

Contributions to the *Dinotrema* (Hymenoptera, Braconidae, Alysiinae) of Finland and surrounding territories

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The present paper provides information about the *Dinotrema* (Hymenoptera: Braconidae: Alysiinae) species of Finland. A total of 149 species of *Dinotrema* are listed from Finland. Of them, 41 species are recorded as new for Finland: *Dinotrema achterbergi* Peris-Felipo, 2013, *D. amplisignatum* (Fischer, 1973), *D. arenarium* Tobias, 2004, *D. areolatum* (Stelfox & Graham, 1950), *D. belokobylskiji* Peris-Felipo, 2013, *D. benifassaense* Peris-Felipo, 2013, *D. borzhomii* Tobias, 2004, *D. brevisulcus* Tobias, 2003, *D. cahitum* Munk & Peris-Felipo, 2014, *D. canaliculatum* Tobias, 2006, *D. cetiusmonte* (Fischer, 1974), *D. collybiae* Munk & Peris-Felipo, 2014, *D. crassicostum* (Thomson, 1895), *D. curtisetum* Peris-Felipo, 2013, *D. dentatum* (Tobias, 1962), *D. eumandibulatum* (Fischer, 1976), *D. florens* (Fischer, 1974), *D. fungicolum* (Tobias, 1992), *D. helote* Munk et Peris-Felipo, 2014, *D. insidiatrix* (Marshall, 1895), *D. intuendum* (Fischer, 1975), *D. jimenezi* Peris-Felipo, 2013, *D. latitempus* Tobias, 2003, *D. latitergum* (Fischer, 1975), *D. mananae* Tobias 2003, *D. mediocorne* (Fischer, 1973), *D. nervosum* (Haliday, 1833), *D. notaucicum* (Fischer, 1974), *D. paludellae* Munk & Peris-Felipo, 2013, *D. paquitae* Peris-Felipo, 2013, *D. pareum* Peris-Felipo, 2013, *D. pilarae* Peris-Felipo, 2013, *D. propomellum* (Fischer, 1996), *D. pullum* (Foerster, 1862), *D. suprapuncte* (Fischer, 1973), *D. tarbagataicum* Tobias, 2004, *D. torpi* Munk & Peris-Felipo, 2015, *D. torreviejaense* Peris-Felipo, 2013, *D. valvulatum* Munk & Peris-Felipo, 2013, and *D. varimembre* (Fischer, 1973). Moreover, material from adjoining countries was identified and six species have been recorded new records from Estonia, seven species from Russia, and three from Sweden.

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Key words: *Dinotrema*, Braconidae, Alysiinae, parasitoids, Finland, Estonia, Russia, Sweden, new records.

Introduction

With approximately 435 described species from all zoogeographic regions, genus *Dinotrema* Foerster, 1863 is the second largest genus of Alysiinae (Peris-Felipo & Belokobylskij 2016, Peris-Felipo & Belokobylskij 2018). Species of *Dinotrema* parasitise larvae of Diptera predominantly belonging to the family Phoridae (van Achterberg 1988, Peris-Felipo & Belokobylskij 2018).

Koponen & Peris-Felipo (2016) published a checklist cataloguing a total of 91 *Dinotrema* species from Finland. Later, Koponen (2019) expanded the list of listed species to 107. However, after the publication of this paper, more unidentified material—deposited in different entomological collections—has been examined the first author.

The present work provides an updated checklist of *Dinotrema* from Finland with additional new records from surrounding countries (Estonia, Russia, and Sweden).

Material and methods

The criteria for the identification and classification of *Dinotrema* taxa were outlined in Peris-Felipo et al. (2014). Abbreviations for natural history provinces of Finland follow those in

Figure 1. All the examined species are deposited in the zoological collections of the Finnish Natural History Museum Luomus (MZH), Helsinki, Finland.

Results

A total of 149 *Dinotrema* species are recorded and catalogued for Finland. Of these, 41 species are recorded for the first time. A faunistic list with distributional data and host records is provided below.

Subfamily Alysiinae Leach, 1815

Tribe Alysiini Leach, 1815

Genus *Dinotrema* Foerster, 1863

Type species: *Dinotrema erythropha* Foerster, 1863.

Diagnosis: Mandibles small, simple, tridentate. Paraclypeal fovea short, not reaching ventral edge of eyes. Vein r1 (r) present and sclerotized; nervulus (cu-a) postfurcal.

Hosts: Dipteran larvae from families Anthomyiidae, Drosophilidae, Phoridae and Platypezidae.

Taxa new for Finland and distribution records

1. *Dinotrema achterbergi* Peris-Felipo, 2013

Material examined: *N*: Espoo (Tontunmäki, 667625:337604), 30.5–8.6.2011, 1 ♀, 1.–6.7.2011, 1 ♀, 15.–23.7.2011, 1 ♀, window trap, P. Rassi (det. M. Koponen 2022). Nurmijärvi (Murhamäki, 6710:3381), 12.8.1995, 1 ♀, M. Koponen (det. M. Koponen 2022). **Distribution:** Finland (new record), Spain.

2. *Dinotrema amplisignatum* (Fischer, 1973)

Material examined: *N*: Espoo (Tontunmäki, 667625:337604), 15.–23.7.2011, 1 ♀, 27.7.–5.8.2011, 3 ♀♀, 5.–15.8.2011, 3 ♀♀, window trap, P. Rassi (det. M. Koponen 2022). *Kl*: Parikkala (703:342), 17.6.1945, 1 ♀, W. Hellén (det. M. Koponen 2022). *Ok*: Sotkamo (Isoaho, 7104:3560), 5.6.2004, 1 ♀ (det. M. Koponen 2022). **Distribution:** Austria, Finland (new record), France, Germany, Hungary, Italy.

3. *Dinotrema arenarium* Tobias, 2004

Material examined: *N*: Espoo (667625:337604), 15.–23.7.2011, 1 ♀, window trap, P. Rassi (det. M. Koponen 2022). *Sa*: Mikkeli (Kivilahdentie 6, 68393:35065), 15.8.2020, 1 ♀ (det. M. Koponen 2020); Mikkeli (Tuukkala, 6837:3514), 24.5.2016, 1 ♀, dry meadow (det. M. Koponen 2016). **Distribution:** Finland (new record), Kazakhstan.

