

Mesostigmata Mite (Acari, Parasitiformes) Fauna of Wood-Related Microhabitats in Latvia

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Abstract: The current paper describes the Mesostigmata mite fauna of wood-related microhabitats in Latvia. Collecting of mites was made under the bark, in the frass, in the rotting wood, in the mosses and lichens on the tree trunks and stumps. During the investigations 14 tree species were surveyed. In total, 95 Mesostigmata species were recorded, 5 of which were new to the fauna of Latvia. Mesostigmata communities typical for wood-related microhabitats, soil and litter and species, associated with insects, were found.

Key words: rotting wood, bark, frass, mosses.

Introduction

Until now Mesostigmata mites in Latvia have been investigated in various soil and soil related habitats, and as the parasites of small mammals (Eglitis 1954, Grinbergs 1961, Kontschán, Salmane 2005, Lapina 1988, Petrova et al. 2004, Salmane 1999, 2001a, 2001b, 2005a Salmane, Heldt 2001, Salmane, Petrova 2002).

The fauna of mites inhabiting bracket fungi (Aphylophorales) was investigated during the last years (Salmane 2005b, Salmane, Meiere 2005). Fragmentary information on new Mesostigmata species in Latvia from woody microhabitats has been published (Salmane 2005a, 2006).

Studies on mite fauna, including Mesostigmata, related to the woody microhabitats, investigations on bark beetles and the probable role of parasitic or predatory mites in the control of those beetles were made in Europe (Gwiazdowicz 1999, Gwiazdowicz, Klemt 2004, Kaczmarek, Michalski 1994, Kalůž et al. 2003, Kielczewski, Wisniewski 1983, Maslov 2006, Michalski et al. 1992, Moser et al 2005, Slomian et al 2005, Trägårdh 1942). Numerous studies have been conducted by J.C. Moser on the southern pine beetle *Dendroctonus frontalis* (Coleoptera, Scolytidae) and its complex interactions with its associates

in North America and other parts of the World (Moser 1975, Hunter, Moser 1968, Klepzig et al. 2001, Moser et al. 2005, Moser, Roton 1971).

Methods

Mesostigmata mites were collected from rotting wood, under bark and in frass, in mosses and lichens on trees. Collecting was made on 14 tree species: 3 coniferous and 11 deciduous (Table 1). The collected material was extracted on the Berlese-Tullgren type funnels and the permanent slides were made for Mesostigmata mites.

Mesostigmata mites were identified after the keys (Bregetova 1977, Evans, Till 1966, Hirschmann 1960, Hyatt 1980, Mašán, Fenda 2004, Al-Atawi, Klompen, Moser 2002, Shcherbak 1980, Trägårdh 1942). Wood decay stage was identified following J.N. Stokland (2001).

Abbreviations used in the text: S – mite material examined, F - female, M – male, DN – deutonymph, PN – protonymph, L – lake, R – river, NP – national park. Species new to the fauna of Latvia are abbreviated by asterisk (*). The number of specimens and sex or developmental stage (where it is noted) is given in the brackets. All taxa are listed systematically.

**List and microhabitat data
of Mesostigmata species**

Sejina

Sejidae BERLESE, 1895 (non BERLESE, 1813)

1. *Sejus togatus* C.L. KOCH, 1836

S: Ogre Distr., Ogre, 08.05.2003, (3 F), mixed forest, in rotting *Alnus incana* wood (white rot), 07.03.2004, (1 M), mixed forest, under bark of fallen *Populus tremula*, 05.09.2004, (1 M), mixed forest, under bark of fallen *Populus tremula*, 05.09.2004, (19 F), mixed forest, under bark of dry fallen *Pinus sylvestris*, 08.05.2005, (2 F, 3 M, 2 DN), mixed forest, under bark of fallen *Populus tremula*, 01.05.2006, (1 DN), mixed forest, under bark of dry *Alnus incana*; Rīga Distr., Lilaste, near L. Garezers, 27.08.2004, (3 M, 1 DN), in rotting wood (red rot) of fallen *Pinus sylvestris*, 28.05.2005, (1 F), in rotting wood of fallen dry *Pinus sylvestris*; Rīga Distr., Garupe, 08.10.2005, (10 F, 4 M, 7 DN), mixed coastal forest, fragment of rotting *Betula pendula* trunk (decay stage 4, white rot) on the ground; Talsi Distr., surroundings of Kolka, Saunags, 07.08.2006, (1 DN), swamp forest, in wet rotting wood of deciduous tree stump.

Antennophorina

Celaenopsidae BERLESE, 1892

2. *Celaenopsis badius* BERLESE, 1886

S: Cēsis Distr., Cēsis, 18.06.2004, (2 F), city park, in rotting wood of *Acer* sp. stump; Liepāja Distr., Vērgale, 13.04.2003, (1 F), city park, under bark of an old living *Acer* sp.; Ogre Distr., Ogre, 18.05.2003, (3 F), mixed forest, under bark of rotting *Coryllus avelana* stump, 07.03.2004, (1 M), mixed forest, under bark of fallen *Populus tremula*, 08.05.2005, (1 F), mixed forest, under bark of fallen *Populus tremula*, 01.05.2006, (2 M), mixed forest, under bark of dry *Alnus incana*; Ogre Distr., Ogre, near R. Ogre HPS, 26.11.2006, (1 F, 2 M), under bark and in rotting wood of *Alnus incana* stump above the soil surface.

Diplogyniidae TRÄGÅRDH, 1941

3. *Loboginoides spelaea* WILLMANN, 1941 (= ? syn. *L. ulomae* SAMŠINAK, 1957)

S: Rīga Distr., Lilaste, near L. Garezers, 27.08.2004, (1), in rotting wood of *Pinus*

syvestris jointly with *Uloma rufa* (Coleoptera, Tenebrionidae).

Microgyniidae TRÄGÅRDH, 1942

4. *Microsejus truncicola* TRÄGÅRDH, 1942

S: Rīga Distr., Lilaste, near L. Garezers, 27.08.2004, (1 F), in rotting wood (white rot) of fallen *Pinus sylvestris*; Talsi Distr., Kolka, 06.08.2004, (1 F), coastal pine forest, in frass under bark of *Pinus sylvestris*; Valmiera Distr., Mazsalaca, near Skaņaiskalns, 27.08.2007, (1 F), pine forest, rotting *Pinus sylvestris* wood (decay stage 4) on the ground.

5. *Microgynium rectangulatum* TRÄGÅRDH, 1942

S: Bauska Distr., near hillfort Mežotne, 04.05.06, (1 F), deciduous forest, under bark of dry fallen *Fraxinus excelsior*; Ogre Distr., Kaibala surroundings, 16.08.2006, (1 F), small birch grove, in rotting wood of *Betula pendula*; Valmiera Distr., Mazsalaca, near Skaņaiskalns, 16.06.06, (1 F), pine forest, under bark and in frass of dead standing *Pinus sylvestris* (decay stage 2), jointly with *Hylurgops palliatus* (Coleoptera, Scolytidae).

Gamasina

Parasitidae OUDEMANS, 1901

6. *Parasitus kraepelini* BERLESE, 1903

S: Ogre Distr., Ogre, 08.05.2005, (1 F), mixed forest, under bark of fallen *Populus tremula*, 12.06.2005, (1 F), in mosses on an old *Acer* sp. stump near the R. Ogre, 23.04.06, (1 M), mixed forest, in wet rotting wood of *Betula pendula*; Rīga Distr., Rīga, near R. Mārupīte, 13.08.2005, (1 F, 1 M, 6 DN), in rotting wood from the *Quercus robur* hole.

7. *Parasitus fucorum* (DEGEER, 1778)

S: Rīga Distr., Rīga, near R. Mārupīte, 13.08.2005, (2 DN), in rotting wood from an old *Salix* sp. hole.

8. *Parasitus lunulatus* (MÜLLER, 1859)

S: Rīga Distr., Rīga, near R. Mārupīte, 13.08.2005, (2 DN), in rotting stump of an old *Salix* sp.

9. *Parasitus oudemansi* BERLESE, 1903

S: Gulbene Distr., Pededzes lejtece protected nature area, 04.05.2006, (1 F), old broadleaved forest, in rotting wood from the hole of *Quercus robur*, leg. D. Telnov.

10. *Schizosthetus simulatrix* ATHIAS-HENRIOT,

1982

S: Valmiera Distr., Mazsalaca, near Skaņaiskalns, 16.06.06, (3 F, 2 M, 3 DN), pine forest, under bark and in frass of dead standing *Pinus sylvestris* (decay stage 2), jointly with *Hylurgops palliatus* (Coleoptera, Scolytidae).

