segment 2.50 times as long as wide (3.50 times in *D. falsificum*), middle flagellar segments 1.50–1.60 times as long as their width (2.00 times in *D. falsificum*), hind femur 3.60–3.70 times as long as its maximum width (5.00 times in *D. falsificum*), first metasomal tergite 1.40 times as long as its apical width (2.20 times in *D. falsificum*) and ovipositor shorter than metasoma (as long as metasoma in *D. falsificum*).

Dinotrema tirolense MUNK et PERIS–FELIPO 2013
(Figs. 1678–1689)

Dinotrema tirolense Munk et Peris–Felipo 2013a: 69.

Material examined. Holotype: 1 female, Italy, St. Peter/Ahrntal, Südtirol, 1950 m., Ja/26.08.1967 (Haeselbarth leg.) (ZSSM). Paratype: 1 female, same label as in holotype but, 1800 m., Jh/26.08.1969 (Haeselbarth leg.) (ENV).

Distribution. Italy.

Main characters of the species. Body length: 1.90–1.95 mm. Head in dorsal view 1.80 times as wide as its median length and 1.30–1.35 times as wide as mesoscutum. Face 1.40 times as wide as high. Mandible 1.55–1.60 times as long as wide. Lower tooth wider than upper tooth. Antennae 23–segmented. First flagellar segment 4.25 times as long as its apical width. Middle flagellar segments 3.00 times as long as their width. Mesosoma in lateral view 0.95 times as long as high. Mesoscutum as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, rounded. Prescutellar depression with lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum smooth, with short median longitudinal carinae not crossing the spiracles line. Propodeal spiracles small. Hind femur 5.00 times as long as its maximum width. First metasomal tergite 1.60 times as long as its apical width, almost entirely smooth. Ovipositor 1.85–1.90 times as long as first tergite, shorter than metasoma, 1.15–1.20 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. mesocaudatum* van Achterberg and *D. suprapuncte* (Fischer). *Dinotrema tirolense* differs from *D. mesocaudatum* in having the mandible 1.55–1.60 times as long as wide (2.20 times in *D. mesocaudatum*), first flagellar segment 4.25 times as long as wide (2.10 times in *D. mesocaudatum*), middle flagellar segments 3.00 times as long as wide (1.50–1.70 times in *D. mesocaudatum*) and hind femur 5.00 times as long as its

maximum width (3.60 times in *D. mesocaudatum*). Finally, *D. tirolense* differs from *D. suprapuncte* in having the first metasomal tergite 4.25 times as long as wide (2.40 times in *D. suprapuncte*), middle flagellar segments 3.00 times as long as wide (1.60 times in *D. suprapuncte*), hind femur 5.00 times as long as its maximum width (4.50 times in *D. suprapuncte*) and first metasomal tergite 1.60 times as long as its apical width (1.90 times in *D. suprapuncte*).

Dinotrema toleratum (FISCHER 1974)
(Figs. 1690–1701)

Aspilota tolerata Fischer 1974a: 14.
Aspilota tolerata: Yu *et al.* 2005.
Dinotrema toleratum: Yu *et al.* 2011.

Material examined. Holotype: 1 female, Austria, NÖ, Mautern bei Krems, 30.08.1958 (Fischer leg.) (NHMW). Additional material: 1 female, Hungary, Sáska, Agártelő, 02.05.1967 (Papp leg.) (HNHM); 1 female, Romania, Transylvania, Kosászna m. Nemere–hg, 1300 m, Somkö–nyak, 24.06.1994 (Kocslren leg.) (HNHM); 1 female, Switzerland, Lugano, Mt. Generoso, 02.07.1980 (Papp leg.) (HNHM).
Distribution. Austria, Hungary, Romania **(new record)** and Switzerland **(new record)**.
Main characters of the species. Body length: 1.60 mm. Head in dorsal view 1.95 times as wide as its median length and 1.45 times as wide as mesoscutum. Face 1.30 times as wide as high. Mandible 1.30 times as long as wide. Lower tooth wider than upper tooth. Antennae 18–segmented. First flagellar segment 4.00 times as long as its apical width. Middle flagellar segments 1.60 times as long as their width. Mesosoma in lateral view 1.30 times as long as high. Mesoscutum as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, elongated. Prescutellar depression without lateral carinae.

Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum sculptured, with short median carina, with emerging carinae reaching propodeal edges. Propodeal spiracles small. Hind femur 4.20 times as long as its maximum width. First metasomal tergite 1.90 times as long as its apical width, striated in apical half. Ovipositor 1.30 times as long as first tergite, shorter than metasoma, 0.85 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. spitzzickense* (Fischer) but differs in having the first metasomal tergite striated in apical half (smooth in *D. spitzzickense*), middle flagellar segments 1.60 times as long as their width (2.00 times in *D. spitzzickense*) and propodeum without median longitudinal carinae and without diverging carinae (with diverging carinae in *D. spitzzickense*).

***Dinotrema torreviejaense* sp. nov.**

(Figs. 1702–1713)

Material examined. Holotype: 1 female, Spain, Alicante Province, Torrevieja, Natural Park of Lagunas de La Mata–Torrevieja, 04.04.2004 (F.J. Peris–Felipo leg.) (ENV). Paratype: 1 female, same label as in holotype but 09.05.2006 (ENV).

Distribution. Spain.