4. *Dinotrema areolatum* (Stelfox & Graham, 1950)

Material examined: *N*: Espoo (Tontunmäki, 667625:337604), 15.–27.8.2011, 1 ♀, window trap, P. Rassi (det. M. Koponen 2022). **Distribution:** Austria, former Czechoslovakia, Denmark, England, Finland (new record), Scotland, Spain.

5. *Dinotrema belokobylskiji* Peris-Felipo, 2013

Material examined: *Al*: Eckerö (Käringsund, 670:308), 29.7.1961, 1 ♀, W. Hellén (det. M. Koponen 2022). Mariehamn (Maarianhamina, 668:310), 31.7.1953, 1 ♀, W. Hellén (det. M. Koponen 2021). *N*: Espoo (667625:337604), 30.5–8.6.2011, 1 ♀, window trap, P. Rassi (det. M. Koponen 2022); Kirkkonummi (Porkkalanniemi, 6654:3355), 24.7.1991, 1 ♀, M. Koponen (det. M. Koponen 2021). *Ks*: Salla (Tuntsajoki, 7501:3618), 26.6.2003, 1 ♀, M. Koponen (det. M. Koponen 2021). **Distribution:** Finland (new record), Spain.

6. *Dinotrema benifassaense* Peris-Felipo, 2013

Material examined: *Li*: Inari (Lemmenjoki, Morgam Maras, 762:345), 28.6.1937, 1 ♀, alpine area W. Hellén (det. M. Koponen 2021). **Distribution:** Finland (new record), Spain.

7. *Dinotrema borzhomii* Tobias, 2004

Material examined: *N*: Espoo (Tontunmäki, 667625:337604), 5.–15.8.2011, 1 ♀, window trap, P. Rassi (det. M. Koponen 2022). **Distribution:** Finland (new record), Georgia.

8. *Dinotrema brevisulcus* Tobias, 2003

Material examined: *N*: Espoo (Tontunmäki, 667625:337604), 11.–20.6.2010, 1 ♀, window trap, P. Rassi (det. M. Koponen 2022). **Distribution:** Finland (new record), Russia (Primorsk), Ukraine.

9. *Dinotrema cahitum* Munk & Peris-Felipo, 2014

Material examined: *N*: Espoo (Tontunmäki, 667625:337604), 24.6.–1.7.2011, 1 ♀, window trap, P. Rassi (det. M. Koponen 2021). **Distribution:** Denmark, Finland (new record).

10. *Dinotrema canaliculatum* Tobias, 2006

Material examined: *Ab*: Korpo (Korpoström, 66788:31999), 22.–8.–10.9.1992, 1 ♀, light trap, M. Nieminen & M. Koponen (det. M. Koponen 2022). **Distribution:** Finland (new record), Russia (Novgorod).

11. *Dinotrema cetiusmonte* (Fischer, 1974)

Material examined: *N*: Helsinki (667:338, Pasila bog, “H:fors, Fredriksbergs kärr”), 30.8.1958, 1 ♀ (1925), W. Hellén. Espoo (Tontunmäki, 667625:337604), 11.–20.6.2010, 2 ♀♀, 23.7.–5.8.2011, 3 ♀♀, 5.–15.8.2011, 2 ♀♀, window trap, P. Rassi (det. M. Koponen 2021, 2022); Nurmijärvi (Rajamäki, forest with mushrooms, 6715:3375), 7.8.1981, 1 ♀, M. Koponen (det. M. Koponen 2022). **Distribution:** Armenia, Austria, Finland (new record), Germany.

12. *Dinotrema collybiae* Munk & Peris-Felipo, 2014

Material examined: *Ab*: Sauvo (669:326, Karuna), 23.9.–20.10.2001, 1 ♀, Malaise trap, R. Jussila (det. M. Koponen 2021). *N*: Espoo (Tontunmäki, 667625:337604), 11.–20.6.2010, 1 ♀, 5.–15.8.2011, 1 ♀, 15.–27.8.2011, 1 ♀, window trap, P. Rassi (det. M. Koponen 2022). Helsinki (668:339, “Helsinge, Malm, Epidemisjukhuset”), 10.6.1925, 1 ♀, W. Hellén (det. M. Koponen 2021). Nurmijärvi (6705:3378), 5.9.1984, 1 ♀, M. Koponen (det. M. Koponen 2021). *Tb*: Keuruu (Keuru, 690:337), 24.8.1928, 1 ♀, W. Hellén (det. M. Koponen 2021). Viitasaari (Löytämä.7015:3433), 30.6.2004, 1 ♀, M. Koponen (det. M. Koponen 2022). *Sb*: Maaninka (700:351), 19.8.1962, 1 ♀, suction trap, O. Heikinheimo (det. M. Koponen 2021). **Distribution:** Denmark, Finland (new record).

13. *Dinotrema crassicostum* (Thomson, 1895)

Material examined: *Ab*: Uusikaupunki (Nystad, 675:319), 13.8.1917, 1 ♀, W. Hellén (det. M. Koponen 2022). *N*: Espoo (667625:337604), 30.5.–8.6.2011, 3 ♀♀, window trap, P. Rassi (det. M. Koponen 2022). **Distribution:** Austria, Denmark, Finland (new record), Hungary, Korea, Romania, Russia, Spain.

14. *Dinotrema curtisetum* Peris-Felipo, 2013

Material examined: *N*: Espoo (Tontunmäki, 667625:337604), 27.7.–5.8.2011, 1 ♀, window trap, P. Rassi (det. M. Koponen 2022). *Sa*: Mikkelin mlk. (Kivilahdentie 6, 6839:3506), 8.6.1996, 2 ♀♀, M. Koponen (det. M. Koponen 2022). *Tb*: Kannonkoski (6991:3418, Hilmo), 29.6.2004, 1 ♀, M. Koponen (det. M. Koponen 2021), Pihtipudas (Suvannonlahti, 7025:3429), 1.7.2004, 1 ♂, M. Koponen (det. M. Koponen 2021). **Distribution:** Denmark, Finland (new record).

15. *Dinotrema dentatum* (Tobias, 1962)

Material examined: *Ab*: Houtskär (Roslagsnäs 368:318) 7.6.1936, 1 ♀ (909), W. Hellén (det. M. Koponen, 2021). *N*: Espoo (Tontunmäki, 667625:337604), 1.–6.7.2011, 1 ♀, window trap, P. Rassi (det. M. Koponen 2022). **Distribution:** Finland (new record), Hungary, Poland, Russia (Leningrad), Spain.

