

Revised checklist of Nordic harvestmen (Opiliones) with five species new to Norway

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Abstract. We present a revised checklist of harvestmen (Opiliones) covering all the Nordic countries, including Iceland and the Faroe Islands. Altogether 31 species from 18 genera and four families are currently known, of which 23 are from Norway, 21 from Sweden, 17 from Finland, 25 from Denmark, five from the Faroe Islands and four from Iceland. Five species are documented for the first time in Norway: *Lacinius dentiger* (C. L. Koch, 1847), *Lacinius horridus* (Panzer, 1794), *Opilio saxatilis* C. L. Koch, 1839, *Leiobunum blackwalli* Meade, 1861 and *Leiobunum limbatum* L. Koch, 1861.

Keywords: first records, Nordic countries, Phalangidae, Scandinavia, Sclerosomatidae

Zusammenfassung: Überarbeitete Checkliste der Nordischen Weberknechte (Opiliones) mit fünf Neunachweisen für Norwegen. Wir stellen eine aktualisierte Checkliste der Weberknechte (Opiliones) der nordischen Länder vor. Aktuell sind 31 Arten aus 18 Gattungen und vier Familien, darunter 23 aus Norwegen, 21 aus Schweden, 17 aus Finnland, 25 aus Dänemark, fünf von den Färöer Inseln und vier aus Island, bekannt. Fünf Arten werden erstmals für Norwegen nachgewiesen: *Lacinius dentiger* (C. L. Koch, 1847), *Lacinius horridus* (Panzer, 1794), *Opilio saxatilis* C. L. Koch, 1839, *Leiobunum blackwalli* Meade, 1861 und *Leiobunum limbatum* L. Koch, 1861.

The last checklist of harvestmen including all the Nordic countries was published by Stol (2007). He listed 17 species from Norway, 20 species from Sweden, 12 species from Finland, 19 species from Denmark, four species from Iceland and five from the Faroe Islands. Since 2007 the knowledge of the Opiliones fauna in the Nordic countries has increased. The number of species currently reported from each country is: 23 species known from Norway, 21 from Sweden (Jonsson 2013, pers. comm. 2017), 17 from Finland (Uddström et al. 2013, Uddström & Rinne 2016a, 2016b), 25 from Denmark (Enghoff et al. 2014). The species numbers of the Faroe Islands and Iceland have remained, to our knowledge, unchanged compared to Stol (2007).

Material and methods

In total 20 localities in South Norway were visited during the period from 11th to 22nd August 2015. Our priority was a study of ant communities (Hymenoptera: Formicidae) and the survey of the Opiliones fauna was an additional activity. The collected specimens have all been sampled manually. The nomenclature used in this paper, as well as the identification of material, is based on Martens (1978), Martens & Schönhofer (2016) and Wijnhoven (2009).

The EIS numbers and the Norwegian county part abbreviations follow the system as presented in Norwegian Journal of Entomology (NJE 2015).

Norway national biogeography regions:

AAV = Aust-Agder, outer or coast parts

AAI = Aust-Agder, inner parts

AK = Akershus

Ø = Østfold

TEY = Telemark, outer or coast parts

VAY = Vest-Agder, outer or coast parts

VE = Vestfold

Localities (sorted by date of visit)

