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A Check-List of the Spiders in Tuva, South Siberia with Analysis of their Habitat Distribution

(Arachnida: Araneae)

by

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Synopsis: On the basis of personal collecting and literature data from Tuva (S. Siberia), a check-list of spiders (605 species from 23 families) is presented. A chorological analysis of the spider complexes (based on 573 species) within 23 vegetation types and 4 landscapes is additionally performed.

Contents:

1. Introduction:

Tuva is a rather small administrative unit of Russia lying in the mountains of South Siberia (see Map) and covering ca. 170.5 thousand sq. km. Tuva is a mountain region, with elevations ranging from 650 m a.s.l. (Tuvan hollow) to 3970 m a.s.l. (Mongun-Taiga Mt.). Despite its small size, Tuva encompasses an extremely wide range of landscapes and vegetation types. For instance, in some parts of S. Tuva, within a distance of 50-60 km, all natural zones can be found from semi-desert and dry steppe to *Larix*-taiga and mountain tundra.

However, such a vast and highly diverse land has remained practically unexplored with regard to the spider fauna until 1989, when one of us (DVL) began to study Tuvan spiders. Before that, only two species, *Pardosa lusisi* and *Yllenus mongolicus,* were known to occur in Tuva (STERNBERGS 1981, PRÓSZYŃSKI 1982). Since then, radical progress in the treatment of the spiders in Tuva has been observed and about 40 papers have been published. In the present paper, 605 species found so far in Tuva are listed.

The present paper is thus an up-to-date review of the spider fauna in Tuva, based on original spider collecting done in 1989-1996 during field trips to Tuva.

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2. Material and methods:

The material dealt with here has been shared mostly between the collections of the Institute for Systematics and Ecology of Animals (Novosibirsk, Russia), the Zoological Museum of the Moscow State University (Moscow, Russia), the Institute for Biological Problems of the North (Magadan, Russia), the Zoological Museum of the University of Turku (Turku, Finland) and the California Academy of Sciences (San Francisco, USA).

In the list of localities (see below), names of collectors are abbreviated as follows: DL = D.V. Logunov; OL = O.V. Lyakhov; YM = Yu.M. Marusik; SK = S. Koponen.

The following check-list is believed to have been compiled up to November 1997, and it is arranged alphabetically. If a species has already been reported from Tuva, corresponding locality numbers are underlined. Species new to Russia (altogether 14), as compared to the recent catalogue of the ex-USSR spiders (MIKHAILOV 1997), are marked with an asterisk. The species marked with "?" refer to preliminary determinations; in most cases we need comparative material to check identifications. The question marks "?" among/instead of vegetation type abbreviations mean that data on the habitat preferences of a species are absent or poorly known. Of the 605 spider species listed below, 53 have already been described by us or by our Russian colleagues during the last 5-7 years, while 63 species are either undescribed, e.g. *Talavera* sp. 1 (cf. *petrensis*), *Xysticus* sp. 1, etc., or are of an obscure status. All these species are listed here as undetermined ones with reference, if possible, to their closest relatives.

Of the vegetation types prevailing in Tuva (see KUMINOVA et al. 1985, NAMZALOV & KOROLYUK 1991), we have been able to analyse, with regard to the arachnofauna, 23 formations (see below).

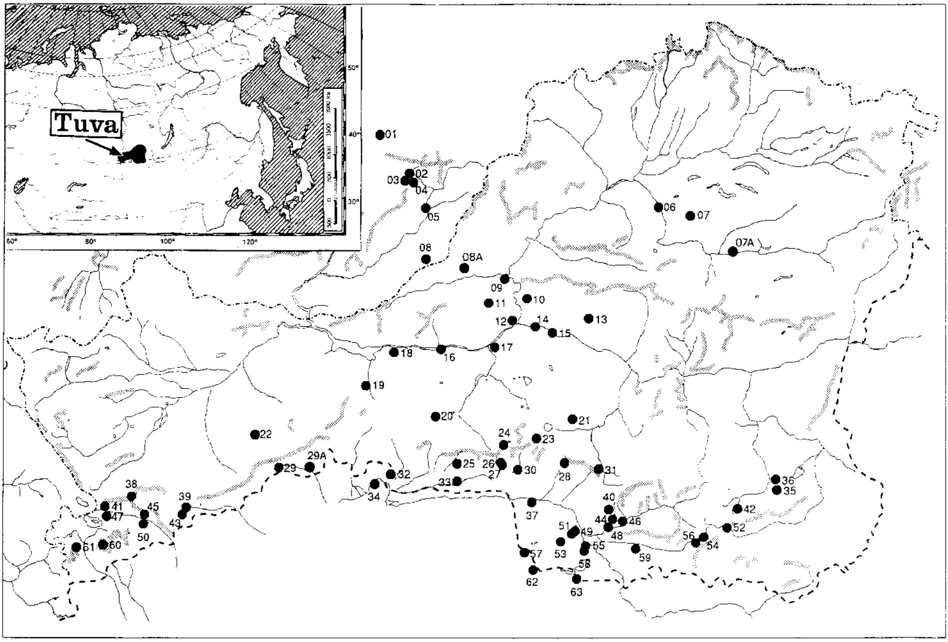
The similarity of spider communities was studied using the Czekanowski-Soerensen index (Ics).

The chorological analysis has been performed in terms of the so-called landscape-typology approach (PRAVDIN 1978, PRAVDIN & MISHENKO 1980). Three main parameters of spider biodiversity throughout the studied ecosystems (vegetation types and landscapes) have been estimated: (1) the general level of biodiversity, i.e. the number of spider species; (2) the taxonomic pattern, i.e. the composition of taxa; and (3) the taxonomic originality, i.e. the proportion of exclusive (indicator) species compared to the whole number of species found. In addition, clustering of the studied spider communities within 23 vegetation types has been performed using the program BIODIV (BAEV & PENEV 1991).The terms used are as follows:

1. The taxonomic index (TI), used in the geobotanical literature and first adopted for zoogeographic purposes by MEDVEDEV (1984), reflects to taxonomic specificity of a particular spider faunula (fauna of a segregated habitat), i.e. a set of dominating taxa. The spider families (usually ca. 3) that form a half (50%) or more of the species in an entire fauna/faunula are included in the TI. For instance, the families Linyphiidae and Lycosidae comprise together 61% of the spider community of the mountain tundra landscape (Fig. 4) and hence the TI is Lin-Lyc.
2. Vegetation type is used sensu stricto and adopted from NAMZALOV & KOROLYUK (1991).
3. Exclusive (indicator) species are those restricted to a particular ecosystem (vegetation type or landscape). The proportion of these species is used to indicate the taxonomic originality of an ecosystem (vegetation type or landscape).
4. The index of originality (IO) is counted in a similar way to the taxonomic index, showing spider families contributing 50% or more of the total number of exclusive (indicator) species in a particular ecosystem (cf. Figs. 4-5 and Table 2).

2.1. List of localities (see Map):

01. Tanzybei environs, Forest Research Station and Mutnaya River, 380-400 m a.s.l., 53° 08' N, 92° 53' E (26.06-12.07.1990, DL; 2.-3.06.1995, YM & SK).
02. West Sayany Mts, Oiskiy Mt. Range, Oiskiy Pass and Oiskoye Lake, 52° 51' N, 93° 15' E, 1500-1700 m a.s.l. (12.07.1990, DL & V.G. Mordkovitch; 3.-21.06.1995, YM).
03. West Sayany Mts, Oiskiy Mt. Range, 8-10 km S of Oiskoye Lake, Olenia Rechka River, 52° 48' N, 93° 12' E, 1400-1900 m a.s.l. (27.06-11.07.1990, DL; 8.07.1993, DL).
04. West Sayany Mts., Oiskiy Mt. Range, Buiba Riv., 52° 47' N, 93° 18' E, 1230 m a.s.l. (20.-21.06.1995, YM & SK).
05. West Sayany Mts, 2-3 km N of Aradan, Belyi Us River Valley, 52° 36' N, 93° 27' E, 840-850 m a.s.l. (8.-9.07.1990, DL).
06. Toora-Khem environs, 52° 29' N, 96° 07' E, 850-870 m a.s.l. (18.-23.06.1989, DL).
07. NW bank of Azas Lake, 52° 24' N, 96° 28' E, 850-900 m a.s.l. (19.-23.06.1989, DL).
07a. Serlig-Khem River (basin of Biy-Khem River), ca. 8 km upstream of mouth, 52° 08' N, 96° 55' E (11.06. 1992, A.B. Ryvkin).



Map: Situation of Tuva and collecting localities; for sites, see "Material and methods".

08. West Sayany Mts., Kurtushibinskiy Mt. Range, ca. 10 km NW of Shivilig, 52° 14' N, 93° 28' E, 1100-1300 m a.s.l. (5.-7.06.1990, DL).
08a. Turan environs, 52° 09' N, 93° 57' E (summer 1984, A.B. Ryvkin).
09. Uyuk River mouth, 52° 04' N, 94° 22' E, 600-700 m a.s.l. (21.-23.05.1989, DL; 3.-5.06.1995, YM).
10. 4-5 km N of Cherbi, 51° 55' N, 94° 37' E, 850-1000 m a.s.l. (1.07.1990, DL).
11. Seserlig environs (5-10 km NW and SE), 51° 54' N, 94° 11' E, 1100-1500 m a.s.l. (24.-25.07.1989, DL; 2.05.-29.06.1990, DL).
12. 3-5 km N of Kyzyl, 650-900 m a.s.l., 51° 46' N, 94° 27' E, (20.05.-21.09.1989, DL; 1.05.-1.07.1990, DL, OL & V.K. Zinchenko; 6.-20.06.1995, YM & SK; 18.06.-24.07.1996, YM).
13. ca 20 km S of Balgazyn, 6-10 km N of Shuurmak, 51° 45' N, 95° 17' E, 1000 m a.s.l. (7.07.1989, DL).
14. 15-30 km E of Kyzyl, Kaa-Khem (Riv.), 51° 43' N, 94° 42' E, 700-1200 m a.s.l. (30.06.1990, DL; 16.-18.06.1996, YM).
15. 33-35 km E of Kyzyl, ca. 5 km N of Sug-Bazhi, 51° 40' N, 94° 53' E, 900 m a.s.l. (30.06.1990, DL).
16. ca 65 km W of Kyzyl, Otuk-Dash Stand, 51° 35' N, 93° 39' E, 700-800 m a.s.l. (10.05.1990, DL).
17. 6-7 km WSW of Kyzyl, Yenisei River Valley, Agricultural Res. Station, 51° 35' N, 94° 15' E, 650-700 m a.s.l. (25.05.-24.07.1989, DL; 27.05.-1.07.1990, DL).
18. 5-7 km E of Shagonar, Khaiyrakan Mt., 51° 34' N, 93° 08' E (10.05.1990, DL).
19. 10-25 km SSW of Shagonar, Torgalyg environs, 51° 20' N, 92° 50' E, 900-1200 m a.s.l. (8.-10.05.1990, DL).
20. 1-5 km WSW of Khovu-Aksy, Elegest River Valley, 51° 07' N, 93° 36' E, 1000 m a.s.l. (4.-5.05.1990, DL & V.K. Zinchenko).
21. ca 90 km SE of Kyzyl, 3-7 km N of Balgazyn, 51° 04' N, 95° 04' E (19.07.1993, DL; 6.06.1995, YM, SK & DL; 20.06.1996, YM).
22. 24-25 km N of Khandagaity, West Tannu-Ola Mt. Range, 50° 59' N, 91° 38' E (17.-26.07.1993, DL).
23. 1-2 km S and SE of Chagytai Lake, northern foothills of East Tannu-Ola Mt. Range, 50° 57' N, 94° 41' E, 1050-1800 m a.s.l. (26.06.-2.07.1989, DL).
24. ca 30 km NW of Khol'-Oozhu, East Tannu-Ola Mt. Range, Kara-Khol' Lake, 50° 55' N, 94° 20' E, 1700-1750 m a.s.l. (9.07.1989, DL).

25. ca. 20 km N of Oo-Shinaa, 3-4 km E of Despen, 50° 48' N, 93° 50' E, 1600 m a.s.l. (17.07.1989, DL).
26. East Tannu-Ola Mt. Range, 20 km NE of Khol'-Oozhu, Kangai-Kyry Mt., 50° 48' N, 94° 18' E, 2100 m a.s.l. (12.07.1989, DL; 8.-17.06.1995, YM, SK & DL).
27. East Tannu-Ola Mt. Range, 8-10 km NE of Khol'-Oozhu, Belengishch Stand, 50° 47' N, 94° 19' E, 1700-1800 m a.s.l. (9.-11.07.1989, DL; 16.07.1995, YM, SK & DL).
28. ca. 1.5 km W of Samagaltai, 50° 47' N, 94° 58' E (14.07.1993, DL).
29. 13-15 km N of Khandagaity, Kham-Dag River, 50° 46' N, 91° 55' E (25.-26.07.1993, DL).
29a. ca. 15 km E of Khandagaity, Ulatai River Valley, 1000-1100 m a.s.l., 50° 45' N, 92° 15' E (11.-12.06.1989, DL).
30. East Tannu-Ola Mt. Range, ca. 5 km E of Khol'-Oozhu, Aryskannyg-Khem River Canyon, 50° 45' N, 94° 29' E, 1200-1350 m a.s.l. (8.-9.07.1989, DL; 16.07.1993, DL; 16.-18.06.1995, YM, SK & DL).
31. ca. 8 km E of Samagaltai, 6-10 km W of Shuurmak, W parts of Khorumnug-Taiga Mt. Range, 50° 44' N, 95° 19' E, ~ 1100 m a.s.l. (10.07.1993, DL; 20.06.-18.07.1996, YM & D.V. Obydov).
32. 40-45 km W of Ak-Tsyraa, Irbitei River Valley, 50° 44' N, 93° 08' E, 1000-1200 m a.s.l. (18.-19.07.1993, DL; 13.-16.06.1995, YM).
33. ca. 15 km E of Oo-Shinaa, 50° 41' N, 93° 50' E (17.-19.07.1993, DL).
34. NE bank of Ubsunur (Uvs) Lake, 50° 40' N, 92° 58' E, 760 m a.s.l. (12.06.1989, DL; 18.07.1993, DL; 14.6.1995, DL & YM).
35. Sangelen Mt. Range, the middle reaches of Kargy River, 50° 31' N, 97° 03' E, 1300-1400 m a.s.l. (28.-30.06.1996, YM).
36. Sangelen Mt. Range, the middle reaches of Kargy River, 50° 35' N, 97° 05' E, 1300-1400 m a.s.l. (2.-4.07.1996, YM).
37. ca. 8 km W of Ak-Erik, Tes-Khem River Valley, 50° 32' N, 94° 37' E (June 1990, OL).
38. ca. 3 km NE of Sagly, 50° 31' N, 90° 20' E (24.07.1993, DL).
39. 20-25 km W of Sagly, the upper reaches of Onachy River, 50° 28' N, 90° 57' E, 1500-1600 m a.s.l. (13.06.1989, DL; 24.07.1993, DL).
40. Sangelen Mt. Range, the upper reaches of Dzhen-Aryk (Ck), 50° 28' N, 95° 24' E, 1750-2030 m a.s.l. (16.-18.07.1996, YM).
41. 40-45 km W of Mugur-Aksy, the upper reaches of Kargy River, 50° 26' N, 90° 03' E, 2200-2300 m a.s.l. (17.-18.05.1990, DL).
42. Sangelen Mt. Range, the upper reaches of Kargy River, 50° 25' N, 96° 41' E, 2230 m a.s.l. (28.06.-4.07.1996, YM & D.V. Obydov).
43. Tsagan-Shibetu Mt. Range, Barlyk River Valley, confluence with Onachy River, 50° 25' N, 90° 55' E, 2000-2100 m a.s.l. (13.06.1989, DL; 6.06.1990, OL).
44. Sangelen Mt. Range, the middle reaches of Dzhen-Aryk (Ck), 50° 24' N, 95° 26' E, 1450 m a.s.l. (14.-16.07.1996, YM).
45. 8-9 km NE of Mugur-Aksy, the upper reaches of Kuge-Davaa River, Tsagan-Shibetu Mt. Range, 50° 24' N, 90° 30' E, 2100-2700 m a.s.l. (10.-19.05.1990, DL).
46. 30-35 km NWW of Erzin, confluence of Ular-Khem and Erzin Rivers, 50° 23' N, 95° 32' E, 1200-1300 m a.s.l. (11.-12.06.1989, DL).
47. 30-35 km SW of Mugur-Aksy, the upper reaches of Mugur River, Mongun-Taiga Mt., 50° 22' N, 90° 05' E, 3100-3300 m a.s.l. (23.07.1993, DL).
48. Sangelen Mt. Range, Moren environs, 50° 21' N, 95° 23' E, 1150 m a.s.l. (14.-18.07.1996, D.V. Obydov).
49. ca. 20 km NW of Erzin, Tes-Khem River Valley, 50° 20' N, 95° 03' E, 900-1000 m a.s.l. (31.05.1989, DL; 8.-10.06.1995, YM & SK).
50. 3-10 km SE of Mugur-Aksy, Kargy River Canyon, 50° 20' N, 90° 30' E, 1800-1850 m a.s.l. (14.06.1989, DL; 16.-20.05.1990, DL & OL; 23.-24.07.1993; DL).
51. 20-25 km NW of Erzin, Dus-Khol' Lake, 50° 19' N, 95° 01' E, 1050 m a.s.l. (31.05.-13.08.1989, DL; 10.06.1995, DL, YM & A.V. Abramov).
52. Sangelen Mt. Range, the upper reaches of Balyktyg-Khem River, 50° 18' N, 96° 34' E, 2000-2300 m a.s.l. (26.-28.06.1996, YM).
53. 15-20 km W of Erzin, Onchalaan and Yamaalyg Rocks, 50° 16' N, 94° 54' E, 1150-1350 m a.s.l. (27.05.-12.08.1989, DL; 11.07.1993, DL; 7.-10.06.1995, YM & SK).
54. Sangelen Mt. Range, Pass between Naryn and Balyktyg-Khem Rivers, 50° 15' N, 96° 20' E, 2550 m a.s.l. (26.06.-5.07.1996, YM & D.V. Obydov).
55. Erzin environs, 50° 14' N, 95° 09' E, 1165 m a.s.l. (14.08.1989, DL; 9.06.1995, YM & SK).
56. The upper reaches of Naryn River, 50° 13' N, 96° 15' E, 1820-1900 m a.s.l. (24.-26.06.1996, YM).

57. 30-35 km W of Erzin, Shara-Nur Lake environs, 800-900 m a.s.l., 94° 32' E, 50° 12' N, (3.-10.06.1989, DL & V.K. Zinchenko; 8.06.1995, YM).
58. 2-3 km S of Erzin, Tes-Khem River Valley, 50° 12' N, 95° 08' E, 1000-1100 m a.s.l. (13.-15.08.1989, DL; 23.-26.05.1990, DL & OL; 9.-10.06.1995, YM, SK, DL & A.V. Abramov).
59. The middle reaches of Naryn River, 50° 12' N, 95° 39' E, 1540 m a.s.l. (22.06.-6.07.1996, YM & D.V. Obydov).
60. 45-50 km SW of Mugur-Aksy, Khara-Kharagai River and Eski-Tolaity Lake, 50° 10' N, 90° 05' E, 2100-2300 m a.s.l. (14.-15.06.1989, DL).
61. 3-5 km NW of Kyzyl-Khaiya, Mogen-Buren River Canyon (right riverside), 50° 08' N, 89° 48' E, 2100-2200 m a.s.l. (15.06.1989, DL).
62. ca. 50 km SW of Erzin, Nariyn Gol (= Naryn) River, 50° 05' N, 94° 37' E, 900 m a.s.l. (10.06.1989, DL).
63. Tere-Khol' Lake SE bank, Eder-Elezin Sands (desert), 50° 01' N, 95° 03' E, Sharlaa Stand, 1150 m a.s.l. (8.-9.08.1989, DL; 12.07.1993, DL; 11.-12.6.1995, DL, YM & SK; 6.-14.07.1996, YM).

2.2. List of habitats studied:

GLT – goltsy (mountain tundra) landscape:

mwt – Mountain moss-tussock-shrubby wet tundra;
mst – Mountain moss-lichen-stony tundra;
sm – Subalpine meadow;
s – Scree (talus).