16. *Dinotrema eumandibulatum* (Fischer, 1976)

Material examined: *Ab*: Uusikaupunki (6755:3192, Nystad, Hango), 27.7.1919, 1 ♀, W. Hellén (det. M. Koponen 2021).

Kb: Liperi (6951:3622), 3.7.1994, 1 ♀, M. Koponen (det. M. Koponen 2021). **Distribution**: Austria, Finland (new record), Hungary, Romania.

17. *Dinotrema florens* (Fischer, 1974)

Material examined: *Ta*: Korpilahti (Rimminjärvi, 6877:3420), 18.8.1986, 1 ♀, caught with a pooter from a mushroom, M. Koponen (det. M. Koponen 2021). **Distribution**: Austria, Finland (new record), Hungary.

18. *Dinotrema fungicolum* (Tobias, 1992)

Material examined: *Ab*: Särkisalo (Förby kartano, 6671:3271), 21.9.1994, 1 ♀, M. Koponen (det. M. Koponen 2022). *N*: Espoo (Tontunmäki, 667625:337604), 11.–20.6.2010, 2 ♀♀, 8.–18.6.2011, 1 ♀, 1.–6.7.2011, 2 ♀♀, 15.–23.7.2011, 1 ♀, 23.7.–5.8.2011, 1 ♀, 15.–27.8.2011, 2 ♀♀, window trap, P. Rassi (det. M. Koponen 2022). *Ta*: Janakkala (Kiianlinna, 6760:3369), 24.8.1980, 1 ♀, M. Koponen (det. M. Koponen 2022). *Lkoc*: Muonio Tiurajärvi, 7514:3377, 5.7.1997, 1 ♀, M. Koponen (det. M. Koponen 2022). **Distribution**: Finland (new record), Russia (Karelia, Leningrad, Novgorod, Voronezh).

19. *Dinotrema helote* Munk et Peris-Felipo, 2014

Material examined: *N*: Nurmijärvi (Rajamäki, 6715:3376), 28.6.1980, 1 ♀, M. Koponen (det. M. Koponen 2021). **Distribution**: Denmark, Finland (new record).

20. *Dinotrema insidiatrix* (Marshall, 1895)

Material examined: *Ab*: Nauvo (Seili, 6691:3221), 10.6.2005, 1 ♀, M. Koponen, Särkisalo = Finby, 667:327, 14.8.1944, 1 ♀ (3170), W. Hellén, Uusikaupunki (Nystad, Hango, 6755:3192), 13.6.1915, 1 ♀ (514), W. Hellén (det. M. Koponen 2021), Uusikaupunki (Nystad, Sundholm, 675:319), 30.6.1916, 1 ♀, W. Hellén (det. M. Koponen 2022). *N*: Espoo (667625:337604), 11.–20.6.2010, 1 ♀, 15.–23.7.2011, 1 ♀, 23.7.–5.8.2011, 1 ♀, window trap, P. Rassi. *N*: Espoo (Luukki, forest with mushrooms, 5591:3372), 10.8.1980, 1 ♀, M. Koponen (det. M. Koponen 2022). *N*: Hanko (Hangö, 664:327), 27.6.1931, 1 ♀ (814), W. Hellén (det. M. Koponen 2022). *N*: Nurmijärvi (church village, 6708:3379), 5.6.1984, 1 ♀, M. Koponen (det. M. Koponen 2022). *St*: Vammala (6814:3286, Sastamala, kirkko), 1.7.1993, 1 ♀, M. Koponen (det. M. Koponen 2021). *Ka*: Miehikkälä (Virokoski, 6744:3524), 19.6.1979, 1 ♀, M. Koponen. *Virolahti* (Lintulahti, 6712:3539), 8.6.2002, 1 ♀, M. Koponen. *Tb*: Pihtipudas (Isomäki, 7043:3423), 1.7.2004, 1 ♀, M. Koponen (det. M. Koponen 2021). **Distribution**: Croatia, former Czechoslovakia, England, Finland (new record), Germany, Hungary, Italy, former Yugoslavia, Poland (new record).

21. *Dinotrema intuendum* (Fischer, 1975)

Material examined: *N*: Espoo (667625:337604), 8.–18.6.2011, 1 ♀, 5.–15.8.2011, 1 ♀, 15.–27.8.2011, 2 ♀♀, 27.8.–9.9.2011, 1 ♀, 9.9.–1.10.2011, 1 ♀, window trap, P. Rassi (det. M. Koponen 2021). Nurmijärvi (Kiljava-Vaaksi, 6711:3373), 15.8.1995, 1 ♀, M. Koponen (det. M. Koponen 2021, 2022). **Distribution**: Austria, Finland (new record), Hungary, Poland.

22. *Dinotrema jimenezi* Peris-Felipo, 2013

Material examined: *N*: Espoo (667625:337604), 1.–6.7.2011, 1 ♀, 15.–27.8.2011, 1 ♀ window trap, P. Rassi (det. M. Koponen 2022). Nurmijärvi (Rajamäki, 6775:3376), 15.9.1984, 1 ♀, M. Koponen (det. M. Koponen 2022). *St*: Vammala (Karkku, Hoikan opisto, 6820:3288), 28.6.1993, 1 ♀, M. Koponen (det.

M. Koponen 2022). *Ta*: Lammi (Evo, 6790:3399), 27.8.1984, 1 ♀, M. Koponen (det. M. Koponen 2022). **Distribution**: Finland (new record), Spain.

23. *Dinotrema latitempus* Tobias, 2003

Material examined: *Sa*: Mikkeli (Kivilahdentie 6, 6839:3506), 26.6.1999, 1 ♀, M. Koponen (det. M. Koponen 2018). **Distribution**: Finland (new record), Georgia, Kazakhstan.