- L-01. AK, Ås: Kaja (EIS 28), 59°39'54.4"N, 10°46'59.9"E, 11.8.2015
- L-02. AK, Ås: University campus (EIS 28), 59°40'01.2"N 10°46'31.5"E, 12.8.2015
- L-03. VE, Larvik: Geiterøya, Arøybukta (EIS 11), 59°00'06.8"N 9°46'38.9"E, 12.8.2015
- L-04. TEY, Bamble: Langøya north part (EIS 11), 59°00'35.9"N 9°45'19.8"E, 12.8.2015
- L-05. AAI, Valle: Rygnestadtunet (EIS 16), 59°15'45.3"N 7°29'23.5"E, 13.8.2015
- L-06. AAI, Valle: south of Skagen Bro – East side (EIS 16), 59°06'27.8"N 7°30'39.6"E, 13.8.2015
- L-07. AAI, Bygland: Fånefjell south side (EIS 9), 58°46'35.2"N 7°50'13.2"E, 13.8.2015
- L-08. VAY, Kristiansand City: Kvadraturen (EIS 2), 58°08'56.1"N 8°00'01.5"E, 14.8.2015
- L-09. VAY, Kristiansand: Nedre Timenes, close to Ytre Drangsvannet (EIS 2), 58°09'42.4"N 8°06'02.0"E, 14.8.2015
- L-10. AA, Gjerstad: close to Sundebu (EIS 11), 58°50'13.6"N 9°04'52.7"E, 15.8.2015
- L-11. VE, Larvik: Mølen Nature Reserve (EIS 11), 58°58'19.9"N 9°49'42.5"E, 15.8.2015
- L-12. AK, Frogn: Håøya (EIS 28), 59°42'59.5"N 10°33'17.1"E, 17.8.2015
- L-13. Ø, Hvaler: Søndre Sandøy (EIS 12), 59°00'16.8"N 11°04'51.0"E, 18.8.2015
- L-14. AK, Ås: Åsmåsan (EIS 28), 59°40'08.8"N 10°47'34.0"E, 18.8.2015
- L-15. VE, Horten: Løvøya, Vestre Veggbykt (EIS 19), 59°27'02.1"N 10°26'26.4"E, 19.8.2015
- L-16. VE, Horten: Borrehaugene (EIS 19), 59°23'03.2"N 10°28'14.0"E, 19.8.2015
- L-17. AK, Oslo: Tøyen Botanisk Hage (EIS 28), 59°55'8.870"N, 10°46'18.630"E, 21.8.2015
- L-18. AK, Oslo: Aker Brygge (EIS 28), 59°54'36.449"N, 10°43'29.940"E, 21.8.2015
- L-19. AK, Oslo: Bygdøy – close to Kontiki Museum (EIS 28), 59°54'12.754"N, 10°41'53.979"E, 22.8.2015
- L-20. AK, Oslo: Kvadraturen (EIS 28), 59°54'44.978"N, 10°44'48.791"E, 22.8.2015

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Results and discussion

Newly collected in Norway

We collected altogether 163 specimens of harvestmen from 21 species, 12 genera and three families in the studied sites. Five species are newly reported from Norway.

Family Nemastomatidae

- Mitostoma chrysomelas* (Hermann, 1804) L-09: 2♀♀; L-12: 2♂♂, 1♀ (all under stones).
Nemastoma bimaculatum (Fabricius, 1775) L-03: 2♀♀; L-12: 2♂♂ (all under stones).
Nemastoma lugubre (O. F. Müller, 1776) L-13: 2♀♀ (under a stone).

Family Phalangidae

- Lacinius dentiger* (C. L. Koch, 1847) L-12: 1♂, 1♂ (on a tree), a new record for Norway.
Lacinius ephippiatus (C. L. Koch, 1835) L-03: 2♂♂ (under a stone).
Lacinius horridus (Panzer, 1794) L-13: 4♂♂, 1♀ (on a rock and on soil), a new record for Norway.
Lophopilio palpinalis (Herbst, 1799) L-12: 2♂♂, 2♀♀ (under vegetation); L-13: 3♂♂ (under a stone).
Mitopus morio (Fabricius, 1779) L-12: 2♂♂ (on vegetation); L-13: 2♂♂, 3♀♀ (on soil).
Oligolophus hansenii (Kraepelin, 1896) L-3: 1♂, 1♀; L-04: 1♂; L-12: 1♂, 1♀ (all under stones); L-20: 1♂ (on a wall).
Oligolophus tridens (C. L. Koch, 1836) L-12: 3♂♂, 3♀♀; L-15: 3♂♂ (all under stones), L-20: 1♂ (on a tree).
Opilio canestrinii (Thorell, 1876) L-02: 2♂♂; L-08: 2♂♂; L-18: 1♂; L-20: 2♂♂, 1♀ (all on walls).
Opilio parietinus (De Geer, 1778) L-17: 2♂♂ (on tree); L-20: 1♂ (on a wall).
Opilio saxatilis C. L. Koch, 1839 L-20: 2♂♂ (on a wall), a new record for Norway.
Paroligolophus agrestis (Meade, 1855) L-02: 4♀♀ (under wood); L-03: 2♀♀; L-04: 2♂♂, 4♀♀; L-12: 5♂♂, 2♀♀; L-13: 1♂, 4♀♀; L-15: 2♂♂, 2♀♀ (all under stones); L-20: 3♀♀ (on a tree).
Phalangium opilio Linnaeus, 1758 L-01: 2♂♂ (on vegetation in a garden); L-02: 1♀ (on a wall); L-03: 1♂, 1♀ (on a tree); L-04: 2♀♀ (on a rock); L-05: 1♂; L-06: 2♀♀ (on vegetation); L-09: 2♀♀ (on a wall); L-12: 3♀♀; L-13: 2♀♀; L-15: 1♂, 1♀; L-16: 2♂♂ (all on vegetation); L-20: 1♂, 1♀ (on a wall).
Rilaena triangularis (Herbst, 1799) L-16: 2 juv. (under vegetation).