Main characters of the species. Body length: 1.70–1.80 mm. Head in dorsal view 1.90 times as wide as its median length and 1.50 times as wide as mesoscutum. Face 1.40 times as wide as high. Mandible 0.90–0.95 times as long as wide. Lower tooth wider than upper tooth. Antennae more than 13–segmented (apical segments missing). First flagellar segment 2.75–2.80 times as long as its apical width. Middle flagellar segments 1.80–1.90 times as long as their width. Mesosoma in lateral view 1.10 times as long as high. Mesoscutum 0.95 times as

long as its maximum width. Notauli mainly absent. Mesoscutal pit present, oval. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum sculptured, with pentagonal areola. Propodeal spiracles relatively small. Hind femur 3.60 times as long as its maximum width. First metasomal tergite 2.30 times as long as its apical width, finely striated. Ovipositor 1.90 times as long as first tergite, shorter than metasoma, 1.40 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. lagunasense* sp. nov., *D. adventum* (Fischer), *D. sternaulicum* (Fischer) and *D. necrophilum* (Hedqvist). *Dinotrema torreviejaense* differs from *Dinotrema lagunasense* in having the first metasomal tergite 2.30 times as long as its apical width and smooth (1.80 times and finely striated in apical half in *D. lagunasense*), hind femur 3.60 times as long as its maximum width (3.90 times in *D. lagunasense*) and mesoscutal pit oval (rounded in *D. lagunasense*). On the other hand, *D. torreviejaense* differs from *D. adventa* in having the mandible 0.90–0.95 times as long as wide (1.45 times in *D. adventum*), first flagellar segment 2.75–2.80 times as long as wide (2.00 times in *D. adventum*), hind femur 3.60 times as long as its maximum width (4.00 times in *D. adventum*) and first metasomal tergite 2.30 times as long as its apical width (2.00 times in *D. adventum*). Also, *D. torreviejaense* differs from *D. sternaulicum* in having the mandible 0.90–0.95 times as long as wide (1.40 times in *D. sternaulicum*), first flagellar segment 2.75–2.80 times as long as wide (3.00 times in *D. sternaulicum*), middle flagellar segments 1.80–1.90 times as long as their width (1.50 times in *D. sternaulicum*) and first metasomal tergite 2.30 times as long as its apical width (1.754 times in *D. sternaulicum*). Finally, *D. torreviejaense* differs from *D. necrophilum* in having the

mandible 0.90–0.95 times as long as wide (1.45 times in *D. necrophilum*), middle flagellar segments 1.80–1.90 times as long as their width (1.30 times in *D. necrophilum*), hind femur 3.60 times as long as its maximum width (4.10 times in *D. necrophilum*) and first metasomal tergite 2.30 times as long as its apical width (1.60 times in *D. necrophilum*).

Dinotrema transitum TOBIAS 2003
(Figs. 1714–1725)

Dinotrema transitum Tobias 2003a: 288.
Dinotrema transitum: Yu *et al.* 2005; 2011.

Material examined. Holotype: 1 female, Georgia, Borzhomi, 19.08.1981 (Gurasasvili leg.) (ZISP). Paratype: 1 female, Russia, Leningrad Prov., Tolmachevo, 25.08.1968 (Tobias leg.) (ZISP).
Distribution. Georgia and Russia.
Main characters of the species. Body length: 2.30–2.50 mm. Head in dorsal view 2.00 times as wide as its median length and 1.35–1.40 times as wide as mesoscutum. Face 1.70 times as wide as high. Mandible 1.10 times as long as wide. Lower tooth wider than upper tooth. Antennae 24–segmented. First flagellar segment 4.00 times as long as its apical width. Middle flagellar segments 2.00–2.50 times as long as their width. Mesosoma in lateral view 1.30 times as long as high. Mesoscutum as long as its maximum width. Notauli mainly absent. Mesoscutal pit absent. Prescutellar depression with lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum smooth, with median longitudinal carinae crossing from anterior to posterior margins. Propodeal spiracles small. Hind femur 5.00–6.00 times as long as its maximum width. First metasomal tergite 2.00 times as long as its apical width, finely striated. Ovipositor 2.65

times as long as first tergite, shorter than metasoma, 1.45–1.50 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. partimrufum* Fischer but differs in having the mandible 1.10 times as long as wide (1.50 times in *D. partimrufum*), middle flagellar segments 2.00–2.50 times as long as wide (3.00 times in *D. partimrufum*), hind femur 5.00–6.00 times as long as its maximum width (4.50 times in *D. partimrufum*) and first flagellar segment 2.00 times as long as its apical width (2.50 times in *D. partimrufum*).

Dinotrema tuberculatum VAN ACHTERBERG 1988
(Figs. 1726–1737)

Dinotrema tuberculatum van Achterberg 1988b: 32.
Dinotrema tuberculatum: Papp 2003a: 127.
Dinotrema tuberculatum: Yu *et al.* 2005.
Dinotrema tuberculatum: van Achterberg *et al.* 2009: 794.
Dinotrema tuberculatum: Lozan *et al.* 2010: 18.
Dinotrema tuberculatum: Yu *et al.* 2011.

Material examined. Holotype: 1 female, Netherlands, Putten (Gld.), 01–08.10.1970 (Vecht leg.) (RMNH). Paratype: 1 female, Netherlands, Leiden, Voorshoten (Horsten), ex mushrooms, 13.08.1980 (Vet. leg.) (RMNH). Additional material: 1 male, Netherlands, Nyermirdum, ex *Amanita rubescens*, 17.08.1980 (Vet. leg.) (RMNH); 1 female, Hungary, Budapest, Hárshegy, *Cuerceta melicetosum*, 09.06.1971 (Papp leg.) (HNHM); 1 female, Portugal, Madeira, Fund. Magnolia Park, 50 m, 18.12.1995 (Koponen leg.) (RMNH); 1 female, Finland, N. Askola, Juornankyä, 671:43, 25–30.06.1999 (Heiramo leg.) (RMNH).

Distribution. China, Czech Republic, Finland **(new record)**, Hungary, Korea, Netherlands, Portugal **(new record)** and Russia.

Main characters of the species. Body length: 1.90 mm. Head in dorsal view 1.50 times as wide as its median length and 1.50 times as wide as mesoscutum. Head with protuberance in occiput. Face 1.80 times as wide as high. Mandible 1.20 times as long as wide. Upper tooth wider than lower tooth. Antennae 19–21–segmented. First flagellar segment 3.00 times as long as its apical width. Middle flagellar segments 1.70–2.00 times as long as their width. Mesosoma in lateral view 1.20 times as long as high. Mesoscutum 1.05 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, rounded. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow crenulated below. Propodeum smooth, with longitudinal median carinae crossing from anterior and posterior margins, with emerging lateral carina from apical third not reaching propodeal edges. Propodeal spiracles small. Hind femur 4.00 times as long as its maximum width. First metasomal tergite 2.00 times as long as its apical width, striated in apical half. Ovipositor 2.90–2.95 times as long as first tergite, as long as metasoma, 2.00–2.05 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. sauricum* Tobias but differs in having the head with protuberance (head without protuberance in *D. sauricum*), mandible 1.20 times as long as wide (1.50 times in *D. sauricum*) and first metasomal tergite 2.00 times as long as its apical width (1.50 times in *D. sauricum*).