ILT – inundated landscape:

u – Urema (= flood plain forest of *Populus laurifolia-Betula microphylla-Salix* spp.);
ism – Inundated steppe-upland meadow (mostly with *Caragana spinosa*);
mm – Mesophytic meadow;
as – *Achnatherum splendens* stands (= saz steppe);
bf – Bulrush fen;
rpb – River pebble banks (or lake shores, sometimes saline).

MFLT – mountain forest-steppe landscape:

sss – Sloping shrub-stony steppe;
sms – Sloping meadow shrubby steppe;
lf – *Larix sibirica* forest (light coniferous forest);
mf – Taiga forest, including mixed taiga;
bef – Birch (*Betula pendula*) forest;
sm – Sedge (*Carex* spp.) moor;
sgg – Shrubby grass glades (= mesophytic grasslands);
s – Scree.

MSLT – mountain steppe landscape:

dns – Desert nanophanerophyte steppe (= tar steppe) (with *Nanophyton erinaceus*);
dbs – Dry shrub-grass (*Caragana-Stipa-Artemisia*) steppe;
sds – Desert sandy shrub-grass (*Caragana-Stipa-Artemisia*) steppe;
cxs – Cryo-xerophylous, high-mountain (= cryophyte) steppe;
s – Cobble-gramineous stands (including scree).

3. List of species:

Ageleneidae

Agelena labyrinthica (CLERCK, 1758): 11, 12, 21, 23, 27, 30, 36, 44, 51, 53; ILT: U, Ism, As; MFLT: Sss, Sgg; MSLT: Dns, Dbs.
Coelotes sp. 1: 08; MFLT: Sss.
Coelotes sp. 2: 01; MFLT: Mf.

Amaurobiidae

Arctobius agelenoides (EMERTON, 1919): 26, 27, 40: MFLT: Lf, Mf.

Araneidae

Aculepeira carbonarioides (KEYSERLING, 1892): 03, 61; GLT: S, MSLT: S.

Aculepeira packardi (THORELL, 1875): 07, 09, 10, 12, 17, 25, 28, 29, 31, 34, 36, 40, 44, 54, 61, 63; MFLT: Sm, Sgg, Lf, Sms; ILT: Mm, Ism; MSLT: S, Dbs, Sds.

Aculepeira sp. 1 (cf. *carbonarioides*): 05, 09, 14, 32, 38, 51; MFLT: S, Sss; ILT: As, Rpb; GLT: S; MSLT: Dbs, Dns.

Araneus alsine (WALCKENAER, 1802): 31; MFLT: Sgg.

? *Araneus grossus* (C.L. KOCH, 1844): 12; MSLT: Dns.

Araneus marmoreus CLERCK, 1758: 01, 05, 11, 56; MFLT: Lf, Sgg, Mf; ILT: Rpb.

**Araneus mongolicus* SIMON, 1895: 53; MSLT: S.

Araneus nordmanni (THORELL, 1870): 05; MFLT: Mf.

"Araneus" pallasi (THORELL, 1875): 32, 34, 63; MSLT: Sds; ILT: Ism, Mm.

Araneus quadratus CLERCK, 1758: 12, 40; ILT: U; MFLT: Sms.

* *"Araneus" strandiellus* CHARITONOV, 1951: 32, 63; MFLT: Sms; MSLT: Sds, Dns.

Araneus sp. 1 (cf. *saevus*): 25, 44, 52, 53; MSLT: S, Dbs.

Araniella displicata (HENTZ, 1847): 01, 07, 08, 09, 10, 11, 14, 23, 25, 28, 29, 30, 31, 34, 35, 36, 44, 46, 62; ILT: Ism, Mm; MFLT: Sgg, Mf, Lf, Sm, Sms, Sss.

Araniella proxima (KULCZYNSKI, 1885): 63; ILT: U (?).

**Araniella yaginumai* TANIKAWA, 1995: 14; ILT: U (?).

Atea sturmi (HAHN, 1831): 01, 03, 08; GLT: Sm; MFLT: Mf.

Atea sp. 1: 14.

Cercidia prominens (WESTRING, 1851): 59; MFLT: Sgg.

Cyclosa conica (PALLAS, 1772): 08, 23, 36; MFLT: Lf, Mf.

Cyclosa sp. 1 (cf. *oculata*): 12, 27, 32, 34, 57, 58; ILT: Bf, Ism; MSLT: Dbs, Dns; MFLT: Sss.

? *Gibbaranea bituberculata* (WALCKENAER, 1802): 09, 12, 29, 32, 63; MFLT: Sss; MSLT: Dbs, Dns, Sds.

Hypsosinga albovittata (WESTRING, 1851): 09, 28, 45, 53; MSLT: Cxs, S; MFLT: Sms.

Hypsosinga pygmaea (SUNDEVALL, 1831): 09, 23, 31, 34, 35, 38, 57, 58, 62; ILT: Bf, Mm, Ism; MSLT: Dbs; MFLT: Sss.

Hypsosinga sanguinea (C.L. KOCH, 1844): 14, 31, 32, 34, 40, 63; ILT: Ism; MSLT: Sds, Dns.

Larinia bossae MARUSIK, 1986: 17, 34, 51, 57, 63; ILT: U, As, Bf, Ism; MSLT: Dbs, Sds.

Larinioides cornutus (CLERCK, 1758): 03, 07, 23; MFLT: Sm; GLT: Sm.

Larinioides folium (SCHRANK, 1803): 09, 12, 34, 57, 63; ILT: Bf; MFLT: Sms, Sss.

Larinioides patagiatus (CLERCK, 1758): 07, 09, 10, 17, 23, 30, 31, 32, 63; ILT: U, Mm; MFLT: Mf, Lf, Sgg, Sss.

Neoscona adianta (WALCKENAER, 1802): 09, 12, 34; MFLT: Sss; MSLT: Dbs.

Singa nitidula C.L. KOCH, 1844: 05, ILT: Rpb.

"Zygiella" stroemi (THORELL, 1875): 07, 31, 49; MFLT: Sms; ILT: U.

Argyronetidae

Argyroneta aquatica (CLERCK, 1758): 57, 63; ILT: Bf.

Clubionidae

Cheiracanthium erraticum (WALCKENAER, 1802): 31, 35, 40, 63; MFLT: Sgg, Sms.

Cheiracanthium sp. 1: 09, 21, 29, 32, 34, 49, 53; ILT: Mm, Ism, U; MFLT: Sgg, Sm, Sss.

Cheiracanthium sp. 2: 34, 63; MSLT: Sds, Dns.

Clubiona caerulescens L. KOCH, 1867: 07, 23; MFLT: Mf, Lf. (MIKHAILOV 1992).

Clubiona diversa O.P.-CAMBRIDGE, 1862: 11, 17, 19, 27, 40, 56; ILT: Mm, U; MFLT: Lf. (MIKHAILOV 1992).

Clubiona interjecta L. KOCH, 1879: 11, 12, 51, 63; ILT: As, U; MSLT: Sds. (MIKHAILOV 1992).

Clubiona kulczynskii LESSERT, 1905: 04, 05, 06, 07, 08, 09, 11, 13, 23, 31, 40; GLT: Sm; MFLT: Mf, Bef, Sms. (MIKHAILOV 1992).

Clubiona latericia KULCZYNSKI, 1926: 07, 23, 63; MFLT: Sm. (MIKHAILOV 1992).

? *Clubiona lutescens* WESTRING, 1851: 63; ILT: U.

Clubiona neglecta O.P.-CAMBRIDGE, 1862: 12, 17, 21, 23, 51, 57, 58, 63; ILT: U, As, Mm, Rpb; MFLT: Sgg; MSLT: Sds. (MIKHAILOV 1992).

Clubiona pallidula (CLERCK, 1758): 07, 08, 14, 30, 34, 49, 58; ILT: As, U, Rpb; MFLT: Mf, Bef. (MIKHAILOV 1992).

Clubiona phragmitis C.L. KOCH, 1843: 63; ILT: Bf. (MIKHAILOV 1992)
Clubiona pseudosaxatilis MIKHAILOV, 1992: 43, 50; ILT: U. (MIKHAILOV 1992).
Clubiona riparia L. KOCH, 1866: 23, 32, 34, 51, 58, 63; ILT: Ism, As; MFLT: Sm. (MIKHAILOV 1992).
Clubiona stagnatilis KULCZYNSKI, 1897: 11; MFLT: Lf. (MIKHAILOV 1992).
Clubiona subsultans THORELL, 1875: 20, 58, 63; ILT: U. (MIKHAILOV 1992).

Dictynidae

Archaeodictyna consecuta (O.P.-CAMBRIDGE, 1872): 42; MSLT: Cxs (?).
Arctella lapponica HOLM, 1945: 35, 42, 45, 54, 56; MSLT: Cxs.
Argenna prominula TULLGREN ,1948: 26, 27, 30; MFLT: Mf, Lf.
Argenna sp. 1: 31, 34; ILT: As (?).
? *Devade indistincta tatyanae* ESYUNIN, 1994: 55; MSLT: Dbs.
Dictyna alaskae CHAMBERLIN & IVIE, 1947: 07, 35; MFLT: Mf.
Dictyna arundinacea (LINNAEUS, 1758): 07, 08, 09, 11, 23, 28, 30, 32, 34, 35, 36, 46, 49, 52, 55, 58, 63; ILT: Mm, U, Rpb, Ism; MFLT: Mf, Lf, Sm, Sgg, Sms, Sss; MSLT: Sds.
Dictyna major MENGE, 1869: 09; ILT: Mm.
Dictyna obydovi MARUSIK & KOPONEN, 1998: 59; MSLT: Dbs. (MARUSIK & KOPONEN 1998)
Dictyna pusilla THORELL, 1856: 07; MFLT: Mf, Sgg.
Dictyna schmidti KULCYNSKI, 1927 (sensu LEHTINEN 1967): 04; GLT: Sm; MFLT: Mf, Sgg.
Dictyna ubsunurica MARUSIK & KOPONEN, 1998: 34, 55, 58, 63; ILT: U, Ism, As; MSLT: Dbs, Sds. (MARUSIK & KOPONEN 1998)
Dictyna uncinata THORELL, 1856: 14, 58, 63; ILT: U; MFLT: Sm.
Dictyna uvs MARUSIK & KOPONEN, 1998: 34, 49; MSLT: Dns. (MARUSIK & KOPONEN 1998)
Emblyna annulipes (BLACKWALL, 1846): 07, 08, 09, 14, 32, 34, 49, 63; ILT: U, Ism, Rpb, MFLT: Mf.
Emblyna logunovi MARUSIK & KOPONEN, 1998: 12, 32, 49; MSLT: Dns. (MARUSIK & KOPONEN 1998)
Emblyna mongolica MARUSIK & KOPONEN, 1998: 12, 14; MSLT: Dns. (MARUSIK & KOPONEN 1998)
? *Lathys puta* (O.P.-CAMBRIDGE, 1863): 05, 08, 11, 12, 14, 27, 29, 30, 32, 34, 35, 53; GLT: Mst; ILT: Ism; MFLT: Sss, Sms, Mf, S; MSLT: S, Dns.

Eresidae

? *Eresus cinnaberinus* (OLIVIER, 1787): 12, 14; MSLT: Dns.

Gnaphosidae

Berlandina potanini SCHENKEL, 1963: 12, 17, 34; ILT: As; MSLT: Dns. (MARUSIK & LOGUNOV 1995).
Berlandina schenkeli MARUSIK & LOGUNOV, 1995: 50, 55; ILT: As; MSLT: Dbs, Cxs. (MARUSIK & LOGUNOV 1995).
Berlandina ubsunurica MARUSIK & LOGUNOV, 1995: 09, 32, 34; ILT: Ism; MFLT: Sss; MSLT: Dns. (MARUSIK & LOGUNOV 1995).
Callilepis nocturna (LINNAEUS, 1758): 01, 09, 11, 12, 13, 23, 27, 30, 32, 44, 46, 49, 50, 53, 55, 57, 58, 60, 62, 63; ILT: Rpb; MFLT: Sss; MSLT: Sds, Dns, S, Cxs. (MARUSIK & LOGUNOV 1995).
Drassodes kaszabi LOKSA, 1965: 41; MSLT: Cxs. (MARUSIK & LOGUNOV 1995).
? *Drassodes lapidosus* (WALCKENAER, 1802): 02, 09, 05, 08, 26, 27, 29, 40, 42, 47, 52, 56; GLT: Sm, Mst, Mwt; ILT: Mm; MFLT: S, Mf, Sss, Sms. (MARUSIK & LOGUNOV 1995).
Drassodes lesserti SCHENKEL, 1936: 11, 12, 13, 18, 23, 31, 32, 34, 38, 46, 49, 50, 51, 53, 55, 63; ILT: As, Ism; MFLT: Sss; MSLT: Dns, Dbs. (MARUSIK & LOGUNOV 1995).
Drassodes longispinus MARUSIK & LOGUNOV, 1995: 07, 09, 11, 12, 14, 16, 18, 19, 32, 34; MFLT: S, Sss, Sms; MSLT: Dns. (MARUSIK & LOGUNOV 1995).
Drassodes neglectus (KEYSERLING, 1887): 11, 12, 14, 23, 27, 28, 30, 34, 35, 49, 50, 53, 58; ILT: U, Ism, Rpb; MFLT: Sms, Sss; MSLT: Dns, Dbs, S. (MARUSIK & LOGUNOV 1995).
Drassodes pseudolesserti LOKSA, 1965: 19; MFLT: Sss. (MARUSIK & LOGUNOV 1995).
Drassodes serratidens SCHENKEL, 1963: 07, 08, 14, 23, 31, 58, 63; ILT: U; MFLT: Sss, Sms. (MARUSIK & LOGUNOV 1995).
Drassodes villosus (THORELL, 1856): 06, 07, 08, 46, 53; MFLT: Sss, Sms; MSLT: Dbs. (MARUSIK & LOGUNOV 1994).
Drassodes sp. 1: 12, 32; MSLT: Dns.
Drassyllus pusillus (C.L. KOCH, 1833): 63; ILT: U.

Drassyllus vinealis (KULCZYNSKI, 1897): 32; MSLT: Dns.
Echemus sibiricus MARUSIK & LOGUNOV, 1995: 50; MSLT: Cxs. (MARUSIK & LOGUNOV 1995).
Gnaphosa borea KULCZYNSKI, 1908: 09, 11, 12, 14, 26, 31, 35, 36, 52, 54, 56, 63; GLT: Mwt; ILT: U; MFLT: S, Sms. (MARUSIK & LOGUNOV 1995).
Gnaphosa chola OVTSHARENKO & MARUSIK, 1988: 35; ILT: Rpb.
Gnaphosa gracilior KULCZYNSKI, 1901: 11, 12, 13, 14, 18, 19, 27, 28, 30, 31, 32, 34, 37, 38, 43, 44, 46, 49, 50, 51, 53, 55, 57, 58, 60, 63; ILT: U, Rpb, Mm, As; MFLT: Sss; MSLT: Dns, Dbs, Sds, S. (OVTSHARENKO et al. 1992, MARUSIK & LOGUNOV 1995: in part sub. *G. proxima*).
Gnaphosa inconspecta SIMON, 1878: 21, 34, 35, 58; ILT: U, Ism; MFLT: Mf. (MARUSIK & LOGUNOV 1995).
Gnaphosa leporina (L. KOCH, 1866): 05, 21, 26, 27, 31, 54, 56; GLT: Mwt; MFLT: Mf, Sms. (MARUSIK & LOGUNOV 1995).
Gnaphosa licenti SCHENKEL, 1953: 07, 09, 16, 18, 19, 53; ILT: Rpb; MFLT: Sss; MSLT: Dbs, Dns, S. (OVTSHARENKO et al. 1992, MARUSIK & LOGUNOV 1994: sub. *G. denisi*).
Gnaphosa mandschurica SCHENKEL, 1963: 09, 11, 27, 35, 36; MFLT: Sss, Sms. (MARUSIK & LOGUNOV 1995: sub. *G. glandifera;* OVTSHARENKO et al. 1992).
Gnaphosa microps HOLM, 1939: 22, 35, 40, 42, 52, 54, 56; MFLT: Lf.
Gnaphosa mongolica SIMON, 1895: 12, 16, 18, 19, 29a, 30, 32, 33, 34, 38, 50, 53, 57, 60, 63; MFLT: Sss; MSLT: Dns, Dbs, Sds. (OVTSHARENKO et al. 1992, MARUSIK & LOGUNOV 1995: sub. *G. punctata*).
Gnaphosa muscorum (L. KOCH, 1866): 06, 07, 08, 12, 14, 16, 18, 23, 26, 27, 28, 30, 31, 32, 35, 36, 44, 47, 52, 56, 60; GLT: Mst; ILT: U; MFLT: Sms, Sss, Bf; MSLT: S, Dbs, Cxs. (OVTSHARENKO et al. 1992, MARUSIK & LOGUNOV 1995).
Gnaphosa nigerrima L. KOCH, 1877: 34; 63; ?. (MARUSIK & LOGUNOV 1995).
Gnaphosa pseudoleporina OVTSHARENKO, PLATNICK & SONG, 1992: 01, 02; GLT: Mst; MFLT: Mf. (OVTSHARENKO et al. 1992).
Gnaphosa sticta KULCZYNSKI, 1908: 02, 03, 26, 35, 40, 42, 49, 52, 56, 57; GLT: Mwt, Sm; MFLT: Sms. (OVTSHARENKO et al. 1992, MARUSIK & LOGUNOV 1995).
Gnaphosa tuvinica MARUSIK & LOGUNOV in OVTSHARENKO, PLATNICK & SONG, 1992: 12, 45, 50; MSLT: Cxs. (OVTSHARENKO et al. 1992, MARUSIK & LOGUNOV 1995).
Gnaphosa wiehlei SCHENKEL, 1963: 34, 53; ILT: As; MSLT: Dbs, Dns. (OVTSHARENKO et al. 1992, MARUSIK & LOGUNOV 1995).
Gnaphosa sp. 1 (cf. *orites*): 47; GLT: Mst.
Haplodrassus cognatus (WESTRING, 1862): 14, 31; MFLT: Sgg.
Haplodrassus moderatus (KULCZYNSKI, 1897): 07, 08, 14, 31, 40, 56, 63; MFLT: ?. (MARUSIK & LOGUNOV 1995).
Haplodrassus pugnans (SIMON, 1880): 12, 17, 27, 30, 34, 43, 46, 50, 52, 53, 60, 63; ILT: Ism; MFLT: Sss; MSLT: Dns, S. (MARUSIK & LOGUNOV 1995).
Haplodrassus signifer (C.L. KOCH, 1839): 08, 22, 26, 31, 40, 42, 48, 52, 54, 56; MFLT: Mf, Lf, Sms. (MARUSIK & LOGUNOV 1995).
Haplodrassus soerenseni (STRAND, 1900): 02, 04, 08, 11, 31, 35, 36, 63; GLT: Sm; MFLT: Sms, Sm. (MARUSIK & LOGUNOV 1995).
Haplodrassus sp. 1: 58, 63; ILT: U.
Micaria aenea THORELL, 1871: 08, 63; ILT: U; MFLT: Sms.
Micaria alpina L. KOCH, 1872: 02, 22, 27, 31, 35, 40, 56; GLT: Mst; MFLT: Lf, Mf.
Micaria dives (LUCAS, 1846): 09; ILT: Rpb; MFLT: Sms.
Micaria guttulata (C.L. KOCH, 1839): 26; MFLT: Sms.
Micaria lenzi BÖSENBERG, 1899: 12, 13, 14, 30, 32, 34, 49, 51, 53, 58; ILT: Rpb, Bf; MSLT: Dns, Dbs.
Micaria mongunica DANILOV, 1996: 31, 60; MSLT: Cxs. (DANILOV 1996).
Micaria nivosa L. KOCH, 1866: 09, 31; ILT: Rpb; MFLT: Sms.
Micaria rossica THORELL, 1875: 12, 36, 40, 48, 52; MSLT: Dbs; MFLT: Sss, Sms.
Micaria tripunctata HOLM, 1978: 31, 40, 42, 54, 63; ILT: U, Mm.
Micaria tuvensis DANILOV, 1993: 09, 31, 53, 58, 63; ILT: Ism; MFLT: Sms; MSLT: Sds, Dbs. (DANILOV 1993).
Micaria sp. 1 (cf. *lenzi*): 17; ILT: As.
Micaria sp. 2 (cf. *rossica*): 12, 32, 34, 53, 58, 63; ILT: Ism, As, Bf; MSLT: Dns, Sds.
Parasyrisca asiatica OVTSHARENKO, PLATNICK & MARUSIK, 1995: 39, 43, 45, 47, 50, 60, 61; GLT: Mst; MSLT: Cxs, S; MFLT: S. (OVTSHARENKO et al. 1995).