24. *Dinotrema latitergum* (Fischer, 1975)

Material examined: *N*: Espoo (Tontunmäki, 667625:337604), 15.–27.8.2011, 1 ♀, 27.8.–9.9.2011, 2 ♀♀, window trap, P. Rassi, Helsinki (Kannelmäki, Halsuantie 9, 6682:3383), 29.6.1980, 1 ♀, M. Koponen. *Tb*: Keuruu (690:338), 24.7.1928, 1 ♀ (368), 27.8.1928, 1 ♀ (9), W. Hellén. *Om*: Vimpeli (Vesterbacka – Moskova, old chalk quarry, 7010:3352), 5.7.1985, 1 ♀, M. Koponen (det. M. Koponen 2022). **Distribution**: Austria, Finland (new record), Spain.

25. *Dinotrema mananae* Tobias, 2003

Material examined: *Ab*: Lohja (Lojo, Vaanila, forest with bilberries, 669:334), 16.8.1949, 1 ♀, W. Hellén (det. M. Koponen 2022). *N*: Tammisaari (Ekenäs, Lekarholm, 664:330), 21.8.1925, 1 ♀, W. Hellén (det. M. Koponen 2022). *Sa*: Mikkeli (Kivilahdentie 6, 6839:3506), 25.7.1996, 1 ♀, M. Koponen (det. M. Koponen 2021). **Distribution**: Finland (new record), Georgia.

26. *Dinotrema mediocorne* (Fischer, 1973)

Material examined: *N*: Espoo (Tontunmäki, 667625:337604), 5.–15.8.2011, 1 ♀, window trap, P. Rassi (det. M. Koponen 2022). **Distribution**: Austria, Finland (new record), Hungary, Spain.

27. *Dinotrema nervosum* (Haliday, 1833)

Material examined: *Ab*: Jomala (669:310), 8.–12.8.1955, 1 ♀ (4243), W. Hellén (det. M. Koponen 2022). *Ab*: Sauvo (Karuna, 669:325), 24.6.–1.7.2002, 2 ♀♀, 10.–22.7.2002, 4 ♀♀, Malaise R. Jussila (det. M. Koponen 2022). *N*: Espoo (667625:337604), 11.–20.6.2010, 4 ♀♀, window trap, P. Rassi (det. M. Koponen 2022), (Luukki, 6691:3372), 10.8.1980, 1 ♀, forest with mushrooms, M. Koponen (det. M. Koponen 2021). *N*: Helsinki (Viikki, 6680:3390), 15.8.1978, 1 ♀, M. Koponen (det. M. Koponen 2022). Nurmijärvi (Rajamäki, 6715:3376), 23.7.1980, 1 ♀, M. Koponen (det. M. Koponen 2021). *N*: Porvoo (Porvoon mlk. Kullo, 6690:3414), 14.8.1981, 1 ♀, forest, M. Koponen (det. M. Koponen 2021). *Ta*: Nastola (Pyhäntä, 6774:3436), 18.9.1977, 1 ♀, M. Koponen (det. M. Koponen 2022). **Distribution**: Austria, Belgium, Bulgaria, former Czechoslovakia, Denmark, Finland (new record), France, Germany, Hungary, Ireland, Italy, Korea, Mongolia, Netherlands, Poland, Romania, Russia, Slovenia, Switzerland, Ukraine, United Kingdom.

28. *Dinotrema notaulicum* (Fischer, 1974)

Material examined: *N*: Espoo (Tontunmäki, 667625:337604), 1.–6.7.2011, 1 ♀, 15.–23.7.2011, 1 ♀, 27.8.–9.9.2011, 1 ♀, window trap, P. Rassi (det. M. Koponen 2022). *Sa*: Mikkeli (Otava, 6835:3503), 11.8.2004, 1 ♀, M. Koponen (det. M. Koponen 2022). **Distribution**: Austria, Finland (new record), Mongolia.

29. *Dinotrema paludellae* Munk et Peris-Felipo, 2013

Material examined: *N*: Sipoo (Sibbo, Norrkulla, 669:340),

8.–11.8.1957, 4 ♀♀. W. Hellén (det. M. Koponen 2021). *N*: Espoo (Tontunmäki, 667625:337604), 1.–6.7.2011, 1 ♀, 23.7.–5.8.2011, 1 ♀, window trap, P. Rassi (det. M. Koponen 2022). **Distribution:** Denmark, Finland (new record).

30. *Dinotrema paquitae* Peris-Felipo, 2013

Material examined: *N*: Espoo (Tontunmäki, 667625:337604), 27.8.–9.9.2011, 1 ♀, window trap, P. Rassi, *Kb*: Joensuu (Kuhasalola, 69451:36405), 19.6.2020, 1 ♀, P. Turunen (det. M. Koponen 2022). *Kb*: Tohmajärvi (Saario, 69096:36807), 11.6.2001, 1 ♂, M. Koponen (det. M. Koponen 2022). **Distribution:** Finland (new record), Spain.

31. *Dinotrema pareum* Peris-Felipo, 2013

Material examined: *N*: Espoo (Tontunmäki, 667625:337604), 15.–23.7.2011, 1 ♀, window trap, P. Rassi (det. M. Koponen 2022). Helsinki (“Helsing”, bot. garden, 667:338), 25.6.1915, 1 ♀, W. Hellén (det. M. Koponen 2022). *Tb*: Rautalampi (694:349), 10.8.1941, 1 ♀, W. Hellén (det. M. Koponen 2022). **Distribution:** Finland (new record), Spain.

32. *Dinotrema paquitae* Peris-Felipo, 2013

Material examined: *N*: Espoo (667625:337604), 30.5.–8.6.2011, 1 ♀, window trap, P. Rassi (det. M. Koponen 2022). **Distribution:** Finland (new record), Spain.

33. *Dinotrema pilarae* Peris-Felipo, 2013

Material examined: *N*: Espoo (Tontunmäki, 667625:337604), 1.–6.7.2011, 1 ♀, 15.–23.7.2011, 4 ♀♀, 27.7.–5.8.2011, 2 ♀, 5.–15.8.2011, 2 ♀♀, 15.–27.8.2011, 2 ♀♀, 27.8.–9.9.2011, 1 ♀, window trap, P. Rassi (det. M. Koponen 2022). Helsinki (6685:3388, Niemitie), 26.9.1974, 1 ♀, light trap, M. Koponen (det. M. Koponen 2021), Nurmijärvi (Porarintie, 6707:3380), 1.6.1985, 1 ♀, M. Koponen (det. M. Koponen 2022). *Sa*: Mikkeli (Otava, 6835:3503), 22.5.2008, 1 ♀, M. Koponen (det. M. Koponen 2022). *Tb*: Keuruu (Riihiranta, 690:337), 30.7.1928, 1 ♀ (718), W. Hellén (det. M. Koponen 2022). *Sb*: Sonkajärvi (708265:352154), 8.7.2000, 1 ♀, M. Koponen (det. M. Koponen 2021). *Om*: Vimpeli (Iirunkatu, 7006:3347), 7.7.1985, 1 ♀, M. Koponen (det. M. Koponen 2022). *Ks*: Salla (Hautajärvi, 7380:3592), 2.7.1998, 1 ♀, M. Koponen (det. M. Koponen 2021). **Distribution:** Finland (new record), Spain.