Family Sclerosomatidae

- Leiobunum blackwalli* Meade, 1861 L-01: 1♂, 2♀♀ (on a wall), a new record for Norway.
Leiobunum gracile Thorell, 1876 L-07: 2♂♂ (on a rock); L-09: 1♂, 1♀; L-10: 1♂, 1♀; L-11: 1♂; L-13: 1♀; L-15: 1♂, 1♀; L-20: 2♀♀ (all on trees).
Leiobunum limbatum L. Koch, 1861 L-08: 2 juv.; L-19: 2♀♀; L-20: 1♂ (all on walls), a new record for Norway.
Leiobunum rotundum (Latreille, 1798) L-01: 1♂, 1♀; L-02: 2♀♀; L-08: 1♂, 1♀ (all on walls); L-09: 2♂♂, 2♀♀; L-10: 2♀♀; L-13: 2♂♂, 2♀♀; L-14: 1♂, 1♀; L-15: 1♂, 2♀♀; L-20: 1♀ (all on trees).
Nelima gothica Lohmander, 1945 L-10: 1♂, 1♀ (on a tree).

In total 21 species were recorded, out of which five species were reported from Norway for the first time. The species *L. horridus* and *O. saxatilis* had already been found in all Nordic mainland countries. *L. dentiger* had been recorded in Finland, *L. blackwalli* in Sweden and Denmark. The presence of *L. limbatum* is presently known only from Norway. We found this species in the cities of Kristiansand and Oslo, in the vicinity of harbours. This might suggest an introduction of this species to Norway by ship or other types of transportation.

Additionally, we assume that several other harvestmen species may be reported from Norway in the near future, e.g. *Dicranopalpus ramosus* (Simon, 1909), *Odiellus spinosus* (Bosc, 1792), the still unnamed species *Leiobunum* sp. "A" (sensu Wijnhoven et al. 2007) or *Nelima semproni* Szalay, 1951.

The revised harvestmen checklist of the Nordic countries

In the past ten years, the list of harvestmen from Nordic countries has undergone a number of changes. The species currently known from the individual countries are summarized in Tab. 1.

New records and changing distribution patterns of Opiliones species have been reported in Northern Europe (e.g. Gederas et al. 2012, Uddström et al. 2013, 2016b, Enghoff et al. 2014, Fritzén et al. 2015). The list presented here is certainly not definitive. Future research will undoubtedly bring a number of new faunistic records and may also reveal the occurrence of additional species in Nordic countries.

Two years of first description differ from those given by Stol (2007): *Trogulus tricarinatus* Linnaeus, 1767 (instead of 1758 – it was formerly wrongly assigned to the 10th instead of the 12th edition of Linnaeus' 'Systema naturae') and *Paroligolophus meadii* (O. Pickard-Cambridge, 1891) (corrected from 1890, according to Sykes 1941).

According to the revision of Martens & Schönhofer (2016) all specimens of the formerly recorded *Leiobunum rupestre* (Herbst, 1799) from Scandinavia belong to *L. gracile*, a senior synonym of *Leiobunum tisciae* Avram, 1968.

Leiobunum limbatum was reported for Sweden by Stol (2007) based on Martens (1978). However, according to Jonsson (2017 pers. comm.), there is neither older voucher material nor new findings supporting the presence of this species in Sweden.