Parasyrisca belengish OVTSHARENKO, PLATNICK & MARUSIK, 1995: 27, 44, 46; MFLT: Sss. (OVTSHARENKO et al. 1995).
Parasyrisca hippai OVTSHARENKO, PLATNICK & MARUSIK, 1995: 09, 43; MFLT: S, Sss. (OVTSHARENKO et al. 1995).
Parasyrisca logunovi OVTSHARENKO, PLATNICK & MARUSIK, 1995: 47; GLT: Mst. (OVTSHARENKO et al. 1995).
Parasyrisca potanini SCHENKEL, 1963: 09, 11, 17, 34, 49, 51, 58, 63; ILT: Rpb, As, Bf; MSLT: Dbs, S. (MARUSIK & LOGUNOV 1995: sub. *P. lugubris;* OVTSHARENKO et al. 1995).
**Parasyrisca schenkeli* OVTSHARENKO & MARUSIK, 1988: 49, 53; ILT: Rpb; MSLT: Dbs.
Parasyrisca tyshchenkoi OVTSHARENKO, PLATNICK & MARUSIK, 1995: 19; MFLT: ?. (OVTSHARENKO et al. 1995).
Parasyrisca ulykpani OVTSHARENKO, PLATNICK & MARUSIK, 1995: 26, 35, 54; GLT: Mwt; MFLT: Mf. (OVTSHARENKO et al. 1995).
Phaeocedus braccatus (L. KOCH, 1866): 11, 12, 17, 27, 29, 30, 32, 34, 51, 53, 63; ILT: Rpb, Ism; MFLT: Sss, Sms; MSLT: Dns, Dbs, S. (MARUSIK & LOGUNOV 1995).
Poecilochroa variana (C.L. KOCH, 1839): 09; ILT: Rpb.
Tuvadrassus tegulatus (SCHENKEL, 1963): 50, 60, 63; MSLT: Sds, Cxs. (MARUSIK & LOGUNOV 1995).
Zelotes baltistanus CAPORIACCO, 1934: 27, 28, 30, 34, 50, 53, 63; ILT: U; MFLT: Sss; MSLT: Dns, Dbs, Sds. (MARUSIK & LOGUNOV 1995).
Zelotes barkol PLATNICK & SONG, 1986: 20, 49; ILT: U. (MARUSIK & LOGUNOV 1995).
Zelotes exiguus (MÜLLER & SCHENKEL, 1895): 09, 14, 34, 53; ILT: Ism; MSLT: Dbs, S.
Zelotes fratris CHAMBERLIN, 1920: 01, 04, 19; ILT: Rpb; GLT: Sm; MFLT: ?. (MARUSIK & LOGUNOV 1995: in part sub. *Z.* cf. *fratris*).
Zelotes potanini SCHENKEL, 1963: 02, 09, 10, 12, 13, 17, 18, 19, 27, 29a, 30, 31, 32, 34, 35, 36, 44, 49, 50, 53, 57, 58, 60, 62; GLT: Mst; ILT: As, U, Mm, Rpb; MFLT: Sss, Sms; MSLT: Dns, Dbs, S. (MARUSIK & LOGUNOV 1995).
Zelotes puritanus CHAMBERLIN, 1922: 27, 30; MFLT: Sss. (MARUSIK & LOGUNOV 1995).
Zelotes sula LOWRIE & GERTSCH, 1955: 09, 11, 19, 20, 27, 31; MFLT: Lf, S, Sss, Sms. (MARUSIK & LOGUNOV 1995).
Zelotes yutian PLATNICK & SONG, 1986: 19, 32, 34, 48, 50, 51, 57; ILT: Mm, Rpb. (MARUSIK & LOGUNOV 1995).

Hahniidae

Cryphoeca silvicola (C.L. KOCH, 1834): 40; MFLT: Lf.
Hahnia sp. 1 (cf. *ononidum*): 02, 08, 09, 23, 26, 27, 31, 36, 40, 42, 56, 58; GLT: Mwt; MFLT: Mf, Lf, Sgg.

Linyphiidae

Abacoproeces saltuum (L. KOCH, 1872): 58, 63; ILT: U.
Agyneta affinisoides TANASEVITCH, 1984: 26; GLT: Mwt. (ESKOV 1992).
Agyneta sp. 1 (cf. *affinisoides*): 42, 52; GLT: ?.
Agyneta allosubtilis LOKSA, 1965: 04, 07, 26, 27, 30, 31, 35, 52; MFLT: Mf, Lf, Sms. (ESKOV 1992).
Agyneta beata (O.P.-CAMBRIDGE, 1906): 31; MFLT: Mf.
? *Agyneta birulaioides* WUNDERLICH, 1995: 12, 34, 40; MSLT: S, Dns.
Agyneta conigera (O.P.-CAMBRIDGE, 1863): 07; MFLT: Mf. (ESKOV 1992).
Agyneta fuscipalpus (C.L. KOCH, 1836): 26; GLT: Mwt.
Agyneta kaszabi (LOKSA, 1965): 50, 51; ILT: As; MSLT: Cxs. (ESKOV 1992).
Agyneta levii TANASEVITCH, 1984: 12; MSLT: Dns. (ESKOV 1992).
Agyneta olivacea (EMERTON, 1882): 02, 04, 03, 07, 14, 22, 27, 31, 35, 36, 40, 42, 44, 52, 54, 56, 63; GLT: Mst, Sm; ILT: Bf; MFLT: Mf, Lf. (ESKOV 1992).
Agyneta pseudosaxatilis TANASEVITCH, 1984: 23, 35, 56; MFLT: ?. (ESKOV 1992).
Agyneta trifurcata HIPPA & OKSALA, 1985: 35, 40, 52, 54, 56; MFLT: ?.
Allomengea dentisetis (GRUBE, 1861): 17, 55; ILT: Mm. (ESKOV 1992).
Allomengea scopigera (GRUBE, 1859): 17, 29, 31; ILT: Mm. (ESKOV 1992).
Anguliphantes cerinus L. KOCH, 1879): 02, 04; GLT: Sm. (ESKOV 1992: sub. *Lepthyphantes c.*).
Anguliphantes dybowskii (O.P.-CAMBRIDGE, 1873): 05; MFLT: Mf. (ESKOV 1992: sub. *Lepthyphantes d.*).

Anguliphantes karpinskii (O.P.-CAMBRIDGE, 1873): 07, 35; MFLT: Mf. (ESKOV 1992: sub. *Lepthyphantes k.*).
? *Arachosinella strepens* DENIS, 1958: 14, 26, 55, 63; ILT: U; GLT: Mwt. (ESKOV 1992).
Araeoncus crassiceps (WESTRING, 1862): 34, 57; ILT: Ism.
Araeoncus vorkutensis TANASEVITCH, 1984: 03; GLT: Sm. (ESKOV 1992).
Asiophantes sibiricus ESKOV, 1993: 23; MFLT: Sm. (ESKOV 1993).
Bathyphantes eumenis (L. KOCH, 1879): 04, 14, 27, 31, 35, 36, 40, 44, 56; GLT: Sm, S; MFLT: Lf, Mf.
Bathyphantes gracilis (BLACKWALL, 1841): 23, 63; ILT: U; MFLT: Sm. (ESKOV 1992).
Bathyphantes setiger F.O.P.-CAMBRIDGE, 1894: 55; ILT: U. (ESKOV 1992).
Bathyphantes simillimus (L. KOCH, 1879): 05, 07, 11, 20, 23, 26; GLT: Mwt; ILT: U; MFLT: Mf, Lf. (ESKOV 1992).
Bolyphantes alticeps (SUNDEVALL, 1833): 17; ILT: Mm. (ESKOV 1992).
Bolyphantes index (THORELL, 1856): 11, 40; MFLT: Sgg. (ESKOV 1992).
Carorita limnaea (CROSBY & BISHOP, 1927): 07, 27, 34, 63; ILT: Rpb, U; MFLT: Mf. (ESKOV 1992).
Centromerus clarus (L. KOCH, 1879): 02, 04, 05, 07; GLT: Mwt, Sm; MFLT: Mf. (ESKOV 1992, ESKOV & MARUSIK 1992b).
Centromerus sp. 1 (cf. *amurensis*): 35; MFLT: ?.
Ceratinella brevis (WIDER, 1834): 07; MFLT: Mf. (ESKOV 1992).
Ceratinella wideri (THORELL, 1871): 02, 27; GLT: Mwt; MFLT: Mf, Lf.
Cnephalocotes obscurus (BLACKWALL, 1834): 35; MFLT: Mf.
Collinsia caliginosa (L. KOCH, 1879): 35, 36, 52; ILT: Rpb.
Collinsia dentata ESKOV, 1990: 31; ILT: Rpb.
Collinsia distincta (SIMON, 1884): 07, 52; MFLT: Mf. (ESKOV 1992).
Collinsia submissa (L. KOCH, 1879): 09, 12, 31, 32, 35, 36, 48; ILT: U. (ESKOV 1992: sub. *C. japonica*).
Concavocephalus sp. 1 (cf. *rubens*): 07a, 35, 36, 56; ILT: U; MFLT: Sm. (ESKOV & MARUSIK 1994: sub. *C. rubens*).
Dactylopisthes diphyus (HEIMER, 1987): 34, 57; ILT: Ism.
Dactylopisthes video (CHAMBERLIN & IVIE, 1947): 63; ILT: U.
Decipiphantes decipiens (L. KOCH, 1879): 07, 11, 23, 26, 27, 31, 35, 40, 52, 56; GLT: Mwt; MFLT: Mf. (ESKOV 1992: sub. *Lepthyphantes d.*).
Dicymbium facetum (L. KOCH, 1879): 07, 56; MFLT: Mf. (ESKOV 1992).
Diplocentria bidentata (EMERTON, 1882): 07, 23; MFLT: Mf, Lf. (ESKOV 1992).
Diplocentria rectangulata (EMERTON, 1915): 23, 27, 31, 35, 36, 40, 56; MFLT: Mf, Lf. (ESKOV 1992).
Diplocephalus cristatus angusticeps HOLM, 1973: 02, 04; GLT: Sm, S; ILT: Rpb.
? *Diplocephalus marusiki* ESKOV, 1988: 30, 63; ILT: U.
Diplocephalus subrostratus (O.P.-CAMBRIDGE, 1873): 01, 07, 09, 12, 14, 17, 19, 20, 26, 30, 31, 40, 54, 58, 63; ILT: U; MFLT: Lf. (ESKOV 1992).
Dismodicus bifrons (BLACKWALL, 1841): 01, 05, 07, 11, 14, 20, 23, 31, 48; ILT: U; MFLT: Mf, Lf. (ESKOV 1992, ESKOV & MARUSIK 1994).
Drepanotylus borealis HOLM, 1945: 03, 52; GLT: Sm. (ESKOV 1992).
Entelecara erythropus (WESTRING, 1851): 09, 12, 30; ILT: U; MFLT: Mf, Sms. (ESKOV 1992).
Entelecara sombra (CHAMBERLIN & IVIE, 1947): 09, 30, 31, 58, 63; ILT: U; MFLT: Sms.
Epigytholus tuvensis TANASEVITCH, 1995: 17, 51; ILT: As. (TANASEVITCH 1995).
Episolder finitimus TANASEVITCH, 1995: 26, 27, 31, 35, 36, 52; GLT: Mwt; MFLT: Lf, Mf. (TANASEVITCH 1995).
Erigone atra BLACKWALL, 1833: 03, 08, 12, 14, 26, 27, 30, 31, 36, 40, 48, 56, 58, 60, 63; GLT: Mwt; ILT: Mm; MFLT: Sgg, Sms, S; MSLT: Dns. (ESKOV 1992).
Erigone dentigera O.P.-CAMBRIDGE, 1874: 28, 57; ILT: Ism; MSLT: Dbs.
Erigone dentipalpis (WIDER, 1834): 63; ILT: Ism.
Erigone hypoarctica ESKOV, 1989: 05; MFLT: Mf. (ESKOV 1992).
Erigone piechockii HEIMER, 1987: 09, 31, 34, 44, 48, 49, 51, 54, 57, 63; ILT: Ism, Mm, As, U, Rpb.
Erigone remota L. KOCH, 1869: 47; GLT: Mst. (ESKOV & MARUSIK 1994).
Erigone simillima KEYSERLING, 1886: 03, 07a; GLT: Sm; MFLT: Mf. (ESKOV 1992, ESKOV & MARUSIK 1994).
Erigonoplus sibiricus ESKOV & MARUSIK, 1998: 12, 14; MSLT: S, Dns. (ESKOV & MARUSIK 1998)
Estrandia grandaeva (KEYSERLING, 1886): 05, 07, 08, 35; MFLT: Mf. (ESKOV 1992).
Floronia bucculenta (CLERCK, 1758): 58; ILT: Mm. (ESKOV 1992).

Gnathonarium dentatum (WIDER, 1834): 07, 63; ILT: U; MFLT: Mf. (ESKOV 1992).
Gnathonarium taczanowskii (O.P.-CAMBRIDGE, 1873): 05, 11, 19, 20, 30, 31; ILT: U, Rpb; MFLT: Mf. (ESKOV 1992).
Gonatium rubellum (BLACKWALL, 1841): 01, 05, 40; MFLT: Mf. (ESKOV 1992).
Gonatium rubens (BLACKWALL, 1833): 22, 26, 27, 35, 36, 40, 42, 52, 54, 56; MFLT: Mf, Lf. (ESKOV & MARUSIK 1994).
Hilaira frigida intercepta (O.P.-CAMBRIDGE, 1873): 07; MFLT: Mf. (ESKOV 1992).
Hilaira gibbosa TANASEVITCH, 1982: 26, 27; MFLT: Sms. (ESKOV 1992).
? *Hilaira glacialis* (THORELL, 1872): 47; GLT: Mst. (ESKOV & MARUSIK 1994).
Hilaira herniosa (THORELL, 1875): 02, 07, 23, 20, 26, 27, 31, 35, 36, 40, 54, 56; GLT: Mwt; MFLT: Mf, Lf. (ESKOV 1992).
Hilaira minuta ESKOV, 1979: 23, 26, 27, 31, 35, 40; MFLT: Mf, Lf. (ESKOV 1992).
"Hilaira" mongolica WUNDERLICH, 1995: 07, 08a, 11, 23, 20, 26, 31, 35, 63; ILT: U; MFLT: Mf, Lf. (ESKOV 1992: sub. *H. tatrica tatrica*).
Hilaira sibirica ESKOV, 1987: 07a; ILT: U; MFLT: Sm. (ESKOV & MARUSIK 1994).
Hilaira sp. 1 (cf. *marusiki*): 63; ILT: U.
Holminaria prolata (O.P.-CAMBRIDGE, 1873): 07, 31; MFLT: Mf. (ESKOV 1992: sub. *H. obscura*).
Horcotes strandi (SYTSHEVSKAJA, 1935): 02, 40, 54, 56; GLT: ?. (ESKOV 1992: sub. *Saloca s.*).
Hylyphantes nigritus (SIMON, 1881): 02, 04; GLT: Mwt, Sm, S.
Hypomma bituberculatum (WIDER, 1834): 17, 40, 56, 57, 58, 63; ILT: U, Bf. (ESKOV 1992).
Hypomma cornutum (BLACKWALL, 1833): 07, 20; ILT: U; MFLT: Mf. (ESKOV 1992).
Hypselistes jacksoni (O.P.-CAMBRIDGE, 1902): 01, 07, 23, 27, 30; MFLT: Mf, Lf. (ESKOV 1992; MARUSIK & LEECH 1993: map 2).
Hypselistes semiflavus (L. KOCH, 1879): 05, 23; MFLT: Lf, Sgg. (ESKOV 1992, MARUSIK & LEECH 1993: map 1).
Incestophantes ancus TANASEVITCH, 1996: 11; MFLT: Lf. (TANASEVITCH 1996).
Incestophantes bonus TANASEVITCH, 1996: 50; ILT: U, Rpb. (TANASEVITCH 1996).
Incestophantes incestus (L. KOCH, 1879): 35, 36, 52; MFLT: ?
Incestophantes logunovi TANASEVITCH, 1996: 53; MSLT: Dbs. (TANASEVITCH 1996).
Incestophantes obtusus TANASEVITCH, 1996: 07, 20; ILT: U; MFLT: Mf. (ESKOV 1992: sub. *Lepthyphantes kochiellus*).
Incestophantes tuvensis TANASEVITCH, 1996: 11, 30, 40, 44, 48, 50, 52, 58, 63; ILT: U, Mm; MFLT: Lf. (TANASEVITCH 1996).
Improphantes complicatus (EMERTON, 1882): 26, 27, 31, 36, 40; MFLT: Mf, Lf.
Improphantes flexilis (TANASEVITCH, 1986): 02; GLT: Sm, Mwt. (ESKOV 1992: sub. *Lepthyphantes f.*).
Ivielum sibiricum ESKOV, 1988: 02, 04, 05, 09, 27, 35, 40, 52, 54, 56, 63; GLT: Mwt; ILT: U; MFLT: Mf, Sms. (ESKOV 1992).
Kaestneria pullata (O.P.-CAMBRIDGE, 1863): 63; ILT: U.
Lasiargus hirsutus (MENGE, 1869): 14, 21, 26, 27, 30, 35, 40, 52, 54, 56, 60; GLT: ?; MFLT: Mf, Sms, S; MSLT: Cxs. (ESKOV 1992).
Lasiargus pilipes (KULCZYNSKI, 1908): 14, 56; MFLT: Lf (?).
Lepthyphantes abiskoensis HOLM, 1945: 07; MFLT: Mf.
Lepthyphantes bergstroemi SCHENKEL, 1931: 02, 07, 27, 31, 52, 56; GLT: Mst; MFLT: Mf. (ESKOV 1992).
Lepthyphantes cornutus SCHENKEL, 1927: 02, 26, 30; GLT: Sm, Mwt; MFLT: Lf. (ESKOV 1992).
Lepthyphantes distichus TANASEVITCH, 1986: 02; GLT: Sm, Mwt. (ESKOV 1992).
Lepthyphantes expunctus (O.P.-CAMBRIDGE, 1875): 35, 56; MFLT: Lf (?).
**Lepthyphantes kaszabi* WUNDERLICH, 1995: 49, 63; ILT: Ism.
Lepthyphantes laricetorum TANASEVITCH & ESKOV, 1987: 23, 35; MFLT: Lf. (ESKOV 1992).
Lepthyphantes luteipes (L. KOCH, 1879): 02, 07, 11, 19, 20, 23, 26, 27, 31, 36, 40, 45, 52, 56; ILT: U; GLT: Mwt; MFLT: Mf, Sgg. (ESKOV 1992).
Lepthyphantes nigriventris (L. KOCH, 1879): 02, 05, 11, 23, 40; GLT: Sm; MFLT: Lf. (ESKOV 1992).
Lepthyphantes pseudoobscurus MARUSIK, HIPPA & KOPONEN, 1996: 08, 56; MFLT: Mf. (ESKOV 1992: sub. *L. obscurus*).
"Lepthyphantes" quadrimaculatus KULCZYNSKI, 1896: 07; MFLT: Mf. (ESKOV 1992).
"Lepthyphantes" sajanensis ESKOV & MARUSIK, 1994: 02, 04, 05; GLT: Sm, Mwt; ILT: Rpb. (ESKOV & MARUSIK 1994).
Lepthyphantes sibiricus TANASEVICH, 1986: 02, 04; GLT: Mwt, Sm.

