An update to the distribution of invasive *Ctenolepisma longicaudatum* Escherich in northern Europe, with an overview of other records of Estonian synanthropic bristletails (Insecta: Zygentoma)

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Abstract

**Background**

Previously, two species of *Zygentoma* have been reported as synanthropic in Estonia (*Lepisma saccharinum* Linnaeus, 1758 and *Thermobia domestica* (Packard, 1873)). *Ctenolepisma longicaudatum* Escherich, 1905 is an invasive species that is currently expanding its range in Europe, but had no published records from the northern Baltic Region.

**New information**

*Ctenolepisma longicaudatum* was first found in Estonia in 2018. It has currently several established populations in public buildings in Tartu and Tallinn, but has not been found in
private households, nor in other places in Estonia. A brief overview of its invasion history in northern Europe is given.

**Keywords**

invasive species, *Ctenolepisma longicaudatum*, northern Europe

**Introduction**

Zygentoma Börner, 1904 is a small order (with over 500 described species; Zhang 2013), of primitive insects. They are more common in warmer climates, but some species of Zygentoma are synanthropic and distributed worldwide. Two species of Zygentoma – *Lepisma saccharinum* Linnaeus, 1758 (= *Lepisma saccharina*, as widely used prior to the ICZN decision, International Commission on Zoological Nomenclature 2018) and *Thermobia domestica* (Packard, 1873) – have been previously recorded from Estonia (see below), both only indoors in human settlements. *Ctenolepisma longicaudatum* Escherich, 1905 is an invasive synanthropic species that has been rapidly expanding its range in recent years (Goddard et al. 2016, Kulma et al. 2018, Lock 2007, Meineke and Menge 2014, Pape and Wahlstedt 2002, Thomsen et al. 2019) and is considered a pest of paper and stored materials.

*Ctenolepisma longicaudatum* was first found in Estonia in 2018 and has since been detected at multiple locations. Here, we report for the first time these findings and provide an overview of recent knowledge of that and two other invasive species of Zygentoma in Estonia. In addition, the invasion history of *C. longicaudatum* in northern Europe is summarised.

**Materials and methods**

All preserved material of Zygentoma in Estonian natural history collections was examined and a list of earlier literature records was compiled. Specimens were actively searched for in suitable habitats and about 30 volunteers were asked to report sightings and, if possible, collect specimens of larger than usual silverfish (in 2020). Most material is preserved in 80% ethanol and some specimens were mounted on to microscope slides after clearing in 20% potassium hydroxide (KOH). All studied material is deposited in the Entomological Collection of Estonian University of Life Sciences (IZBE) and the private insect collection of Allan Selin.
Taxon treatments

*Ctenolepisma longicaudatum* Escherich, 1905

**Materials**

a. scientificName: *Ctenolepisma longicaudatum*; genus: *Ctenolepisma*; specificEpithet: *longicaudatum*; country: Estonia; locality: Tartu; verbatimLocality: Estonian University of Life Sciences; decimalLatitude: 58.39219; decimalLongitude: 26.69395; coordinateUncertaintyInMeters: 50; eventDate: 01.X.2018; preparations: specimen in alcohol; catalogNumber: IZBE0880013; recordedBy: Tõnu Kesküla; identifiedBy: Kaarel Sammet; type: PhysicalObject; basisOfRecord: PreservedSpecimen

b. scientificName: *Ctenolepisma longicaudatum*; genus: *Ctenolepisma*; specificEpithet: *longicaudatum*; country: Estonia; locality: Tartu; verbatimLocality: National Archives of Estonia; decimalLatitude: 58.36578; decimalLongitude: 26.69236; coordinateUncertaintyInMeters: 50; eventDate: 05.VI.2019; preparations: specimen in alcohol; catalogNumber: IZBE0880010; identifiedBy: Mati Martin; type: PhysicalObject; basisOfRecord: PreservedSpecimen