Dinotrema valvulatum MUNK et PERIS–FELIPO 2013
(Figs. 1738–1749)

Dinotrema valvulatum Munk et Peris–Felipo 2013a: 72.

Material examined. Holotype: 1 female, Denmark, E–Jutland, Højen

Bæk, 5 km S of Vejle, 07.07.1984 (Munk leg.) (NMA). Paratype: 1 female, same label as in holotype, both specimens were collected in a deciduous wood with *Alnus*, *Fraxinus* and *Fagus* on wet ground, 07.07.1984 (NMA); 1 female, Italy, St. Peter/Ahrntal, Südtirol, 1600 m., Ja/26.08.1967 (Haeselbarth leg.) (ENV).

Distribution. Denmark and Italy.

Main characters of the species. Body length: 1.40–1.60 mm. Head in dorsal view 1.60 times as wide as its median length and 1.50 times as wide as mesoscutum. Face 1.50–1.60 times as wide as high. Mandible 0.60–0.65 times as long as wide. Upper tooth wider than lower tooth. Antennae 21–segmented. First flagellar segment 3.65–3.70 times as long as its apical width. Middle flagellar segments 2.20–2.30 times as long as their width. Mesosoma in lateral view 1.10–1.15 times as long as high. Mesoscutum 1.10–1.15 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present and elongated. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum smooth, with median longitudinal carina crossing from anterior to posterior margins, with transverse angulated carinae in anterior third, with additional long subparallel carinae laterally to median one; from lateral carinae emerging short carinae not reaching propodeal edges. Propodeal spiracles relatively small. Hind femur 4.50 times as long as its maximum width. First metasomal tergite 1.90 times as long as its apical width, almost rugose with finely striates. Ovipositor 2.10 times as long as first tergite, as long as metasoma, 1.60–1.65 times as long as hind femur. Main colour dark brown with red tone.

Comparative diagnosis. This species resembles *D. sessile* van Achterberg but differs in having the ovipositor as long as metasoma (longer than metasoma in *D. sessile*), propodeum with three median longitudinal carinae reaching apical margins (two median carinae

reaching apical margins in *D. sessile*), first flagellar segment 3.65–3.70 times as long as wide (3.40 times in *D. sessile*) and middle flagellar segments 2.20–2.30 times as long as wide (2.00 times in *D. sessile*).

Dinotrema varimembre (FISCHER 1973)
(Figs. 1750–1761)

Aspilota varimembris Fischer 1973a: 162.
Aspilota (*Dinotrema*) *varimembris*: Yakolev *et al.* 1992: 141.
Dinotrema varimembris: Yu *et al.* 2005.
Dinotrema varimembre: Yu *et al*. 2011.

Material examined. Holotype: 1 female, Austria, Steiermark, Buchau, 8 km NO Admont, 850 m, überwiegend, sonnig, windstill, 30.07.1970 (Fischer leg.) (NHMW). Paratypes: 5 females and 2 males, same label as in holotype (NHMW). Additional material: 1 female, Hungary, Füzer, Milic, 02.07.1979 (Papp leg.) (HNHM); 1 female, Romania, Transylvania, Hargita m. Gyergyöi–hav., Pongráctetö, Lódul, 04–05.07.1995 (Podlussâng leg.) (HNHM); 1 female, Germany, Würzburg, Schraudenbach, Malaise–csapda, 02.07.1968 (Horstmann leg.) (HNHM).
Distribution. Austria, Germany **(new record)**, Hungary, Romania **(new record)** and Russia.
Main characters of the species. Body length: 2.40 mm. Head in dorsal view 1.80 times as wide as its median length and 1.30 times as wide as mesoscutum. Face 1.40 times as wide as high. Mandible 1.60 times as long as wide. Lower tooth wider than upper tooth. Antennae 24–26–segmented. First flagellar segment 3.00 times as long as its apical width. Middle flagellar segments 1.70 times as long as their width. Mesosoma in lateral view 1.30 times as long as high. Mesoscutum 1.15 times as long as its maximum width. Notauli

mainly absent. Mesoscutal pit present, oval. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum sculptured, with pentagonal areola. Propodeal spiracles small. Hind femur 4.00 times as long as its maximum width. First metasomal tergite 1.80–2.00 times as long as its apical width, rugose–striated. Ovipositor 1.15 times as long as first tergite, shorter than metasoma, as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. necrophilum* (Hedqvist) but differs in having the hind femur 4.00 times as long as its maximum width (4.10 times in *D. necrophilum*), first flagellar segment 3.00 times as long as wide (2.85 times in *D. necrophilum*), middle flagellar segments 1.70 times as long as their width (1.30 times in *D. necrophilum*) and head in dorsal view 1.80 times as wide as its median length (1.50 times in *D. necrophilum*).

Dinotrema varipes (TOBIAS 1962)
(Figs. 1762–1773)

Aspilota varipes Tobias 1962: 112.
Aspilota varipes: Fischer 1972: 448.
Dinotrema varipes: Papp 2003a: 127.
Dinotrema varipes: Papp 2005: 225.
Dinotrema varipes: Yu *et al.* 2005.
Dinotrema varipes: Papp 2009b: 6.
Dinotrema varipes: Lozan *et al.* 2010: 18.
Dinotrema varipes: Yu *et al.* 2011.