Lepthyphantes taczanowskii (O.P.-CAMBRIDGE, 1873): 19, 20, 31; ILT: U. (ESKOV 1992).
Lepthyphantes sp. 1 (cf. *pepticus*): 63; ILT: Bf.
Leptorhoptrum robustum (WESTRING, 1851): 01, 02; GLT: Sm. (ESKOV 1992).
Lophomma cognatum HOLM, 1960: 08a; MFLT: Mf. (ESKOV 1992).
Macrargus multesimus (O.P.-CAMBRIDGE, 1875): 07, 11, 19, 27, 31, 40; MFLT: Mf, Lf. (ESKOV 1992).
Maro flavescens (O.P.-CAMBRIDGE, 1873): 07a; MFLT: ?. (ESKOV & MARUSIK 1994).
Maro saaristoi ESKOV, 1980: 11, 14, MFLT: Lf. (ESKOV 1992).
Maro sibiricus ESKOV, 1980: 07; MFLT: Mf. (ESKOV 1992).
Maso sundevalli (WESTRING, 1851): 07, 27, 56, 63; ILT: U; MFLT: Mf. (ESKOV 1992).
Mecynargus monticola (HOLM, 1943): 02, 04, 23, 26, 27, 35, 40, 56; GLT: Mwt, Sm; MFLT: Lf. (ESKOV 1992).
? *Mecynargus sphagnicola* (HOLM, 1939): 40; ?.
Mecynargus tungusicus (ESKOV, 1981): 26, 27, 40, 56; MFLT: Mf, Lf. (ESKOV 1992).
Metopobactrus prominulus (O.P.-CAMBRIDGE, 1872): 31, 56, 63; ILT: U; MFLT: Sss (?).
Micrargus herbigradus (BLACKWALL, 1854): 31; MFLT: ?.
Microlinyphia impigra (O.P.-CAMBRIDGE, 1871): 23, 63; ILT: Ism. (ESKOV 1992).
Microlinyphia pusilla (SUNDEVALL, 1830): 07, 11, 17, 23, 27, 28, 30, 31, 32, 34, 35, 36, 44, 49, 51, 53, 56, 57, 63; ILT: Ism, As, Rpb, Bf, U; MFLT: Sss, Sms; MSLT: Dbs. (ESKOV 1992).
Microneta viaria (BLACKWALL, 1841): 02, 04, 07, 14, 19, 30, 35, 63; GLT: Mst, S, Sm; ILT: U; MFLT: Mf, S. (ESKOV 1992).
Minicia marginella (WIDER, 1834): 35; MFLT: Sgg.
Minicia uralensis TANASEVITCH, 1983: 02, 04; GLT: Sm, S.
Minyrioloides trifrons (O.P.-CAMBRIDGE, 1863): 04, 05, 11, 23, 36; GLT: Sm; MFLT: Mf, Lf. (ESKOV 1992).
Monocerellus montanus TANASEVITCH, 1983: 02, 54; GLT: Mst.
Nenilinium asiaticum ESKOV, 1988: 05; MFLT: Mf. (ESKOV 1992).
Neriene clathrata (SUNDEVALL, 1830): 07, 08; MFLT: Sgg. (ESKOV 1992).
Neriene emphana (WALCKENAER, 1841): 01, 17; ILT: Mm; MFLT: Sgg. (ESKOV 1992).
Neriene montana (CLERCK, 1758): 17, 55, 63; ILT: U, Mm. (ESKOV 1992).
Neriene radiata (WALCKENAER, 1841): 07, 09, 14, 17, 23, 27, 30, 31, 32, 58; ILT: Mm, U; MFLT: Sms, Sss, Sgg. (ESKOV 1992: sub. *N. marginata*).
Notioscopus jamalensis GRESE, 1909: 07, 08, 35, 36, 40, 56; MFLT: Mf. (ESKOV 1992).
Oedothorax agrestis (BLACKWALL, 1853): 04, 05; GLT: Sm; ILT: Rpb; MFLT: Mf. (ESKOV 1992).
Oedothorax mongolensis (HEIMER, 1987): 60; MSLT: Cxs. (ESKOV 1992).
Oedothorax retusus (WESTRING, 1851): 02, 07, 17; GLT: Sm; ILT: Mm; MFLT: Mf, Sgg. (ESKOV 1992).
Oreonetides sajanensis ESKOV, 1991: 04; GLT: Sm.
Oreonetides vaginatus (THORELL, 1872): 31, 34, 40, 56; ILT: Ism; MFLT: Mf.
Oryphantes geminus (TANASEVITCH, 1982): 07; MFLT: Mf. (ESKOV 1992: sub. *Lepthyphantes g.*).
Panamomops depilis ESKOV & MARUSIK, 1994: Sayano-Shushensky Reservation, 52; MFLT: Sms (?). (ESKOV & MARUSIK 1994).
Panamomops dybowskii (O.P.-CAMBRIDGE, 1873): 02, 04, 40, 44, 56; GLT: Mwt. (ESKOV 1992).
Panamomops tauricornis (SIMON, 1881): 26, 27, 31, 34; GLT: Mwt; ILT: Ism; MFLT: Mf, Lf.
Paraeboria jeniseica (ESKOV, 1981): 07; MFLT: Mf. (ESKOV 1992).
Parawubanoides marusiki (TANASEVITCH, 1987): 09, 12, 14, 20, 30, 31, 35, 36, 49, 58, 63; ILT: Rpb, U; MFLT: S, Lf, Sms. (ESKOV 1992, ESKOV & MARUSIK 1992a).
Parawubanoides unicornis (O.P.-CAMBRIDGE, 1873): 07, 08a, 27, 30, 31, 35, 36; MFLT: Mf, Lf. (ESKOV 1992, ESKOV & MARUSIK 1992a).
Pelecopsis dorniana HEIMER, 1987: 02, 08a, 11, 26, 27, 40, 42, 52, 56; GLT: Mwt; MFLT: Mf, Sms. (ESKOV 1992).
**Pelecopsis minor* WUNDERLICH, 1995: 32, 63; ILT: Ism.
Pelecopsis palmgreni MARUSIK & ESYUNIN, 1998: 22, 27, 35, 40, 52, 56; MFLT: Mf. (ESKOV & MARUSIK 1994: sub. *P. mengei*, MARUSIK & ESYUNIN 1998).
Pelecopsis parallela (WIDER, 1834): 08a, 23; MFLT: ?. (ESKOV 1992).
Perlongipalpus sp. 1 (cf. *pinipumilis*): 30; MFLT: Lf.
Perregrinus deformis (TANASEVITCH, 1982): 07, 31, 40, 52, 54, 56; MFLT: Mf. (ESKOV 1992).
Pityohyphantes phrygianus (C.L. KOCH, 1836): 07; MFLT: Mf. (ESKOV 1992).
Pocadicnemis pumila (BLACKWALL, 1841): 14, 17, 33, 49, 58; ILT: U, Bf. (ESKOV 1992).

Poeciloneta petrophila TANASEVITCH, 1989: 52, 54; GLT: Mst.
Poeciloneta theridiformis (EMERTON, 1911): 08; MFLT: Mf. (ESKOV & MARUSIK 1994).
Poeciloneta variegata (BlACKWALL, 1841): 07, 35, 63; ILT: U; MFLT: ?. (ESKOV 1992).
Porrhomma pygmaeum (BLACKWALL, 1834): 07; MFLT: Mf. (ESKOV 1992).
Praestigia kulczynskii ESKOV, 1979: 17, 30, 58; ILT: U. (ESKOV 1992).
Praestigia pini (HOLM, 1950): 07, 20; ILT: U; MFLT: Mf. (ESKOV 1992).
Pseudocyba miracula TANASEVITCH, 1984: 09, 12, 20, 31, 32, 36; ILT: U; MSLT: Dns. (ESKOV 1992).
Saloca ryvkini ESKOV & MARUSIK, 1994: 07a; ILT: U; MFLT: Sm. (ESKOV & MARUSIK 1994).
Satilatlas marxi KEYSERLING, 1886: 08; MFLT: Mf. (ESKOV 1992).
? *Savignia birostra* (CHAMBERLIN & IVIE, 1947): 07a; ILT: U, Ism. (ESKOV & MARUSIK 1994).
Savignia centrasiatica ESKOV, 1991: 12, 17; ILT: U. (ESKOV 1991, 1992).
Savignia frontata BLACKWALL, 1833: 07, 26, 30, 31; GLT: Mwt; MFLT: Mf, Lf. (ESKOV 1992).
Scotargus pilosus SIMON, 1913: 35; ?.
Scotinotylus alpigenus (L. KOCH, 1869): 11, 26, 54; GLT: Mwt; MFLT: Lf. (ESKOV 1992).
Scotinotylus alpinus (BANKS, 1896): 27, 31; MFTL: Mf.
Scotinotylus altaicus MARUSIK, HIPPA & KOPONEN, 1996: 26, 30; GLT: Mwt; MFLT: Mf, S.
Scotinotylus protervus (L. KOCH, 1879): 26, 27, 35, 40, 52, 54, 56; GLT: Mwt; MFLT: Lf. (ESKOV 1992).
Semljicola angulata (HOLM, 1963): 07; 23; MFLT: ?. (ESKOV 1992: sub. *Eboria a.*, SAARISTO & ESKOV 1996: fig. 14).
Semljicola latus (HOLM, 1939): 07; 26, 27, 35, 36, 52; GLT: Mwt; MFLT: Mf, Lf. (ESKOV 1992: sub. *Latithorax l.*, SAARISTO & ESKOV 1996: fig. 15).
Semljicola thaleri (ESKOV, 1981): Sayano-Shushensky Reservation, 31, 40, 52, 54, 56; ?. (ESKOV 1992: sub. *Latithorax t.*, SAARISTO & ESKOV 1996: fig. 15).
Sibirocyba incerta (KULCZYNSKI, 1916): 35, 56; ILT: Rpb.
? *Silometopoides sphagnicola* ESKOV & MARUSIK, 1992: 22; MFLT: Mf.
Silometopus elegans (O.P.-CAMBRIDGE, 1872): 07; MFLT: Mf. (ESKOV 1992).
Silometopus uralensis TANASEVITCH, 1985: 02, 04, 07, 08a, 26, 31, 44; GLT: Mwt, Sm; ILT: U; MFLT: Mf. (ESKOV 1992).
Sisis transbaikalicus (ESKOV, 1989): 35; MFLT: ?.
Stemonyphantes conspersus (L. KOCH, 1879): 02, 05, 07, 11, 20, 31; GLT: Sm; ILT: U; MFLT: Mf, Lf. (ESKOV 1992).
Stemonyphantes sibiricus (GRUBE, 1861): 31, 36, 56; ILT: U.
Styloctetor logunovi (ESKOV & MARUSIK, 1994): 05, 20, 27, 31, 53, 56; ILT: Rpb; MSLT: Dns, S. (ESKOV & MARUSIK 1994).
Styloctetor romanus (O.P.-CAMBRIDGE, 1872): 55; ILT: ?. (ESKOV 1992).
Styloctetor stativus (SIMON, 1881): 08a, 31, 35; ?. (ESKOV 1992).
Styloctetor tuvinensis MARUSIK & TANASEVITCH, 1998: 32; ILT: U, Rpb.
? *Thaleria orientalis* TANASEVITCH, 1984; 05, 31; MFLT: Mf. (ESKOV 1992).
Thaleria sajanensis ESKOV & MARUSIK, 1992: 02, 05, 07, 26, 27, 31, 35, 36, 40, 52, 54, 56; GLT: Mwt; MFLT: Mf, Lf. (ESKOV 1992).
Thyreosthenius biovatus (O.P.-CAMBRIDGE, 1875): 02; GLT: Sm.
Tibioploides arcuatus (TULLGREN, 1955): 01, 05, 19, 31; ILT: U; MFLT: Mf. (ESKOV 1992).
Tibioplus diversus (L. KOCH, 1879): 02, 04, 05, 07, 26, 30, 31, 32, 35, 36, 40, 52, 56, 63; GLT: Mwt, Mst; ILT: U; MFLT: Mf, S. (ESKOV 1992).
Tiso aestivus (L. KOCH, 1872): 08a, 26, 27, 40, 52, 54, 56; MFLT: Mf, Sms. (ESKOV 1992).
Tmeticus affinis (BLACKWALL, 1855): 08, 23, 63; ILT: U; MFLT: Mf, Lf. (ESKOV 1992).
Trematocephalus cristatus (WIDER, 1934): 14; ILT: U.
**Trichobactrus brevispinosus* WUNDERLICH, 1995: 34, 53, 63; ILT: Ism; MSLT: S.
Trichoncus vasconicus DENIS, 1944: 09; MFLT: Sss.
Trichopterna cito (O.P.-CAMBRIDGE, 1872): 09, 30, 53; MFLT: Sms; MSLT: Dbs.
Trichopterna thorelli (WESTRING, 1862): 07; MFLT: ? (ESKOV 1992).
Troxochrus scabriculus (WESTRING, 1851): 31; ?.
Typhochrestoides baikalensis ESKOV, 1990: 02, 04, 26, 27, 30, 35, 52; GLT: Sm, Mst, Mwt; MFLT: Mf, S.
Ummeliata sibirica (ESKOV, 1980): 07; MFLT: ?. (ESKOV 1992).
Victorium putoranicum ESKOV, 1988: 02; GLT: Mwt, Mst. (ESKOV 1992).
Wabasso questio (CHAMBERLIN, 1948): 07, 56; MFLT: ? (ESKOV 1992).
Walckenaeria antica (WIDER, 1834): 08a, 11, 23; MFLT: Lf. (ESKOV 1992).

Walckenaeria auranticeps (EMERTON, 1882): 58; ILT: U. (ESKOV 1992).
Walckenaeria capito (WESTRING, 1861): 05; MFLT: Mf. (ESKOV 1992).
Walckenaeria cuspidata BLACKWALL, 1833: 02, 31; GLT: ? (ESKOV 1992).
Walckenaeria karpinskii (O.P.-CAMBRIDGE, 1873): 02, 07, 20, 23, 26, 27, 30, 31, 35, 36, 40, 42, 56; GLT: Sm, Mwt; MFLT: Mf, Lf. (ESKOV 1992: sub. *W. holmi*).
Walckenaeria kazakhstanica ESKOV, 1995: 19; ILT: U. (ESKOV 1992).
Walckenaeria koenboutjei BAERT, 1994: 02; GLT: Mst. (BAERT 1994).
Walckenaeria korobeinikovi ESYUNIN & EFIMIK, 1996: 40, 47, 52, 63; GLT: Mst; ILT: Bf. (ESKOV & MARUSIK 1994: sub. *W. clavicornis*).
Walckenaeria lepida (KULCZYNSKI, 1885): 07, 20; ILT: U; MFLT: Mf. (ESKOV 1992).
**Walckenaerianus aimakensis* WUNDERLICH, 1995: 6; ILT: Bf.
Wubanoides uralensis (PAKHORUKOV, 1981): 04, 26, 27, 35, 36, 52, 56; GLT: S, Sm; MFLT: Mf, Lf. (ESKOV 1992, ESKOV & MARUSIK 1992a).
Yakutopus xerophilus ESKOV, 1990: 09, 30, 32, 49, 53, 63; ILT: U; MFLT: Lf, Sms; MSLT: Dns.
Zornella sp. 1 (cf. *cultrigera*): 05, 07, 19, 20, 23, 31, 35, 36, 40, 54; ILT: U; MFLT: Mf, Lf. (ESKOV 1992: sub. *Z. cultrigera*).

Liocranidae

Agroeca maculata L. KOCH, 1879: 07; MFLT: Mf.
Agroeca sp. 1: 09, 12, 13, 30, 32, 35, 44, 52; MFLT: S; MSLT: S, Dns.
"Phrurolithus" sinicus ZHU & MEI, 1982: 09, 14, 31, 32, 53; ILT: Rpb; MSLT: Dbs, S.

Lycosidae

Acantholycosa lignaria (CLERCK, 1758): 13; MFLT: Bef.
Acantholycosa norvegica (THORELL, 1872): 02, 03, 04, 07, 26, 27, 31, 35, 36, 56; GLT: Sm, Mwt; MFLT: S, Sms, Mf.
**Acantholycosa triangulata* YU & SONG, 1988: 47; GLT: Mst.
Allohogna singoriensis (LAXMANN, 1770): 21, 49, 57, 58; ILT: saline wasteland.
Alopecosa aculeata (CLERCK, 1758): 03, 04, 06, 07, 08, 11, 19, 22, 26, 27, 30, 35, 36, 40, 54, 56, 58; GLT: Sm, Mwt, S; ILT: U, Rpb; MFLT: Sms, Mf, Lf.
Alopecosa albostriata (GRUBE, 1861): 35, 36; MFLT: Lf.
Alopecosa cuneata (CLERCK, 1758): 19, 27, 58; ILT: U, MFLT: Sms.
Alopecosa dimidiata (THORELL, 1875): 09, 12, 23, 27, 30, 50, 53, 55, 63; MFLT: Sss; MSLT: Sds, Cxs, Dbs, Dns, S. (MIKHAILOV 1996: sub. *Trochosa d.*).
**Alopecosa hingganica* SONG, 1993: 48; ILT: Rpb.
**Alopecosa licenti* (SCHENKEL, 1953): 28; MSLT: Dbs.
? *Alopecosa pinetorum* THORELL, 1856: 05; MFLT: Mf.
Alopecosa pulverulenta (CLERCK, 1758): 02, 19, 31, 54; GLT: Sm; ILT: U.
Alopecosa sibirica (KULCZYNSKI, 1908): 36; MFLT: Sms.
Alopecosa solivaga (KULCZYNSKI, 1901): 08, 09, 11, 12, 14, 17, 19, 20, 21, 27, 30, 35, 36, 41, 42, 44, 48, 49, 51, 58, 63; ILT: U, As, Rpb; MFLT: Sss, Sms, S, Sm, Lf; MSLT: Dns.
**Alopecosa subrufa* SCHENKEL, 1963: 30, 34; ILT: Ism.
Alopecosa zyuzini LOGUNOV & MARUSIK, 1995: 17, 29, 30, 34, 36, 38, 46, 48, 49, 50, 51, 53, 55, 58, 61, 63; ILT: Ism, As, Rpb, Mm; MFLT: Sss; MSLT: Dbs, Sds, S. (LOGUNOV & MARUSIK, 1995).
Alopecosa sp.1 (cf. *erudita*): 09, 21, 27, 28, 30, 32, 34, 53, 58, 63; ILT: Ism, Rpb; MFLT: Sss, Sms; MSLT: Dns, Dbs, Sds, S.
Alopecosa sp. 2 (cf. *erudita*): 55, 58, 63; MSLT: Sds.
Alopecosa sp. 3 (cf. *erudita*): 41; MSLT: Cxs.
**Arctosa cervina* SCHENKEL, 1936: 34, 51, 63; ILT: Mm, As.
Evippa sp. 1 (cf. *sibirica*): 12, 30, 32,34, 53; MFLT: Sss; MSLT: Dbs, Dns, S.
Pardosa amentata (CLERCK, 1758): 01; MFLT: Sgg.
Pardosa atrata (THORELL, 1873): 07, 23, 24, 32, 52, 55, 58, 63; ILT: U, Mm, Bf; MFLT: Sm.
Pardosa baraan LOGUNOV & MARUSIK, 1995: 24, 35, 45, 47, 52; GLT: Mst. (LOGUNOV & MARUSIK 1995).
Pardosa bifasciata (C.L. KOCH, 1834): 09, 13, 26, 27, 29, 30, 31, 35, 36, 44, 52; GLT: Mwt; MFLT: S, Sss, Sgg.
Pardosa bukukun LOGUNOV & MARUSIK, 1995: 26, 27, 30, 56; GLT: Mwt; MFLT: Sss, Sms.