11. *Pergamasus crassipes* (LINNAEUS, 1758)

S: Ainaži Distr., Karateri, 15.06.2002, (1 F), under bark of deciduous tree; Ogre Distr., Ogre, 12.06.2005, (1 M), near the R. Ogre, in mosses on an old *Acer* sp. stump; Rīga Distr., Sigulda, near R. Gauja, 06.10.2003, (1 F), deciduous forest, in *Homalia trichomanoides*, *Radula complanata*, *Anamodes viticulosus*, *Pylaisia polyantha* (Bryophyta) on *Ulmus* sp.

12. *Pergamasus septentrionalis* (OUDEMANS, 1902)

S: Ainaži Distr., Mērnīki, 15.06.2002, (1 F), near R. Salaca, under bark of fallen *Salix* sp.; Ainaži Distr., Karateri, 15.06.2002, (1 F), under bark of deciduous tree; Liepāja Distr., Liepāja, 28.04.2002, (1 F), meadow, under log, leg. D. Telnov; Rīga Distr., Turaida, 12.07.2003, (1 F, 2 DN), mixed forest, under bark of *Fraxinus excelsior*.

13. *Pergamasus vagabundus* KARG, 1968

S: Alūksne Distr., Ziemeri, 09.08.03, (3 F, 2 M), mixed forest, in *Hypnum cupressiforme* (Bryophyta) and under bark of *Alnus incana*; Dobele Distr., Ukru gārša reserve, 04.12.2006, (9 F), in rotting deciduous tree (decay stage 4) on the ground; Liepāja Distr., Ziemupe, 13.04.2003, (3 F), in mosses on *Juniperus communis*; Ogre Distr., Ogre, 29.06.2003, (4 F, 2 M, 6 DN), mixed forest, in rotting *Alnus incana* wood on the ground, 05.09.2004, (2 F, 3 DN), mixed forest, under bark of dry fallen *Pinus sylvestris*; Ogre Distr., Ogre, near R. Ogre HPS, 26.11.2006, (1 M), under bark and in rotting wood of *Alnus incana* stump above soil surface; Rīga Distr., Lilaste, 05.09.2006, (1 F, 3 DN), sparse pine forest with dense *Calluna vulgaris* cover, in rotting wood (white rot) of fallen *Pinus sylvestris*; Valmiera Distr., Mazsalaca, near Skaņaiskalns, 16.06.06, (2 F, 2 M, 3 DN), pine forest, under bark and in frass of dead standing *Pinus sylvestris* (decay stage 2), jointly with *Hylurgops palliatus* (Coleoptera, Scolytidae); Valmiera Distr., Mazsalaca, near Skaņaiskalns, 27.08.2007, (1 M), pine forest, rotting *Pinus sylvestris* wood (decay stage 4) on

the ground.

14. *Pergamasus holzmannae* MICHERDZINSKY, 1969

S: Liepāja Distr., Vērgale, 13.04.2003, (1 F), city park, under bark of an old living *Acer* sp.; Rīga Distr., Sigulda, near R. Gauja, 05.08.2003, (1 DN), in the *Neckere pennata*, *Airomodon viticulosus*, *Leucodon sciuroides* (Bryophyta) on *Fraxinus excelsior*.

15. *Pergamasus lapponicus* TRÄGARDH, 1910

S: Liepāja Distr., Ziemupe, 13.04.2003, (2 F, 1 M), in the *Brachythecium* sp., *Amblystegium serpura* (Bryophyta) on *Juniperus communis*; Madona Distr., near L. Driksnas, 21.09.2003, (6 F, 7 M, 19 DN), in rotting wood and under bark of *Pinus sylvestris* trunk; Ogre Distr., Ogre, 08.05.2003, (1 F, 2 M, 1 DN), mixed forest, in rotting *Alnus incana* wood (white rot), 08.05.2003, (3 F, 1 M), mixed forest, under bark of *Fraxinus excelsior*, 12.06.2005, (4 F, 2 M, 5 DN), in mosses on an old *Acer* sp. stump near R. Ogre; Ogre Distr., surroundings of Ķegums, 18.09.2004, (1 F, 1 DN), in frass and under bark of *Betula pendula*; Rīga Distr., Turaida, 12.07.2003, (6 F), mixed forest, under bark of *Fraxinus excelsior*; Rīga Distr., Saulkrasti, 21.05.2004, (1 F), deciduous forest, under bark of fallen *Populus tremula*; Rīga Distr., Lilaste, near L. Garezers, 27.08.2004, (1 F, 1 M, 5 DN), in rotting wood (red rot) of fallen *Pinus sylvestris*, 28.05.2005, (1 F, 16 DN), in rotting wood of fallen dry *Pinus sylvestris*; Valmiera Distr., Mazsalaca, 15.06.2004, (2 F, 4 DN), pine forest, in rotting wood of *Pinus sylvestris* on the ground; Talsi Distr., near R. Ostupe, 07.09.2006, (2 F), deciduous forest, under bark of dry standing *Alnus incana*; Talsi Distr., Slītere NP, 13.06.2007, (1 F), spruce forest, in rotting *Betula pendula* wood (decay stage 4).

16. *Pergamasus misellus* BERLESE, 1904

S: Rīga Distr., Turaida, 12.07.2003, (3 F), mixed forest, under bark of *Fraxinus excelsior*.

17. *Pergamasus teutonicus* WILLMANN, 1956

S: Cēsis Distr., Cēsis, 18.06.2004, (1 M), city park, in rotting wood of *Acer* sp. stump; Ogre Distr., Ogre, near R. Ogre, 12.06.2005, (14 F, 11 M), in mosses on an old *Acer* sp. stump; Rīga Distr., Garupe, 08.10.2005, (1 F, 1 M), mixed coastal forest, fragment of rotting *Betula pendula* trunk (decay stage 4, white rot) on the ground.

18. *Pergamasus wasmanni* (OUDEMANS, 1902)

S: Rīga Distr., Cekule, 13.04.2002, (1 F), mixed forest, under bark of the tree, leg. D. Telnovs; Rīga Distr., Sigulda, near R. Gauja, 06.10.2003, (1 F), deciduous forest, in *Homalia trichomanoides*, *Radula complanata*, *Anamodes viticulosus*, *Pylaisia polyantha* (Bryophyta) on *Ulmus* sp.; Ogre Distr., Ogre, 12.06.2005, (1 M), near the R. Ogre, in mosses on an old *Acer* sp. stump; Talsi Distr., Kolka, 06.08.2004, (1 F), coastal pine forest, in frass and under bark of *Betula pendula*.

19. *Pergamasus parinteger* ATHIAS-HENRIOT, 1967

S: Ogre Distr., Ogre, 12.06.2005, (2 F, 1 M), near the R. Ogre, in mosses on an old *Acer* sp. stump; Rīga Distr., Sigulda, near R. Gauja, 06.10.2003, (11 F, 16 M), deciduous forest, in *Homalia trichomanoides*, *Radula complanata*, *Anamodes viticulosus*, *Pylaisia polyantha* (Bryophyta) on *Ulmus* sp.

20. *Pergamasus quisquilarum* (CANESTRINI, 1882)

S: Liepāja Distr., Vērgale, 13.04.2003, (1 M), city park, under bark of an old alive *Acer* sp.; Ogre Distr., Ogre, 10.06.2002, (1 M), mixed forest, under bark of deciduous tree.

21. *Pergamasus suecicus* TRÄGÅRDH, 1936

S: Dobeles Distr., Ukru gārša reserve, 04.12.2006, (4 F), in rotting wood of deciduous tree (decay stage 4) on the ground.

22. *Pergamasus truncus* SCHWEIZER, 1961

S: Ogre Distr., Ogre, near R. Ogre HPS, 26.11.2006, (18 F, 1 M, 1 DN), under bark and in rotting wood of *Alnus incana* stump above the soil surface; Rīga Distr., Garupe, 08.10.2005, (3 F, 1 M), mixed coastal forest, fragment of rotting *Betula* sp. trunk (decay stage 4, white rot) on the ground; Talsi Distr., Slītere NP, 13.06.2007, (5 F, 3 M), spruce forest, rotting *Betula pendula* wood (decay stage 4).

