

Gamasina Mites (Acari: Parasitiformes) on Small Mammals in Northernmost Fennoscandia

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Abstract

EDLER, A. & MRČIAK, M. †. Gamasina mites (Acari: Parasitiformes) on small mammals in northernmost Fennoscandia. — Ent. Tidskr. 96: 167–177, 1975.

20 403 Gamasina mites of 33 species were collected from small mammals in northern Sweden, Finland and Norway mostly north of the Arctic

Circle. Host relationships and distribution are discussed. Some species, *Laelaps clethrionomydis*, *Haemogamasus nidiformis*, and *Hirstionyssus taticus*, before considered as alpine mites have been found to have a boreo-montane distribution.

1. Introduction

Between 1965 and 1970 small mammals were collected each August in the North Calotte, i.e. the northernmost parts of Sweden, Finland and Norway. Most localities were north of the Arctic Circle. The aim was to study relations between the population dynamics of the rodents and that of their ectoparasites. This paper lists the mites collected. Some older material, collected in 1961–1963, from the same part of Sweden is also included. This is the third paper of Gamasina mites on small mammals in Norway. Previously Mehl (1971) listed one species, *Hirstionyssus sciurinus* (Hirst) on *Sciurus vulgaris* L. in Norway and Edler & Mehl (1972) reported 27 species from small collections from all over Norway. From Finland Gamasina mites on small mammals have

been reported from the southwest part of the country (Mrčiak 1964, Mrčiak & Brander 1965). Edler (1968) listed 17 species from the southern parts of Swedish Lapland.

2. Methods and material

The mammals were mostly collected in live net-cage traps (Edler & Nilsson 1973), but also in snap traps in some cases in western Norway. The traps were set in the afternoon and examined the next morning. The mites were removed from the preserved hosts by forceps in the laboratory. A total of seventeen species and two kinds of hybrids of small mammals were collected (Tab. I). 14 species and the hybrids had Gamasina mites (Tab. II).

Tab. I. Frequency of infestation of small mammal species collected.

	Sweden	Finland	Norway	Σ	Specimens with mites
<i>Sorex minutus</i> L.	33	8	44	85	5
<i>S. araneus</i> L.	972	410	3,856	5,238	545
<i>S. minutissimus</i> Zimm.	—	1	—	1	—
<i>S. isodon</i> Turov	—	1	—	1	—
<i>S. caecutiens</i> Laxmann	125	106	14	245	9
<i>Neomys fodiens</i> (Pennant)	15	11	30	56	13
<i>Myopus schisticolor</i> (Liljeborg)	—	2	—	2	2
<i>Lemmus lemmus</i> (L.)	20	4	10	34	16
<i>Clethrionomys rutilus</i> (Pallas)	481	364	450	1,295	520
<i>C. glareolus</i> (Schreber)	180	357	—	537	119
<i>C. rufocanus</i> (Sundevall)	274	649	582	1,505	920
<i>C. rutilus//glareolus</i> , hybrid	13	5	—	18	2
<i>C. rutilus/rufocanus</i> , hybrid	21	1	8	30	20
<i>Arvicola terrestris</i> (L.)	1	—	1	2	2
<i>Microtus agrestis</i> (L.)	262	62	368	692	510
<i>M. oeconomus</i> (Pallas)	259	123	141	523	441
<i>Mus musculus</i> (L.)	—	7	78	85	19
<i>Micromys minutus</i> (Pallas)	—	1	—	1	—
<i>Mustela nivalis</i> f. <i>rixosa</i> (L.)	13	—	9	22	14
Σ	2,977	1,737	5,658	10,372	3,157

3. Localities

The hostmaterial was collected in the taiga forest zone, the high boreal coniferous zone, the subalpine birch forest zone, and the low-alpine heath zone. In the present paper the main types of vegetation are given as follows: Betula: birch forest of *Betula pubescens* ssp. *tortuosa* Ehrh.

Pinus: pine forest of *Pinus silvestris* L.

Picea: spruce forest of *Picea abies* (L.) H. Karst.