Pardosa chionophila L. KOCH, 1879: 09, 14, 17, 49, 55, 58; ILT: As, U, Rpb, Mm.
Pardosa eiseni (THORELL, 1875): 08, 11, 22, 23, 26, 27, 35, 36, 40, 42, 44, 52, 54; GLT: Mwt; MFLT: Mf, Lf.
**Pardosa etsinensis* SCHENKEL, 1963: 34, 51, 57, 63; ILT: Rpb, Bf.
Pardosa incilis (ODENWALL, 1901): 13, 25, 27, 32, 34, 39, 49, 50, 51, 53, 55, 57, 58, 63; ILT: U, Ism, As, Rpb, Bf; MFLT: Sss, Sms; MSLT: Sds, S.
Pardosa indecora L. KOCH, 1879: 03, 04, 05, 40; GLT: Mwt; MFLT: Mf.
Pardosa jeniseica ESKOV & MARUSIK, 1995: 09, 19, 20, 31, 49, 55; ILT: Mm, Rpb.
Pardosa lasciva L. KOCH, 1879: 05, 11, 23, 31, 40; MFLT: Lf, Mf.
Pardosa lusisi STERNBERGS, 1981: Yrban; MFLT: Sgg. (STERNBERGS 1981).
Pardosa nenilini MARUSIK, 1995: 39; MFLT: Sm.
Pardosa oksalai MARUSIK, HIPPA & KOPONEN, 1996: 02, 04, 05, 63; GLT: Sm, Mwt; ILT: Bf.
Pardosa oljunae LOBANOVA, 1978: 05, 07, 08, 11, 12, 13, 22, 23, 26, 31, 35, 36, 40, 42, 52, 54, 56; GLT: Mwt; ILT: U; MFLT: Mf, Lf, Bef, Sm, Sgg.
Pardosa palustris (LINNAEUS, 1758): 05, 06, 07, 12, 22, 23, 24, 27, 31, 35, 36, 48, 52, 56; ILT: U; MFLT: Sm, Sgg, Sms, Mf.
Pardosa paratesquorum SCHENKEL, 1963: 12, 14, 19, 29, 30, 34, 39, 44, 48, 49, 50, 51, 52, 57, 58, 62, 63; ILT: Ism, As, Mm, U, Rpb; MFLT: Sm; MSLT: Dbs, Cxs.
Pardosa plumipes (THORELL, 1875): 08, 09, 12, 17, 23, 24, 27, 29, 31, 32, 34, 40, 44, 48, 49, 51, 53, 57, 58, 62, 63; ILT: U, Mm, As, Rpb, Bf, Ism; MFLT: Sms, Sgg, Sm.
Pardosa ricta (ODENWALL, 1901): 12, 27, 29, 30, 31, 32, 34, 38, 39, 40, 44, 45, 49, 50, 51, 53, 55, 58, 63; ILT: Ism, As; MFLT: Sss; MSLT: Dns, Dbs, S, Cxs.
Pardosa schenkeli LESSERT, 1904: 05, 07, 08, 09, 11, 21, 23, 25, 26, 27; GLT: Mwt, S; MFLT: Mf, Sss, Sms, Sgg.
Pardosa selengensis (ODENWALL, 1901): 32, 34, 51, 53, 57, 63; ILT: Ism, As, Bf, U, Rpb; MFLT: Sm; MSLT: Sds, Dbs.
Pardosa sphagnicola (F. DAHL, 1908): 07; MFLT: Sm.
Pardosa tesquorum (ODENWALL, 1901): 05, 09, 12, 13, 26, 28, 30, 31, 32, 34, 35, 36, 44, 45, 52, 58, 63; ILT: U, Ism, Mm, Rpb; MSLT: Dbs; MFLT: Sms, Mf, Lf, S.
Pardosa sp. 1 (cf. *lapponica*): 14, 21, 23, 25, 26, 27, 30, 31, 36, 40, 44, 45, 48, 49, 53, 58; GLT: Mst, Mwt; ILT: U; MFLT: Mf, Sms; MSLT: Dbs.
Pardosa sp. 2 (cf. *lapponica*): 08, 11, 12, 22, 24, 26, 27, 35, 39, 40, 42, 45, 47, 52, 54, 56; GLT: Mst, Mwt; ILT: U, Mm; MFLT: Mf, Lf, Sms.
Pardosa sp. 3 (cf. *lugubris*): 02, 09, 17, 19; GLT: S; ILT: U.
Pirata hygrophilus THORELL, 1872: 01; ILT: Rpb.
Pirata praedo KULCZYNSKI, 1885: <u>07</u>, 57; ILT: Bf; MFLT: Sm. (LOGUNOV 1992b).
Tricca alpigena (DOLESHALL, 1852): 02, 08, 35, 40, 42, 56; GLT: Mwt, Sm; MFLT: Mf.
Xerolycosa miniata (C.L .KOCH, 1834): 09, 13, 17, 49, 51, 63; ILT: As, Mm, Rpb; MFLT: Sgg.
* *"Xerolycosa" mongolica* (SCHENKEL, 1963): 12, 53, 55; MSLT: Dbs, Dns, S.
Xerolycosa nemoralis (WESTRING, 1861): 04; GLT: Sm.

Mimetidae

"Ero" sp. 1: 31, 32, 53; MSLT: Dns, S.

Oxyopidae

Oxyopes parvus PAIK, 1969: 01, 09; 30, 31, 58; ILT: Mm; MFLT: Sgg, Sss, Sms.

Philodromidae

Apollophanes macropalpus (PAIK, 1979): <u>23</u>; MFLT: Lf, Sgg. (LOGUNOV 1996a).
Artanes marusiki LOGUNOV, 1997: <u>29</u>, <u>30</u>, <u>32</u>, <u>44</u>, <u>53</u>; MFLT: Sss; MSLT: S. (LOGUNOV 1997b).
Philodromus alascensis KEYSERLING, 1884: 17, 23, 30, 43, 44, 50, 56, 57, 63; ILT: Bf, U.
Philodromus aureolus (CLERCK, 1758): 13, 17; ILT: Mm; MFLT: Sgg.
Philodromus cespitum (WALCKENAER, 1802): 07, 08, 09, 10, 11, 14, 19, 23, 63; MFLT: Mf, Lf, Sgg, Sms, Sm.
Philodromus corticinus (C.L. KOCH, 1837): 63; ILT: ?.
? *Philodromus emarginatus* (SCHRANK, 1803): 55; (?).
Philodromus fallax SUNDEVALL, 1833: 34, 49, 51, 57, 63; ILT: Bf, Rpb, As, Ism.

Philodromus fuscomarginatus (DE GEER, 1778): 36; MFLT: ?.
Philodromus histrio (LATREILLE, 1819): 09, 11, 12, 17, 19, 32, 49, 53, 58; ILT: As; MFLT: Sss; MSLT: Dbs, Dns.
Philodromus margaritatus (CLERCK, 1758): 05, 09, 30; MFLT: S.
Philodromus poecilus (THORELL, 1872): 30, 49, 63; ILT: U; MFLT: Lf.
? *Philodromus praedatus* O.P.-CAMBRIDGE, 1871: 32; ILT: Bf.
Philodromus rufus WALCKENAER, 1826: 01, 09, 14, 17, 28, 30, 32, 34, 53, 57, 58, 63; ILT: Rpb, Bf, As, U, Ism; MSLT: Dbs, Dns.
Philodromus sp. 1 (cf. *alascensis*): 32, 63; ILT: Mm.
Philodromus sp. 2 (cf. *histrio*): 30, 53; MSLT: Dbs; MFLT: Sss.
Philodromus sp. 3 (cf. *margaritatus*): 63; ILT: U.
Thanatus arcticus THORELL, 1872: 10, 11, 12, 24, 45, 47, 50, 53, 55, 61; GLT: Mwt; MFLT: Sss, Sgg; MSLT: Dbs, Dns, Cxs. (LOGUNOV 1996a).
Thanatus arenarius L. KOCH in THORELL, 1872: 09; MFLT: Sss, Sms. (LOGUNOV 1996a).
Thanatus bungei (KULCZYNSKI, 1908): 05; GLT: Mwt; MFLT: S. (LOGUNOV 1996a).
Thanatus coloradensis KEYSERLING, 1880: 21, 26, 27, 29, 31, 40, 44, 45, 52, 56; GLT: Mwt; MFLT: Sms, S. (LOGUNOV 1996a).
Thanatus coreanus PAIK, 1979: 21, 30, 35, 40, 49, 50, 53; MFLT: Sss, Sms; MSLT: Cxs, Dbs. (LOGUNOV 1996a).
Thanatus stepposus LOGUNOV, 1996: 23, 32, 33, 34; MSLT: Dns, S. (LOGUNOV 1996a).
Thanatus striatus C.L KOCH, 1845: 30, 34; ILT: Bf. (LOGUNOV 1996a).
Thanatus tuvinensis LOGUNOV, 1996: 23, 30, 32, 34, 38, 44, 49, 50, 53; MSLT: Dns, Dbs. (LOGUNOV 1996a).
Thanatus ubsunurensis LOGUNOV, 1996: 32, 34; MSLT: Dns. (LOGUNOV 1996a).
Thanatus sp. 1: 63; MSLT: Sds.
Tibellus asiaticus KULCZYNSKI, 1908: 08, 17, 28, 32, 34, 51; ILT: As, Mm, Ism; MFLT: Sgg.
Tibellus aspersus DANILOV, 1991: 08, 12, 14, 29, 34, 51, 53, 63; ILT: As, Ism; MFLT: Sgg; MSLT: Dbs.
Tibellus maritimus (MENGE, 1875): 07, 17, 23, 34, 57, 58, 63; ILT: Bf, As, Ism; MFLT: Sgg, Sm.
Tibellus oblongus (WALCKENAER, 1802): 13; MFLT: Sgg.

Pisauridae

Dolomedes bukhkaloi MARUSIK, 1988: 07, 63; ILT: Bf; MFLT: Sm.
Dolomedes plantarius (CLERCK, 1758): 01; MFLT: Sm.
Pisaura ancora PAIK, 1969: 19, 63; ILT: U. (LOGUNOV 1990).

Salticidae

Asianellus festivus (C.L. KOCH, 1846): 08, 09, 11, 12, 14, 17, 18, 19, 20, 23, 27, 29, 30, 34, 35, 40, 44, 45, 49, 50, 51, 53, 58, 63; ILT: Rpb; MFLT: Sss, S; MSLT: Dns, S. (LOGUNOV 1992c, LOGUNOV & HECIAK 1996).
Asianellus ontchalaan LOGUNOV & HECIAK, 1996: 12, 14, 15, 18, 19, 33, 34, 37, 53, 55, 63; MSLT: Dns, Dbs, Sds. (LOGUNOV 1992c: sub. *Aelurillus* cf. *potanini;* LOGUNOV & HECIAK 1996).
Bianor aemulus (GERTSCH, 1934): 08, 11; MFLT: Mf. (LOGUNOV & MARUSIK 1991, LOGUNOV 1992c).
Bianor inexploratus LOGUNOV, 1991: 17; ILT: As. (LOGUNOV 1991).
Bianor stepposus LOGUNOV, 1991: 17, 34, 35, 37, 53, 58, 63; ILT: As, U, Ism; MFLT: Sss; MSLT: Dbs, Sds. (LOGUNOV 1991, 1992c).
Chalcoscirtus alpicola (L. KOCH, 1876): 02, 27; GLT: Mwt; MFLT: Sms.
Chalcoscirtus sp. 1 (cf. *alpicola*): 26; GLT: Mwt.
Chalcoscirtus glacialis CAPORIACCO, 1935: 14, 19, 32, 36, 45, 50, 53, 55, 58, 60, 63; ILT: Rpb; MSLT: Dbs, Dns, Cxs, S. (LOGUNOV 1992c).
Chalcoscirtus nigritus (THORELL, 1875): 14; MSLT: Dbs.
Dendryphantes czekanowskii PROSZYNSKI, 1979: 35, 56; GLT: Mwt.
Dendryphantes fusconotatus (GRUBE, 1861): 07, 09, 19, 20, 23, 27, 29a, 32, 34, 35, 36, 39, 46, 49, 51, 58, 63; ILT: Ism; MFLT: Sms, Sss. (LOGUNOV 1992c).
Dendryphantes hastatus (CLERCK, 1757): 08; MFLT: Mf. (LOGUNOV 1992c).
Dendryphantes rudis (SUNDEVALL, 1832): Yirban; MFLT: Mf. (LOGUNOV 1992c).

Dendryphantes tuvinensis LOGUNOV, 1991: 12, 17, 29a, 30, 31, 37, 49, 53, 58; ILT: Ism; MSLT: Dbs, Dns, Sds. (LOGUNOV 1991, 1992c).
Euophrys flavoatra (GRUBE, 1861): 02, 08, 11, 27, 35, 56; GLT: Mst, Mwt; MFLT: Mf. (LOGUNOV 1992c, LOGUNOV et al. 1993).
Euophrys proszynskii LOGUNOV, CUTLER & MARUSIK, 1993: 09, 26, 30, 43; GLT: Mst; MFLT: S, Sss. (LOGUNOV 1992c: sub. *Euophrys* sp.; LOGUNOV et al. 1993).
Evarcha arcuata (CLERCK, 1758): 09, 14, 19, 58, 63; ILT: U, Mm; MFLT: Sms. (LOGUNOV 1992c).
Evarcha falcata (CLERCK, 1758): 01, 05; MFLT: Mf. (MARUSIK & LOGUNOV 1998).
Evarcha michailovi LOGUNOV, 1992: 07, 11, Sayano-Shushensky Reservation; MFLT: Sms, Sgg. (LOGUNOV 1992c).
Evarcha proszynskii MARUSIK & LOGUNOV, 1998: 07, 08, 23; MFLT: Mf. (LOGUNOV 1992c: sub. *E. falcata;* MARUSIK & LOGUNOV 1998).
Harmochirus latens (LOGUNOV, 1991): 17; ILT: As. (LOGUNOV 1991).
Heliophanus auratus C.L. KOCH, 1835: 14, 17, 58, 63; ILT: Ism, Mm; MFLT: Sm. (LOGUNOV 1992c).
Heliophanus baicalensis KULCZYNSKI, 1895: 11, 23, 35, 58; ILT: U; MFLT: Sms, Mf, Sgg. (LOGUNOV 1992c).
Heliophanus camtschadalicus KULCZYNSKI, 1895: 08, 40; ILT: U; MFLT: Sms. (LOGUNOV 1992c).
Heliophanus dubius C.L. KOCH, 1835: 63; ILT: U.
Heliophanus flavipes HAHN, 1832: 07, 10, 11, 23, 27, 31; MFLT: Mf, Lf, Sgg, Sms. (LOGUNOV 1992c).
Heliophanus lineiventris SIMON, 1868: 08, 17, 19, 30, 63; ILT: As; MFLT: Sss; MSLT: Dbs, Sds. (LOGUNOV 1992c).
Heliophanus patagiatus THORELL, 1875: 09, 14, 17, 19, 20, 30, 35, 37, 49, 50, 55, 58, 63; ILT: Rpb; MFLT: S. (LOGUNOV 1992c).
Marpissa radiata (GRUBE, 1859): 23; MFLT: Sm. (LOGUNOV 1992c).
Neon rayi (SIMON, 1875): 63; ILT: U.
Neon reticulatus (BLACKWALL, 1853): 14, 63; ILT: U.
Pellenes gobiensis SCHENKEL, 1936: 12, 55; MSLT: Dns, Dbs. (LOGUNOV 1992c).
Pellenes ignifrons (GRUBE, 1861): 08, 26, 36; MFLT: Sgg, Sms. (LOGUNOV 1992c).
Pellenes lapponicus (SUNDEVALL, 1832): 26, 56; GLT: Mwt. (DANILOV & LOGUNOV 1993).
Pellenes limbatus (KULCZYNSKI, 1895): 41, 44, 45, 50, 55, 59, 61; ILT: Rpb; MSLT: Cxs, S. (LOGUNOV 1992c).
Pellenes pulcher LOGUNOV, 1995: 34; MSLT: Dns. (LOGUNOV 1995).
Pellenes sibiricus LOGUNOV & MARUSIK, 1994: 08, 09, 11, 14, 17, 20, 23, 31, 32, 34, 57, 63; ILT: Ism; MFLT: Sms, Sgg. (LOGUNOV 1992c: sub. *P.* cf. *tripunctatus;* LOGUNOV & MARUSIK 1994b).
Philaeus chrysops (PODA, 1761): 08, 09, 14, 18, 23; ILT: Rpb; MFLT: Sss, S. (LOGUNOV 1992c).
Phlegra fuscipes KULCZYNSKI in CHYZER & KULCZYNSKI, 1891: 12, 17, 18, 19, 27, 29; ILT: As; MFLT: Sss; MSLT: Dns. (LOGUNOV 1992c; 1996b).
Phlegra profuga LOGUNOV, 1996: 12, 16, 32; MSLT: Dns. (LOGUNOV 1992c: sub. *P.* cf. *sogdiana*, 1996b).
Pseudeuophrys erratica (WALCKENAER, 1825): 01, 07; MFLT: Mf. (LOGUNOV 1992c: sub. *Euophrys e.;* LOGUNOV et al. 1993: sub. *Euophrys e.*).
Salticus cingulatus (PANZER, 1797): 12, 17, 49, 58, 63; ILT: U. (LOGUNOV 1992c).
Sitticus albolineatus (KULCZYNSKI, 1895): 19, 20, 55; ILT: Rpb. (LOGUNOV 1992c).
Sitticus avocator (O.P.-CAMBRIDGE, 1885): 09, 12, 14, 16, 30, 35, 53; MFLT: Sss, S; MSLT: S. (LOGUNOV 1992c)
Sitticus distinguendus (SIMON, 1868): 09, 12; MFLT: S; MSLT: S.
Sitticus floricola (C.L. KOCH, 1837): 07, 08, 21, 23, 32, 58, 63; ILT: Mm, Rpb; MFLT: Sm. (LOGUNOV 1992c).
Sitticus lineolatus (GRUBE, 1861): 26, 36; GLT: Mwt. (LOGUNOV 1992c).
Sitticus mirandus LOGUNOV, 1993: 58, 63; ILT: U. (LOGUNOV 1993b).
Sitticus penicillatus (SIMON, 1875): 20, 37, 55, 58; ILT: Rpb. (LOGUNOV 1992c).
Sitticus saltator (O.P.-CAMBRIDGE in SIMON, 1868): 53; MSLT: S. (LOGUNOV 1992c).
Sitticus tannuolana LOGUNOV, 1991: 08, 27; MFLT: Mf, Lf. (LOGUNOV 1991, 1992c).
Synageles hilarulus (C.L. KOCH, 1846): 17, 58; ILT: U, As. (LOGUNOV 1992c).
Synageles ramitus ANDREEVA, 1976: 63; MSLT: Sds. (LOGUNOV & RAKOV 1996).
Synageles venator (LUCAS, 1836): 01; MFLT: Sgg. (LOGUNOV & RAKOV 1996).
Talavera aequipes (O.P.-CAMBRIDGE, 1871): 50, 59; MSLT: Cxs. (LOGUNOV 1992c, LOGUNOV et al. 1993: sub. *Euophrys a.*).

Talavera sp. 1 (cf. *petrensis*): 14; MSLT: Dbs.
Talavera sp. 2 (cf. *trivittata*): 54, 63; GLT: Mst; ILT: U.
Tuvaphantes arat LOGUNOV, 1993: 58; ILT: Ism. (LOGUNOV 1993a).
Tuvaphantes insolitus (LOGUNOV, 1991): 19, 25; MFLT: Sms. (LOGUNOV 1991: sub. *Dendryphantes i.*, 1993a).
Yllenus kulczynskii PUNDA, 1975: 49, 53, 55, 61, 63; MSLT: Sds, Dbs. (LOGUNOV 1992c).
Yllenus mongolicus PROSZYNSKI, 1968: 12, 34, 63; MSLT: Dns, Sds. (PROSZYNSKI 1982, LOGUNOV 1992c).
Yllenus sp. 1 (cf. *koreanus*): 12, 29a, 49, 53, 55, 61, 63; ILT: Rpb, Ism, As; MSLT: Sds, Dns, Dbs.
Yllenus sp. 2 (cf. *hamifer*): 12, 16, 45, 50, 55; ILT: Rpb; MSLT: Dns, Dbs, S, Cxs.

Tetragnathidae

Eucta sp. 1: 12, 27, 32, 34, 63; ILT: Ism, As; MFLT: Sms; MSLT: Dbs.
Pachygnatha clercki SUNDEVALL, 1823: 17, 34, 51, 55; ILT: Rpb, Mm, As; MFLT: Sm.
Pachygnatha degeeri SUNDEVALL, 1830: 08; MFLT: Sgg.
Pachygnatha listeri SUNDEVALL, 1830: 01, 09, 12, 14, 17, 31, 48, 49, 51, 58, 63; ILT: U, Bf, As, Mm; MFLT: Sm.
Tetragnatha dearmata THORELL, 1873: 63; ILT: U, Bf.
Tetragnatha extensa (LINNAEUS, 1758): 01, 05, 07, 09, 12, 13, 17, 23, 28, 34, 35, 57, 62, 63; ILT: Mm, As; MFLT: Mf, Sm, Sgg, Sms; MSLT: Dbs, Sds.
Tetragnatha nigrita LENDL, 1886: 07, 63; MFLT: Mf; ILT: U.
Tetragnatha obtusa C.L. KOCH, 1837: 63; ILT: As.
Tetragnatha pinicola L. KOCH, 1870: 01, 04, 07, 08, 09, 11, 14, 23, 28, 40, 44; MFLT: Mf, Lf, Sgg; GLT: Sm, S.