23. *Holoparasitus excipuliger* (BERLESE, 1905)

S: Alūksne Distr., Ziemeri, 09.08.03, (7 F, 5 M, 1 DN), mixed forest, in *Hypnum cupressiforme* (Bryophyta) and under bark of *Alnus incana*; Bauska Distr., near hillfort Mežotne, 04.05.06, (1 F, 1 M), deciduous forest, under bark of the dry fallen *Fraxinus excelsior*; Cēsis Distr., Cēsis, 18.06.2004, (1 F, 2 DN), city park, in rotting wood of *Acer* sp. stump; Liepāja Distr., Ziemepe, 13.04.2003, (2 F, 3 M), in

Brachythecium sp., *Amblystegium serpura* (Bryophyta) on *Juniperus communis*; Madona Distr., near L. Driksnas, 21.09.2003, (1 F), in rotting wood and under bark of *Pinus sylvestris* trunk; Ogre Distr., Ogre, 29.06.2003, (1 DN), mixed forest, in rotting *Alnus incana* wood on the ground, 07.03.2004, (3 F, 1 M), mixed forest, under bark of living *Pinus sylvestris* above the ground, 05.09.2004, (3 F, 3 M), mixed forest, under bark of fallen *Populus tremula*, 05.09.2004, (2 F, 1 M, 2 DN), mixed forest, under bark of dry fallen *Pinus sylvestris*, 12.09.2004, (6 F, 3 M, 1 DN), mixed forest, in mosses on living *Populus tremula* above the ground, 08.05.2005, (1 F, 1 M), mixed forest, under bark of fallen *Populus tremula*, 12.06.2005, (2 F, 9 M, 1 DN), in mosses on an old *Acer* sp. stump near the R. Ogre; Ogre Distr., surroundings of Ķegums, 18.09.2004, (2 F), in frass and under bark of *Betula pendula*; Ogre Distr., Kaibala surroundings, 16.08.2006, (1 F, 1 M, 1 DN), small birch grove, in rotting wood of *Betula pendula*; Ogre Distr., Ogre, near R. Ogre HPS, 26.11.2006, (19 F, 9 M), under bark and in rotting wood of *Alnus incana* stump above the soil surface; Rīga Distr., Garupe, 08.10.2005, (2 F), mixed coastal forest, fragment of rotting *Betula pendula* trunk (decay stage 4, white rot) on the ground; Rīga Distr., Sigulda, near R. Gauja, 06.10.2003, (2 F, 1 M), deciduous forest, in *Homalia trichomanoides*, *Radula complanata*, *Anamodes viticulosus*, *Pylaisia polyantha* (Bryophyta) on *Ulmus* sp., 05.08.2003, (1 M), in the *Neckere pennata*, *Airomodon viticulosus*, *Leucodon sciuroides* (Bryophyta) on *Fraxinus excelsior* trunk; Rīga Distr., Lilaste, 05.09.2006, (2 F, 1 DN), sparse pine forest with dense *Calluna vulgaris* cover, in rotting wood (white rot) of fallen *Pinus sylvestris*; Valmiera Distr., Mazsalaca, 15.06.2004, (6 M, 2 M), pine forest, in rotting wood of *Pinus sylvestris* on the ground; Talsi Distr., Kolka, 06.08.2004, (1 F), coastal pine forest, in frass and under bark of dry *Betula pendula*; Talsi Distr., near R. Ostupe, 07.09.2006, (2 F, 2 M, 1 DN), deciduous forest, under bark of dry standing *Alnus incana*.

Veigaiidae OUDEMANS, 1939**24. *Veigaiia nemorensis*** (C.L. KOCH, 1839)

S: Alūksne Distr., Ziemeri, 09.08.03, (1 F),

mixed forest, in *Hypnum cupressiforme* (Bryophyta) and under bark of *Alnus incana*; Cēsis Distr., Cēsis, 18.06.2004, (3 F, 2 DN), city park, in rotting wood of *Acer* sp. stump; Dobeles Distr., Ukru gārša reserve, 04.12.2006, (4 F, 17 DN), in rotting wood of deciduous tree (decay stage 4) on the ground; Liepāja Distr., Ziemeļe, 13.04.2003, (1 F), in *Brachythecium* sp., *Amblystegium serpurum* (Bryophyta) on *Juniperus communis*; Madona Distr., near L. Driksnas, 21.09.2003, (8 F), in rotting wood and under bark of *Pinus sylvestris* trunk; Ogre Distr., Ogre, 08.05.2003, (3 F), mixed forest, in rotting *Alnus incana* wood (white rot), 29.06.2003, (1 F, 1 DN), mixed forest, in rotting *Alnus incana* wood on the ground, 07.03.2004, (1 DN), mixed forest, under bark of living *Pinus sylvestris* above the ground, 05.09.2004, (1 DN), mixed forest, under bark of dry fallen *Pinus sylvestris*, 12.06.2005, (6 F), in mosses on an old *Acer* sp. stump near the R. Ogre; Ogre Distr., Kaibala surroundings, 16.08.2006, (1 DN), small birch grove, in rotting wood of *Betula pendula*; Rīga Distr., Lilaste, near L. Garezers, 27.08.2004, (11 F, 9 DN), in rotting wood (red rot) of fallen *Pinus sylvestris*, 27.08.2004, (4 DN), in rotting wood (white rot) of fallen *Pinus sylvestris*, 28.05.2005, (1 F), in rotting wood of fallen dry *Pinus sylvestris*, 05.09.2006, (3 F, 2 PN), coastal pine forest, in rotting wood (red rot) of fallen *Pinus sylvestris*; Rīga Distr., Garupe, 08.10.2005, (2 F), mixed coastal forest, fragment of rotting *Betula pendula* trunk (decay stage 4, white rot) on the ground; Rīga Distr., Rīga, near R. Mārupīte, 13.08.2005, (2 F, 2 DN), in rotting wood from *Salix* sp. hole; Valmiera Distr., Mazsalaca, 15.06.2004, (3 F, 1 DN), pine forest, in rotting wood of *Pinus sylvestris* on the ground; Talsi Distr., Kolka surroundings, Saunags, 07.08.2006, (2 F, 10 DN), swamp forest, in wet rotting wood of deciduous tree stump; Talsi Distr., Slītere NP, 13.06.2007, (4 DN), spruce forest, rotting *Betula pendula* wood (decay stage 4).

25. *Veigaia transisalae* (OUDEMANS, 1902)

S: Ogre Distr., Ogre, 08.05.2003, (1 F), mixed forest, in rotting *Alnus incana* wood (white rot).

26. *Veigaia cervus* (KRÄMER, 1876)

S: Rīga Distr., surroundings of Carnikava, 20.04.2002, (1 F), under bark of deciduous tree,

leg. D. Telnov; Ogre Distr., Ogre, 29.06.2003, (2 DN), mixed forest, in rotting *Alnus incana* wood on the ground, 12.06.2005, (3 DN), in mosses on an old *Acer* sp. stump near the R. Ogre.; Madona Distr., near L. Driksnas, 21.09.2003, (2 F, 3 DN), in rotting wood and under bark of *Pinus sylvestris* trunk.

27. *Veigaia exigua* (BERLESE, 1917)

S: Rīga Distr., Lilaste, near L. Garezers, 27.08.2004, (11 F, 9 DN), in rotting wood (red rot) of fallen *Pinus sylvestris*; Dobeles Distr., Ukru gārša reserve, 04.12.2006, (7 F), in rotting deciduous tree (decay stage 4) on the ground; Talsi Distr., Slītere NP, 13.06.2007, (1 F), spruce forest, rotting *Betula pendula* wood (decay stage 5).

28. *Veigaia kochi* TRÄGÅRDH, 1901

S: Rīga Distr., Rīga, near R. Mārupīte, 13.08.2005, (1 DN), in rotting wood from the *Quercus robur* hole; Valmiera Distr., Mazsalaca, near Skaņaiskalns, 16.06.06, (2 DN), pine forest, under bark and in frass of dead standing *Pinus sylvestris* (decay stage 2), jointly with *Hylurgops palliatus* (Coleoptera, Scolytidae).

Ameroseiidae (BERLESE, 1919) EVANS, 1961

29. *Ameroseius ulmi* HIRSCHMANN, 1963

S: Ogre Distr., Ogre, 07.03.2004, (14 F), mixed forest, under bark of fallen *Populus tremula*; Valmiera Distr., Mazsalaca, 15.06.2004, (1 F), pine forest, in rotting wood of *Pinus sylvestris* on the ground; Rīga Distr., Lilaste, near L. Garezers, 27.08.2004, (1 F), in rotting wood (red rot) of fallen *Pinus sylvestris*.