Salix: small *Salix* ssp. scrub (Fig. 2).

Mixed: a mixture of deciduous and coniferous trees.

Mire: wet open ground with grasses and sedges.

Heath: dry open ground with *Empetrum nigrum* L. and *Betula nana* L. or *Dryas octopetala* L.

Hayfield.

Human settlements: around houses, rubbish dumps, etc.

Clearing.

The localities were as follows (the figures denote altitude) (Fig. 1):

Sweden

1. Stora Sjöfallet National Park. Betula, Pinus. 400—600 m.
2. Jokkmöck. Betula, Picea, human settlement. 260—300 m.
3. Kvikkjokk. Betula, Picea, human settlement. 320—400 m.
4. Tjåmotis. Picea, hayfield, human settlement. 300—340 m.
5. Snavvavagge. Picea. 980 m.
6. Haparanda. Picea. 30—40 m.
7. Kurravaara. Betula, Picea, mire. 340 m.
8. Kaalaluspa. Betula. 480 m.
9. Årosjokk. Betula, Pinus, mire. 490 m.
10. Laukujärvi. Betula, mire. 500 m.
11. Altajärvi. Picea, hayfield. 460 m.
12. Pajala. Salix, mixed, hayfield. 150 m.
13. Riksgränsen. Betula. 530 m.
14. Abisko. Betula. Salix. 340—390 m.
15. Björkliden. Betula. 420 m.
16. Kerkevagge. Heath (*Dryas*). 650—750 m.
17. Jebrenjokk. Betula. 340—400 m.
18. Torneträsk anhalt. Betula. 360 m.
19. Vittangi. Pinus, Picea, hayfield. 250 m.