34. *Dinotrema propomellum* (Fischer, 1996)

Material examined: *N*: Espoo (Tontunmäki, 667625:337604), 27.7.–5.8.2011, 1 ♀, window trap, P. Rassi (det. M. Koponen 2022). *N*: Nurmijärvi (Kiljava, forested rocky hills, 6711:3373), 16.6.1985, 1 ♀, (Rajamäki, 6715:3376), 15.9.1984, 1 ♀, M. Koponen (det. M. Koponen 2022). **Distribution:** Finland (new record), Hungary, Slovakia, Spain.

35. *Dinotrema pullum* (Foerster, 1862)

Material examined: *Ab*: Vehmaa (Rautila, Novida, 6735:3209), 1.7.2002, 1 ♀, M. Koponen (det. M. Koponen 2022). *N*: Espoo (667625:337604), 11.–20.6.2010, 1 ♀, Malaise, P. Rassi (det. M. Koponen 2022). **Distribution:** Finland (new record), Germany.

36. *Dinotrema suprapuncte* (Fischer, 1973)

Material examined: *N*: Espoo (667625:337604), 11.–20.6.2010, 1 ♀, 8.–18.6.2011, 2 ♀♀, 1.–6.7.2011, 2 ♀♀, 15.–23.7.2011, 2 ♀♀, 27.7.–5.8.2011, 1 ♀, 5.–15.8.2011, 1 ♀, 9.9.–1.10.2011, 1 ♀, window trap, P. Rassi (det. M. Koponen 2021). *N*: Kauniainen (Esbo, Grankulla, 668:337), 8.1921, 1 ♀, W. Hellén (det. M. Koponen 2022). *N*: Nurmijärvi (Kaanaanmetsä

old-growth forest, 6705:3381), 30.6.1987, 1 ♀, M. Koponen (det. M. Koponen 2022). *Sa*: Mikkeli (carrot field margin, 6834:3504), 10.9.1994, 1 ♀, (Kivilahdentie 6, 6839:3506), 13.8.1998, 1 ♀, M. Koponen (det. M. Koponen 2022). *Ok*: Sotkamo (Isoaho, 7104:3560), 5.6.2004, 1 ♀, (Naapurinvaara, 7121:3559), 5.6.2004, 1 ♀, M. Koponen (det. M. Koponen 2022). **Distribution:** Armenia, Austria, Finland (new record), Romania.

37. *Dinotrema tarbagataicum* Tobias, 2004

Material examined: *N*: Espoo (667625:337604), 27.7.–5.8.2011, 3 ♀♀, 5.–15.8.2011, 2 ♀♀, 15.–27.8.2011, 5 ♀♀, 27.8.–9.9.2011, 1 ♀, 9.9.–1.10.2011, 1 ♀, window trap, P. Rassi. *Sa*: Mikkeli (Tuoppitie, 6841:3514), 7.9.2015, 1 ♀, M. Koponen, *Obb*: Keminmaa 73016:33879 courtyard of apartment hotel Jokikeskus, Virtatie 9.7.2021, 1 ♀, M. Koponen (det. M. Koponen 2021, 2022). **Distribution:** Finland (new record), Kazakhstan.

38. *Dinotrema torpi* Munk & Peris-Felipo, 2015

Material examined: *Ab*: Karjalohja (Karkali, 6685:3323), 19.6.1992, 1 ♀, M. Koponen (det. M. Koponen 2022). *N*: Espoo (Tontunmäki, 667625:337604), 24.6.–1.7.2011, 1 ♀, 5.–15.8.2011, 1 ♀, 27.8.–9.9.2011, 1 ♀, window trap, P. Rassi (det. M. Koponen 2021). *Ta*: Hämeenlinna (Aulanko, 677:336), 22.9.1976, 1 ♀, *Quercus robur*, V. Vikberg, Nokia (Myllypuro, 682:331), 7.8.1940, 1 ♀ (6284), W. Hellén (det. M. Koponen 2021, 2022). **Distribution:** Finland (new record), Norway, Sweden.

39. *Dinotrema torreviejaense* Peris-Felipo, 2013

Material examined: *Al*: Jomala (668:310), 8.–12.8.1955, 1 ♀, W. Hellén (det. M. Koponen 2021). *N*: Espoo (667625:337604), 1.–6.7.2011, 1 ♀, 15.–23.7.2011, 2 ♀♀, 27.7.–5.8.2011, 2 ♀♀, 15.–27.8.2011, 1 ♀, 27.8.–9.9.2011, 2 ♀♀, 9.9.–1.10.2011, 2 ♀♀, window trap, P. Rassi (det. M. Koponen 2021, 2022). *H*: Helsinki (H:fors, Kottby), Käpylä, 667–668:386, 25.8.1959, 1 ♀, W. Hellén (det. M. Koponen 2022). *Sa*: Mikkeli Kivilahdentie 6, 6839:3506, 16.7.2022, 2 ♀♀, M. Koponen (det. M. Koponen 2022). **Distribution:** Finland (new record), Spain.

40. *Dinotrema valvulatum* Munk & Peris-Felipo, 2013

Material examined: *Ab*: Korpo (Korpoström, 66788:31999), 09.–19.8.1992, 1 ♀, M. Nieminen (det. M. Koponen 2022). *N*: Espoo (Tontunmäki, 667625:337604), 27.7.–5.8.2011, 2 ♀♀, window trap, P. Rassi (det. M. Koponen 2022). *Ta*: Hausjärvi (6743:3384), 23.8.1991, 1 ♀, pine forest, M. Koponen (det. M. Koponen 2021). **Distribution:** Denmark, Finland (new record), Italy.