30. *Ameroseius longitrichus* HIRSCHMANN, 1963

S: Rīga Distr., Cekule, 01.05.2002, (1 F), under bark of *Populus tremula*, leg. D. Telnov; Ogre Distr., Ogre, 07.03.2004, (1 F), mixed forest, under bark of fallen *Populus tremula*; Ogre Distr., surroundings of Ķegums, 18.09.2004, (4 F), in frass and under bark of *Betula pendula*; Valmiera Distr., Mazsalaca, near Skaņaiskalns, 16.06.06, (14 F), pine forest, under bark and in frass of dead standing *Pinus sylvestris* (decay stage 2), jointly with *Hylurgops palliatus* (Coleoptera, Scolytidae).

31. *Ameroseius corbiculus* (SOWERBY, 1806)

S: Ogre Distr., Ogre, near R. Ogre HPS, 26.11.2006, (14 F), under bark and in rotting

wood of *Alnus incana* stump above the soil surface.

Aceosejidae BAKER, WHARTON, 1952 (sensu EVANS, 1958)

32. *Aceoseius muricatus* (C.L. KOCH, 1839)

S: Ogre Distr., Ogre, 05.09.2004, (1 F), mixed forest, under bark of fallen *Populus tremula*, 08.05.2005, (19 F), mixed forest, under bark of fallen *Populus tremula*, 06.07.2006, (1 F), mixed forest, under bark of *Alnus incana*; Rīga Distr., Lilaste, near L. Garezers, 27.08.2004, (2 F), in rotting wood (white rot) of fallen *Pinus sylvestris*; Rīga Distr., Garupe, 08.10.2005, (10 F), mixed coastal forest, fragment of rotting *Betula pendula* trunk (decay stage 4, white rot) on the ground; Rīga Distr., Saulkalne, 06.07.2006, (1 F), deciduous forest, in wood of rotting stump of *Pinus sylvestris*, Talsi Distr., Slītere NP, 09.07.2004, (1 F), in frass and under bark of dry standing *Pinus sylvestris*, 09.07.2004, (1 F), pine forest, in frass and under bark of dry *Pinus sylvestris*.

33. *Lasioseius youcefi* ATHIAS-HENRIOT, 1959

S: Ogre Distr., Ogre, near R. Ogre HPS, 26.11.2006, (3 F), under bark and in rotting wood of *Alnus incana* stump above the soil surface; Rīga Distr., Lilaste, near L. Garezers, 27.08.2004, (1 F), in rotting wood (white rot) of fallen *Pinus sylvestris*.

34. *Lasioseius ometes* (OUDEMANS, 1903)

S: Alūksne Distr., Ziemei, 09.08.2003, (12 F), mixed forest, in *Hypnum cupressiforme* (Bryophyta) on *Alnus incana*; Ogre Distr., Ogre, 05.09.2004, (3 F), mixed forest, under bark of dry fallen *Pinus sylvestris*; Valmiera Distr., Mazsalaca, near Skaņaiskalns, 16.06.06, (1 F), pine forest, under bark and in frass of dead standing *Pinus sylvestris* (decay stage 2), jointly with *Hylurgops palliatus* (Coleoptera, Scolytidae).

35. *Lasioseius furcisetus* ATHIAS-HENRIOT, 1959

S: Talsi Distr., Kolka, 06.08.2004, (1 F), coastal pine forest, in frass and under bark of *Pinus sylvestris*, 06.08.2004, (2 F), coastal pine forest, in frass and under bark of *Betula pendula*; Ogre Distr., Ogre, 11.07.2006, (1 F), garden, in rotting wood of *Prunus domestica* (decay stage 4); Ogre Distr., surroundings of Ķegums, 18.09.2004, (6 F), in frass and under bark of

Betula pendula.

36. *Leioseius insignis* HIRSCHMANN, 1963

S: Ogre Distr., Ogre, mixed forest, 16.02.2003, (1 F), under bark of dry *Coryllus avelana*.

37. *Leioseius bicolor* (BERLESE, 1918)

S: Madona Distr., Ļaudona, 23.03.2003, (1 F), park, in mosses and under bark of living *Betula pendula*; Madona Distr., R. Kuja surroundings, 01.05.2003, (1 F), deciduous forest, under *Salix* sp. bark with lichens; Ogre Distr., Ogre, 05.09.2004, (1 F), mixed forest, under bark of dry fallen *Pinus sylvestris*, 12.09.2004, (1 F), mixed forest, in mosses on living *Populus tremula* close to the soil surface; Ogre Distr., Ķegums surroundings, 18.09.2004, (4 F), in frass and under bark of *Betula pendula*; Ogre Distr., Ogre, near R. Ogre HPS, 26.11.2006, (2 F), under bark and in rotting wood of *Alnus incana* stump above the soil surface; Rīga Distr., Garupe, 08.10.2005, (1 F), mixed coastal forest, fragment of rotting *Betula pendula* trunk (decay stage 4, white rot) on the ground; Rīga Distr., Saulkrasti, 21.05.2004, (1 F), deciduous forest, under bark of fallen *Populus tremula*; Valmiera Distr., Mazsalaca, 15.06.2004, (14 F, 1 M), pine forest, in rotting wood of *Pinus sylvestris* on the ground.

38. *Leioseius minusculus* (BERLESE, 1905)

S: Rīga Distr., Lilaste, near L. Garezers, 04.06.2006, (1 F, 1 M), in rotting wood (red rot) of fallen *Pinus sylvestris*.

39. *Cheiroseius curtipes* (HALBERT, 1923)

S: Talsi Distr., Kolka, 06.08.2004, (2 F), coastal pine forest, in frass and under bark of *Betula pendula*.

40. *Proctolaelaps hystrix* VITZTHUM, 1923

S: Ogre Distr., Ogre, 08.05.2003, (1 M), mixed forest, under bark of *Fraxinus excelsior*, 07.03.2004, (10 F, 1 M), mixed forest, under bark of fallen *Populus tremula*.

41. *Proctolaelaps scolyti* Evans, 1958

S: Ogre Distr., Ogre, 07.03.2004, (1 F), mixed forest, under bark of fallen *Populus tremula*.

42. *Proctolaelaps pygmaeus* (MÜLLER, 1860)

S: Madona Distr., near L. Driksnas, 23.03.2003, (1 F), in rotting *Alnus incana* wood; Ogre Distr., Ogre, 07.03.2004, (1 F, 8 DN), mixed forest, under bark of fallen *Populus tremula*, Ogre, 05.09.2004, (2 F), mixed forest, under bark of fallen *Populus tremula*; Ogre Distr., Ķegums surroundings, 18.09.2004, (1 F), in frass and

under bark of *Betula pendula*; Rīga Distr., Rīga, near R. Mārupīte, 13.08.2005, (1 F), in rotting wood from *Quercus robur* hole; Talsi Distr., Kolka, 07.08.06, (1 F), near Kolka school, jointly with *Soronia grisea* (Linnaeus, 1758) (Coleoptera, Nitidulidae) in yeasty sap of *Betula pendula*, 06.08.2004, (6 F), coastal pine forest, in frass and under bark of *Betula pendula*.

43. *Proctolaelaps cossi* (DUGÉS, 1834)

S: Talsi Distr., Kolka, 07.08.06, (232 F, 2 M), near Kolka school, jointly with *Soronia grisea* (Coleoptera, Nitidulidae) in yeasty sap of *Betula pendula*.

44. *Proctolaelaps fiseri* SAMŠINAK, 1860

S: Valmiera Distr., Mazsalaca, near Skaņaiskalns, 16.06.06, (10 F, 2 M), pine forest, under bark and in frass of dead standing *Pinus sylvestris* (decay stage 2), jointly with *Hylurgops palliatus* (Coleoptera, Scolytidae).

45. *Proctolaelaps bickleyi* (BRAM, 1956)

S: Valmiera Distr., Mazsalaca, near Skaņaiskalns, 16.06.06, (2 F), pine forest, under bark and in frass of dead standing *Pinus sylvestris* (decay stage 2), jointly with *Hylurgops palliatus* (Coleoptera, Scolytidae).

46. *Zerconopsis remiger* KRÄMER, 1876

S: Ogre Distr., Ogre, 05.09.2004, (2 F), mixed forest, under bark of fallen *Populus tremula*, 05.09.2004, (1 F), mixed forest, in frass and under bark of dry fallen *Pinus sylvestris*.

* **47. *Melichares eccoptogasteris*** (VITZTHUM, 1923)

S: Ogre Distr., Ogre, 06.07.2006, (2 F), mixed forest, under bark of *Alnus incana*; Rīga Distr., Lilaste, 05.09.2006, (3 F), sparse pine forest with dense *Calluna vulgaris* cover, in rotting wood (white rot) of fallen *Pinus sylvestris*; Talsi Distr., Slītere NP, 09.07.2004, (1 F, 2 M), pine forest, in frass and under bark of dry *Pinus sylvestris*.