c. scientificName: *Ctenolepisma longicaudatum*; genus: *Ctenolepisma*; specificEpithet: *longicaudatum*; country: Estonia; locality: Tartu; verbatimLocality: National Archives of Estonia; decimalLatitude: 58.36578; decimalLongitude: 26.69236; coordinateUncertaintyInMeters: 50; eventDate: 28.V.2020; preparations: specimen in alcohol; identifiedBy: Mati Martin, Kaarel Sammet; type: PhysicalObject; basisOfRecord: PreservedSpecimen

d. scientificName: *Ctenolepisma longicaudatum*; genus: *Ctenolepisma*; specificEpithet: *longicaudatum*; country: Estonia; locality: Tartu; verbatimLocality: Estonian University of Life Sciences; decimalLatitude: 58.39219; decimalLongitude: 26.69395; coordinateUncertaintyInMeters: 50; eventDate: 14.VIII.2020; preparations: specimen in alcohol; catalogNumber: IZBE0880023; recordedBy: Tõnu Kesküla; identifiedBy: Kaarel Sammet; type: PhysicalObject; basisOfRecord: PreservedSpecimen

e. scientificName: *Ctenolepisma longicaudatum*; genus: *Ctenolepisma*; specificEpithet: *longicaudatum*; country: Estonia; locality: Tartu; verbatimLocality: Estonian University of Life Sciences; decimalLatitude: 58.39219; decimalLongitude: 26.69395; coordinateUncertaintyInMeters: 50; eventDate: 23.IX.2019; preparations: specimen in alcohol; catalogNumber: IZBE0880015; recordedBy: Tõnu Kesküla; identifiedBy: Kaarel Sammet; type: PhysicalObject; basisOfRecord: PreservedSpecimen

f. scientificName: *Ctenolepisma longicaudatum*; genus: *Ctenolepisma*; specificEpithet: *longicaudatum*; country: Estonia; locality: Tartu; verbatimLocality: Estonian University of Life Sciences; decimalLatitude: 58.39219; decimalLongitude: 26.69395; coordinateUncertaintyInMeters: 50; eventDate: 25.VIII.2020; preparations: specimen in alcohol; catalogNumber: IZBE0880022; recordedBy: Märt Kruus; identifiedBy: Kaarel Sammet; type: PhysicalObject; basisOfRecord: PreservedSpecimen

g. scientificName: *Ctenolepisma longicaudatum*; genus: *Ctenolepisma*; specificEpithet: *longicaudatum*; country: Estonia; locality: Tartu; verbatimLocality: Estonian National Museum; decimalLatitude: 58.39588; decimalLongitude: 26.7464; coordinateUncertaintyInMeters: 50; eventDate: 10.VIII.2020; preparations: dried specimen; catalogNumber: IZBE0880024; recordedBy: Ülle Jäe; identifiedBy: Kaarel Sammet; type: PhysicalObject; basisOfRecord: PreservedSpecimen

h. scientificName: *Ctenolepisma longicaudatum*; genus: *Ctenolepisma*; specificEpithet: *longicaudatum*; country: Estonia; locality: Tartu; verbatimLocality: Tartu, Kvartal
supermarket; decimalLatitude: 58.37701; decimalLongitude: 26.72889; coordinateUncertaintyInMeters: 50; eventDate: 23.X.2020; preparations: specimen in alcohol; recordedBy: Erika Alexandra Milani; identifiedBy: Kaarel Sammet, Olavi Kurina; type: PhysicalObject; basisOfRecord: PreservedSpecimen

i. scientificName: *Ctenolepisma longicaudatum*; genus: *Ctenolepisma*; specificEpithet: *longicaudatum*; country: Estonia; locality: Tartu; verbatimLocality: Tartu University, Chemicum (Fungal herbarium); decimalLatitude: 58.36739; decimalLongitude: 26.69281; coordinateUncertaintyInMeters: 50; eventDate: 09.XI.2020; preparations: specimen in alcohol; recordedBy: Kadri Pärtel; identifiedBy: Kaarel Sammet, Olavi Kurina; type: PhysicalObject; basisOfRecord: PreservedSpecimen

j. scientificName: *Ctenolepisma longicaudatum*; genus: *Ctenolepisma*; specificEpithet: *longicaudatum*; country: Estonia; locality: Tallinn; verbatimLocality: Tallinn, Pirita tee 56 (Estonian History Museum laboratory); decimalLatitude: 59.4525; decimalLongitude: 24.81013; coordinateUncertaintyInMeters: 50; eventDate: 16.XII.2020; preparations: dried specimen; catalogNumber: IZBE0880032; recordedBy: Ann Aaresild; identifiedBy: Kaarel Sammet, Olavi Kurina; type: PhysicalObject; basisOfRecord: PreservedSpecimen