41. *Dinotrema varimembre* (Fischer, 1973)

Material examined: *Ab*: Vehmaa (Rautila, Novida, 6735:3209), 1.7.2002, 1 ♀, M. Koponen (det. M. Koponen 2018). Salo (671588:328544, Halikko, Perkko), 28.8.–27.9.2000, 1 ♀, malaise, A. Haarto (det. M. Koponen 2021). *N*: Espoo (Tontunmäki, 667625:337604), 8.–18.6.2011, 2 ♀♀, 5.–15.8.2011, 1 ♀, window trap, P. Rassi (det. M. Koponen 2022). Nurmijärvi (Mars, 6717:3375), 6.9.1989, 1 ♀, M. Koponen (det. M. Koponen 2021). **Distribution:** Austria, Finland (new record), Germany, Hungary, Romania, Russia.

New taxa for surrounding countries (Estonia, Russia, and Sweden)

The study carried out with the material deposited in MZH allowed for the identification of new records for Estonia (six species), Russia (seven species) and Sweden (three species). These species are listed below.

Estonia

1. *Dinotrema concinnum* (Haliday, 1838)

Material examined: Läänemaa: Vormsi, Väike-Tjuka, 8.8.2002, 1 ♀, M. Koponen. **Distribution:** Afghanistan, Austria, Bulgaria, Croatia, Estonia (new record), Faeroe Islands, former Czechoslovakia, Finland, Germany, Greece, Hungary, Iceland, Iran, Ireland, Israel, Italy, Mongolia, Netherlands, Poland, Russia, Spain, Sweden, Switzerland, Tunisia, Turkey, United Kingdom.

2. *Dinotrema crassiceps* (Fischer, 1958)

Material examined: Läänemaa: Vigala, 21.5.1991, 1 ♂, M. Koponen. **Distribution:** Austria, Estonia (new record), Finland.

3. *Dinotrema falsificum* (Stelfox & Graham, 1950)

Material examined: Võrumaa: NE20 Setomaa, 3.8.2006, 1 ♀, M. Koponen. **Distribution:** Denmark, Estonia (new record), Finland, Germany, Hungary, Ireland, Lithuania, Poland, Russia, Switzerland.

4. *Dinotrema kempei* (Hedqvist, 1973)

Material examined: Läänemaa: Vormsi, Borrby, 9.8.2002, 1 ♂, M. Koponen. **Distribution:** China, Estonia (new record), Finland, Hungary, Italy, Russia, Sweden.

5. *Dinotrema microsoma* (Fischer, 1976)

Material examined: Võrumaa, NE20, Setomaa, 3.8.2006, 1 ♀, M. Koponen (det. M. Koponen 2021). **Distribution:** Austria, Estonia (new record), Finland, Hungary, Russia.

6. *Dinotrema necrophilum* (Hedqvist, 1972)

Material examined: Võrumaa: Setomaa turismitalu, NE20, 3.8.2006, 1 ♀, M. Koponen (det. M. Koponen 2018). **Distribution:** Denmark, Estonia (new record), Finland, Hungary, Netherlands, Romania, Sweden, United Kingdom.

Russia

1. *Dinotrema aurelianum* (Fischer, 1976)

Material examined: Leningrad Oblast: Terijoki > Zelenogorsk, railroad bank, 7.7.1927, 1 ♀, W. Hellén. Murmansk: (Kolttaköngäs > Borisoglebskiy), 29.7.1930, 1 ♀, Mary Hellén (det. M. Koponen 2021). **Distribution:** Austria, Finland, Russia (new record).

2. *Dinotrema costulatum* (Thomson, 1895)

Material examined: Republic of Karelia: Käkisalme = Kexholm > Priozersk, 10.7.1924, 1 ♀, E. Thuneberg. **Distribution:** Austria, former Czechoslovakia, Denmark, Finland, Georgia, Germany, Hungary, Italy, Macedonia, Netherlands, Romania, Russia (new record), Slovakia, Spain, Sweden, former Yugoslavia.

3. *Dinotrema latidens* (Fischer, 1973)

Material examined: Leningrad Oblast: Rajajoki (Ollila) > Sestra, 10.8.1927, 1 ♀, W. Hellén (det. M. Koponen 2021). **Distribution:** Austria, Finland, Hungary, Russia (new record).

4. *Dinotrema necrophilum* (Hedqvist, 1972)

Material examined: Leningrad Oblast: Antrea > Kamennogorsk, 28.6.1925, 1 ♀, E. Thuneberg. **Distribution:** Denmark, Finland, Hungary, Netherlands, Romania, Russia (new record), Sweden, United Kingdom.

5. *Dinotrema sternaucium* (Fischer, 1973)

Material examined: Murmansk Oblast: Petsamo, Trifona > Petšenga, 13.7.1930, 1 ♀, W. Hellén (det. M. Koponen 2014). **Distribution:** Austria, Finland, Hungary, Russia (new record), former Yugoslavia.

6. *Dinotrema suprapuncte* (Fischer, 1973)

Material examined: Murmansk Oblast: Yläluostari > Zapoljarnyi, 9.–11.7.1930, 1 ♀ (193), W. Hellén (det. M. Koponen 2022). **Distribution:** Armenia, Austria, Finland, Romania, Russia (new record).

7. *Dinotrema tergitalle* (Fischer, 1973)

Material examined: Leningrad Oblast: Viipuri > Vyborg 4.9.1924, 1 ♀, E. Thuneberg (det. M. Koponen 2014). **Distribution:** Austria, Denmark, Finland, Hungary, Romania, Russia (new record).

Sweden

1. *Dinotrema affine* (Fischer, 1973)

Material examined: Västerbotten: Kullbäcksliden, 15.7.1980, 1 ♀, M. Koponen (det. M. Koponen 2021). **Distribution:** Austria, Bulgaria, Finland, Hungary, Sweden (new record).

2. *Dinotrema catharinae* (Fischer, 1973)

Material examined: Öland: Ismantorp, 28.5.2011, 1 ♀, M. Koponen. **Distribution:** Austria, Finland, Germany, Hungary, Mongolia, Sweden (new record).

3. *Dinotrema tinencaense* Peris-Felipo, 2013

Material examined: Öland: Station Linné, 26.5.2011, 1 ♀, M. Koponen (det. M. Koponen 2014). **Distribution:** Finland, Spain, Sweden (new record).