Phytoseiidae BERLESE, 1916

48. *Phytoseius macropilis* (BANKS, 1904)

S: Madona Distr., Ļaudona, 23.03.2003, (7 F), park, under bark of living *Fraxinus excelsior*.

49. *Typhlodromus cotoneastri* WAINSTEIN, 1961

S: Ogre Distr., Ogre, 07.03.2004, (1 F), mixed forest, under bark of fallen *Populus tremula*.

50. *Typhlodromus tiliae* OUDEMANS, 1929

S: Madona Distr., Ļaudona, 23.03.2003, (26 F),

park, under bark of living *Fraxinus excelsior*; Madona Distr., near R. Kuja, 01.05.2003, (3 F), deciduous forest, under bark of *Salix* sp. with lichens; Ogre Distr., Ogre, 07.03.2004, (3 F), mixed forest, under bark of fallen *Populus tremula*.

51. *Amblyseius cucumeris* (OUDEMANS, 1930)

S: Madona Distr., near L. Driksnas, 23.03.2003, (1 F), in rotting wood of *Alnus incana*.

* **52. *Anthoseius verrucosus*** WAINSTEIN, 1972

S: Ogre Distr., Ogre, 06.07.2006, (4 F), mixed forest, under bark of *Alnus incana*; Talsi Distr., near R. Ostupe, 07.09.2006, (2 F), deciduous forest, under bark of dry standing *Alnus incana*.

53. *Amblyseius obtusus* (C.L. KOCH, 1839)

S: Ainaži Distr., Mērnietki, 15.06.2002, (1 F), near R. Salaca, in *Brachytecium* sp. (Bryophyta) on *Salix* sp.

54. *Amblyseius marginatus* WAINSTEIN, 1961

S: Talsi Distr., Kolka surroundings, Saunags, 07.08.2006, (1 F), swamp forest, in wet rotting wood of deciduous tree stump.

Rhodacaridae OUDEMANS, 1902

55. *Dendrolaelaps cornutululus* HIRSCHMANN, 1960

S: Ogre Distr., Ogre, 08.05.2003, (1 F), mixed forest, under bark of *Fraxinus excelsior*.

56. *Dendrolaelaps cornutus* KRÄMER, 1886

S: Ogre Distr., Ogre, 07.03.2004, (2 F, 3 DN), mixed forest, under bark of fallen *Populus tremula*.

57. *Dendrolaelaps trapezoides* HIRSCHMANN, 1960

S: Cēsis Distr., Cēsis, 18.06.2004, (1 F), city park, in rotting wood of *Acer* sp. stump; Ogre Distr., Ogre, 29.06.2003, (1 F, 1 M), mixed forest, in rotting wood of *Alnus incana* on the ground; Rīga Distr., Lilaste, near L. Garezers, 27.08.2004, (1 M), in rotting wood (red rot) of fallen *Pinus sylvestris*, 27.08.2004, (4 F, 1 M), in rotting wood (white rot) of fallen *Pinus sylvestris*; Valmiera Distr., Mazsalaca, 15.06.2004, (2 M), pine forest, in rotting wood of *Pinus sylvestris* on the ground.

58. *Dendrolaelaps foveolatus* (LEITNER, 1949)

S: Ogre Distr., Ogre, 07.03.2004, (1 F, 8 DN), mixed forest, under bark of fallen *Populus tremula*; Ogre Distr., Ogre, near R. Ogre HPS, 26.11.2006, (1 F, 1 DN), under bark and in rotting wood of *Alnus incana* stump above the

soil surface.

59. *Dendrolaelaps arvicolus* (LEITNER, 1949)

S: Ogre Distr., Ogre, 05.09.2004, (36 F, 16 M), mixed forest, under bark of fallen *Populus tremula*, 23.04.2006, (9 F, 6 M), mixed forest, under bark of fallen dry *Picea abies*, 01.05.2006, (4 F, 1 M), mixed forest, under bark of dry *Alnus incana*; Rīga Distr., Rīga, near R. Mārupīte, 13.08.2005, (1 F, 3 DN), in rotting wood from *Quercus robur* hole; Rīga Distr., Turaida, 12.07.2003, (7 F), mixed forest, under bark of *Fraxinus excelsior*; Rīga Distr., Salaspils, territory of Institute of Biology, 08.04.2006, (1 F), rotting wood of *Salix* sp. on the ground.

60. *Dendrolaelaps (Longoseiulus) longulus* HIRSCHMANN, 1960

S: Ogre Distr., Ogre, 07.03.2004, (1 F), mixed forest, under bark of fallen *Populus tremula*.

61. *Dendrolaelaps disetosimilis* HIRSCHMANN, 1860

S: Rīga Distr., Lilaste, 05.09.2006, (1 F), coastal pine forest, in rotting wood (red rot) of fallen *Pinus sylvestris*; Valmiera Distr., Mazsalaca, near Skaņaiskalns, 16.06.06, (10 F, 8 M, 16 DN), pine forest, under bark and in frass of dead standing *Pinus sylvestris* (decay stage 2), jointly with *Hylurgops palliatus* (Coleoptera, Scolytidae).

62. *Dendrolaelaps uncinatus* HIRSCHMANN, 1860

S: Valmiera Distr., Mazsalaca, near Skaņaiskalns, 16.06.06, (1 F, 2 M), pine forest, under bark and in frass of dead standing *Pinus sylvestris* (decay stage 2), jointly with *Hylurgops palliatus* (Coleoptera, Scolytidae).

* **63. *Dendrolaelaps nikolai*** SHCHERBAK, 1978

S: Rīga Distr., Lilaste, 05.09.2006, (1 F, 1 M), sparse pine forest with dense *Calluna vulgaris* cover, in rotting wood (white rot) of fallen *Pinus sylvestris*.

* **64. *Dendrolaelaps insignis*** HIRSCHMANN, 1960

S: Gulbene Distr., Pededzes lejtece protected nature area, 04.05.2006, (1 F), old broadleaved forest, in rotting wood from *Quercus robur* hole, leg. D. Telnov; Ogre Distr., Ogre, near R. Ogre HPS, 26.11.2006, (3 F, 2 M, 4 DN), under bark and in rotting wood of *Alnus incana* stump above the soil surface.

65. *Insectolaelaps armatus* (HIRSCHMANN,

1960)

S: Ogre Distr., Ogre, 05.09.2004, (5 F, 15 DN), mixed forest, under bark of dry fallen *Pinus sylvestris*, 05.09.2004, (21), mixed forest, under bark and in frass of dead standing *Pinus sylvestris* (decay stage 2), 23.05.2005, (2), mixed f., under elytra of *Rhagium inquisitor* (Coleoptera, Cerambycidae); Valmiera Distr., Mazsalaca, near Skaņaiskalns, 16.06.06, (16 F, 42 M, 26 DN), pine forest, under and in frass of dead standing *Pinus sylvestris* (decay stage 2), jointly with *Hylurgops palliatus* (Coleoptera, Scolytidae).

* **66. *Insectolaelaps quadrisetus*** (BERLESE, 1920)

S: Ogre Distr., surroundings of Ķegums, 18.09.2004, (23 DN, 1 PN), in frass and under bark of *Betula pendula*.

67. *Multidendrolaelaps spinosus* HIRSCHMANN, 1960

S: Ogre Distr., Ogre, Pārogre, 08.05.2005, (5), mixed forest, under bark of fallen *Populus tremula*; Rīga Distr., Lilaste, 28.05.2005, (1), coastal pine forest, in rotting wood of *Pinus sylvestris* (decay stage 4); Talsi Distr., Kolka, 06.08.2004, (7 F, 2 M, 4 DN), coastal pine forest, under bark and in frass of dead standing *Betula pendula* (decay stage 4).

68. *Multidendrolaelaps hexaspinosus* HIRSCHMANN, 1860

S: Rīga Distr., Garupe, 08.10.2005, (9 F, 1 M), mixed coastal forest, fragment of rotting *Betula pendula* trunk (decay stage 4, white rot) on the ground; Valmiera Distr., Mazsalaca, near Skaņaiskalns, 16.06.06, (20 F, 19 M, 2 DN), pine forest, under bark and in frass of dead standing *Pinus sylvestris* (decay stage 2), jointly with *Hylurgops palliatus* (Coleoptera, Scolytidae).