Material examined. Holotype: 1 female, Russia, Leningrad Province, Tolmachevo, 23.08.1960 (Tobias coll.) (ZISP). Paratypes: numerous paratypes, same locality as in holotype but 16, 18–20, 23.08.1960

(Tobias coll.) (ZISP). Additional material: 5 females and 3 males, Austria, Steiermark, Wetzer Leitne Teufelstein, 1000–1150 m, 10.08.1974 (Fischer leg.) (NHMW); 1 female, Hungary, Budapest, Hüvösvölgy, Biró, 09.1908 (HNHM); 1 female, Romania, Transylvania, Kovászna m, Vargyas, Szurdok–völgy, 900 m, 08–10.10.2002 (Orosz leg.) (HNHM); 1 female, Finland, Kuusamo Oulanka, 11.09.1980 (Vásárherlyi leg.) (HNHM); 4 females, Bulgaria, Mts. Kila, Biró, 09.1928 (HNHM); 2 females, Bulgaria, Elin Pelin, near Sofia, on grass, 2.10.1990 and 11–20.05.1990 (RMNH); 6 females, Serbia, Sizevazka, Klisura, 23.09.1989 (Brajkovic leg.) (HNHM); 1 male, Georgia, Dranka, Kodori, 25.05.1975 (Tóth leg.) (HNHM); 1 male, Croatia, Mts. Velebit, Bâske Oštarije, 900 m, 08.08.1999 (Rozner leg.) (HNHM).

Distribution. Austria, Bulgaria **(new record)**, Croatia, Czech Republic, former Czechoslovakia, Finland **(new record)**, Georgia **(new record)**, Hungary, Korea, Macedonia, Mongolia, Romania **(new record)**, Russia, Serbia and former Yugoslavia.

Main characters of the species. Body length: 1.30–2.00 mm. Head in dorsal view 1.95 times as wide as its median length and 1.60 times as wide as mesoscutum. Face 1.60 times as wide as high. Mandible 1.40 times as long as wide. Upper tooth as wide as lower tooth. Antennae 16–segmented. First flagellar segment 4.00 times as long as its apical width. Middle flagellar segments 2.00 times as long as their width. Mesosoma in lateral view 1.30 times as long as high. Mesoscutum as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, rounded. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum sculptured, with median longitudinal carinae crossing anterior to posterior margins of propodeum, with emerging carinae reaching propodeal edges. Propodeal spiracles small. Hind femur 4.00

times as long as its maximum width. First metasomal tergite 2.00 times as long as its apical width, striated in apical half. Ovipositor 1.75 times as long as first tergite, shorter than metasoma, as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. acricorne* (Fischer) but differs in having the hind femur 4.00 times as long as its maximum width (4.50 times in *D. acricorne*), mesoscutal pit rounded (elongated in *D. acricorne*) and head in dorsal view 1.60 times as wide as its median length (1.30 times in *D. acricorne*).

Dinotrema venustum (TOBIAS 1962)
(Figs. 1774–1785)

Aspilota venusta Tobias 1962: 113.
Aspilota venusta: Fischer 1972: 450.
Dinotrema venustum: Yu *et al.* 2005.
Dinotrema venustum: Lozan *et al.* 2010: 18.
Dinotrema venustum: Yu *et al.* 2011.

Material examined. Holotype: 1 female, Russia, Leningrad Province, Tolmachevo, 22.08.1960 (Tobias coll.) (ZISP). Paratypes: 2 females and 2 males, same locality but 15.08.1958 and 18, 20.08.1960 (Tobias coll.) (ZISP). Additional material: 1 male, Austria, Kärten, Hüttenberg–Knappenberg, wald, 900 m, sonnig, 18.08.1973 (Fischer leg.) (NHMW).

Distribution. Austria, former Czechoslovakia, Hungary, Lithuania, Poland and Russia.

Main characters of the species. Body length: 1.70–2.40 mm. Head in dorsal view 1.90 times as wide as its median length and 1.60 times as wide as mesoscutum. Face 1.40 times as wide as high. Mandible 2.00 times as long as wide. Upper tooth as wide as lower tooth. Antennae 19–22–segmented. First flagellar segment 2.50 times as long as its

apical width. Middle flagellar segments 2.00 times as long as their width. Mesosoma in lateral view 1.30 times as long as high. Mesoscutum 1.15 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, oval. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum smooth, with median longitudinal carina crossing from anterior to posterior margins, with emerging lateral carinae in apical third reaching propodeal edges. Propodeal spiracles relatively small. Hind femur 4.50 times as long as its maximum width. First metasomal tergite 2.00 times as long as its apical width, striated. Ovipositor 2.05–2.10 times as long as first tergite, shorter than metasoma, 1.15–1.20 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. phoridarum* (Goidanich) but differs in having the middle flagellar segments 2.00 times as long as wide (1.50 times in *D. phoridarum*), hind femur 4.50 times as long as its maximum width (4.00 times in *D. phoridarum*) and first metasomal tergite striated (almost smooth in *D. phoridarum*).

***Dinotrema vitobiasi* sp. nov.**

(Figs. 1786–1797)

Material examined. Holotype: 1 female, Spain, Alicante Province, Alcoi, Natural Park of Carrascal de La Font Roja, 13.04.2006 (F.J. Peris–Felipo leg.) (ENV). Paratype: 1 female, same label as in holotype but 28.05.2007 (ENV).

Distribution. Spain.

Main characters of the species. Body length: 1.65–1.70 mm. Head in dorsal view 1.60 times as wide as its median length and 1.60–1.65 times as wide as mesoscutum. Face 1.85 times as wide as high.