Finland

20. Muonio. Pinus, hayfield. 310—330 m.
21. 25 km S Muonio. Picea. 280—300 m.

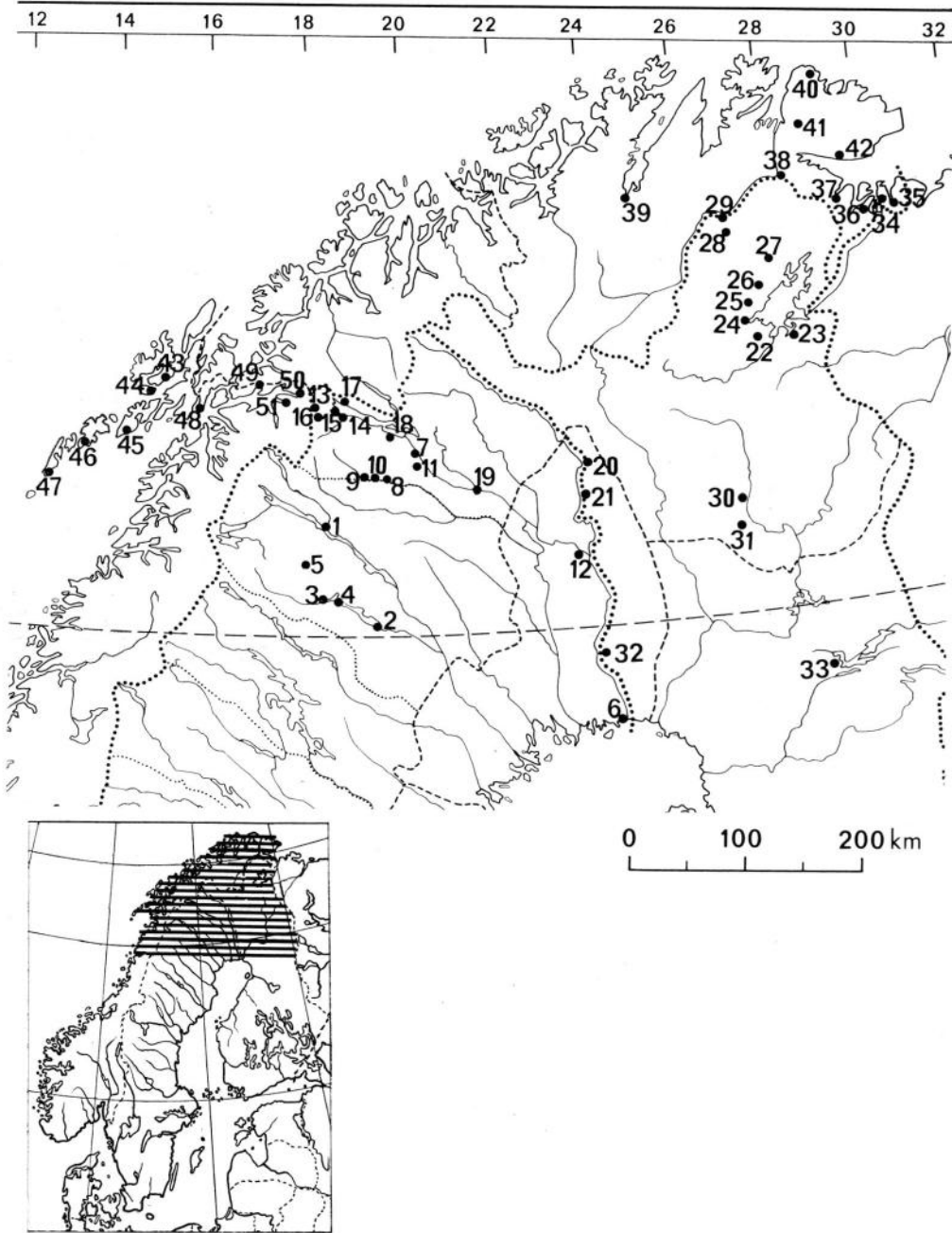


Fig. 1. Map of the North Calotte showing localities investigated. The corresponding localities are listed in section 3.



Fig. 2. Locality no. 40, Berlevåg, at Barents sea, with heath of *Salix*. Photo A. Edler.

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|---|--|
| 22. Myösäjärvi. <i>Pinus</i> , mire. 140 m. | 38. Polmak. <i>Betula</i> . 50 m. |
| 23. Ca 20 km NE Ivalo. <i>Pinus</i> , mixed, human settlement, clearing. 140 m. | 39. Lakselv. <i>Betula</i> . 50 m. |
| 24. Inari. <i>Betula</i> , <i>Pinus</i> , <i>Salix</i> , mire. 150—160 m. | 40. Berlevåg. <i>Salix</i> , heath. 5—10 m (Fig. 2). |
| 25. Toivoniemi. <i>Pinus</i> , mire. 150 m. | 41. Juleva. <i>Betula</i> , heath. 150 m. |
| 26. Ca 30 km N Inari. <i>Pinus</i> . 170—200 m. | 42. Vadsö. <i>Betula</i> . Mire, hayfield. 50—150 m. |
| 27. Ca 50 km N Inari. <i>Betula</i> , mire. 230—280 m. | 43. Holand, Langöy. <i>Betula</i> , mire. 5—50 m. |
| 28. Ca 20 km S Utsjoki. <i>Betula</i> . 80—100 m. | 44. Stormarknes, Hadselöy. <i>Betula</i> , mire. 5—50 m. |
| 29. Utsjoki. <i>Betula</i> . 80—100 m. | 45. Svolvaer, Austvågöy. <i>Betula</i> . 5—50 m. |
| 30. Ca 15 km N Sodankylä. <i>Pinus</i> , hayfield. 200 m. | 46. Leknes, Vestvågöy. <i>Betula</i> , human settlement. 5—50 m. |
| 31. Ca 15 km. S Sodankylä. Mixed. 200 m. | 47. Å, Lofoten. <i>Betula</i> . 5—50 m. |
| 32. Aavasaksa. <i>Pinus</i> , hayfield. 60—100 m. | 48. Lödingen, Hinnöy. <i>Betula</i> , human settlement. 5—50 m. |
| 33. Posio. <i>Picea</i> . 250 m. | 49. Östervik, Bogen, Ofoten. <i>Betula</i> . 5—50 m. |
| | 50. Björnfjell. <i>Betula</i> , <i>Salix</i> , mire, heath. 530—550 m. |
| | 51. Straumnes. <i>Betula</i> . 5—50 m. |
- N o r w a y
34. Elvenes, ca 10 km SE Kirkenes. *Betula*, mire, human settlement. 20—40 m.
35. Jarfjord, Tårnet. Ca 17 km ESE Kirkenes. Mixed, heath. 25 m.
36. Ca 7 km SW Kirkenes. *Betula*, heath. 100—150 m.
37. Bugöyfjord. *Betula*, heath. 50—100 m.