Specimens of *Platybunus bucephalus* (C. L. Koch, 1835) recorded from Finland were questioned by Stol (2007). Later the species was deleted from the Finnish list – all revised specimens were juvenile specimens of *Rilaena triangularis* (cf. Uddström et al. 2013, Fritzén et al. 2015). Information concerning the presence of *Opilio dinaricus* and *Mitostoma chrysomelas* in Finland is based on Uddström & Rinne (2016b). The authors stated that it is quite probable that these species were imported into Finland with raw wood and it is not certain whether they could actually establish in Finland.

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Tab. 1: Checklist of the harvestmen (Opiliones) known from the Nordic countries

Abbreviations and symbols: NO – Norway, SE – Sweden, FI – Finland, DK – Denmark, FO – Faroe Islands, IS – Iceland; “+” presence, without index published by Stol (2007), ⁰ new record by the authors published in this paper, ¹ Gederas et al. (2012), ² Fritzén et al. (2015), ³ Jonsson (2013), ⁴ Uddström et al. (2013), ⁵ Uddström & Rinne (2016b), ⁶ Enghoff & Pedersen (2007), ⁷ Enghoff et al. (2014)

Family/Species	NO	SE	FI	DK	FO	IS
Family Nemastomatidae						
<i>Mitostoma chrysomelas</i> (Hermann, 1804)	+	+	⁵	+		
<i>Nemastoma bimaculatum</i> (Fabricius, 1775)	+				+	+
<i>Nemastoma lugubre</i> (Müller, 1776)	+	+	+	+		
<i>Paranemastoma quadripunctatum</i> (Perty, 1833)				⁷		
Family Trogulidae						
<i>Trogulus tricarinatus</i> (Linnaeus, 1767)	+	+		+		
Family Phalangiidae						
<i>Dicranopalpus ramosus</i> (Simon, 1909)		³		⁷		
<i>Lacinius dentiger</i> (C. L. Koch, 1847)	⁰		⁴			
<i>Lacinius ephippiatus</i> (C. L. Koch, 1835)	+	+	+	+	+	
<i>Lacinius horridus</i> (Panzer, 1794)	⁰	+	+	+		
<i>Lophopilio palpinalis</i> (Herbst, 1799)	+	+	+	+		
<i>Megabunus diadema</i> (Fabricius, 1779)	+				+	+
<i>Mitopus morio</i> (Fabricius, 1779)	+	+	+	+	+	+
<i>Odiellus spinosus</i> (Bosc, 1792)				⁶		
<i>Oligolophus tridens</i> (C. L. Koch, 1836)	+	+	+	+		+
<i>Oligolophus hansenii</i> (Kraepelin, 1896)	+	+	⁴	+		
<i>Opilio canestrinii</i> (Thorell, 1876)	¹	+	⁴	+		
<i>Opilio dinaricus</i> Šilhavý, 1938			⁵			
<i>Opilio parietinus</i> (De Geer, 1778)	+	+	+	+		
<i>Opilio saxatilis</i> C. L. Koch, 1839	⁰	+	⁴	+		
<i>Paroligolophus agrestis</i> (Meade, 1855)	+	+		+		
<i>Paroligolophus meadii</i> (O. Pickard-Cambridge, 1891)					+	
<i>Phalangium opilio</i> Linnaeus, 1758	+	+	+	+		
<i>Platybunus pinetorum</i> (C. L. Koch, 1839)		²		⁷		
<i>Rilaena triangularis</i> (Herbst, 1799)	+	+	+	+		
Family Sclerosomatidae						
<i>Leiobunum blackwalli</i> Meade, 1861	⁰	+		+		
<i>Leiobunum gracile</i> Thorell, 1876	+	+	+	+		
<i>Leiobunum limbatum</i> L. Koch, 1861	⁰	?				
<i>Leiobunum rotundum</i> (Latreille, 1798)	+	+		+		
<i>Leiobunum</i> sp. “A” sensu Wijnhoven et al. (2007)				⁷		
<i>Nelima gothica</i> Lohmander, 1945	+	+	+	+		
<i>Nelima sempronii</i> Szalay, 1951				⁷		
Number of species	23	21	17	25	5	4

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