Notes

First registered in Estonia in 2018 in Tartu (see the Materials and Methods section), now clearly established there (being repeatedly collected or observed in five localities over the period of two years). First found in Tallinn in 2020. No published records. The
species is easily distinguished from related synanthropic species by its relatively large size (up to 18 mm in adults), feathered setae, long antennae and caudal filaments, abdominal tergites II – VI with three and tergites VII–IX with two pairs of bristle-combs, segment X trapezoidal (Chick 2018, Aak et al. 2019, Molero-Baltaná et al. 2000; Fig. 1A-D).

**Lepisma saccharinum** Linnaeus, 1758

**Materials**

a. **scientificName**: *Lepisma saccharinum*; **genus**: *Lepisma*; **specificEpithet**: *saccharinum*; **country**: Estonia; **verbatimLocality**: Maardu; **decimalLatitude**: 59.47111; **decimalLongitude**: 24.93972; **coordinateUncertaintyInMeters**: 50; **eventDate**: 18.XII.2003; **preparations**: specimen in alcohol; **recordedBy**: Allan Selin; **identifiedBy**: Kaarel Sammet; **type**: PhysicalObject; **basisOfRecord**: PreservedSpecimen

b. **scientificName**: *Lepisma saccharinum*; **genus**: *Lepisma*; **specificEpithet**: *saccharinum*; **country**: Estonia; **verbatimLocality**: Maardu; **decimalLatitude**: 59.47111; **decimalLongitude**: 24.93972; **coordinateUncertaintyInMeters**: 50; **eventDate**: 18.XII.2003; **preparations**: specimen in alcohol; **recordedBy**: Allan Selin; **identifiedBy**: Kaarel Sammet; **type**: PhysicalObject; **basisOfRecord**: PreservedSpecimen

c. **scientificName**: *Lepisma saccharinum*; **genus**: *Lepisma*; **specificEpithet**: *saccharinum*; **country**: Estonia; **verbatimLocality**: Maardu; **decimalLatitude**: 59.47111; **decimalLongitude**: 24.93972; **coordinateUncertaintyInMeters**: 50; **eventDate**: 15.I.2004; **preparations**: specimen in alcohol; **recordedBy**: Allan Selin; **identifiedBy**: Kaarel Sammet; **type**: PhysicalObject; **basisOfRecord**: PreservedSpecimen

d. **scientificName**: *Lepisma saccharinum*; **genus**: *Lepisma*; **specificEpithet**: *saccharinum*; **country**: Estonia; **verbatimLocality**: Kokora; **decimalLatitude**: 58.6333; **decimalLongitude**: 27.0002; **coordinateUncertaintyInMeters**: 500; **eventDate**: 16.V.2004; **preparations**: pinned; **recordedBy**: Tõnu Kesküla; **identifiedBy**: Kaarel Sammet; **type**: PhysicalObject; **basisOfRecord**: PreservedSpecimen

e. **scientificName**: *Lepisma saccharinum*; **genus**: *Lepisma*; **specificEpithet**: *saccharinum*; **country**: Estonia; **verbatimLocality**: Tartu, Riia 181; **decimalLatitude**: 58.35667; **decimalLongitude**: 26.67861; **coordinateUncertaintyInMeters**: 50; **eventDate**: 17.II.2006; **preparations**: pinned; **recordedBy**: Tõnu Kesküla; **identifiedBy**: Kaarel Sammet; **type**: PhysicalObject; **basisOfRecord**: PreservedSpecimen