4. The mites

33 species of Gamasina mites were collected, four of which could only be identified

Tab. II. Distribution of mite species between infested host species. S=Sweden, F=Finland, N=Norway.

	<i>S. minutus</i>	<i>S. araneus</i>	<i>S. caecutiens</i>	<i>N. fodiens</i>	<i>M. schisticolor</i>	<i>L. lemmus</i>	<i>C. rutilus</i>	<i>C. glareolus</i>	<i>C. rufocanus</i>	<i>C. rutilus/glareolus</i>	<i>C. rutilus/rufocanus</i>	<i>A. terrestris</i>	<i>M. agrestis</i>	<i>M. oeconomus</i>	<i>M. musculus</i>	<i>M. nitidis f. rixosa</i>	Protonymf	Deutonymf	♂	♀	Σ	Countries		
<i>Pergamasus</i> sp.	—	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	3	—	N		
<i>Parasitus remberti</i>	—	12	1	—	1	15	2	11	—	—	—	10	—	—	1	1	52	—	—	53	S F	N N		
<i>P. lunulatus</i>	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1	—	N N		
<i>P. kraepelini</i>	1	23	—	—	—	—	—	9	—	—	—	4	—	—	—	—	26	1	10	37	S F	N N		
<i>Parasitus</i> sp.	—	10	—	2	—	5	1	7	—	—	—	—	2	—	—	—	25	1	1	27	S F	N N		
<i>Poecilochirus necrophori</i>	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	1	—	N N		
Eugamasidae non det.	—	38	—	—	—	5	2	18	—	—	—	4	4	2	—	—	71	2	—	73	S F	N N		
<i>Euryparasitus emarginatus</i>	—	6	—	—	—	2	—	2	—	—	—	1	—	—	—	—	11	—	—	11	—	N N		
<i>Cyrtolaelaps mucronatus</i>	1	41	1	1	—	11	2	24	—	—	—	6	2	4	—	—	93	—	—	93	S F	N N		
<i>C. minor</i>	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	1	—	—	1	—	N N		
<i>Veigaia kochi</i>	—	1	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	2	2	—	N N		
<i>Veigaia</i> sp.	—	2	—	—	—	—	—	1	—	—	—	—	—	—	—	—	3	—	—	3	S	N N		
<i>Proctolaelaps pygmaeus</i>	—	1	—	—	10	—	1	2	—	—	—	1	—	—	—	—	1	—	14	15	S F	N N		
<i>Macrocheles montanus</i>	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1	—	N N		
<i>Hypoaspis lubrica</i>	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1	—	F		
<i>Laelaps muris</i>	—	—	—	—	—	—	—	—	—	—	58	—	—	—	—	—	2	7	9	40	58	S	N	
<i>L. lemmi</i>	—	—	—	—	14	—	—	—	—	—	—	—	—	—	—	—	—	—	14	14	—	S		
<i>L. clethrionomydis</i>	—	10	—	—	—	177	18	2,561	—	28	—	13	12	—	—	22	89	291	2,417	2,819	—	S F	N	
<i>L. hilaris</i>	—	13	2	1	659	92	10	177	—	—	—	3,322	2,896	—	13	51	186	620	6,328	7,185	—	S F	N N	
<i>Hyperlaelaps microti</i>	—	12	—	—	—	12	3	29	—	—	—	422	1,092	—	—	53	81	310	1,126	1,570	—	S F	N N	
<i>H. amphibius</i>	—	—	—	—	—	—	—	—	—	6	—	—	—	—	—	—	1	3	2	6	—	S		
<i>Eulaelaps stabularis</i>	—	100	1	2	3	80	23	143	—	2	—	41	45	2	4	—	—	9	437	446	—	S F	N N	
<i>Haemogamasus horridus</i>	—	133	—	6	1	5	—	1	—	—	—	6	—	1	—	—	82	42	29	153	—	S F	N N	
<i>H. nidi</i>	—	42	2	2	1	52	3	232	—	1	—	90	61	—	3	—	51	40	399	490	—	S F	N N	
<i>H. nidiformis</i>	1	8	—	—	—	164	12	210	2	2	—	47	22	—	1	1	14	46	408	469	—	S F	N N	
<i>H. liponyssoides</i>	1	41	—	—	—	1	3	1	—	—	—	—	2	—	—	—	30	4	15	49	—	S F		
<i>H. hirsutus</i>	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1	—	N		
<i>H. ambulans</i>	—	110	1	4	—	11	212	58	359	5	3	—	122	159	—	7	1	83	101	866	1,051	—	S F	N N
<i>Myonyssus ingricus</i>	—	67	—	7	—	—	—	—	—	—	—	—	—	—	—	—	1	2	71	74	—	S F	N	
<i>Hirstionyssus isabellinus</i>	—	76	1	—	—	76	793	136	1,984	1	108	13	1,208	478	2	43	2	449	640	3,828	4,919	—	S F	N N
<i>H. soricis</i>	1	652	2	—	—	7	5	12	—	1	—	1	3	1	—	—	2	8	675	685	—	S F	N N	
<i>H. laticutatus</i>	1	—	—	—	—	—	—	2	—	—	—	—	—	43	—	—	3	5	38	46	—	S F	N N	
<i>H. tatricus</i>	—	—	—	—	—	11	—	29	—	—	—	6	—	—	—	—	—	2	44	46	—	S F	N	
Σ	6	1,405	11	25	671	107	1,645	279	5,814	8	145	77	5,305	4,778	49	78	133	1,363	2,136	16,771	20,403	—		