Updated checklist of Finnish *Dinotrema*

Taxa new for Finnish fauna are marked by an asterisk (*).

- **Dinotrema achterbergi* Peris-Felipo, 2013
Dinotrema acompressum Munk & Peris-Felipo, 2014
Dinotrema adventum (Fischer, 1973)
Dinotrema aestivum Tobias, 2004
Dinoterma affine (Fischer, 1973).
Dinotrema agaricophagum Peris-Felipo, 2013
Dinotrema agnitum Tobias, 2004
Dinotrema alyisiae Munk & Peris-Felipo, 2013
Dinotrema amoenidens (Fischer, 1973)
Dinotrema amparoeae Peris-Felipo, 2013
 **Dinotrema amplisignatum* (Fischer, 1973)
 **Dinotrema arenarium* Tobias, 2004
 **Dinotrema areolatum* (Stelfox & Graham, 1950)
Dinotrema aureliae (Fischer, 1973)
Dinotrema aurelianum (Fischer, 1976)
 **Dinotrema belokobylskiji* Peris-Felipo, 2013
 **Dinotrema benifassaense* Peris-Felipo, 2013
 **Dinotrema borzhomii* Tobias, 2004
Dinotrema brevicauda (Tobias, 1962)
Dinotrema brevis van Achterberg & Vikberg, 2014
 **Dinotrema brevisulcus* Tobias, 2003
Dinotrema broadi Peris-Felipo, 2013
Dinotrema caesennium Tobias, 2006
Dinotrema caesum Tobias, 2006.
 **Dinotrema cahitum* Munk & Peris-Felipo, 2014
Dinotrema calamitosum Tobias, 2006
Dinotrema callidium Tobias, 2006
 **Dinotrema canaliculatum* Tobias, 2006
Dinotrema carinatum (Tobias, 1962)
Dinotrema castaneithorax (Fischer, 1973)
Dinotrema catharinae (Fischer, 1973)
Dinotrema caudatum (Thomson, 1895)
 **Dinotrema cetiusmonte* (Fischer, 1974)
 **Dinotrema collybiae* Munk & Peris-Felipo, 2014
Dinotrema compressum (Haliday, 1838)
Dinotrema concinnum (Haliday, 1838)
Dinotrema contracticorne (Fischer, 1974)
Dinotrema converginerve (Fischer, 1973)
Dinotrema costulatum (Thomson, 1895)
Dinotrema crassiceps (Fischer, 1958)
 **Dinotrema crassicostum* (Thomson, 1895)
Dinotrema cratocerum (Thomson, 1895)
Dinotrema cruciatum (Fischer, 1973)
Dinotrema cruciforme (Fischer, 1973)
 **Dinotrema curtisetum* Peris-Felipo, 2013
 **Dinotrema dentatum* (Tobias, 1962)
Dinotrema deprane Peris-Felipo, 2013
Dinotrema dimidiatum (Thomson, 1895)
Dinotrema dimorphum (Fischer, 1976)
Dinotrema divisum (Stelfox & Graham, 1950)
Dinotrema enanum Peris-Felipo, 2013
Dinotrema erythropum Foerster, 1862
 **Dinotrema eumandibulatum* (Fischer, 1976)
Dinotrema falsificum (Stelfox & Graham, 1950)
Dinotrema fischerianum Peris-Felipo, 2013
 **Dinotrema florens* (Fischer, 1974)
 **Dinotrema fungicolum* (Tobias, 1992)
Dinotrema fulvicorne (Haliday, 1838)
Dinotrema glabrideum Munk et Peris-Felipo, 2014
Dinotrema glabrum (Stelfox & Graham, 1951)
Dinotrema haeselbarthi Peris-Felipo, 2013
 **Dinotrema helote* Munk et Peris-Felipo, 2014
Dinotrema hodiense (Fischer, 1976)
Dinotrema incarinatum (Fischer, 1973)
Dinotrema incongruens (Fischer, 1973)
 **Dinotrema insidiatrix* (Marshall, 1895)
Dinotrema insigne (Stelfox & Graham, 1950)
Dinotrema intermissum (Fischer, 1974)
 **Dinotrema intuendum* (Fischer, 1975)
Dinotrema jaculans (Haliday, 1838)
 **Dinotrema jimenezi* Peris-Felipo, 2013
Dinotrema kempei (Hedqvist, 1973)
Dinotrema lagunasense Peris-Felipo, 2013
Dinotrema latidens (Fischer, 1973)
Dinotrema latifemur (Fischer, 1975)
 **Dinotrema latitempus* Tobias, 2003
 **Dinotrema latitergum* (Fischer, 1975)
Dinotrema leptocaudum (Fischer, 1976)
Dinotrema leptocorne (Fischer, 1979)
Dinotrema lineolum (Thomson, 1895)
Dinotrema lobatum Peris-Felipo, 2013
Dinotrema longicarinatum (Fischer, 1976)
Dinotrema lugaense Tobias, 2003
Dinotrema macrocerum (Thomson, 1895)
 **Dinotrema mananae* Tobias, 2003
Dinotrema mareum Peris-Felipo, 2013
Dinotrema matridignum (Fischer, 1974)
 **Dinotrema mediocorne* (Fischer, 1973)
Dinotrema mesocaudatum van Achterberg, 1988
Dinotrema microsoma (Fischer, 1976)
Dinotrema multiarticulatum van Achterberg, 1988
Dinotrema naevium (Tobias, 1962)
Dinotrema necrophilum (Hedqvist, 1972)
 **Dinotrema nervosum* (Haliday, 1833)
Dinotrema nevae (Tobias, 1986)
Dinotrema nigricorne (Thomson, 1895)
Dinotrema norwegicum Munk & Peris-Felipo, 2014
 **Dinotrema notaucicum* (Fischer, 1974)
Dinotrema occipitale (Fischer, 1973)
Dinotrema oleraceum (Tobias, 1962)
Dinotrema orientale Tobias, 2003
Dinotrema oxybelum Munk & Peris-Felipo, 2014
 **Dinotrema paludellae* Munk et Peris, 2013
Dinotrema pappi Peris-Felipo, 2013
 **Dinotrema paquitae* Peris-Felipo, 2013
Dinotrema paramicum Peris-Felipo, 2013
Dinotrema parapunctatum (Fischer, 1976)
 **Dinotrema pareum* Peris-Felipo, 2013
 **Dinotrema paquitae* Peris-Felipo, 2013
Dinotrema paucicrene (Fischer, 1973)
Dinotrema paucilicium Papp, 2012
Dinotrema perlustrandum (Fischer, 1973)