f. **scientificName**: *Lepisma saccharinum*; **genus**: *Lepisma*; **specificEpithet**: *saccharinum*; **country**: Estonia; **verbatimLocality**: Tartu, Aardla 124; **decimalLatitude**: 58.35289; **decimalLongitude**: 26.68347; **coordinateUncertaintyInMeters**: 50; **eventDate**: 22.III.2006; **preparations**: pinned; **recordedBy**: Tõnu Kesküla; **identifiedBy**: Kaarel Sammet; **type**: PhysicalObject; **basisOfRecord**: PreservedSpecimen

g. **scientificName**: *Lepisma saccharinum*; **genus**: *Lepisma*; **specificEpithet**: *saccharinum*; **country**: Estonia; **verbatimLocality**: Maardu; **decimalLatitude**: 59.47111; **decimalLongitude**: 24.93972; **coordinateUncertaintyInMeters**: 50; **eventDate**: 08.VI.2006; **preparations**: pinned; **recordedBy**: Allan Selin; **identifiedBy**: Kaarel Sammet; **type**: PhysicalObject; **basisOfRecord**: PreservedSpecimen

h. **scientificName**: *Lepisma saccharinum*; **genus**: *Lepisma*; **specificEpithet**: *saccharinum*; **country**: Estonia; **verbatimLocality**: Maardu; **decimalLatitude**: 59.47111; **decimalLongitude**: 24.93972; **coordinateUncertaintyInMeters**: 50; **eventDate**: 15.I.2007; **preparations**: pinned; **recordedBy**: Allan Selin; **identifiedBy**: Kaarel Sammet; **type**: PhysicalObject; **basisOfRecord**: PreservedSpecimen
scientificName: *Lepisma saccharina*; genus: *Lepisma*; specificEpithet: *saccharinum*; country: Estonia; verbatimLocality: Ignase; decimalLatitude: 58.25111; decimalLongitude: 26.83194; coordinateUncertaintyInMeters: 50; eventDate: 03.IX.2015; preparations: specimen in alcohol; catalogNumber: IZBE0740006; recordedBy: Märt Kruus; identifiedBy: Kaarel Sammet; type: PhysicalObject; basisOfRecord: PreservedSpecimen

j. scientificName: *Lepisma saccharina*; genus: *Lepisma*; specificEpithet: *saccharinum*; country: Estonia; verbatimLocality: Ignase; decimalLatitude: 58.25111; decimalLongitude: 26.83194; coordinateUncertaintyInMeters: 50; eventDate: 03.IX.2015; preparations: specimen in alcohol; catalogNumber: IZBE0740007; recordedBy: Märt Kruus; identifiedBy: Kaarel Sammet; type: PhysicalObject; basisOfRecord: PreservedSpecimen

k. scientificName: *Lepisma saccharina*; genus: *Lepisma*; specificEpithet: *saccharinum*; country: Estonia; verbatimLocality: Tartu, Estonian University of Life Sciences; decimalLatitude: 58.39219; decimalLongitude: 26.69395; coordinateUncertaintyInMeters: 50; eventDate: 21.IX.2016; preparations: specimen in alcohol; catalogNumber: IZBE0740000; recordedBy: Tõnu Kesküla; identifiedBy: Kaarel Sammet; type: PhysicalObject; basisOfRecord: PreservedSpecimen

l. scientificName: *Lepisma saccharina*; genus: *Lepisma*; specificEpithet: *saccharinum*; country: Estonia; verbatimLocality: Tartu, Estonian University of Life Sciences; decimalLatitude: 58.39219; decimalLongitude: 26.69395; coordinateUncertaintyInMeters: 50; eventDate: 14.XII.2016; preparations: specimen in alcohol; catalogNumber: IZBE0740002; recordedBy: Tõnu Kesküla; identifiedBy: Kaarel Sammet; type: PhysicalObject; basisOfRecord: PreservedSpecimen