Mandible 1.05 times as long as wide. Lower tooth wider than upper tooth. Antennae 18–segmented. First flagellar segment 2.30 times as long as its apical width. Middle flagellar segments 1.30–1.60 times as long as their width. Mesosoma in lateral view 1.15 times as long as high. Mesoscutum as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, oval. Prescutellar depression with lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow crenulated. Propodeum smooth, with median longitudinal carina crossing from anterior to posterior margins, with emerging lateral carinae in apical half not reaching propodeal edges. Propodeal spiracles relatively small. Hind femur 3.90 times as long as its maximum width. First metasomal tergite 2.00 times as long as its apical width, finely striated in apical half. Ovipositor 1.50 times as long as first tergite, as long as metasoma, 1.20 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. vituperatum* (Fischer), *D. latifemur* (Fischer) and *D. carinatum* (Tobias). *Dinotrema vitobiasi* differs from *D. vituperatum* in having the first flagellar segment 2.30 times as long as wide (3.60 times in *D. vituperatum*), middle flagellar segments 1.30–1.60 times as long as wide (2.50 times in *D. vituperatum*), posterior mesopleural furrow crenulate (smooth in *D. vituperatum*), lower tooth wider than upper tooth (upper tooth wider than lower tooth in *D. vituperatum*) and propodeum with longitudinal median carina with emerging laterally carinae (only longitudinal median carina without emerging laterally carinae in *D. vituperatum*). On the other hand, *D. vitobiasi* differs from *D. latifemur* in having the mandible 1.05 times as long as wide (1.50 times in *D. latifemur*), middle flagellar segments 1.30–1.60 times as long as wide (2.00 times in *D. latifemur*), and hind femur 3.90 times as long as its maximum width (3.15 times in *D. latifemur*).

Finally, *D. vitobiasi* differs from *D. carinatum* in having the mandible 1.05 times as long as wide (2.00 times in *D carinatum*), first flagellar segment 2.30 times as long as wide (4.50 times in *D. carinatum*), middle flagellar segments 1.30–1.60 times as long as wide (2.50 times in *D. carinatum*), hind femur 3.90 times as long as its maximum width (4.50 times in *D. carinatum*), and propodeum with longitudinal median carina and emerging laterally carinae (only with longitudinal median carina in *D. carinatum*).

Dinotrema vituperatum (FISCHER 1974)
(Figs. 1798–1809)

Aspilota vituperata Fischer 1974a: 16.
Dinotrema vituperatum: Yu *et al.* 2005.
Dinotrema vituperatum: Papp 2007b: 118.
Dinotrema vituperatum: Papp 2009b: 6.
Dinotrema vituperatum: Yu *et al.* 2011.
Dinotrema vituperatum: Broad *et al.* 2012: 10.

Material examined. Holotype: 1 female, Austria, NO Mäutern bei Krems, 30.08.1958 (Fischer leg.) (NHMW). Additional material: 1 female, Hungary, Bátorliget, Cirsio–Festucetum prat., 15.06.1988 (Draskovits leg.) (HNHM); 1 female, Hungary, Fenyöfö, Kisszépalma, Környéke, 25–31.05.1965 (Papp leg.) (HNHM); 1 male, Hungary, Somberek, Hubertlak–Környéke, 26–29.06.1967 (Papp leg.) (HNHM); 1 female and 1 male, England, Isle of Wigth Niton, Coll. Marshall (HNHM); 1 male, Greece, Creta, Biró, Canea, 03.1906 (HNHM); 1 female, Macedonia, Rakle, Mts. Babuna, 05.06.1978 (Rozner leg.) (HNHM); 1 male, Georgia, Dranda, Kodori, Stream, 20.05.1975 (Zombori leg.) (HNHM); 1 male, Afganistan, Kabul Prov., Paghman 2500 m, 05.05.1974 (Papp leg.) (HNHM); 2 females, England, Norfolk, How Hill, ex. *Megaselia lutescens* (Wood) in galled

Panaelus subbalteatus, coll. 09.1986, em. 23.04.1987 (Disney leg.) (RMNH).

Distribution. Afghanistan **(new record)**, Austria, England **(new record)**, Georgia **(new record)**, Greece, Hungary, Macedonia and former Yugoslavia.

Main characters of the species. Body length: 1.60 mm. Head in dorsal view 1.80 times as wide as its median length and 1.50 times as wide as mesoscutum. Face 1.40 times as wide as high. Mandible 1.10 times as long as wide. Upper tooth wider than lower tooth. Antennae 20–22–segmented. First flagellar segment 3.60 times as long as its apical width. Middle flagellar segments 2.50 times as long as their width. Mesosoma in lateral view 1.40 times as long as high. Mesoscutum 1.05 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, oval. Prescutellar depression with lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum smooth, with median longitudinal carina crossing from anterior to posterior margins. Propodeal spiracles relatively small. Hind femur 4.00 times as long as its maximum width. First metasomal tergite 2.00 times as long as its apical width, finely striated in apical half. Ovipositor 1.25 times as long as first tergite, shorter than metasoma, 0.85–0.90 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. fischerianum* sp. nov. and *D. latifemur* (Fischer). *Dinotrema vituperatum* differs from *D. fischerianum* in having the mandible 1.10 times as long as wide (1.70 times in *D. fischerianum*), first flagellar segment 3.60 times as long as wide (2.70–2.80 times in *D. fischerianum*), middle flagellar segments 2.50 times as long as wide (1.20–1.30 times in *D. fischerianum*) and first metasomal tergite 2.00 times as long as its apical width (1.70 times in *D. fischerianum*). Finally, *D. vituperatum*

differs from *D. latifemur* in having the mandible 1.10 times as long as wide (1.55 times in *D. latifemur*), first flagellar segment 3.60 times as long as wide (2.50 times in *D. latifemur*), middle flagellar segments 2.50 times as long as wide (2.00 times in *D. latifemur*) and hind femur 4.00 times as long as its maximum width (3.15 times in *D. latifemur*).

Dinotrema zaisanicum TOBIAS 2004
(Figs. 1810–1818)

Dinotrema zaisanicum Tobias 2004a: 227.
Dinotrema aequale Tobias 2004a: 224. **syn. nov.**
Dinotrema aequale: Yu *et al.* 2011.
Dinotrema zaisanicum: Yu *et al.* 2011.