69. *Asca aphidioides* (LINNAEUS, 1758)

S: Talsi Distr., Slītere NP, 09.07.2004, (2 F), in frass and under bark of dry standing *Pinus sylvestris*, 09.07.2004, (1 F), pine forest, in frass and under bark of dry *Pinus sylvestris*; Rīga Distr., Lilaste, 05.09.2006, (13 F, 1 DN), sparse pine forest with dense *Calluna vulgaris* cover, in rotting wood (white rot) of fallen *Pinus sylvestris*.

70. *Asca bicornis* (CANESTRINI et FANZAGO, 1877)

S: Ogre Distr., Ogre, near R. Ogre HPS,

26.11.2006, (2 F), under bark and in rotting wood of *Alnus incana* stump above the soil surface.

Macrochelidae VITZTHUM, 1930

71. *Macrocheles montanus* Willmann, 1951

S: Ogre Distr., Ogre, 12.06.2005, (1 F), in mosses on an old *Acer* sp. stump near R. Ogre.

72. *Holostaspella subornata* BREGETOVA et KOROLEVA, 1960

S: Talsi Distr., Slītere NP, 13.06.2007, (4 DN), spruce forest, rotting *Betula pendula* wood (decay stage 4).

Laelaptidae BERLESE, 1892

73. *Hypoaspis brevipilis* HIRSCHMAN, 1969

S: Alūksne Distr., Ziemeļi, 09.08.03, (4 F), mixed forest, in *Hypnum cupressiforme* (Bryophyta) on *Alnus incana* and under bark of *Alnus incana*; Cēsis Distr., Cēsis, 18.06.2004, (1 F), city park, in rotting wood of *Acer* sp. stump; Ogre Distr., Ogre, 07.03.2004, (5 F, 1 M), mixed forest, under bark of living *Pinus sylvestris* above the ground, 23.04.06, (3 F), mixed forest, in wet rotting wood of *Betula pendula*; Ogre Distr., Kaibala surroundings, 16.08.2006, (2 F, 5 M), small birch grove, in rotting wood of *Betula pendula*; Ogre Distr., Ogre, near R. Ogre HPS, 26.11.2006, (2 F), under bark and in rotting wood of *Alnus incana* stump above the soil surface; Rīga Distr., Lilaste, near L. Garezers, 27.08.2004, (6 F, 1 DN), in rotting wood (red rot) of fallen *Pinus sylvestris*, 25.05.2007, (1 F), in rotting wood of *Betula pendula* stump; Rīga Distr., Rīga, near R. Mārupīte, 13.08.2005, (18 F, 8 M), in rotting wood from the *Quercus robur* hole; Talsi Distr., Kolka, 06.08.2004, (1 F, 1 M), coastal pine forest, in frass and under bark of *Pinus sylvestris*; Talsi Distr., Kolka surroundings, Saunags, 07.08.2006, (7 F, 4 M), swamp forest, in wet rotting wood of deciduous tree stump.

74. *Hypoaspis vacua* (MICHAEL, 1891)

S: Ogre Distr., Ogre, 12.06.2005, (1 F, 3 DN), in mosses on an old *Acer* sp. stump near the R. Ogre; Rīga Distr., Lilaste, near L. Garezers, 27.08.2004, (10 F), in rotting wood (red rot) of fallen *Pinus sylvestris*, 27.08.2004, (3 F), in rotting wood (white rot) of fallen *Pinus sylvestris*; Talsi Distr., Kolka, near Kolka school, 07.08.06, (1 F, 1 M), jointly with

Soronia grisea (Coleoptera, Nitidulidae) in yeasty sap of *Betula pendula*, 06.08.2004, (8 F, 2 M), coastal pine forest, in frass and under bark of *Betula pendula*.

75. *Hypoaspis lusisi* LAPINA, 1976

S: Madona Distr., Ļaudona, 23.03.2003, (1 F), in rotting wood from *Quercus robur* hole.

76. *Hypoaspis myrmecophila* (BERLESE, 1892)

S: Talsi Distr., Kolka, 06.08.2004, (1 M, 3 DN), coastal pine forest, in frass and under bark of *Pinus sylvestris*, 06.08.2004, (5 F, 1 DN), coastal pine forest, in frass and under bark of *Betula pendula*.

77. *Hypoaspis incertus* BERNHARD, 1955

S: Talsi Distr., Kolka, 06.08.2004, (1 F), coastal pine forest, in frass and under bark of *Pinus sylvestris*.

78. *Hypoaspis fuscicolens* OUDEMANS, 1903

S: Rīga Distr., Rīga, near R. Mārupīte, 13.08.2005, (1 F), city park, rotting wood from *Salix* sp. hole.

79. *Hypoaspis lubricoides* KARG, 1971

S: Alūksne Distr., Ziemeļi, 09.08.03, (1 F), mixed forest, in *Hypnum cupressiforme* (Bryophyta) on *Alnus incana*; Madona Distr., near L. Driksnas, 23.03.2003, (1 F), in rotting wood of *Alnus incana*; Ogre Distr., Ogre, Pārogre, 23.04.06, (5 F), mixed forest, in wet rotting wood of *Betula* sp., 06.07.2006, (7 F, 9 M, 1 DN), mixed forest, under bark of *Alnus incana*, 11.07.2006, (11 F, 8 M), garden, in rotting wood of *Prunus domestica* (decay stage 4); Ogre Distr., Ogre, near R. Ogre HPS, 26.11.2006, (14 F), under bark and in rotting wood of *Alnus incana* stump above the soil surface; Ogre Distr., Ķegums surroundings, 18.09.2004, (1 F), in frass and under bark of *Betula pendula*; Rīga Distr., Rīga, Bolderāja surroundings, 26.05.2005, (2 F, 1 M, 3 DN), in rotting wood from *Aesculus hippocastanum* hole; Rīga Distr., Rīga, near R. Mārupīte, 13.08.2005, (2 F), in rotting wood from *Salix* sp. hole; Rīga Distr., Saulkalne, 06.07.2006, (1 F), deciduous forest, in rotting wood of *Pinus sylvestris* stump; Valmiera Distr., Mazsalaca, near Skaņaiskalns, 16.06.06, (1 F), pine forest, under bark and in frass of dead standing *Pinus sylvestris* (decay stage 2), jointly with *Hylurgops palliatus* (Coleoptera, Scolytidae).

80. *Hypoaspis oblonga* HALBERT, 1915

S: Liepāja Distr., Vērgale, 13.04.2003, (3 F),

city park, under bark of an old living *Acer* sp.

81. *Hypoaspis heyi* KARG, 1962

S: Rīga Distr., Rīga, near R. Mārupīte, 13.08.2005, (1 F), in rotting wood from *Salix* sp. hole.

82. *Hypoaspis praesternalis* WILLMANN, 1949

S: Rīga Distr., Rīga, near R. Mārupīte, 13.08.2005, (2 F), in rotting wood from *Salix* sp. hole.

83. *Hypoaspis lubrica* OUDEMANS et VOIGTS, 1904

S: Rīga Distr., Rīga, near R. Mārupīte, 13.08.2005, (2 F), in rotting wood from *Quercus robur* hole.

84. *Hypoaspis austriacus* (SALLNICK, 1935)

S: Ogre Distr., Kaibala surroundings, 16.08.2006, (2 F, 3 M), small birch grove, in rotting wood of *Betula pendula*.

85. *Hypoaspis miles* BERLESE, 1881

S: Ogre Distr., Ogre, Špakovska park, 17.04.2004, (1 F), mixed forest, under rotting log on the ground.

86. *Ololaelaps placentula* (BERLESE, 1887)

S: Rīga Distr., Lilaste, 04.06.06, (1 F), in rotting wood (red rot) of fallen dry *Pinus sylvestris*; Talsi Distr., Slītere NP, 13.06.2007, (1 F), spruce forest, rotting *Betula pendula* wood (decay stage 4).

Eviphidae BERLESE, 1913

87. *Eviphis ostrinus* (C.L. KOCH, 1836)

S: Ogre Distr., Ogre, 29.06.2003, (2 F), mixed forest, in rotting wood of *Alnus incana* on the ground; Valmiera Distr., Mazsalaca, 15.06.2004, (7 F, 1 DN), pine forest, in rotting wood of *Pinus sylvestris* on the ground; Valmiera Distr., Mazsalaca, near Skaņaiskalns, 27.08.2007, (1 F), pine forest, rotting *Pinus sylvestris* wood (decay stage 4) on the ground.