m. scientificName: *Lepisma saccharina*; genus: *Lepisma*; specificEpithet: *saccharinum*; country: Estonia; verbatimLocality: Tartu, Emajõe 3; decimalLatitude: 58.38695; decimalLongitude: 26.71958; coordinateUncertaintyInMeters: 50; eventDate: 27.IV.2018; preparations: specimen in alcohol; catalogNumber: IZBE0880018; recordedBy: Kaarel Sammet; identifiedBy: Kaarel Sammet; type: PhysicalObject; basisOfRecord: PreservedSpecimen

n. scientificName: *Lepisma saccharina*; genus: *Lepisma*; specificEpithet: *saccharinum*; country: Estonia; verbatimLocality: Tartu, Kreutzwaldi 52; decimalLatitude: 58.38758; decimalLongitude: 26.69523; coordinateUncertaintyInMeters: 50; eventDate: 25.V.2020; preparations: specimen in alcohol; catalogNumber: IZBE0880020; recordedBy: Sirle Varusk; identifiedBy: Kaarel Sammet; type: PhysicalObject; basisOfRecord: PreservedSpecimen

o. scientificName: *Lepisma saccharina*; genus: *Lepisma*; specificEpithet: *saccharinum*; country: Estonia; verbatimLocality: Maardu; decimalLatitude: 59.471110; decimalLongitude: 24.93972; coordinateUncertaintyInMeters: 50; eventDate: 01.X.2020; preparations: specimen in alcohol; recordedBy: Allan Selin; identifiedBy: Kaarel Sammet; type: PhysicalObject; basisOfRecord: PreservedSpecimen

p. scientificName: *Lepisma saccharina*; genus: *Lepisma*; specificEpithet: *saccharinum*; country: Estonia; verbatimLocality: Tartu, Kaunase pst. 36; decimalLatitude: 58.37239; decimalLongitude: 26.76815; coordinateUncertaintyInMeters: 50; eventDate: 06.XII.2020; preparations: specimen in alcohol; catalogNumber: IZBE0880031; recordedBy: R. Lokk; identifiedBy: Kaarel Sammet; type: PhysicalObject; basisOfRecord: PreservedSpecimen

**Notes**

This species was recorded in Estonia as *Lepisma saccharina* by Remm (1966) and Vilbaste (1968). Widespread both in public buildings and private households.
**Thermobia domestica** (Packard, 1873)

**Notes**

*Thermobia domestica* was recorded from Estonia by Martin (2007). Its only confirmed occurrence was in a rural household in south-western Estonia in 2005. The species was identified, based on dead specimens and exuvia, but live specimens were also observed. The specimens were likely brought in with imported second-hand clothes. No voucher specimens have been preserved.

**Discussion**

The presence of *L. saccharinum* in Estonia has been well known for a long time. It is unclear when it first appeared in the Baltic Region, but it is notable that J. B. Fischer does not mention the species in his 1778 monograph on Livland’s fauna (c.f. Fischer 1778). The 'Handbook of Alien Species in Europe' lists *C. longicaudatum* as a cosmopolitan cryptogenic species (i.e. of unknown origin) (Drake 2009). In recent decades, it has been reported from several northern European countries and regions (Fig. 2). According to the public databases (GIBIF, Shah and Coulson 2020 and iNaturalist, Ueda 2020), the species has been recorded repeatedly from Helsinki, southern Finland since 2018, with first records from central Finland in 2020 and in the surroundings of Vilnius, Lithuania in 2019 (Ueda 2020). Moreover, there is an unconfirmed record from St. Petersburg, north-western Russia. However, there are no confirmed records from European Russia as yet (Vladimir Kaplin, pers. comm.) and also no records from Latvia (Voldemārs Spuņģis, pers. comm.). Some papers reporting new findings of the species in Europe hypothesise that the species was introduced considerably earlier, as it was already widely distributed in the country, for example, in Sweden (Pape and Wahlstedt 2002) and Faroe Islands (Thomsen et al. 2019). As for Estonia, it seems unlikely that the species has been overlooked for much longer, while the initial finding localities (Estonian University of Life Sciences Entomological collection and Estonian National Archive, both in Tartu) have been constantly monitored for potential pests. All current findings are from large public buildings, whereas there are, as yet, no records from private households (but is expected to be ultimately found in the latter). Compared with other synanthropic Zygentoma species, *C. longicaudatum* has much lower moisture demand and thus has a good chance of surviving in archives, libraries and museums, where there is plenty of suitable food for it (Aak et al. 2019). The species, expanding its range northwards (see Fig. 2), is considered a substantial pest especially of paper (see Fig. 1E,F, Szpryngiel 2018, Kulma et al. 2018). Therefore, its monitoring and being included to IPM (Integrated Pest Management) plans of museums, libraries and archives is inevitable (Querner 2015). Extended information on efficient and safe control can be found, for example, in Aak et al. 2020a, Aak et al. 2020b, Gutsmann 2019. There are currently no known established populations of *Thermobia domestica* in Estonia. However, the species is known for its requirement of higher temperature in order to successfully establish. Two other *Ctenolepisma* species, *C. lineatum* (Fabricius, 1775) and
C. calva (Ritter, 1910) have been recently found in Norway (Hage et al. 2020), warranting further studies on Nordic Zygentoma diversity and distribution.