Theridiidae

Achaearanea riparia (BLACKWALL, 1834): 01, 03; GLT: Mwt; MFLT: Mf.
Achaearanea tepidariorum (C.L. KOCH, 1841): 12; ILT: U.
Achaearanea sp. 1: 53; MSLT: Dbs.
Arctachaea nordica (CHAMBERLIN & IVIE, 1947): 07, 11; MFLT: Sss, Sms.
Crustulina sticta (O.P.-CAMBRIDGE, 1861): 11; MFLT: Sms.
Dipoena prona (MENGE, 1868): 09; ILT: U, Mm.
Dipoena sp. 1: 07; MFLT: Mf; ILT: Ism.
Dipoena sp. 2: 53; MSLT: S.
Enoplognatha serratosignata (L. KOCH, 1879): 09, 27, 45, 52, 60; ILT: Mm; MFLT: Sss, Sms; MSLT: Cxs, S.
Enoplognatha tecta (KEYSERLING, 1884): 17, 34, 51, 63; ILT: Bf, As.
Enoplognatha sp. 1: 12, 27, 53: MSLT: Dbs, Dns; MFLT: Sss.
Enoplognatha sp. 2: 12, 27, 29, 30, 35, 38, 52, 53, 56; MFLT: Sms, Sss, S; MSLT: Dns, S.
Euryopis levii HEIMER, 1987: 58; ILT: U.
Euryopis saukea LEVI, 1951: 11, 50; MFLT: Sms; MSLT: Cxs.
Neottiura bimaculata (LINNAEUS, 1767): 17, 13, 14, 23, 58, 63; ILT: Mm, As, U; MFLT: Lf, Sm, Bef.
Robertus kastoni ESKOV, 1987: 02, 31, 35, 40; GLT: Mwt; MFLT: Mf.
Robertus lividus (BLACKWALL, 1836): 14, 31; ILT: U; MFLT: ?.
Robertus ungulatus VOGELSANGER, 1944: 30, 63; ILT: Mm; MFLT: Sss, Sm.
Steatoda albomaculata (DE GEER, 1778): 02, 06, 08, 09, 10, 12, 21, 23, 25, 27, 29, 30, 31, 32, 33, 34, 44, 45, 46, 49, 50, 53, 55, 56, 57, 58, 61, 63; ILT: As, Rpb, Ism; MSLT: Dns, Dbs, S, Cxs, Sds; MFLT: Sss, S.
Steatoda bipunctata (LINNAEUS, 1758): 46, 49; ILT: U, Ism.
Steatoda phalerata (PANZER, 1801): 23, 27, 28, 30, 35, 53, 56, 58; ILT: Ism; MSLT: S, Dbs; MFLT: Sss, Sms.
Steatoda sp. 1: 09, 14, 27, 30, 32, 44, 53, 55; MFLT: S, Sss, Sms; MSLT: Dbs, Dns, S.
Theridion aurantium EMERTON, 1915: 07, 31; MFLT: Mf, Sms.
Theridion impressum L. KOCH, 1881: 07, 08, 09, 10, 11, 12, 14, 23, 25, 27, 30, 31, 32, 33, 34, 35, 36, 44, 48, 58, 63; ILT: Ism, Rpb, As; MFLT: Sss, Sgg, Sms, Lf, Mf; MSLT: Dbs, Dns.
? *Theridion montanum* EMERTON, 1882: 05, 08, 12, 30, 32, 53; MFLT: Mf, Lf, S; MSLT: Dns, S.
Theridion ohlerti (THORELL, 1870): 07, 08, 11, 21, 23, 25, 30, 31, 35, 46; ILT: Ism; MFLT: Lf, Mf, Sgg.
Theridion palmgreni MARUSIK & CELLARIUS, 1986: 23; MFLT: Mf.
Theridion petraeum L. KOCH, 1872: 12, 15, 33, 49, 51; MSLT: Dbs; ILT: As.
Theridion pictum (WALCKENAER, 1802): 02, 07, 23, 31, 63; GLT: S; ILT: Mm; MFLT: Mf, Lf; MSLT: Sds.

Theridion sibiricum MARUSIK, 1988: 02, 05, 09, 11, 12, 14, 26, 27, 30, 32, 35, 36, 45, 50, 53; GLT: Mwt; ILT: Ism; MSLT: Dbs, Dns, S, Cxs; MFLT: Sss, S.
Theridion varians HAHN, 1833: 07, 14, 23, 63; ILT: U; MFLT: Mf, Lf.
Theridion sp. 1 (cf. *sibiricum*): 09, 53; MFLT: S; MSLT: S.
Theridion sp. 2: 04; GLT: S.
Theridion sp. 3: 08; MFLT: ?.
Thymoites bellissimus (L. KOCH, 1879): 03, 07, 23, 36; GLT: S; MFLT: Sm.
Thymoites oleatus (L. KOCH, 1879): 05; MFLT: S.

Thomisidae

Coriarachne depressa (C.L. KOCH, 1837): 07; MFLT: Mf. (LOGUNOV & MARUSIK 1994b).
Heriaeus mellottei SIMON, 1886: 08, 14, 23, 30, 31, 53, 63; MFLT: Sss, Sms, Sgg; MSLT: Dbs, Sds. (LOGUNOV & MARUSIK 1994b).
Lysiteles maius ONO, 1979: 01; MFLT: Mf.
Misumena vatia (CLERCK, 1758): 07, 08, 23, 31; MFLT: Sgg. (LOGUNOV & MARUSIK 1994b).
Ozyptila arctica KULCZYNSKI, 1908: 54; GLT: Mwt.
Ozyptila atomaria (PANZER, 1801): 23, 40; MFLT: Lf. (LOGUNOV & MARUSIK 1994b).
Ozyptila orientalis KULCZYNSKI, 1926: 11, 26, 35, 52, 54, 58; GLT: Mwt; ILT: Mm; MFLT: Sms. (LOGUNOV & MARUSIK 1994b).
"*Ozyptila*" *pseudoblitea* SIMON, 1880: 12; MSLT: Dns.
Ozyptila rauda SIMON, 1875: 03, 04, 35, 40, 56; GLT: Sm. (LOGUNOV & MARUSIK 1994b).
Ozyptila scabricula (WESTRING, 1851): 09; MFLT: Sms.
Ozyptila sincera KULCZYNSKI, 1926: 14, 35, 63; ILT: U; MFLT: Mf.
Ozyptila trux (BlACKWALL, 1846): 05, 07; MFLT: Mf. (LOGUNOV & MARUSIK 1994b).
Pistius undulatus KARSCH, 1879: 01; MFLT: Mf. (LOGUNOV 1990).
Synaema globosum (FABRICIUS, 1775): 09, 14; MFLT: Sms.
Thomisus onustus WALCKENAER, 1805: 09, 12, 14, 28, 30, 32, 34, 53, 55, 57, 63; ILT: Ism, Bf; MFLT: Sss; MSLT: Dbs, Sds, Dns. (LOGUNOV & MARUSIK 1994b).
Tmarus rimosus PAIK, 1973: 01; MFLT: Mf. (LOGUNOV 1992a).
Xysticus audax (SCHRANK, 1803): 05, 07, 08, 09, 12, 14, 23, 26, 28, 31, 34, 36, 40, 51, 56, 57; ILT: As, Mm; MFLT: Sms, Sgg, Sss. (LOGUNOV & MARUSIK 1994b).
Xysticus austrosibiricus LOGUNOV & MARUSIK, 1998: 23, 26, 35, 36, 39, 45, 47, 52, 54, 56; GLT: Mst, Mwt. (LOGUNOV & MARUSIK 1994b: sub. *X. viduus*; LOGUNOV & MARUSIK 1998).
Xysticus baltistanus (CAPORIACCO, 1935): 12, 16, 18, 27, 30, 35, 40 32, 53, 55; MFLT: Sss; MSLT: Dbs, Dns, S. (LOGUNOV & MARUSIK 1994b).
Xysticus bifasciatus C.L. KOCH, 1837: 07, 08, 23, 26; MFLT: Sms, Sgg. (LOGUNOV & MARUSIK 1994b).
Xysticus bonneti DENIS, 1937: 08, 09, 14, 23, 26, 27, 30, 35, 36, 40, 43, 45, 52, 53, 56, 63; GLT: Mwt; MFLT: Sss; MSLT: Cxs, Sds. (LOGUNOV & MARUSIK 1994b).
Xysticus britcheri GERTSCH, 1934: 02; 22, 35, 40; GLT: Mwt; MFLT: Mf. (LOGUNOV & MARUSIK 1994b).
Xysticus dzhungaricus TYSHCHENKO, 1965: 08, 09, 23, 27, 35, 40, 44; MFLT: Sms, Sgg. (LOGUNOV 1992b: sub. *X. kiritschenkoi;* LOGUNOV & MARUSIK 1994b).
Xysticus emertoni KEYSERLING, 1880: 07, 08, 19, 23, 26, 27, 31, 36, 56, 58; GLT: Mwt; ILT: U; MFLT: Mf, Lf. (LOGUNOV & MARUSIK 1994b).
Xysticus ephippiatus SIMON, 1880: 07, 09, 12, 14, 17, 26, 28, 30, 32, 34, 44, 63; ILT: Mm, Ism, U, Rpb; MFLT: Sms, Sss. (LOGUNOV & MARUSIK 1994b).
Xysticus hedini SCHENKEL, 1936: 34; ILT: Ism.
"*Xysticus*" *inaequalis* KULCZYNSKI, 1901: 34; MSLT: Dns. (LOGUNOV & MARUSIK 1994b).
Xysticus laticeps SCHENKEL, 1963: 32; MSLT: Dns.
? *Xysticus lineatus* (WESTRING, 1851): 07; MFLT: ?. (LOGUNOV & MARUSIK 1994b).
Xysticus luctuosus (BLACKWALL, 1836): 01, 07, 11, 31, 40; MFLT: Mf, Lf. (LOGUNOV & MARUSIK 1994b).
Xysticus mugur MARUSIK in MARUSIK & CHEVRIZOV, 1990: 41, 47, 50, 61; MSLT: Cxs. (MARUSIK & CHEVRIZOV 1990, LOGUNOV & MARUSIK 1994b).
Xysticus nenilini MARUSIK, 1989: 28, 32, 38, 39, 41, 43, 45, 50, 61; ILT: U; MFLT: Sss; MSLT: Dbs, Cxs. (MARUSIK 1989, LOGUNOV & MARUSIK 1994b).

Xysticus obscurus COLLETT, 1877: 03, 04, 09; GLT: Sm; MFLT: Sms. (LOGUNOV & MARUSIK 1994b).
Xysticus rugosus BUCKLE & REDNER, 1964: 02, 03, 47; GLT: Mst, Mwt. (LOGUNOV & MARUSIK 1994b).
Xysticus seserlig LOGUNOV & MARUSIK, 1994: 11, 31, 49, Boyarovka; MSLT: Dbs. (LOGUNOV & MARUSIK 1994b).
Xysticus sibiricus KULCZYNSKI, 1908: 05, 06, 56, Sayano-Shushensky Reservation; MFLT: Mf. (LOGUNOV & MARUSIK 1994b).
Xysticus sjostedti SCHENKEL, 1936: 11, 23, 27, 29, 32, 39, 45, 49, 50, 53, 57, 58, 41, 61, 63; MFLT: Sss; MSLT: Dns, Dbs, Cxs. (LOGUNOV & MARUSIK 1994b).
Xysticus striatipes L. KOCH, 1870: 58; MSLT: Dbs. (LOGUNOV & MARUSIK 1994b).
Xysticus vachoni SCHENKEL, 1963: 07, 08, 11, 14, 19, 21, 36; MFLT: Mf, Lf. (LOGUNOV & MARUSIK 1994b).
Xysticus sp. 1: 63; ILT: U, Bf.

Titanoecidae

Titanoeca asimilis SONG & ZHU, 1985: 07, 09, 10, 12, 14, 23, 27, 29, 30, 31, 32, 34, 35, 38, 44, 46, 49, 50, 51, 53, 55, 58; ILT: Mm, Rpb; MFLT: S, Sss; MSLT: Dns, Dbs, S, Cxs.
Titanoeca nivalis SIMON, 1874: 06, 07, 08, 09, 53; MFLT: Sss, Sms, Mf; MSLT: Dbs, S.
Titanoeca sibirica L. KOCH, 1879: 08, 11, 17, 23, 27, 30, 31, 34, 35, 40, 45, 51, 52; ILT: As, Ism; MFLT: Lf, Sss, Sms, Sgg; MSLT: Cxs.
Titanoeca sp. 1: 58; ILT: Rpb (?).

Uloboridae

Uloborus walckenaerius (LATREILLE, 1806): 09, 10, 12, 14, 32, 63; ILT: Rpb; MSLT: Dns; Dbs, Sds, S.

Zoridae

Zora sp. 1 (cf. *nemoralis*): 31, 49, 52, 56, 58; ILT: U.

4. Analysis of habitats and discussion:

According to the list of species, altogether 605 spider species from 23 families have so far been recorded in Tuva. Total family composition (in %) of the Tuvan spider fauna is shown in fig. 1, with the faunal taxonomic index (TI) being Lin-Gna-Sal. Thus, this TI corresponds well with that of the entire spider fauna of the mountains of South Siberia (see MIKHAILOV 1997: fig. 1), but differs from other Siberian faunas (e.g. W., C. and NE Siberia), having a higher percentage of jumping and gnaphosid spiders. In most of the Siberian spider faunas, the TI is Lin, Lin-Lyc or Lin-Lyc-Gna. This difference, i.e. including the gnaphosids and salticids in the TI in Tuva is largely due to two reasons:(1) true steppe (arid) ecosystems are practically restricted to South Siberia, and just in such arid ecosystems do the Gnaphosidae and Salticidae form a large part of the whole spider communities (fig. 5); and (2) the true mountain forest landscape in Tuva (Todzha Plateau and the mountain forest belt of the Tannu-Ola Range, see Map) is practically unexplored, so the total number of forest dwellers (mostly linyphiids; see KOPONEN 1996) is somewhat underestimated in comparison to other Siberian spider faunas. In general, we assume that the 605 spider species so far found in Tuva constitute no more than 75-80 % of its real species number.

Despite some gaps in our knowledge of the spider communities of certain vegetation types (e.g. birch forest, see table 1), we consider it possible to conduct a preliminary chorological analysis on the basis of the materials at hand.

On the basis of the similarity of the communities at the value of ca. 0.1 of the Czekanowski-Soerensen index (Ics) (the UPGMA method), the spider communities are divided into two large clusters (fig. 3). Cluster A represents the spider communities of all forest, meadow and mountain tundra vegetation types, including the sedge moor. Cluster B includes the spider communities

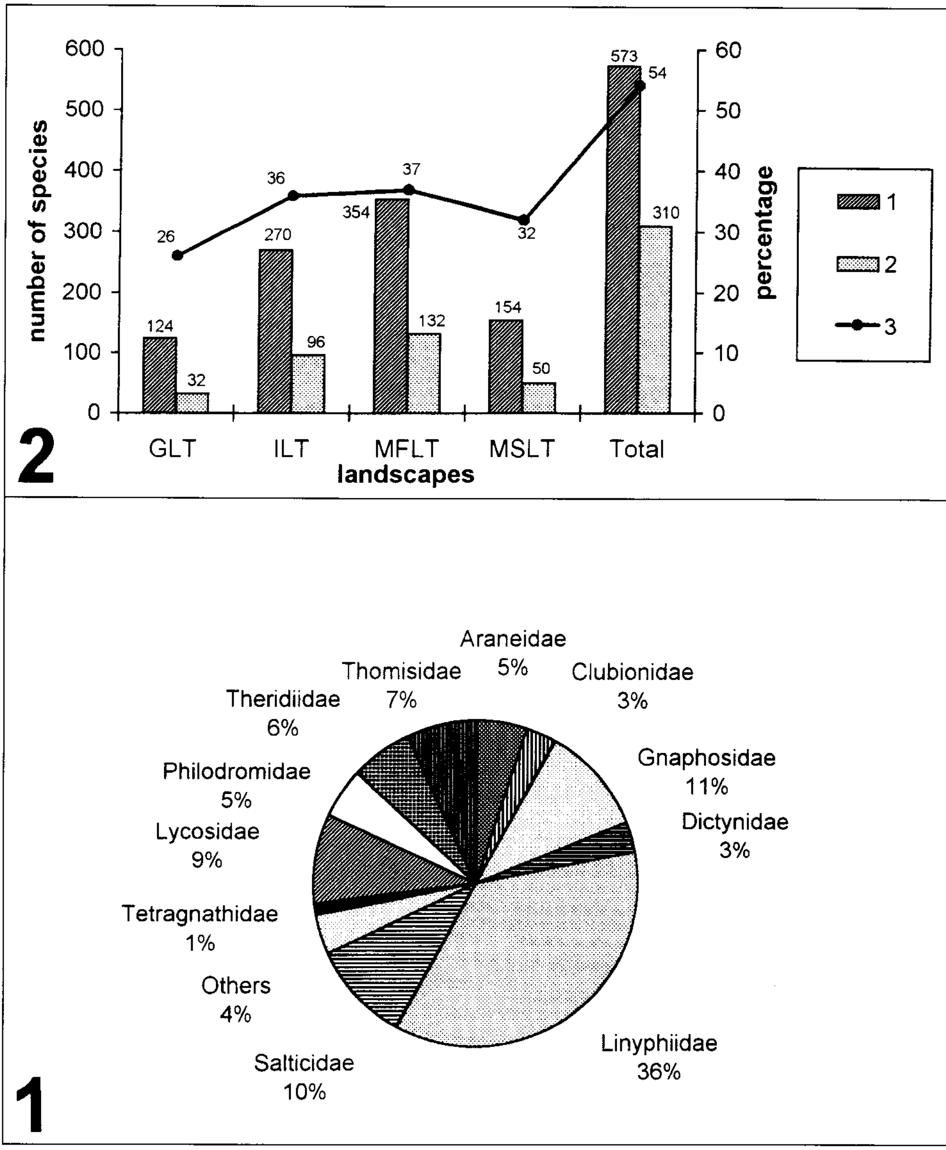


Fig. 1-2: 1 — Percentages of selected families (with 9 or more species) of the total spider fauna of Tuva (605 species); 2 — Distribution of total species numbers (1), numbers of exclusive (indicator) species (2) and percentager of exclusive species (3) in different landscape of Tuva. For abbreviations, see "Material and methods".

found primarily/totally in steppe vegetation types. It is interesting to note that all the spider communities of the mountain tundra (GLT) and mountain steppe (MSLT) landscapes are referred to either cluster A (the former) or cluster B (the latter), while those of the inundated (ILT) and mountain forest-steppe (MFLT) landscapes are distributed between the two large clusters (fig. 3). Moreover, the two latter landscapes show the same taxonomic index (Lin-Gna-Lyc) and index of

Table 1: Species numbers of selected spider families in the studied vegetation types of Tuva; for abbreviations see "Material and methods".

Family	Landscapes and vegetation types									
	GLT				ILT					
	mwt	mst	sm	s	u	ism	mm	as	bf	rpb
Araneidae	–	–	2	2	6	7	5	2	4	2
Clubionidae	–	–	1	–	8	2	3	4	1	2
Dictynidae	–	1	1	–	4	4	2	2	–	2
Gnaphosidae	5	8	4	–	13	9	5	9	3	15
Linyphiidae	33	12	29	6	60	13	11	4	7	14
Lycosidae	12	4	6	2	16	9	10	11	7	15
Philodromidae	3	–	–	–	4	5	3	6	6	2
Salticidae	6	3	–	–	11	7	3	7	–	10
Tetragnathidae	–	–	1	1	3	1	3	5	2	1
Theridiidae	3	–	–	3	7	7	5	5	1	2
Thomisidae	7	2	2	–	5	3	3	1	2	1
Others	1	–	–	–	3	2	2	2	2	4
Total	70	30	46	14	140	69	55	58	35	70

Family	Landscapes and vegetation types												
	MFLT								MSLT				
	sss	sms	lf	mf	bef	sm	sgg	s	dns	dbs	sds	cxs	s
Araneidae	8	7	5	6	–	3	6	1	6	8	6	1	5
Clubionidae	1	2	3	3	2	3	3	–	1	–	3	–	–
Dictynidae	2	2	2	7	–	2	3	1	4	3	2	2	1
Gnaphosidae	23	21	4	7	–	2	1	6	18	18	6	9	11
Linyphiidae	4	15	43	88	2	5	9	7	7	4	–	3	4
Lycosidae	10	14	8	13	2	10	8	4	6	11	6	3	7
Philodromidae	6	4	3	1	–	2	8	3	6	7	1	2	2
Salticidae	8	10	2	10	–	3	7	5	11	11	8	4	7
Tetragnathidae	–	2	1	3	–	3	3	–	–	2	1	–	–
Theridiidae	10	9	6	11	1	3	2	7	7	8	2	4	9
Thomisidae	8	9	4	11	–	–	5	–	6	7	3	3	1
Others	5	3	4	5	–	1	4	1	6	5	1	2	6
Total	85	98	85	165	7	37	59	35	78	84	39	33	53

originality (Lin-Sal), differing in both respects from the GLT and the MSLT. Thus, it is safe to assume that the considered landscapes can be combined into two groups: primary (core) landscapes (the GLT and the MSLT) and marginal landscapes (the ILT and the MFLT). The MFLT is situated between primary and marginal landscapes and, for the most part, it consists of ecosystems occurring in primary landscapes.