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to genus. 21 species were found in Sweden, 19 in Finland and 25 in Norway (Tab. II). Below are given comments on their distribution in a few cases. A list of the mite species of the various localities may be obtained from the authors. The species are arranged below according to Evans & Till (1966), Johnston (1968), and Karg (1971). Names suggested by Bregetova (1956) are given as synonyms. A few corrections are made compared with Edler & Mehl (1972).

Family Parasitidae Oudemans,
1902, 1962

Pergamasus sp.

The specimens were very similar to *Pergamasus crassipes* (L. 1758). However, some differences were found in the shape of the epigynal shield.

Parasitus remberti (Oudemans 1912)

(*Eugamasus remberti* Oudemans, 1912 teste Bregetova 1956.)

All specimens but one were deutonymphs. Found in all parts of the investigated area and on most of the host species. Recorded from Central and northern Europe.

Parasitus lunulatus (J. Müller, 1859)

(*Eugamasus lunulatus* J. Müller, 1859 teste Bregetova 1956.)

Nordberg (1936) recorded it in nests of *Parus major* L. and *Sturnus vulgaris* L. in Finland. Normally free-living and only rarely found on small mammals in Europe.

Parasitus kraepelini (Berlese, 1905)

(*Eugamasus kraepelini* Berlese, 1903 teste Bregetova 1956.)

Most specimens of this normally free-living mite were found as deutonymphs (Tab. II). Known from most parts of Europe (Micherdzinski 1969).

Poecilochirus necrophori Vitzthum, 1930

This necrophagous mite is normally found in soil, but sometimes also on beetles (*Geotrupes* and *Necrophorus*), which are used as carriers.

Family Rhodacaridae
Oudemans, 1902

Euryparasitus emarginatus
(C. L. Koch, 1839)

Normally a predator in soil and small mammals' nests. The deutonymphs are sometimes also found in the fur of mammals. In the present material it was only found in Norway, but has also been reported from Sweden (Edler 1969, 1972 a). Common in Europe and Asia, both in lowlands and mountainous areas.