Material examined. Holotype (*zaisanicum*): 1 female, Kazakhstan, Kenderlyk, River floodland, E of Lake Zaisan, 01.06.1961 (Tobias leg.) (ZISP). Holotype (*aequale*): 1 male, Kazakhstan, Kenderlyk River floodland, E of Lake Zaisan, 13.06.1961 (Tobias leg.) (ZISP).
Distribution. Kazakhstan.
Main characters of the species. Body length: 1.30–1.60 mm. Head in dorsal view 1.50–1.70 times as wide as its median length and 1.30–1.60 times as wide as mesoscutum. Face 1.50 times as wide as high. Mandible 1.25–1.33 times as long as wide. Upper tooth wider than lower tooth. Antennae missing in female (in male: 20–segmented, first flagellar segment 4.00 times as long as wide, middle flagellar segments 2.00 times as long as their width). Mesosoma in lateral view 1.20 times as long as high. Mesoscutum as long as its maximum width. Notauli mainly absent. Mesoscutal pit absent. Prescutellar depression without lateral carinae. Sternaulus (precoxal suture) present, reaching anterior part of mesopleuron. Posterior mesopleural furrow crenulated. Propodeum sculptured, with pentagonal areola. Propodeal spiracles relatively small. Hind femur 4.60–4.70 times as

long as its maximum width. First metasomal tergite 1.40 times as long as its apical width, finely striated. Ovipositor 2.50 times as long as first tergite, shorter than metasoma, 1.50 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. mesocaudatum* van Achterberg but differs in having the mandible 1.25 times as long as wide (2.20 times in *D. mesocaudatum*), hind femur 4.00 times as long as its maximum width (3.60 times in *D. mesocaudatum*) and sternaulus (precoxal suture) reaching anterior part of mesopleuron (not reaching in *D. mesocaudatum*).

***Dinotrema zimmermannae* sp. nov.**

(Figs. 1819–1830)

Material examined. Holotype: 1 female, Spain, Alicante Province, Alcoi, Natural Park of Carrascal de La Font Roja, 18.06.2007 (F.J. Peris–Felipo leg.) (ENV). Paratype: 1 female, Spain, Castellon Province, Pobla de Benifassà, Natural Park of Tinença de Benifassà, 17.07.2006 (ENV); 1 male, same label, 06.11.2006 (ENV); 1 female, same label, 16.04.2007 (ZISP); 1 male, same label, 23.07.2007 (F.J. Peris–Felipo leg.) (ENV).

Distribution. Spain.

Main characters of the species. Body length: 2.20 mm. Head in dorsal view 1.70 times as wide as its median length and 1.30 times as wide as mesoscutum. Face 1.90 times as wide as high. Mandible 1.00–1.05 times as long as wide. Lower tooth wider than upper tooth. Antennae 14–segmented. First flagellar segment 3.80–4.00 times as long as its apical width. Middle flagellar segments 2.00 times as long as their width. Mesosoma in lateral view 1.05–1.10 times as long as high. Mesoscutum 1.10–1.15 times as long as its maximum width. Notauli mainly absent. Mesoscutal pit present, elongated. Prescutellar

depression without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum smooth, with short median longitudinal carina, with emerging carinae not reaching propodeal edges. Propodeal spiracles relatively small. Hind femur 4.00 times as long as its maximum width. First metasomal tergite 1.50 times as long as its apical width, almost smooth with fine striation. Ovipositor 2.00 times as long as first tergite, shorter than metasoma, 1.35–1.40 times as long as hind femur. Main colour brown and dark brown.

Comparative diagnosis. This species resembles *D. longicarinatum* (Fischer), *D. incarinatum* (Fischer) and *D. significarium* (Fischer). *Dinotrema zimmermannae* differs from *D. longicarinatum* in having the mandible 1.00–1.05 times as long as wide (1.20 times in *D. longicarinatum*), first flagellar segment 3.80–4.00 times as long as wide (3.00 times in *D. longicarinatum*), mesoscutal pit elongated (rounded in *D. longicarinatum*) and first metasomal tergite 1.50 times as long as its apical width and almost smooth (2.00 times and striated in *D. longicarinatum*). On the other hand, *D. zimmermannae* differs from *D. incarinatum* in having the mandible 1.00–1.05 times as long as wide (1.60 times in *D. incarinatum*), middle flagellar segments 2.00 times as long as wide (2.30–2.50 times in *D. incarinatum*), sternaulus (precoxal suture) not reaching anterior part of mesopleuron (reaching in *D. incarinatum*) and first metasomal tergite 1.50 times as long as its apical width (1.75 times in *D. incarinatum*). Finally, *D. zimmermannae* differs from *D. significarium* in having the mandible 1.00–1.05 times as long as wide (1.25 times in *D. significarium*), first flagellar segment 3.80–4.00 times as long as wide (2.80 times in *D. significarium*), hind femur 4.00 times as long as its maximum width (4.50 times in *D. significarium*) and first metasomal tergite 1.50 times as long as its apical width (2.00 times in *D. significarium*).

5. Discussion

To understand the diversity of the *Aspilota*–group, three Natural Parks from Valencia have been sampled: Carrascal de la Font Roja, Las Lagunas of Mata–Torrevieja and La Tinença of Benifassà. In this study 820 specimens have been collected, 820 belonging to 6 genera, distributed as follows: *Adelphenaldis* (2), *Aspilota* (108), *Dinotrema* (341), *Eudinostigma* (10), *Orthostigma* (88) and *Synaldis* (271). In turn, these species are distributed into 52 species: 1 *Adelphenaldis*, 10 *Aspilota*, 25 *Dinotrema*, 1 *Eudinostigma*, 5 *Synaldis* and 10 *Orthostigma*.

Note that when comparing our results (52 species) with those previously known in Spain (Fischer et al. 2008), we found that only 51 species were known and that our catches have only found 16 species that were previously catalogued.

Therefore, of these 52 species, 31 (59.61%) are new and 4 species are of a new record for Spain (*A. delicata*, *A. procreata, D. costulatum* and *D. crassicostum*). However, due to the complexity of these genera, we have focused solely on the new species of *Adelphenaldis* (1) and *Dinotrema* (21). These are: *A. maxfischeri* and *D. achterbergi, D. amparoae, D. belokobylskiji, D. benifassaense, D. broadi, D. enanum, D. fischerianum, D. jimenezi, D.lagunasense, D. mareum, D. munki, D. pappi, D. paquitae, D. pareum, D. pilarae, D. robertoi, D. teresae, D. tinencaense, D. torreviejaense, D. vitobiasi* and *D. zimmermanae*.