Zerconidae CANESTRINI, 1891

88. *Prozercon kochi* SELLNICK, 1943

S: Ogre Distr., Ogre, 29.06.2003, (16), mixed forest, in rotting wood of *Alnus incana* on the ground; Valmiera Distr., Mazsalaca, 15.06.2004, (30), pine forest, in rotting wood of *Pinus sylvestris* on the ground; Valmiera Distr., Mazsalaca, near Skaņaiskalns, 16.06.06, (1), pine forest, under bark and in frass of dead standing *Pinus sylvestris* (decay stage 2), jointly with *Hylurgops palliatus* (Coleoptera,

Scolytidae); Valmiera Distr., Mazsalaca, near Skaņaiskalns, 27.08.2007, (3 F), pine forest, rotting *Pinus sylvestris* wood (decay stage 4) on the ground; Talsi Distr., Kolka surroundings, Saunags, 07.08.2006, (2 F), swamp forest, in wet rotting wood of deciduous tree stump; Talsi Distr., Slītere NP, 13.06.2007, (4 F), spruce forest, rotting *Betula pendula* wood (decay stage 4).

89. *Zercon spatulatus* C.L. KOCH, 1839

S: Ainaži Distr., Mērnīki, 15.06.2002, (44), near R. Salaca, in *Brachytecium* sp. (Bryophyta) on *Salix* sp.; Liepāja Distr., Vērgale, 13.04.2003, (1 F), city park, under bark of an old living *Acer* sp.; Ogre Distr., Ogre, 08.05.2003, (3), mixed forest, in rotting wood (white rot) of *Alnus incana*, 07.03.2004, (14), mixed forest, under bark of fallen *Populus tremula*, 07.03.2004, (10), mixed forest, under bark of living *Pinus sylvestris* above the ground, 05.09.2004, (2 F), mixed forest, under bark of dry fallen *Pinus sylvestris*, 23.04.2006, (1 F, 1 M), mixed forest, under bark of fallen dry *Picea abies*, 06.07.2006, (1 F), mixed forest, under bark of *Alnus incana*; Ogre Distr., Ogre, near R. Ogre HPS, 26.11.2006, (1 F), under bark and in the rotting wood of *Alnus incana* stump above the soil surface; Rīga Distr., Turaida, 12.07.2003, (5 F), mixed forest, under bark of *Fraxinus excelsior*; Rīga Distr., Lilaste, 05.09.2006, (5 F), sparse pine forest with dense *Calluna vulgaris* cover, in rotting wood (white rot) of fallen *Pinus sylvestris*, 05.09.2006, (1 F), coastal pine forest, in rotting wood (red rot) of fallen *Pinus sylvestris*; Talsi Distr., Kolka surroundings, Saunags, 07.08.2006, (1 F), swamp forest, in wet rotting wood of deciduous tree stump.

90. *Zercon zelawaiensis* SELLNICK, 1944

S: Ogre Distr., Ogre, 08.05.2003, (12), mixed forest, under bark of *Fraxinus excelsior*, 07.03.2004, (4), mixed forest, under bark of living *Pinus sylvestris* above the ground, 12.09.2004, (1), mixed forest, in mosses on living *Populus tremula* above the soil surface; Ogre Distr., Ķegums surroundings, 18.09.2004, (1 F, 2 M), in frass and under bark of *Betula pendula*; Rīga Distr., Sigulda, near R. Gauja, 05.08.2003, (12), in *Neckere pennata*, *Airomodon viticulosus*, *Leucodon sciuroides* (Bryophyta) on *Fraxinus excelsior*; Rīga Distr.,

Saulkrasti, 21.05.2004, (5 F), deciduous forest, under bark of fallen *Populus tremula*; Rīga Distr., Garupe, 08.10.2005, (1 F), mixed coastal forest, fragment of rotting *Betula pendula* trunk (decay stage 4, white rot) on the ground; Valmiera Distr., Mazsalaca, 15.06.2004, (4), pine forest, in rotting wood of *Pinus sylvestris* on the ground.

91. *Zercon carpathicus* SELLNICK, 1958

S: Cēsis Distr., Cēsis, 18.06.2004, (1 F), city park, in rotting wood of *Acer* sp. stump; Ogre Distr., Ogre, 12.09.2004, (19 F), mixed forest, in mosses on living *Populus tremula* above the soil surface, 08.05.2005, (19 F), mixed forest, under bark of fallen *Populus tremula*, 05.09.2004, (2), mixed forest, under bark of fallen *Populus tremula*; Rīga Distr., Saulkrasti, 21.05.2004, (2), deciduous forest, under bark of fallen *Populus tremula*.

92. *Zercon curiosus* TRÄGÅRDH, 1910

S: Liepāja Distr., Vērgale, 13.04.2003, (5 F, 1 M), city park, under bark of an old living *Acer* sp.; Ogre Distr., Ogre, 05.09.2004, (19 F), mixed forest, under bark of dry fallen *Pinus sylvestris*; Talsi Distr., Kolka, 06.08.2004, (2 F), coastal pine forest, in frass and under bark of *Betula pendula*; Talsi Distr., Slītere NP, 13.06.2007, (6 F, 1 M), spruce forest, rotting *Betula pendula* wood (decay stage 4).

Uropodina

Uropodidae BERLESE, 1892

93. *Trichuropoda ovalis* (C.L. KOCH, 1839)

S: Bauska Distr., near hillfort Mežotne, 04.05.06, (2 F), deciduous forest, under bark of dry fallen *Fraxinus excelsior*; Rīga Distr., Lilaste, 04.06.06, (2 F, 1 M), in rotting wood (red rot) of fallen dry *Pinus sylvestris*.

94. *Urobovella pulchella* (BERLESE, 1904)

S: Ogre Distr., Ogre, 29.06.2003, mixed forest, in rotting wood of *Alnus incana*, 08.05.2003, mixed forest, in rotting wood of *Alnus incana*.

Polyaspididae BERLESE, 1913

95. *Trachytes aegrota* (C.L. KOCH, 1841)

S: Madona Distr., surroundings of L. Driksnas, 21.09.2003, in rotting wood of *Pinus sylvestris* stump; Ogre Distr., Ogre, 08.05.2003, mixed forest, in rotting wood of *Alnus incana*; Rīga Distr., Lilaste, near L. Garezers, 27.08.2004, in rotting wood (red rot) of fallen *Pinus sylvestris*.

Discussion

In total 95 Mesostigmata species of 16 families were recorded for the wood-related microhabitats. Five species *Melichares eccoptogasteris* (Aceosejidae), *Anthoseius verrucosus* (Phytoseiidae), *Dendrolaelaps nikolai*, *Dendrolaelaps insignis* and *Insectolaelaps quadrisetus* (Rhodacaridae) were new to the fauna of Latvia. The richest families were Parasitidae (19 species), Aceosejidae (16 species), Rhodacaridae (15 species) and Laelaptidae (14 species).

Thirteen mite species were recorded for coniferous tree species and 48 species for deciduous trees. Thirty-two Mesostigmata species were recorded for both (Table 1). *Pinus sylvestris* woody microhabitats were the richest (46 species) in Mesostigmata found there. Wood-related microhabitats of *Alnus incana* has 29 species, *Populus tremula* – 24 species and *Betula pendula* – 21 species.

Holoparasitus excipuliger, *Veigaia nemorensis*, *Zercon spatulatus*, *Hypoaspis lubricoides* and *Hypoaspis brevipilis* had the most diverse distribution among the investigated tree species. Some typical xylophilic species like *Schizosthetus simulatrix*, *Loboginoides spelaea*, *Microsejus truncicola*, *Multidendrolaelaps hexaspinosus*, *Insectolaelaps armatus* and other species were recorded only from *Pinus sylvestris*. Until now *Loboginoides spelaea* in Europe has been recorded on beetles of the genus *Uloma* (Coleoptera, Tenebrionidae) under poplar bark (Mašan, Kalúž 1998).

The family Parasitidae was represented by 19 species. In woody microhabitats the most frequent was *Holoparasitus excipuliger*, known to be distributed in a wide range of habitats, but usually in low numbers (Bregetova 1977). In this investigation it was represented mainly in the samples taken from the fallen trees or stumps (samples close to the soil surface). *Pergamasus lapponicus* and *Pergamasus vagabundus* were frequent in woody microhabitats as well.