Cyrtolaelaps mucronatus (G. & R.
Canestrini, 1881)

The relative abundance of this mite (93 deutonymphs) indicates an association between the small mammals and the deutonymphal stage (cf. Willman 1952, Edler 1968, 1969). Adults are found in nests of small mammals (Mrčiak et al. 1966). Known from Europe.

Cyrtolaelaps minor Willman, 1952

A single specimen on *C. rutilus* in Norway. Usually rare in the fur and in nests of small mammals in Europe (Karg 1971, Edler 1972 a). Mrčiak et al. (1966) reported it to be abundant in nests of *C. glareolus* in Czechoslovakia.

Family Veigaiidae Oudemans, 1939

Veigaiia kochi (Trägårdh, 1901)

New for Norway. Free-living, and very rare on small mammals.

Family Ascidae Voigts &
Oudemans, 1905

Proctolaelaps pygmaeus (Müller, 1860)

Known from various small mammals. Found in stored plant material in most parts of the world (Mrciak & Brander 1965, Karg 1971).

Family Macrochelidae
Vitzthum, 1930

Subfamily Macrocholinae Vitzthum,
1930

Macrocheles montanus (Willman, 1951)

Free-living predator from many parts of Europe. Always rare (Bregetova & Koroleva 1960, Mrciak & Tovornik 1966).

Family Laelapidae Berlese, 1892

Subfamily Laelapinae Berlese, 1892

Hypoaspis lubrica Voigts &
Oudemans, 1904

(*Hypoaspis murinus* Strandtmann & Menzies, 1948 teste Bregetova 1956.)

Known in Europe and the North America from decaying plants, nests of birds, on rodents and in their nests. This is the first record from *M. schisticolor*.

Laelaps muris (Ljungh, 1799)

Specific to *A. terrestris*, where it is often found in great numbers. There are some records from *Microtus arvalis* (Pallas) and *Talpa europaea* L. (Karg 1971). Reservoir of tularemia (Mrciak & Tovornik 1966). Known from Europe and Asia.

Laelaps lemmi Grube, 1851

Obligate parasite, so far only found on *L. lemmus* (Edler & Mehl 1972). Bregetova (1956) recorded it from *Lemmus obensis*

Tab. III. Infestation, I/M (I=% infested animals of all collected animals; M=number of parasites per infested host), of the host species most frequently infested with *Laelaps clethrionomydis* and *L. hilaris*. *=too small material.

	<i>L. clethrionomydis</i>	<i>L. hilaris</i>
<i>S. araneus</i>	0.2/ *	0.1/ *
<i>C. rutilus</i>	7.4/ 1.8	2.9/ 2.5
<i>C. glareolus</i>	2.2/ 1.5	0.7/ *
<i>C. rufocanus</i>	39.6/ 4.3	4.6/ 2.6
<i>M. agrestis</i>	0.7/ *	51.3/ 9.4
<i>M. oeconomus</i>	1.5/ *	70.9/ 7.8

(sub nom. *Lemmus lemmus sibiricus* (Kerr, 1792) teste Sidorowicz 1960). Known from Scandinavia, USSR, Canada and Alaska.

Laelaps clethrionomydis Lange, 1955

This mite, mostly collected from mountains, is restricted to various species of *Clethrionomys*. In central and southern Europe, where *C. rufocanus* and *C. rutilus* are absent, it occasionally occurs on *C. glareolus* (Mrciak 1959, Mahnert 1971). In the present material as well as in other investigations in northern Sweden the main host is *C. rufocanus* (Tab. III) (Edler 1968, 1969). In Fennoscandia it is also more common on *C. rutilus* than on *C. glareolus*. In southern Sweden, Edler (1972 a) collected 735 *C. glareolus* at altitudes between sea level and ca 50 m, 235 of which were infested by 666 Gamasina mites. However, no *L. clethrionomydis* were found. In the present material this mite was found both at high altitudes (e.g. locs. 16, 29) and at the coast of Arctic Ocean and Barents Sea in Norway (locs. 40, 48, 51) (Fig. 2). From these records it may be regarded as a boreo-montane species. Mrciak (1959) considered the south-west border of the distribution area of the species to be in the Kaminske Alps in Yugoslavia. It is known from Central, northern and eastern Europe and Siberia.