Thus, with the realization of this work, the number of species of *Aspilota*–group known in Spain amounts to 81 species, which implies an increase of 60.78%. Specifically, a further increase can be observed in the species of *Dinotrema* since it had a reference for only 17 species, of which we could only capture *D. castaneithorax* and *D. parapunctatum*. So, this study has allowed us to increase the number of *Dinotrema* species recorded in Spain up to 40.

Meanwhile, looking from a phenological point of view, at a global level we can see that it is possible to find examples of this group at any time of year, although its abundance is higher in spring and autumn. However, when analyzing the different parks separately it is possible to see that in La Font Roja they appear mostly during spring, in La Tinença they can be found particularly during spring and autumn and in Torrevieja during spring and winter. In turn, when comparing these peaks of abundance with the meteorological conditions of each park we found that the individuals of the *Aspilota*– group often demonstrate a mean of greater abundance when the temperatures are moderate, between 18-22°C. This same situation was observed with the Artikutza, when studying the phenology of its subfamily Alysiinae (Peris-Felipo *et al*. 2011) and that of the Andorran Pyrenees Braconidae (Falco-Gari *et al.* 2006). It has also been found that maximum abundance coincides with periods of rain as they are assigned a couple of weeks later. This is explained by the fact that rain promotes the growth of herbaceous-a time that is utilized by mining insects to mine their leaves, as well as the increased activity of the Hymenoptera parasitoids.

Furthermore, by studying the phenology at the species-level, it has not been possible to make comparisons because there are no existing professions to address this task. However, according to our continuous capture during the sampling period, we have appreciated that there species which may be found in the environment at any time of the year, such as *A. valenciensis, D. castaneithorax, D. costulatum, O. laticeps* or *Synaldis* sp2. While others have only been located at particular times, such as *D. belokobylskiji, D. pilarae, D. teresae, O. sculpturatum* or *Synaldis* sp1.

Regarding the study of biodiversity, we see that the Natural Park of Tinença de Benifassà presents greater abundance and species diversity, followed by the Font Roja and Torrevieja natural parks. On

the other hand, the analysis of the structure of the network has showed that Font Roja and Torrevieja Natural Parks show a model of community that matches the log-series model. This indicates that these communities are unstable and are composed of few abundant species and a large number of rare species. While the community *Aspilota*–group present in Tinença, is adapted to the models of log–series and log–normal. This demonstrates that the structure of the community is not determined by the habitat, but conditioned by a large number of factors associated with the high temperatures and low rates of precipitation, which impels the species to adapt to strict environmental conditions. Furthermore, when comparing parks, it can be seen that Tinença and Font Roja demonstrate the most similarities between each other, whilst the Font Roja and Torrevieja show a larger group of species that complement each other.

On a further note, as indicated in the introduction, in order to complete the study of the biodiversity of these parks and to identify the largest amount of species caught, the European *Dinotrema* genera had to be revised. This fact has allowed us to develop the dichotomous keys in order to identify the taxonomy of this genera. For its preparation, a comprehensive review of all existing literature was studied, which consisted mainly of descriptions, re-descriptions and lists of wildlife species belonging to the *Aspilota*–group and visits to the major museums which have deposits on the types of these species. Following these visits, we have been able to label 11 new species alongside Thorkild Munk. These new species are: *D. agaricophagum, D. alysiae, D. curtisetum, D. deprane, D. haeselbarthi, D. lobatum, D. paludellae, D. paramicum, D. setaceum, D. tirolense* and *D. valvulatum*.

In addition, the study was extended to the examination of the *Aspilota*-group, due to the fact that the species of this genera have been subject to diverse and changing locations. This review has

revealed that some species considered as *Aspilota* are actually *Dinotrema*, which have provided new combinations (comb. nov.). These comb. nov. are: *D. Adventum, D. Aurelianum, D. cetiusmonte, D. converginerve, D. intermissum, D. leptocorne* and *D. longicarinatum*.

On the other hand, the realization of the revision following the international code of the Zoological Nomenclature has demanded to alter the naming of some species, assuming also comb. nov. These species are: *D. brevicaudum, D. compressum, D. costulatum,D. crassicostum, D. cratocerum, D. dimorphum, D. leptocaudum, D. macrocerum, D. matridignum, D. microcerum, D, microsomum, D. paucicrene, D. perlustrandum, D. praescutellare, D. propomellum, D. sinecarinum* and *D. suprapuncte*.

Also, as a result of the review of all the types that were found in the museums, it has been shown that some of the species described were synonymous with others, resulting syn. nov.. These species are: *D. aequale* syn. nov. of *D. zaisanicum*, *D. alua* syn. nov. of *D. tauricum*, *A. isometria* syn. nov. of *D. cruciatum*; *D. isosoma* syn. nov. of *D. cruciforme*, *A. naeviformis* syn. nov. of *D. costulatum* and *D. ovalisignum* syn. nov. of *D. catharinae*.