Figure 2. The years of first findings of Ctenolepisma longicaudatum from northern European countries and regions. The source references are: Belgium (Lock 2007), United Kingdom (Goddard et al. 2016), The Netherlands (Nierop and Hakbijl 2002, Schoelitsz and Brooks 2014), Germany (Meineke and Menge 2014), Denmark (Thomsen et al. 2019), Poland (Aak et al. 2019), Faroe Islands (Thomsen et al. 2019), Norway (Aak et al. 2019), Sweden (Pape and Walthstedt 2002, Shah and Coulson 2020), Finland (Ueda 2020), NW Russia (Ueda 2020), Estonia (original data), Lithuania (Ueda 2020). The asterisk indicates a suspicion of an earlier observation (Schoelitsz and Brooks 2014, Thomsen et al. 2019, Anders Aak, pers. comm.).

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References

- Aak A, Rukke BA, Ottesen PS, Hage M (2019) Long-tailed silverfish (*Ctenolepisma longicaudata*) – biology and control. Norwegian Institute of Public Health, Oslo, 48 pp.
- Aak A, Hage M, Rukke BA (2020a) Long-tailed silverfish (*Ctenolepisma longicaudata*) control; bait choice based on primary and secondary poisoning. Insects 11 (3): 1-10. https://doi.org/10.3390/insects11030170
- Aak A, Hage M, Lindstedt HH, Rukke BA (2020b) Development of a poisoned bait strategy against the silverfish *Ctenolepisma longicaudata* (Escherich, 1905). Insects 11: 1-16. https://doi.org/10.3390/insects11120852
- Chick AR (2018) A revised checklist of the UK silverfish (Zygentoma: Lepismatidae). Zootaxa 4504 (3): 447-450. https://doi.org/10.11646/zootaxa.4504.3.10
- Drake AJ (2009) DAISIE, Handbook of alien species in Europe. Springer Science + Business Media B.V., 420 pp.
- Fischer JB (1778) Versuch einer Naturgeschichte von Livland. Johann Gottlob Immanuel Breitkopf, Leipzig, 728 pp.
- Goddard MR, Foster CW, Holloway GJ (2016) *Ctenolepisma longicaudata* (Zygentoma: Lepismatidae) new to Britain. The British Journal of Entomology and Natural History 29: 33-36.
- Gutsmann V (2019) Ein "Fischköder" der besonderen Art. DPS - Fachzeitschrift für Schädlingsbekämpfung (2)6-7.
- Hage M, Rukke BA, Ottesen PS, Widerøe HP, Aak A (2020) First record of the four-lined silverfish, *Ctenolepisma lineata* (Zygentoma, Lepismatidae), in Norway, with notes on other synanthropic lepismatids. Norwegian Journal of Entomology 67: 8-14.
- International Commission on Zoological Nomenclature (2018) Opinion 2427 (Case 3704) – *Lepisma* Linnaeus, 1758 (Insecta, Zygentoma, Lepismatidae): Direction 71 (1957) reversed. Bulletin of Zoological Nomenclature 75: 290-294. https://doi.org/10.21805/bzn.v75.a064
- Kulma M, Vrabec V, Patika J, Rettich F (2018) The first established population of the invasive silverfish *Ctenolepisma longicaudata* (Escherich) in the Czech Republic. BioInvasions Records 7: 329-333. https://doi.org/10.3391/bir.2018.7.3.16