It is known that one of the most striking peculiarities of marginal landscapes is their higher level of biodiversity in comparison to primary landscapes (CHERNOV 1975, MORDKOVITCH pers. comm.). Fig. 2 seems to support this idea as well: both the ILT and the MFLT show twice as high species numbers as the GLT and the MSLT. The taxonomic originality of spider communities in all landscapes is approximately the same, varying from 26 % (in the GLT) to 37 % (in the MFLT); and this suggests that the mixed nature of marginal landscapes does not mean that they lose their taxonomic originality and hence their independent consideration in the discussion

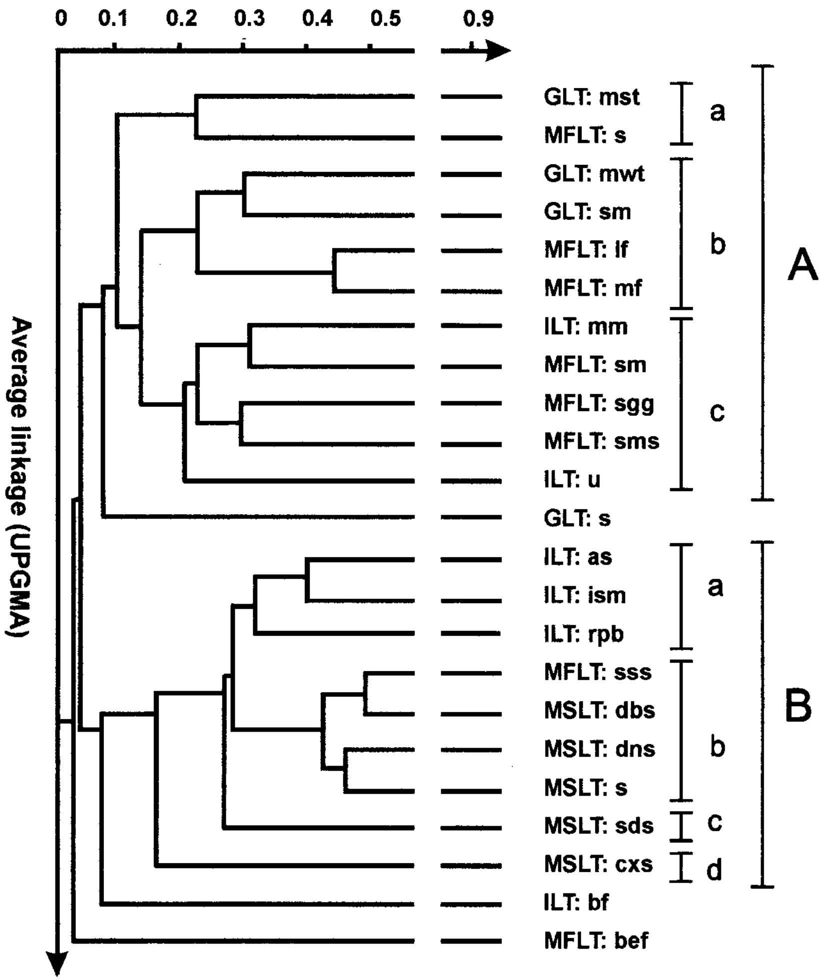


Fig. 3: Cluster dendrogram of the spider communities (573 species) in 23 vegetation types based on the Czekanowski-Soerensen similarity index. For abbreviations, see "Material and methods".

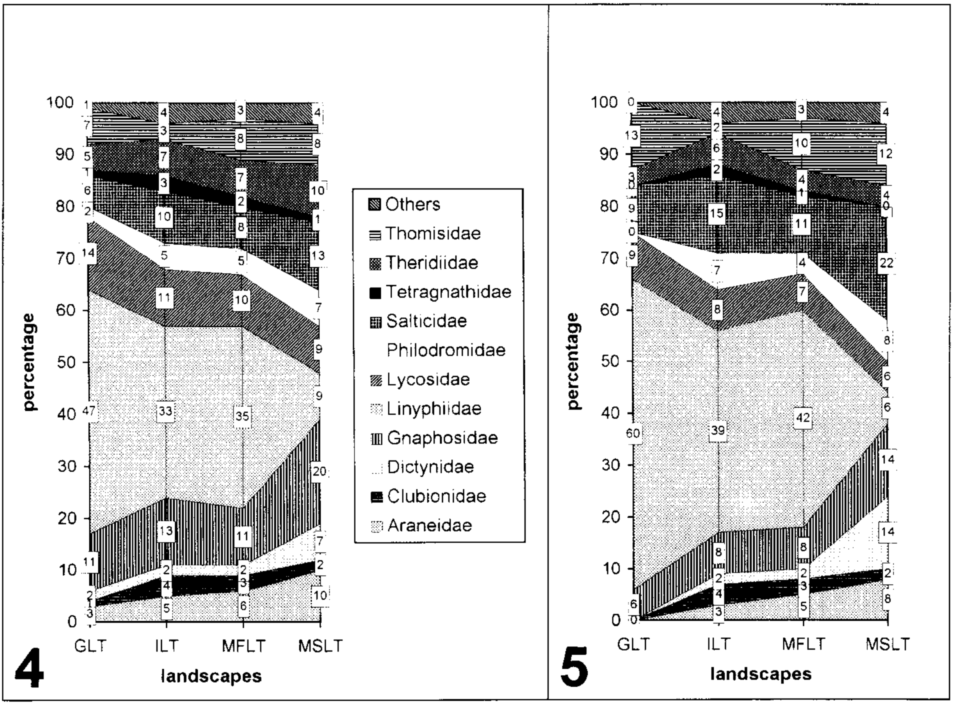


Abb. 4-5: Proportion of selected families as percentage of species number (4) and percentages of exclusive (indicator) species within families (5) in different landscapes of Tuva. For abbreviations, see "Material and methods".

below. It is also important to note that although the taxonomic patterns of the GLT and the MSLT are quite different (see fig. 4), the number of found species and the percentage of exclusive species are practically the same, 124 (26 %) and 154 (32 %) respectively. The MSLT turned out to be the best studied Tuvan ecosystem from the arachnological point of view and, thus, the number of spider species found there is quite reliable.

Both large clusters (A and B) presented in fig. 3 can be further classified into smaller ones at the Ics value of ca. 0.2-0.3. Brief characteristics of them are given below in discussing the spider communities of the landscapes considered.

The goltsy (mountain tundra) landscape, GLT (figs. 2, 4, 5, 6; table 1, 2).

This is an easily delimited but rather poorly studied landscape and hence all figures discussed below are very preliminary. Altogether 124 spider species have been encountered, of which 32 (or 26 %) can be considered exclusive species (fig. 2). Almost a half of the entire GLT fauna is represented by the Linyphiidae (47 %, fig. 4), but the proportions of the Lycosidae (14 %) and Gnaphosidae (11 %) are also marked. The GLT taxonomic index is Lin-Lyc (can even be treated as Lin). Actually, the GLT originality is provided only by six spider families (of 23 recorded in Tuva), of which the most species-rich is Linyphiidae (60 %, fig. 5) and hence the index of originality is Lin. However, distribution of the latter index over GLT vegetation types shows clear differences between the moss-tussock-shrubby wet tundra (mwt) on the one hand and other formations on the other (table 2). Most probably, this is due to insufficient collecting in all the GLT veg-

Table 2: Exclusive (indicator) species in different vegetation types of Tuva. For abbreviations, see "Material and methods"; figures in parentheses after family names refer to the number of exclusive species and to their proportion (%) of all exclusive species in this vegetation type; the index of originality is in square brackets.

	GLT
mwt	LINYPHIIDAE (3; 38 %): *Agyneta affinisoides, A. fuscipalpus, Panamomops dybowskii;* THOMISIDAE (1; 13 %): *Ozyptila arctica;* SALTICIDAE (4; 50 %): *Chalcoscirtus* sp. 1, *Dendryphantes chekanowskii, Pellenes lapponicus, Sitticus lineolatus* – [Sal].
mst	GNAPHOSIDAE (2; 22 %): *Gnaphosa* sp. 1; *Parasyrisca logunovi;* LYCOSIDAE (2; 22 %): *Acantholycosa triangulata, Pardosa baraan;* LINYPHIIDAE (9, 56 %): *Erigone remota, Hilaira glacialis, Monocerellus montanus, Poeciloneta petrophila, Walckenaeria koenboutjei* – [Lin].
sm	LYCOSIDAE (1;13 %): *Xerolycosa nemoralis;* LINYPHIIDAE (6; 74 %): *Anguliphantes cerinus, Araeoncus vorkutensis, Drepanotylus borealis, Leptorhoptrum robustum, Oreonetides sajanensis, Thyreostenius biovatus;* THOMISIDAE (1; 13 %): *Ozyptila rauda* – [Lin].
s	THERIDIIDAE: *Theridion* sp. 2.
	ILT
u	ARANEIDAE (2; 6 %): *Araniella proxima, A. yaginumai;* THERIDIIDAE (2; 6 %): *Achaearanea tepidariorum, Euryopis levii;* PISAURIDAE (1; 3 %): *Pisaura ancora;* CLUBIONIDAE (3; 9 %): *Clubiona lutescens, C. pseudosaxatilis, C. subsultans;* GNAPHOSIDAE (3; 9 %): *Drassyllus pusillus, Micaria aenea, Zelotes barkol;* LINYPHIIDAE (15; 46 %): *Abacoproeces saltuum, Bathyphantes setiger, Collinsia submissa, Dactylopisthes video, Diplocephalus marusiki, Hilaira* sp. 1, *Kaestneria pullata, Lepthyphantes taszanowskii, Poeciloneta variegata, Praestigia kulczynskii, Savygnia centrasiatica, Stemonyphantes sibiricus, Trematocephalus cristatus, Walckenaeria auranticeps, W. kazakhstanica;* PHILODROMIDAE (1; 3 %): *Philodromus* sp. 3; SALTICIDAE (5; 15 %): *Heliophanus dubius, Neon rayi, N. reticulatus, Salticus cingulatus, Sitticus mirandus;* ZORIDAE (1; 3 %): *Zora* sp. 1 – [Lin-Sal].
ism	LYCOSIDAE (1; 11 %): *Alopecosa subrufa;* LINYPHIIDAE (6; 67 %): *Araeoncus crassiceps, Dactylopisthes video, Erigone dentipalpis, Lepthyphantes kaszabi, Microlinyphia impigra, Pelecopsis minor;* THOMISIDAE (1; 11 %): *Xysticus hedini;* SALTICIDAE (1; 11 %): *Tuvaphantes arat.* – [Lin].
mm	DICTYNIDAE (1; 17 %): *Dictyna major;* LINYPHIIDAE (4; 66 %): *Allomengea scopigera, A. dentisetis, Bolyphantes alticeps, Floronia bucculenta;* PHILODROMIDAE (1; 17 %): *Philodromus* sp. 1 – [Lin].
as	TETRAGNATHIDAE (1; 14 %): *Tetragnatha obtusa;* DICTYNIDAE (1; 14 %): *Argenna* sp. 1; GNAPHOSIDAE (1; 14 %): *Micaria* sp. 1; LYCOSIDAE (1; 14 %): *Allohogna singoriensis;* LINYPHIIDAE (1; 14 %): *Epigytholus tuvensis;* SALTICIDAE (2; 29 %): *Bianor inexploratus, Harmochirus latens.*
bf	ARGYRONETIDAE (1; 17 %): *Argyroneta aquatica;* CLUBIONIDAE (1; 17 %): *Clubiona phragmitis;* LINYPHIIDAE (2; 33 %): *Lepthyphantes* sp.1, *Walckenaerianus aimakensis;* PHILODROMIDAE (2; 33 %): *Philodromus praedatus, Thanatus striatus* – [Lin-Phi].
rpb	ARANEIDAE (1; 8 %): *Singa nitidula;* TITANOECIDAE (1; 8 %): *Titanoeca* sp. 1; GNAPHOSIDAE (2; 17 %): *Gnaphosa chola, Poecilochroa variana;* LYCOSIDAE (2; 17 %): *Alopecosa* sp. 3, *Pirata hygrophilus;* LINYPHIIDAE (3; 25 %): *Collinsia caliginosa, C. dentata, Sibirocyba incerta;* SALTICIDAE (3; 25 %): *Heliophanus patagiatus, Sitticus albolineatus, S. penicillatus* – [Lin-Sal].
	MFLT
sss	AGELENIDAE (1; 20 %): *Coelotes* sp. 1; GNAPHOSIDAE (3; 60 %): *Drassodes pseudolesserti, Parasyrisca belengish, Zelotes puritanus;* LINYPHIIDAE (1; 20 %): *Trichoncus vasconicus* – [Gna].

sms *THERIDIIDAE (1; 13 %): Crustulina sticta;* GNAPHOSIDAE (1; 13 %): *Micaria guttulata;* LYCOSIDAE (1; 13 %): *Alopecosa sibirica;* LINYPHIIDAE (2; 25 %): *Hilaira gibbosa, Panamomops depilis;* THOMISIDAE (2; 25 %): *Ozyptila scabricula, Synaema globosum;* SALTICIDAE (1; 13 %): *Tuvaphantes insolitus* – [Lin-Tho].

lf CLUBIONIDAE (1; 8 %): *Clubiona stagnatilis;* HAHNIIDAE (1; 8 %): *Cryphoeca silvicola;* GNAPHOSIDAE (1; 8 %): *Gnaphosa microps;* LYCOSIDAE (1; 8 %): *Alopecosa albostriata;* LINYPHIIDAE (7; 58 %): *Incestophantes ancus, Lasiargus pilipes, Lepthyphantes expunctus, L. laricetorum, Maro saaristoi, Perlongipalpus* sp. 1, *Walckenaeria antica;* THOMISIDAE (1; 8 %): *Ozyptila atomaria* – [Lin].

mf ARANEIDAE (1; 2 %): *Araneus nordmanni;* THERIDIIADE (1; 2 %): *Theridion palmgreni;* DICTYNIDAE (1; 2 %): *Dictyna alaskae;* AGELENIDAE (1; 2 %): *Coelotes* sp. 2; LIOCRANIDAE (1; 2 %): *Agroeca maculata;* LYCOSIDAE (1; 2 %): *Alopecosa pinetorum;* LINYPHIIDAE (33; 65 %): *Agyneta beata, A. conigera, Anguliphantes dybowskii, A. karpinskii, Ceratinella brevis, Collinsia distincta, Cnephalocotes obscurus, Dicymbium facetum, Diplocentria bidentata, Erigone hypoarctica, Estrandia grandaeva, Gonatium rubellum, Hilaira frigida intercepta, Holminaria prolata, Lepthyphantes abiskoensis, L. pseudoobscurus, L. quadrimaculatus, Lophomma cognatum, Maro sibiricus, Notioscopus jamalensis, Oryphantes geminus, Paraeboria jeniseica, Pelecopsis palmgreni, Perregrinus deformis, Pityohyphantes phrygianus, Poeciloneta theridiformis, Porrhomma pygmaeum, Satilatlas marxi, Scotinotylus alpinus, Silometopoides sphagnicola, Silometopus elegans, Thaleria orientalis, Walckenaeria capito;* THOMISIDAE (6; 12 %): *Coriarachne depressa, Lysiteles maius, Ozyptila trux, Pistius undulatus, Tmarus rimosus, Xysticus sibiricus;* SALTICIDAE (6; 12 %): *Bianor aemulus, Dendryphantes hastatus, D. rudis, Evarcha falcata, E. proszynskii, Pseudeuophrys erratica* – [Lin].

bef LYCOSIDAE (1): *Acantholycosa lignaria.*

sm CLUBIONIDAE (1; 20 %): *Clubiona latericia;* LYCOSIDAE (2; 40 %): *Pardosa nenilini, P. sphagnicola;* LINYPHIIDAE (1; 20 %): *Asiophantes sibiricus;* SALTICIDAE (1; 20 %): *Marpissa radiata* – [Lyc-Lin].

sgg ARANEIDAE (2; 20 %): *Araneus alsine, Cercidia prominens;* TETRAGNATHIDAE (1; 10 %): *Pachygnatha degeeri;* GNAPHOSIDAE (1; 10 %): *Haplodrassus cognatus;* LYCOSIDAE (2; 20 %): *Pardosa amentata, P. lusisi;* LINYPHIIDAE (2; 20 %): *Bolyphantes index, Minicia marginella;* PHILODROMIDAE (1; 10 %): *Tibellus oblongus;* SALTICIDAE (1; 10 %): *Synageles venator* – [Lin-Lyc-Ara].

s THERIDIIDAE (1, 50 %): *Thymoites oleatus;* PHILODROMIDAE (1, 50 %): *Philodromus margaritatus.*

MSLT

dns ARANEIDAE (1; 7 %): *Araneus grossus;* DICTYNIDAE (3; 21 %): *Dictyna uvs, Emblyna mongolica, E. logunovi;* ERESIDAE (1; 7 %): *Eresus cinnaberinus;* GNAPHOSIDAE (2; 14 %): *Drassodes* sp. 1, *Drassyllus vinealis;* LINYPHIIDAE (1; 7 %): *Agyneta levii;* PHILODROMIDAE (1; 7 %): *Thanatus ubsunurensis;* THOMISIDAE (3; 21 %): *Ozyptila pseudoblitea, Xysticus inaequalis, X. laticeps;* SALTICIDAE (2; 14 %): *Pellenes pulcher, Phlegra profuga* – [Tho-Dic-Gna/Sal].

dbs THERIDIIDAE (1; 1 %): *Achaearanea* sp. 1; DICTYNIDAE (2; 22 %): *Dictyna obydovi, Devade indistincta;* LYCOSIDAE (1; 1 %): *Alopecosa licenti;* LINYPHIIDAE (1; 11 %): *Incestophantes logunovi;* THOMISIDAE (2; 22 %): *Xysticus seserlig, X. striatipes;* SALTICIDAE (2; 22 %): *Chalcoscirtus nigritus, Talavera* sp. 1 – [Dic-Tho-Sal].

sds LYCOSIDAE (1): *Alopecosa* sp. 2; PHILODROMIDAE (1): *Thanatus* sp. 1; SALTICIDAE (1): *Synageles ramitus.*

cxs DICTYNIDAE (2; 22 %): *Archaeodictyna consecuta, Arctella lapponica;* GNAPHOSIDAE (4; 44 %): *Drassodes kaszabi, Echemus sibiricus, Gnaphosa tuvinica, Micaria mongunica;* LINYPHIIDAE (1;

	11 %): *Oedothorax mongolensis;* THOMISIDAE (1; 1 %): *Xysticus mugur;* SALTICIDAE (1; 11 %): *Talavera aequipes* – [Gna-Dic].
s	ARANEIDAE (1): *Araneus mongolicus;* THERIDIIDAE (1): *Dipoena* sp. 2; SALTICIDAE (1): *Sitticus saltator.*

etation types and poor/wrong differentiation between the mst and the mwt. Therefore, we assume that the separation of the mst and the mwt shown in fig. 3 (clusters Aa and Ab), as well as the differences in the index of originality (table 2), must now be treated as an artifact and a matter for further more detailed studies. The dendrogram (fig. 3) could easily be explained if both Aa and Ab clusters are combined.

The proportion of exclusive species turned out to be highest in the moss-lichen-stony tundra (mst). However, such disproportion also seems to be due to insufficient collecting. For instance, only 14 spider species have been collected in mountain scree (fig. 6: s), while the similar biotope of the MFLT is already represented by 35 species (fig. 8). So, insufficient collecting in the screes of mountain tundra, to our mind, is one reason why the spider community of this biome is outside any cluster (fig. 3), while its real position seems to be in cluster Aa.

The inundated landscape, ILT (figs. 2, 4, 5, 7; table 1, 2).