Dinotrema phoridarum (Goidanich, 1936)
 **Dinotrema pilarae* Peris-Felipo, 2013
Dinotrema praescutellare (Fischer, 1976)
Dinotrema pratense van Achterberg, 1988
Dinotrema propodeale (Tobias, 1962)
 **Dinotrema propomellum* (Fischer, 1996)
Dinotrema puliciforme (Fischer, 1973)
 **Dinotrema pullum* (Foerster, 1862)
Dinotrema pulvinatum (Stelfox & Graham, 1949)
Dinotrema rugisignum (Fischer, 1973)
Dinotrema sauricum Tobias, 2003
Dinotrema semicompressum (Stelfox & Graham, 1949)
Dinotrema setaceum Peris-Felipo, 2013
Dinotrema significarium (Fischer, 1973)
Dinotrema speculum (Haliday, 1838)
Dinotrema sphaerimembre (Fischer, 1973)
Dinotrema spitzzickense (Fischer, 1976)
Dinotrema sternaulicum (Fischer, 1973)
Dinotrema stigmaticum (Tobias, 1992)
 **Dinotrema suprapuncte* (Fischer, 1973)
Dinotrema sylvaticum Tobias, 2003
 **Dinotrema tarbagataicum* Tobias, 2004
Dinotrema tauricum (Telenga, 1935)
Dinotrema teresae Peris-Felipo, 2013
Dinotrema tergitale (Fischer, 1973)
Dinotrema thurnense (Fischer, 1977)
Dinotrema tinencaense Peris-Felipo, 2013
Dinotrema toleratum (Fischer, 1974)
 **Dinotrema torreviejaense* Peris-Felipo, 2013
 **Dinotrema torpi* Munk & Peris-Felipo, 2015
Dinotrema tuberculatum van Achterberg, 1988
 **Dinotrema valvulatum* Munk & Peris-Felipo, 2013
 **Dinotrema varimembre* (Fischer, 1973)
Dinotrema varipes (Tobias, 1962)
Dinotrema venustum (Tobias, 1962)
Dinotrema vitobiasi Peris-Felipo, 2013
Dinotrema vituperatum (Fischer, 1974)

149 species in total.



Discussion

The genus *Dinotrema* is one of the largest genera within Alysiinae. New species and new records are regularly described from all around the world (Peris-Felipo & Belokobylskij 2018), including Finland where recent studies (Achterberg & Vikberg 2014; Yu et al. 2016; Koponen & Peris-Felipo 2016; Koponen 2019) have increased the number of known *Dinotrema* species from 18 in 2014 to 91 species in 2016, 107 species in 2019, and to 149 in the current work. Further investigations on the fauna of the Finnish *Dinotrema* are clearly necessary to increase our knowledge about the real composition and diversity of this genus.

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References

- Achterberg, C. van 1988. The genera of the Aspilota-group and some descriptions of fungicolous Alysiini from the Netherlands (Hymenoptera: Braconidae: Alysiinae). — *Zoologische Verhandlungen* 247: 1–88.
- Achterberg, C. van & V. Vikberg 2014. *Dinotrema brevis* spec. nov. (Hymenoptera: Braconidae: Alysiinae), a new brachypterous species from Finland. — *Zoologische Mededelingen (Leiden)* 88(1): 1–7, figs 1–43. — ISSN 0024–0672.
- Koponen, M. 2019. *Dinotrema* Foerster, 1862, Suomelle uusia lajeja (Hymenoptera, Braconidae, Alysiinae, Alysiini). — *Sahlbergia* 25(2): 28–29.
- Koponen, M. & Peris-Felipo, F. J. 2016. Checklist of *Dinotrema* Foerster, 1863 species of Finland (Hymenoptera, Braconidae, Alysiinae). — *Zootaxa* 4175(6): 556–570.
- Peris-Felipo, F. J. & Belokobylskij, S. A. 2016. Afrotropical species of the genus *Dinotrema* Foerster 1862 (Hymenoptera, Braconidae, Alysiinae) with description of three new taxa and a key for determination. — *Bulletin of Insectology* 69(1): 93–106
- Peris-Felipo, F. J. & Belokobylskij, S. A. 2018. Revision of the New World species of the genus *Dinotrema* (Hymenoptera: Braconidae: Alysiinae). — *Zootaxa* 4382(1): 001–055.
- Peris-Felipo, F. J., Belokobylskij, S. A. & Jiménez-Peydró, R. 2014. Revision of the Western Palaearctic species of the genus *Dinotrema* Foerster, 1862 (Hymenoptera, Braconidae, Alysiinae). — *Zootaxa* 3885. 483 pp. ISBN 978–1–77557–579–5 (paperback). ISBN 978–1–77557–580–1 (Online edition)



Figure 1. Natural history provinces of Finland (**Ab** = Regio aboënsis [Varsinais-Suomi], **Al** = Alandia [Ahvenanmaa], **Ka** = Karelia australis [Etelä-Karjala], **Kb** = Karelia borealis [Pohjois-Karjala], **KI** = Karelia laudogensis [Laatokan Karjala], **Ks** = Regio kuusamoënsis [Kuusamo], **Le** = Lapponia enontekiensis [Enontekiön Lappi], **Li** = Lapponia inarensis [Inarin Lappi], **Lk** = Lapponia kemensis [Kemin Lappi] with western and eastern subdivisions **Lkoc** and **Lkor**, **N** = Nylandia [Uusimaa], **Oa** = Ostrobotnia australis [Etelä-Pohjanmaa], **Ob** = Ostrobotnia borealis [Pohjois-Pohjanmaa] with northern and southern subdivisions **Obb** and **Oba**, **Ok** = Ostrobotnia kajanensis [Kainuu], **Om** = Ostrobotnia media [Keski-Pohjanmaa], **Sa** = Savonia australis [Etelä-Savo], **Sb** = Savonia borealis [Pohjois-Savo], **St** = Satakunta, **Ta** = Tavastia australis [Etelä-Häme], **Tb** = Tavastia borealis [Pohjois-Häme].