Proctolaelaps, *Aceoseius*, *Melichares* and *Lasioseius* (Aceosejidae) are typical rotting wood and bark inhabitants and many species are closely associated with bark beetles

(Coleoptera, Scolytidae) (Bregetova 1977, Karg 1993). *Melichares eccoptogasteris*, *Proctolaelaps hystrix*, *Proctolaelaps fiseri* and *Proctolaelaps scolyti* are known to live under bark, in bark beetle galleries, in frass and also have been found on bark beetles. *Melichares eccoptogasteris* is known from the rotting wood and bark beetle *Scolytus* (= *Eccoptogaster*) *laevis* (Coleoptera, Scolytidae) in Europe (Bregetova 1977, Karg 1993). In this investigation it was found under bark, in frass and also in rotting wood of *Pinus sylvestris* and *Alnus incana*. *Lasioseius ometes* was found only in 3 samples in wood-related microhabitats. In samples of Aphyllophorales fungi it was one of the most frequent species (Salmane 2005b).

Dendrolaelaps, *Multidendrolaelaps* and *Insectolaelaps* (Rhodacaridae) were typical representatives of wood microhabitats. Females of *Insectolaelaps quadrisetus* are known to be parasitic on *Ips confusus* (Coleoptera, Scolytidae) in North America (Karg 1993). This species was found under bark and in galleries of other bark beetles of the genus *Ips*, and also other Scolytidae in the Palaearctic region (Bregetova 1977, Karg 1993). *Dendrolaelaps nikolai* and *Dendrolaelaps insignis* are common inhabitants of rotting wood and bark in Europe and Ukraine (Karg 1993, Shcherbak 1980). These species were found in frass, under bark and in rotting wood.

Several species of Laelaptidae are typical for wood-related microhabitats: *Hypoaspis brevipilis* in rotting wood in Europe (Evans, Till 1966, Gwiazdowicz, Klemm 2004, Karg 1993), *H. myrmecophila* in ant nests in Europe and *H. fuscicolens* associated with *Bombus* sp. and *Psithyrus* sp. in Europe (Bregetova 1977, Evans, Till 1966, Karg 1993). The most frequent species of this family in woody microhabitats was *H. lubricoides*, which is known to occur in variable soils and litter (Karg 1993), and *H. brevipilis*.

Many Ameroseiidae species are usually represented in wood-related microhabitats (Bregetova 1977). Three species of ameroseiids were found in our study. A more diverse fauna of Ameroseiidae mites (7 species) found in Aphyllophorales fungi (Salmane 2005b, 2007).

All *Veigaia* species known in Latvia were present in the woody microhabitats. These

species, with the exception of *Veigaia exigua*, are widely distributed in various habitats and also are characteristic for wet decaying wood (Bregetova 1977).

The mites of families Rhodacaridae and Aceosejidae, as well as Celaenopsidae, Diplogyniidae, Microgyniidae and *Schizosthetus simulatrix* of Parasitidae are common in wood-related habitats (Al-Atawi et al. 2002, Bregetova 1977, Karg 1993). The location of the wood material (e. g. fallen tree trunks, stumps) on the ground and samples, collected close to the soil surface, are places where has been mixing of soil/litter and wood inhabiting mite communities and in fauna of woody microhabitats includes also soil and litter mites like *Pergamasus suecicus*, *Pergamasus truncus*, *Asca bicornis*, *Asca aphidioides*, *Macrocheles montanus*, *Cheiroseius curtipes* and *Ololaelaps placentula*. Some of the Mesostigmata species are associated with Insecta (Bregetova 1977, Karg 1993), for example, several Aceosejidae and Rhodacaridae species with Scolytidae bark beetles (Coleoptera) and Laelaptidae species with Hymenoptera.

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Kopsavilkums

Rakstā apkopoti dati par Mesostigmata ērcu pētījumiem dažādos ar koksni saistītos mikrobiotopos Latvijā: zem koku mizas, trūdošā koksne, uz kokiem augošajās sūnās un ķērpjos. Pētījumu veikti 14 koku sugām: 3 skuju un 11 lapu koku sugām. Kopumā konstatētas 95 mezostigmātu sugas, no kurām 5 ir jaunas Latvijas faunai. Ar koksni saistītajos mikrobiotopos tika konstatēti šādiem biotopiem tipisku sugu kompleksi, augsnes un zemsedzes, kā arī ar dažādiem kukaiņiem saistītas ērcu sugas.

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Table 1. Distribution of Mesostigmata species in the wood, frass and under the bark (1) and in the epiphytes on the trees (2).

Mesostigmata species	1													2					
	<i>Pinus sylvestris</i>	<i>Picea abies</i>	<i>Alnus incana</i>	<i>Coryllus avellana</i>	<i>Populus tremula</i>	<i>Fraxinus excelsior</i>	<i>Betula pendula</i>	<i>Quercus robur</i>	<i>Prunus domestica</i>	<i>Aesculus hippocastanum</i>	<i>Acer sp.</i>	<i>Salix sp.</i>	Indet. deciduous tree	<i>Acer sp.</i>	<i>Ulmus sp.</i>	<i>Salix sp.</i>	<i>Fraxinus excelsior</i>	<i>Alnus incana</i>	<i>Juniperus communis</i>
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
<i>S. togatus</i>	X		X		X		X						X						
<i>C. badius</i>			X	X	X						X								
<i>L. spelaea</i>	X																		
<i>M. truncicola</i>	X																		
<i>M. rectangulatum</i>	X					X	X												
<i>P. kraepelini</i>					X		X	X						X					
<i>P. fucorum</i>												X							
<i>P. lunulatus</i>												X							
<i>P. oudemansi</i>								X											
<i>S. simulatrix</i>	X																		
<i>P. crassipes</i>											X		X		X				
<i>P. septentrionalis</i>						X						X	X						
<i>P. vagabundus</i>	X		X																X
<i>P. holzmannae</i>						X					X								
<i>P. lapponicus</i>	X		X		X	X	X												X
<i>P. misellus</i>						X													
<i>P. teutonicus</i>							X				X			X					
<i>P. wasmanni</i>							X							X	X				

To be continued

Continuation of table 1

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
<i>P. parinteger</i>														X	X				
<i>P. quisquilarum</i>											X		X						
<i>P. suecicus</i>													X						
<i>P. truncus</i>			X				X												
<i>H. excipuliger</i>	X		X		X	X	X								X		X	X	X
<i>V. nemorensis</i>	X		X				X				X	X	X					X	X
<i>V. transisalae</i>			X																
<i>V. cervus</i>	X		X										X						
<i>V. exiqua</i>	X												X						
<i>V. kochi</i>	X							X											
<i>A. ulmi</i>	X				X														
<i>A. longitrichi</i>	X				X		X												
<i>A. corbiculus</i>			X																
<i>A. muricatus</i>	X		X		X		X												
<i>L. youcefi</i>	X		X																
<i>L. ometes</i>	X																	X	
<i>L. furcisetus</i>	X						X		X										
<i>L. insignis</i>				X															
<i>L. bicolor</i>	X		X		X		X					X							
<i>L. minusculus</i>	X																		
<i>C. curtipes</i>							X												
<i>P. hystrix</i>					X	X													
<i>P. scolyti</i>					X														
<i>P. pygmaeus</i>			X		X		X	X											
<i>P. cossi</i>							X												
<i>P. fiseri</i>	X																		
<i>P. bickleyi</i>	X																		
<i>Z. remiger</i>	X				X														
<i>M. eccoptogasteris</i>	X		X																

To be continued

Continuation of table 1

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
<i>P. macropilis</i>						X													
<i>T. cotoneastri</i>					X														
<i>T. tiliae</i>					X	X						X							
<i>A. cucumeris</i>			X																
<i>A. obtusus</i>																X			
<i>A. verrucosus</i>			X																
<i>A. marginatus</i>													X						
<i>D. cornutululus</i>						X													
<i>D. cornutus</i>					X														
<i>D. trapezoides</i>	X		X								X								
<i>D. foveolatus</i>			X		X														
<i>D. arvicolus</i>		X	X		X	X		X											
<i>D.(L.) longulus</i>					X														
<i>D. disetosimilis</i>	X																		
<i>D. uncinatus</i>	X																		
<i>D. nikolai</i>	X																		
<i>D. insignis</i>			X					X											
<i>I. armatus</i>	X																		
<i>I. quadrisetus</i>							X												
<i>M. spinosus</i>	X				X		X												
<i>M. hexaspinosus</i>	X						X												
<i>A. aphidioides</i>	X																		
<i>A. bicornis</i>			X																
<i>M. montanus</i>											X								
<i>H. subornata</i>												X							
<i>H. brevipilis</i>	X		X				X	X			X		X					X	
<i>H. vacua</i>	X						X							X					
<i>H. lusiai</i>							X												
<i>H. myrmecophila</i>	X						X												

To be continued