- Lock K (2007) Distribution of the Belgian Zygentoma. Notes fauniques de Gembloux 60 (1): 25-27.
- Martin M (2007) Majasoomukas ja kodusoomukas [Silverfish and firebat]. Eesti Loodus 58 (6): 20-21.
- Meineke T, Menge K (2014) Ein weiterer Fund des Papierfischchens *Ctenolepisma longicaudata* Escherich, 1905 (Zygentoma, Lepismatidae) in Deutschland. Entomologische Nachrichten und Berichte 58: 153-154.
- Molero-Baltaná R, Fanciulli PP, Frati F, Carapelli A, Gaju-Ricart M (2000) New data on the Zygentoma (Insecta, Apterygota) from Italy. Pedobiologia 44 (3-4): 320-332. https://doi.org/10.1078/S0031-4056(04)70052-9
- Nierop BM, Hakbijl T (2002) *Ctenolepisma longicaudatum* heeft ongemerkt bebouwd Nederland veroverd; met een sleutel voor de Nederlandse Lepismatidae (Thysanura). Entomologische Berichten 62 (2): 34-42.
- Pape T, Wahlsstedt U (2002) En silverborstsvans nyinförd till Sverige (Thysanura: Lepismatidae). Entomologisk Tidskrift 123 (3): 149-151.
• Querner P (2015) Insect pests and integrated pest management in museums, libraries and historic buildings. Insects (6)595-607. https://doi.org/10.3390/insects6020595
• Remm H (1966) Putukate välimmääraja I (Apterygota, Palaeoptera, Hemimetabola) [Key to insects I (Apterygota, Palaeoptera, Hemimetabola)]. 1. Tartu Riiklik Ülikool, Tartu, 183 pp.
• Schoelitsz B, Brooks M (2014) Distribution of Ctenolepisma longicaudatum (Zygentoma: Lepismatidae) in the Netherlands. Proceedings of the Eighth International Conference on Urban Pests, July 20–23, 2014. University of Zurich, Zurich
• Shah M, Coulson S (2020) Artportalen (Swedish Species Observation System). Version 92.209. SLU Artdatabanken. https://doi.org/10.15468/klkyl. Accessed on: 2020-10-06.
• Szpryngiel S (2018) Långsprötad silverfisk i museer, bibliotek och arkiv i Sverige. [The grey silverfish (Ctenolepisma longicaudata) in Swedish museums, archives and libraries.]. Riksantikvarieämbetet, Stockholm, 48 pp. [ISBN 978-91-7209-826-8]
• Thomsen E, í Kongsstovu S, Dahl HA, Mikalsen S (2019) Ctenolepisma longicaudata (Escherich, 1905): a common, but previously unregistered, species of silverfish in the Faroe Islands. BioInvasions Records 8 (3): 540-550. https://doi.org/10.3391/bir.2019.8.3.09
• Ueda K (2020) iNaturalist research-grade observations. iNaturalist.org. Occurrence dataset. https://doi.org/10.15468/ab3s5x. Accessed on: 2020-10-21.
• Vilbaste J (1968) Märkmeid Eesti harjashännaliste (Thysanura) faunast [Notes on Estonian bristletails (Thysanura) fauna]. Eesti NSV Teaduste Akadeemia Toimetised, Bioloogia 17 (5): 434-435.
• Zhang Z-Q (Ed.) (2013) Animal Biodiversity: An outline of higher-level classification and survey of taxonomic richness (Addenda 2013). Vol. 3703. Magnolia Press, 1-82 pp. https://doi.org/10.11646/zootaxa.3703.1.3