In addition, we have expanded the distribution of 64 species. These new records are: *D. acricorne* (Bulgaria), *D. affine* (Bulgaria), *D. amoenidens* (Denmark and Italy), *D. amplisignatum* (Hungary), *D. areolatum* (Denmark), *D. aureliae* (Finland and Hungary), *D. brevicaudum* (Bulgaria and England), *D. castaneithorax* (Romania), *D. catharinae* (Hungary), *D. caudatum* (Finland and Norway), *D. cetiusmonte* (Armenia and Germany), *D. concinnum* (Turkey), *D. costulatum* (Georgia, Germany, Netherlands, Romania, Slovakia and Spain), *D. crassicostum* (Romania and Spain), *D. cratocerum* (Romania), *D. cruciatum* (Armenia, England Germany and Romania), *D. cruciforme* (Denmark, England and Finland), *D. denticulatum*

(Slovakia), *D. dimidiatum* (Turkey), *D. dimorphum* (Armenia, Bulgaria, Georgia, Germany, Italy and Slovakia), *D. divisum* (Bulgaria, Germany, Italy and Romania), *D. erythropum* (Denmark, England, Finland, Luxembourg and Netherlands), *D. eumandibulatum* (Romania), *D. falsificum* (Denmark), *D. fulvicorne* (Denmark), *D. glabrum* (Bulgaria, Denmark and Norway), *D. incarinatum* (England and Romania), *D. incongruens* (Georgia, Slovakia and Romania), *D. insidiatrix* (Germany), *D. insigne* (Romania), *D. jaculans* (Denmark), *D. kempei* (Finland, Hungary and Italy), *D. latifemur* (Bulgaria and Romania), *D. lineolum* (Armenia, Germany and Romania), *D. lobatum* (Netherlands), *D. longicarinatum* (Denmark), *D. microcerum* (Denmark, Georgia, Romania and Turkey), *D. microcerum* (Romania), *D. necrophilum* (Denmark, Netherlands and Romania), *D. nigricorne* (Bosnia-Herzegovina, Germany, Romania and Turkey), *D. occipitale* (Denmark, France and Germany), *D. oleraceum* (Slovakia), *D. parapunctatum* (Bulgaria and Hungary), *D. paucicrene* (Armenia, Bulgaria, Romania and Slovakia), *D. phoridarum* (Armenia, Bulgaria, England, Germany and Greece), *D. praescutellare* (Italy), *D. pratense* (Denmark), *D. propodeale* (Bulgaria, Denmark and Germany), *D. propomellum* (Slovakia), *D. puliciforme* (Armenia, Finland and Germany), *D. rugisignum* (Switzerland), *D. semicompressum* (Bulgaria, Denmark, Finland, Germany and Italy), *D. significarium* (Armenia, Bulgaria, Denmark, Finland, Germany, Romania, Slovakia and Tunisia), *D. sphaerimembre* (Romania), *D. spitzzkense* (Germany and Romania), *D. sternaulicum* (Hungary), *D. suprapuncte* (Armenia and Romania), *D. tauricum* (Bulgaria, England, Finland, Germany and Norway), *D. tergitale* (Denmark, Finland and Romania), *D. thurnense* (Denmark, Hungary and Netherlands), *D. toleratum* (Romania and Switzerland), *D. tuberculatum* (Finland and Portugal), *D. varimembre* (Germany and Romania), *D. varipes* (Bulgaria, Finland, Georgia and Romania) and *D. vituperatum* (Afghanistan, England and Georgia).

Finally, this review has shown that the fauna of European *Dinotrema* known until this moment is composed of 161 species, and enabled us to develop, with the key taxonomic *Dinotrema* of the European species, the review of each species. For each of the main characteristics for their identification, there are images provided which were obtained through electronic microscopy and an stereoscope.

6. Conclussions

1. The faunal composition of the *Aspilota*-group from each natural park was studied, collecting and identifying a total of 52 species. Of these, 31 are new species, but only 22 have been identified: *A. maxfischeri, D. achterbergi, D. amparoae, D. belokobylskiji, D. benifassaense, D. broadi, D. enanum, D. fischerianum, D. jimenezi, D. lagunasense, D. marense, D. munki, D. pappi, D. paquitae, D. parense, D. pilarae, D. robertoi, D. teresae, D. tinencaense, D. torreviejaense, D. vitobiasi* and *D. zimmermanae.*

2. The phenology of the *Aspilota*-group in each natural park was analysed, showing two peaks in their abundance, one in spring and one in autumn, coinciding with periods of maximum precipitation and moderate temperatures.

3. The biodiversity of each natural park was considered, noting that the ecosystems of the *Aspilota*-group have a structure in which there are few abundant species and many rare species.

4. European species of *Dinotrema* genera were studied, cataloguing a total of 161 species and expanding the geographical distribution of 64 species.

5. Eleven new species of *Dinotrema* have been identified (besides the previously mentioned) resulting from the review: *D. agaricophagum, D. alysiae, D. curtisetum, D. deprane, D. haeselbarthi, D. lobatum, D. paludellae, D. paramicum, D. setaceum, D. tirolense* and *D. valvulatum.*

6. Taxonomic equations for the identification of the European *Dinotrema* species have been developed.

CONCLUSIONES

1. Se ha estudiado la composición faunística del grupo *Aspilota* de cada uno de los parques, capturándose e identificándose un total de 52 especies. De ellas 31 son nuevas especies, aunque únicamente hemos descrito 22: *A. maxfischeri, D. achterbergi, D. amparoae, D. belokobylskiji, D. benifassaense, D. broadi, D. enanum, D. fischerianum, D. jimenezi, D. lagunasense, D. marense, D. munki, D. pappi, D. paquitae, D. parense, D. pilarae, D. robertoi, D. teresae, D. tinencaense, D. torreviejaense, D. vitobiasi* y *D. zimmermanae*.

2. Se ha analizado la fenología del grupo *Aspilota* en cada uno de los parques naturales, observándose dos picos de abundancia, uno en primavera y otro en otoño, coincidiendo con periodos de precipitación y temperaturas moderadas.

3. Se ha considerado la biodiversidad de cada uno de los parques naturales, observándose que las comunidades del grupo *Aspilota* presentan un estructura de comunidad en la que hay pocas especies abundantes y muchas especies raras.

4. Se ha realizado la revisión Europea del género *Dinotrema*, catalogándose un total de 161 especies, ampliándose la distribución geográfica de 64 especies.

5. Se han descrito 11 nuevas especies (además de las anteriormente mencionadas) fruto de la revisión realizada: *D. agaricophagum, D. alysiae, D. curtisetum, D. deprane, D. haeselbarthi, D. lobatum, D. paludellae, D. paramicum, D. setaceum, D. tirolense* y *D. valvulatum*.

6. Se han elaborado claves taxonómicas para la identificación de las especies Europeas de *Dinotrema*.

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