Laelaps hilaris C. L. Koch, 1836

This mite is the most common one in the present material. It was found in high frequencies on two species of *Microtus* (Tab. III). *M. oeconomus* was frequently more infested than *M. agrestis*, on which, however, more mites were found. *M. oeconomus* is found in northernmost Fennoscandia and at a few places in central Norway and Sweden. In Central Sweden Edler (1969) found 75.9% of *L. hilaris* captured on *M. agrestis*, and 19.3% on *M. oeconomus*. Thus, the former species was about four times as common as the latter. In various parts of Norway 78.3% of the mite was recorded from *M. agrestis* and 16.0% from *M. oeconomus* (Edler & Mehl 1972); thus the former was about 5 times as common as the latter. However, in Norway only about 1.5 as many *M. agrestis* as *M. oeconomus* were examined. In southern Sweden 94.6% were recorded from *M. agrestis* (Edler 1972 a). According to Mrčiak (1959) *L. hilaris* is more common in Central than in southern Europe. It seems to be ever more abundant in northern Europe. It is known from Europe and Asia.

Hyperlaelaps microti (Ewing, 1933)

(*Hyperlaelaps arvalis* Zachvatkin, 1948 teste Bregetova 1956.)

Most specimens were recorded from *M. oeconomus* and only about 1/4 from *M. agrestis*. In previous material from Norway the host relations were the opposite (Edler & Mehl 1972). In Central and southern Sweden, where *M. oeconomus* does not occur, *M. agrestis* is the main host (Edler 1969). On the European continent, *M. arvalis* is the main host (Mahnert 1971). Known from Europe and North America.

Hyperlaelaps amphibius

Zachvatkin, 1948

Specific to *A. terrestris* as is *Laelaps muris*. *H. amphibius* is, however, rarer (cf. Tab. II) (Mrčiak & Brander 1965).

Subfamily Haemogamasinae Oudemans, 1926

Eulaelaps stabularis (C. L. Koch, 1836) 1839

A cosmopolitan species known from a variety of hosts. It has a wide ecological amplitude and shows almost no host specificity (Koyumdjieva 1967). Nordberg (1936) recorded it from a nest of *Riparia riparia* L. in Finland. It is, however, considerably more abundant in nests of small mammals than in birds' nests (Mrčiak & Brander 1965). In the present material it constitutes 2.2% of the mites. The frequency in the various countries varies from 1.6% in Sweden to 2.6% in Finland and Norway respectively. Other materials from Fennoscandia contained 0.3%—5.7% of this species. However, in the Jaeren peninsula in southern Norway 24.0% were *E. stabularis* (Edler & Mehl 1972).

Haemogamasus horridus Michael, 1892

The deutonymphs are most common on the hosts. The adults are mainly found in nests of various small mammals in Europe (Mrčiak & Brander 1965, Edler 1969).

Haemogamasus nidi Michael, 1892

The main hosts are *Clethrionomys* spp., on which 58.6% of the individuals were found. *C. rufocanus* was most infested and *C. glareolus* least in contrast to the findings in other parts of Fennoscandia (Mrčiak & Brander 1965, Edler 1968, 1969, 1972 a, Edler & Mehl 1972). *Microtus* spp., known as main hosts in eastern and southeastern Europe, had 30.8% of the specimens (Mrčiak 1958, Mrčiak & Tovornik 1959). *H. nidi* is one of the most abundant mites in small mammal nests (Mrčiak et al. 1966, Furman 1968, Edler 1972a). Known from the northern hemisphere.

Haemogamasus nidiformis
Bregetova, 1955

Recorded in small numbers on the European continent at high altitudes from few host species. In Scandinavia it was recorded from a variety of hosts, and also at the coast in the northern parts (e.g. locs. 40, 51) (Fig. 2). In Sweden *H. nidiformis* becomes more abundant farther north (Edler 1968, 1972 b). *Clethrionomys* spp. are the preferred hosts in the present material, being infested by 82.4 % of the individuals. *Microtus* spp., known elsewhere as main hosts (Mrciak 1959, Koymdjieva 1967, Garrett & Allred 1971), were infested by 14.7 %. Known from Asia and Europe.

Haemogamasus lipponyssoides
Ewing, 1925

61 % of the specimens were deutonymphs. It is an obligate ectoparasite known from the northern hemisphere (Strandtmann & Wharton 1958, Evans & Till 1966). In the present material it is recorded from several new hosts, viz. *S. minutus*, *S. araneus*, *C. rutilus*, *C. glareolus* and *M. oeconomus*. New to Sweden and Finland. Not found in Norway.

Haemogamasus hirsutus Berlese, 1889

Only one individual found (a female). Usually found as deutonymphs on small mammals and as adults in nests (Edler 1972 a). Known from Europe.

Haemogamasus ambulans (Thorell, 1872)

Recorded from small mammals and bats, and from birds' nests. Known from the northern hemisphere. New to Finland.

Subfamily *Myonyssinae* Bregetova, 1956

Myonyssus ingriscus Bregetova, 1956

Found rarely on various small mammals; most records are from Soricidae (Feider et

Tab. IV. Frequency of *Hirstionyssus isabellinus* in various investigations in Fennoscandia. 100 % = all mites in one investigation.

Southern Sweden (Edler 1972 a)	4.6
Central Sweden (Edler 1969)	7.1
Northern Sweden (Edler 1968)	14.1
Southern Finland (Mrciak & Brander 1965	0.3
Norway (Edler & Mehl 1972)	13.3
Northernmost Fennoscandia (Present paper)	24.1

al. 1965, Edler 1968, Mahnert 1971, Edler & Mehl 1972). More abundant in nests of *C. glareolus* (Mrciak et al. 1966).

Subfamily *Hirstionyssinae* Evans & Till, 1966

Hirstionyssus isabellinus
Oudemans, 1913

Known from a variety of hosts and their nests. The main hosts are species of Microtidae. In the present material it is the second most common species, constituting 24.1 % of all mites. It is found also in other parts of Fennoscandia; however in low frequencies (Tab. IV) (cf. Edler 1972 b). Known from the northern hemisphere.

Hirstionyssus soricis (Turk, 1945)

(*Hirstionyssus eusoricis* Bregetova, 1956 teste Bregetova 1956.)

Specific to Soricidae. 95.2 % of the specimens were found on *S. araneus*. Rare and known from only a few countries in Europe (Edler 1972 a). New to Finland.

Hirstionyssus latiscutatus (de Meillon & Lavoipierre, 1944)

(*Hirstionyssus musculi* (Johnston, 1849) teste Bregetova 1956.)

Species of Muridae are main hosts. In the

present material 43 of 46 specimens were from *M. musculus*. Microtidae may be parasitized in areas without Muridae (Edler 1968). Known from Africa, Asia, and Europe (Strandtmann & Wharton 1958, Evans & Till 1966).

Hirstionyssus tatricus Mrčiak, 1958

Rare, so far only recorded from mountains. In the present material it was represented at high altitudes (eg. loc. no 50) as well as high latitudes, viz. at the coast of Barents sea and Arctic ocean in Norway (loc. no 40). One new host was recorded, viz. *C. rutilus*. New to Finland. Known from Asia and Europe.

Acknowledgements

The work was carried out at the Department of Animal Ecology, University of Lund, and at the Zoological Institute, Comenius University, Bratislava. We are most grateful to a lot of people in the field work, determining host animals, collecting mites from hosts, supervising the work, and criticising the manuscript. Especially we would like to mention Dr Per Brinck, professor and head of the Department of Animal Ecology. The work was supported by grants from the Nordic Council for Terrestrial Ecology, the Research Institute of National Defence, the Swedish National Science Research Council, the Royal Swedish Academy of Engineering Sciences, the Czechoslovak Academy of Sciences, and the Royal Physiographic Society in Lund.

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