This unique landscape consists of a set of unrelated vegetation types differing both physiognomically and in species composition (both plants and animals). The number of spider species found is 270, of which 96 (36 %) are exclusive (fig. 2); the taxonomic pattern is shown in fig. 4, with the taxonomic index, like in most Siberian faunas, Lin-Gna-Lyc and the index of originality Lin-Sal (fig. 5). The taxonomic originality over the ILT vegetation types is shown in table 2. Practically everywhere linyphiids form the bulk of exclusive species, with the exception of the urema and especially the river pebble banks where the salticids number 15 and 25 percent of exclusive species, respectively.

Among the treated vegetation types of the ILT (fig. 7; table 1), the urema is characterized by the highest level of both species diversity (140) and taxonomic originality (24 %). In almost all vegetation types, except the river pebble banks where the gnaphosids and lycosids are more numerous, the Linyphiidae noticeably predominate. It is important to note that although the urema is a forest vegetation type, its spider community is situated in the dendrogram close to meadow and swampy formations (fig. 3: cluster Ac), but not close to other forests involved (cluster Ab). Thus, being physiognomically a forest, the urema can be considered a "meadow" from the arachnological point of view. This observation agrees well with the botanical data provided by KUMINOVA et al. (1985), showing poor floristic linkages of the urema with Tuvan forests.

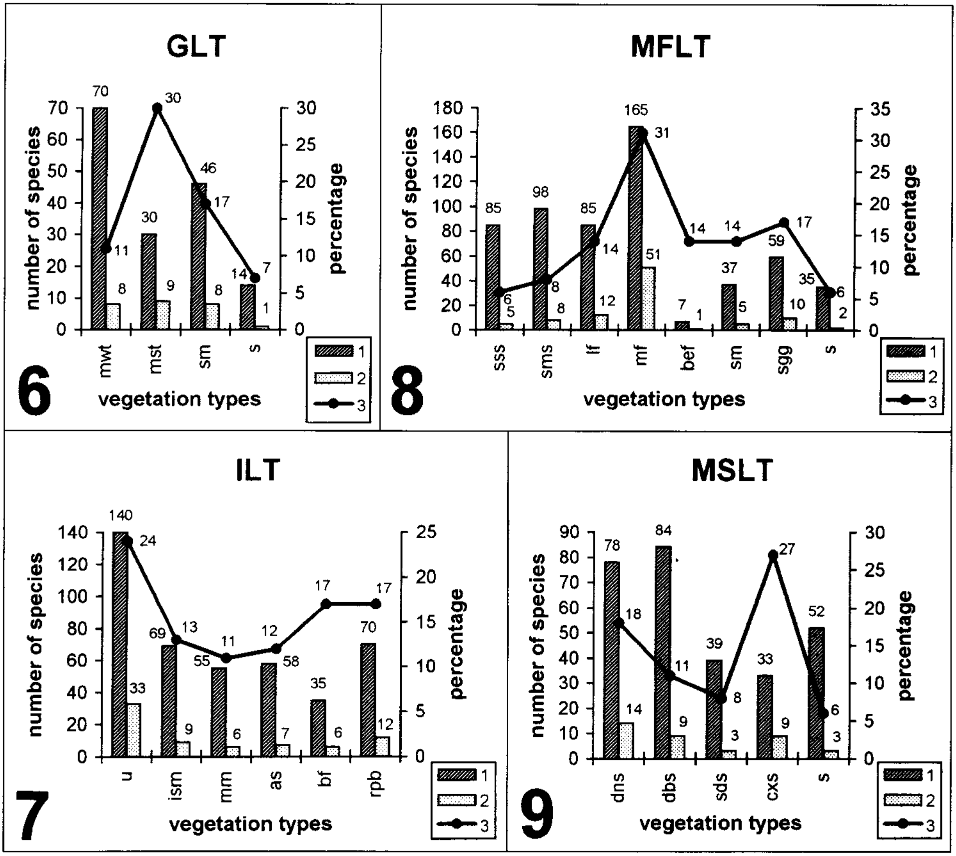
The spider community of the bulrush fen (35 species) is not included in any cluster (fig. 3) despite a low percentage of originality (fig. 7: 17 %). This could mean that its spider community is formed by an occasional set of species.

The spider communities of three vegetation types of the ILT (as, ism and rpb) represent a well marked separate cluster (fig. 3: Ba) of inundated (semi)arid ecosystems. Practically all of them show no differences in the level of species diversity, the taxonomic pattern (fig. 7; table 1) and the index of originality (table 2).

The rest of the ILT vegetation types (mm) is linked with the meadow formations of the mountain forest-steppe landscape (fig. 3: Ac); for other details see below.

The mountain forest-steppe landscape, MFLT (figs. 2, 4, 5, 8; table 1, 2).

This is the best-represented and most complicated landscape often called "exposure forest-steppe" (LAVRENKO et al. 1991), pointing to the dependence of both steppe (S-slopes) and for-



Figs. 6-9: Distribution of species numbers (1), numbers of exclusive (indicator) species (2) and percentages of exclusive species (3) in different vegetation types of four Tuvan landscapes studied. For abbreviations, see "Material and methods".

est (N-slopes) ecosystems upon their slope exposition (i.e. the so-called exposure differentiating of landscape). Analogues of this landscape can be found only in Mongolia and in S. Siberian regions neighbouring Tuva. Altogether 354 spider species have been found in the MFLT, of which 132 (or 37 %) are treated as exclusive (fig. 2). The MFLT taxonomic index is Lin-Gna-Lyc (fig. 4), the index of originality is Lin-Sal (fig. 5), both indices being the same as in the ILT and in most Siberian spider faunas (see MIKHAILOV 1997: fig. 1). The taxonomic originality over the MFLT vegetation types is shown in table 2.

Among the MFLT vegetation types, the Linyphiidae predominate in the forest formations (44 % of all forest spider species), while the Gnaphosidae and the Lycosidae predominate in the steppe-like ones (see table 1). However, the spider community of the sloping shrub-stony steppes (sss) is the only one combined with those of the mountain steppe formations (fig. 3: cluster Bb), while the sloping meadow shrubby steppe (sms) is found among other meadow formations (fig. 3: cluster Ac). This can be easily explained by considering the taxonomic indices of both the sss and the sms, Gna-Lyc-The and Gna-Lin-Lyc, respectively. Thus, inspite of the dominating gnaphosids in both vegetation types, occurrence of the linyphiids is more important in linking the sms together with other meadow formations. Furthermore, the indices of originality in these formations are quite different as well; Gna in the sss and Lin-Tho in the sms (table 2). So, while occurring in physiognomically similar vegetation types (sss and sms), these two spider communities have nothing in common when analysed in detail.

The spider community of the taiga forest (fig. 8: mf) turned out to be the richest, 165 species with 31 % of them being exclusive. At the same time, the spiders of the birch forest (fig. 8: bef; table 1) have remained practically unstudied, 7 recorded species constitute, in our view, no more that 5 - 7 % of the expected fauna. This is why the spider community of the birch forest is outside any of the large clusters shown in fig. 3. It is also important to note that 73 exclusive species, or 55 % of all exclusive species, recorded from the MFLT, are those of the forest formations, most of them being naturally linyphiids. Contrary to forest spiders, the spider communities of sloping steppes (sss, sms) and meadow glades (sgg) show a rather low percentage of exclusive species (fig. 8), probably due to the fact that most of these species also occur either in the steppe formations of the MSLT or the meadow formations, including the urema (see above). Such differences between the number of exclusive species of forest and steppe formations could be partially explained by the lack of reliable arachnological data from the true mountain forest landscape (sensu KUMINOVA et al. 1985). As noted above, this landscape has remained unstudied, and a part of its species is in fact included in the taiga forest community (table 1: mf). Thus, in reality, some/ most exclusive species of the mf are common for the MFLT and mountain forest landscapes and the actual level of originality must be lower than that shown in fig. 8: mf.

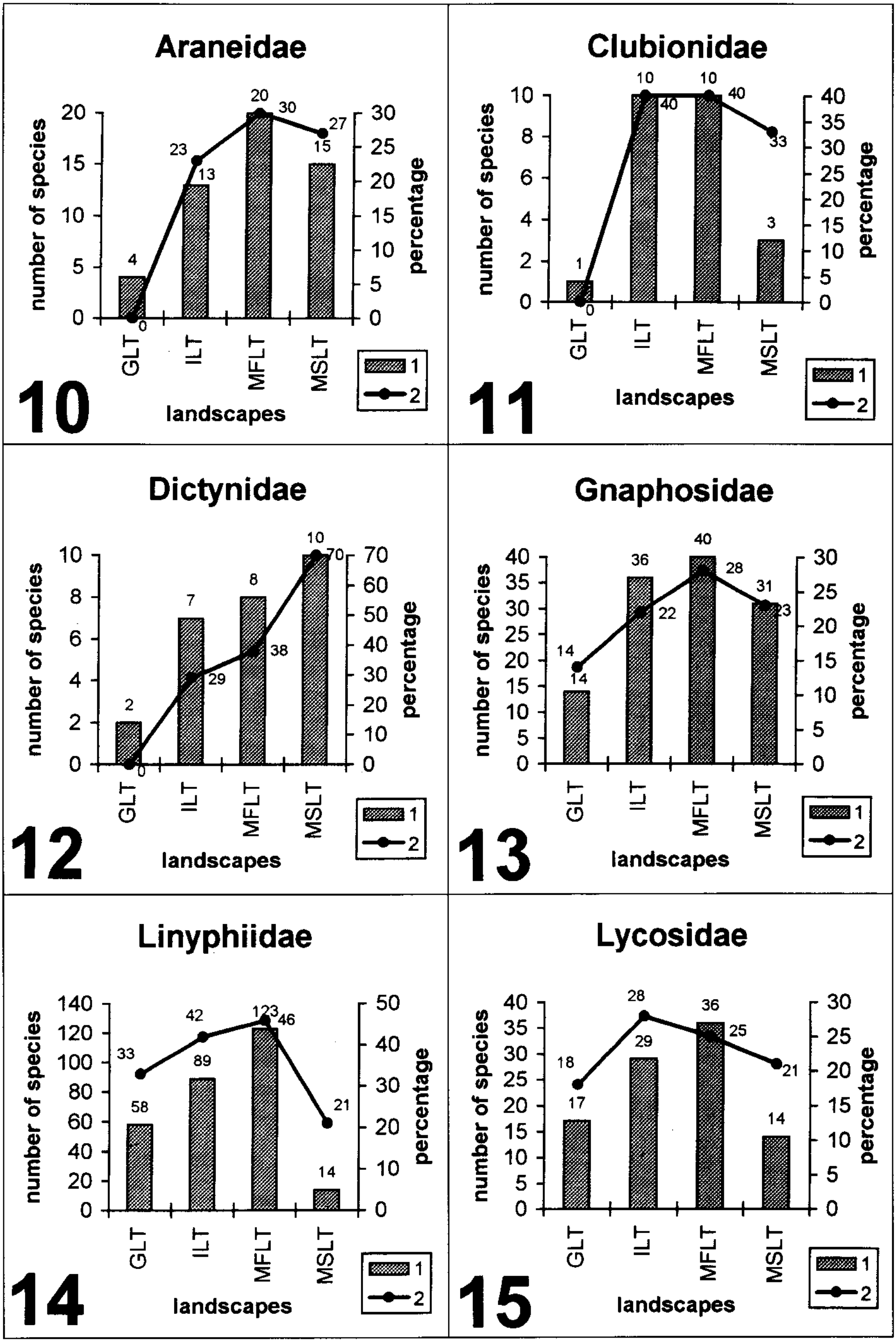
The spider communities of all the meadow and swampy formations of the MFLT, as well as those of the urema and the inundated mesophytic meadows, are combined into a single cluster (fig. 3: Ac). These are all similar: a clear dominant group with regard to species diversity is lacking (but everywhere linyphiids are rather numerous) and values of originality are low (8 - 14 %, see figs. 7, 8). Both the taxonomic index and the index of originality over these spider communities show no consistency (tables 1, 2), e.g. the latter index of the sms is Lin-Tho but that of the sgg is Lin-Lyc-Ara, etc. Thus, most of the spider communities combined into cluster Ac (fig. 3) show mixed composition and their closeness to each other is largely explained by the occurrence of eurytopic species.

The mountain steppe landscape, MSLT (figs. 2, 4, 5, 9; table 1, 2).

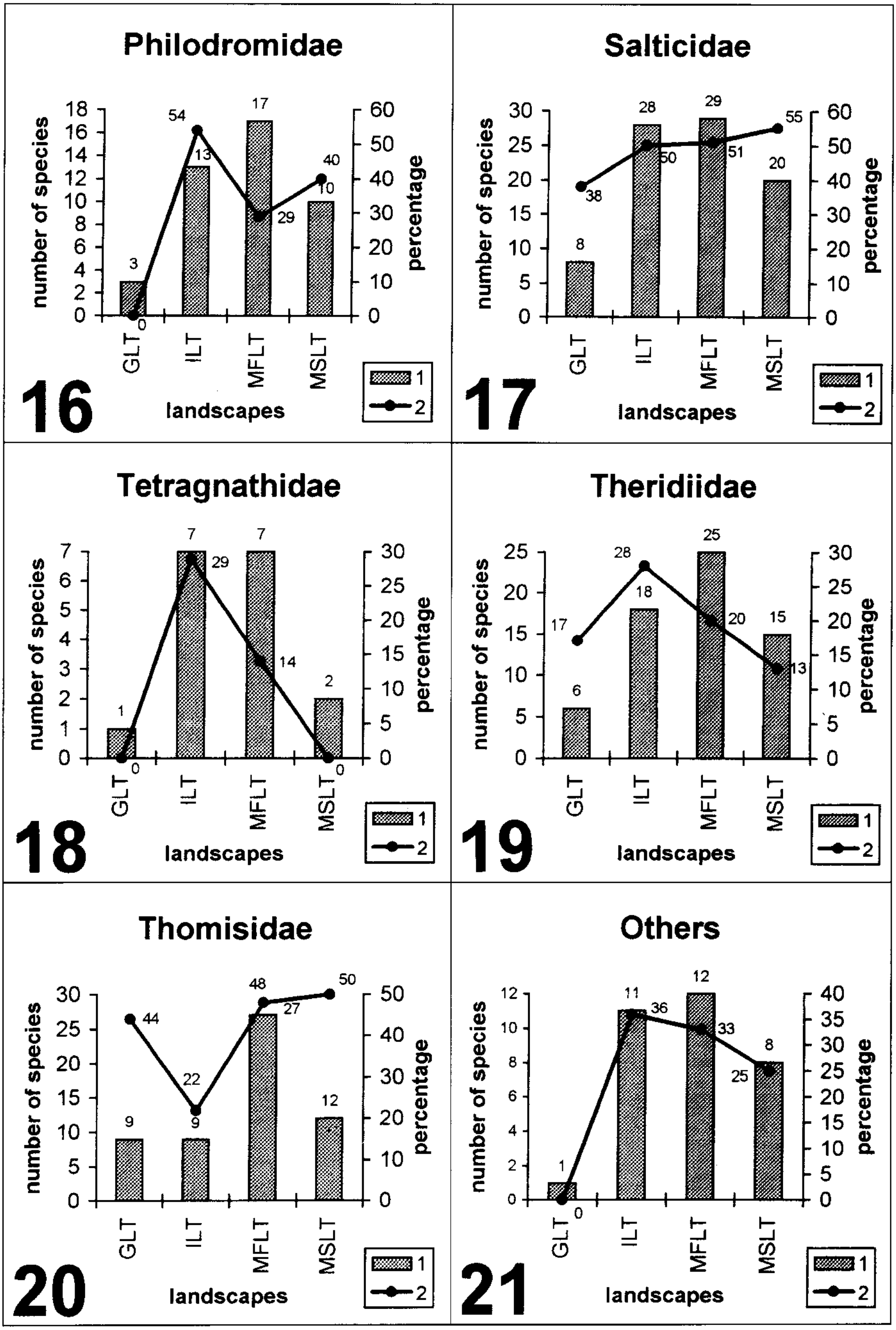
This is the most peculiar landscape in Tuva (and in all S. Siberia), as a number of Turanian and North Turanian-Dzhungarian biotic elements are shown (LAVRENKO et al. 1991; EMELIANOV 1972) to occur there; this points to the old (floro)faunogenetic connections between the semiarid regions of S. Siberia and those of the Ancient Mediterranean. Therefore, both the taxonomic pattern and the index of originality of the MSLT are found to be close to those of Middle Asian spider faunas (cf. MIKHAILOV 1997: fig. 1). This is well seen in the composition of indices of originality over the MSLT vegetation types as shown in table 2, with the Gnaphosidae, Dictynidae and Salticidae predominating.

The MSLT taxonomic index is Gna-Sal-The-Ara (fig. 4) and the index of originality is Sal-Gna-Dic (fig. 5), i.e. both species diversity and taxonomic originality are mostly formed by two families: Gnaphosidae and Salticidae. Another oddity of the MSLT is that it is the only landscape where the Dictynidae play a role in forming the index of originality (fig. 5; table 2). Both these peculiarities obviously separate the MSLT spider community from those of all other landscapes discussed above. Altogether 154 spider species have been encountered in the MSLT, of which 50 (or 32 %) are found to be exclusive species (fig. 2). Most of the MSLT exclusive species (32 species, 64 %) are gathered in the dns, dbs and cxs (fig. 9; table 1).

However, the spider community of the high-mountain (= cryophyte) steppe (cxs) differs from the others in all taxonomic parameters. Firstly, its taxonomic pattern is of mixed nature, i.e. there is no clear dominant group (table 1). Secondly, despite the lowest level of species diversity



Figs. 10-15: Distribution of species numbers (1) und percentages of exclusive (indicator) species (2) of six spider families in different landscapes of Tuva. For abbreviations, see "Material and methods".



Figs. 16-21: Distribution of species numbers (1) and percentages of exclusive (indicator) species (2) of 18 spiders families in different landscapes of Tuva. Fig. 21 shows generalized data for 13 families with 1-3 species. For abbreviations, see "Material and methods".

(33 species),the cxs spider community had the highest taxonomic originality (fig. 9) formed by two spider groups only: gnaphosids and dictynids (66 % of exclusive species, see table 2). So, this spider community is small but quite specialized; and due to this it is placed in a separate position in the dendrogram (fig. 3: Bd), outside other steppe formations of Tuva.

The separate position of the desert sandy shrub-grass steppe (sds) community in the dendrogram (fig. 3: Bc) is somewhat unexpected. From general considerations, one could assume it should be near/inside cluster Bb, as the dry shrub-grass steppes (dbs) and the sds are always neighboring and, moreover, the former are transformed into the latter under special edaphic factors and when destroyed by human activity (KUMINOVA et al. 1985). Probably the last fact is very important, and we can consider the spider community of the sds to be primarily formed by a mixed set of migrants from other steppe formations. If so, this explains the low level of diversity in this community (39 species) and the lowest value of its taxonomic originality (fig. 9), as well as its separate position within the large "steppe" cluster B on the dendrogram.

The last cluster to be discussed is Bb (fig. 3). It consists of true steppe formations, which show a similar level of spider diversity (figs. 8, 9) and differ from other formations by the dominance of gnaphosids in their taxonomic indices (table 1). At the same time, the indices of originality are quite different (table 2), e.g. Gna in the sss and Dic-Tho-Sal in the dbs. This means that the strong closeness of these spider communities (the Icz ca. 0.4) seen in fig. 3 is explained by the species mainly/only restricted to steppe vegetation types, i.e. steppe stenobionts.

The distribution of species numbers and percentages of exclusive species over the landscapes studied are shown in figs. 10-21 for selected spider families with 9 or more encountered species ("Others" shows generalized data for 13 small families with 1-3 species, see the checklist above). On the basis of these diagrams, the following conclusions seem to be possible.

(1) Most of the families show their maximal diversity and percentage of exclusive species in the inundated and forest-steppe landscapes, this being in good agreement with the general picture for all the families (fig. 2).

(2) In most families, maximum of originality is shown in either the ILT (figs. 15, 16, 18, 19) or the MFLT (figs. 10, 13, 14), with the exception of the dictynid and jumping spiders (fig. 12, 17), which show a consistent increase in this percentage of originality from the GLT to the MSLT.

(3) The Thomisidae show the minimum of both species diversity and level of originality in the ILT, and this could mean that they avoid the inundated communities (at least in Tuva).

(4) Only six families have exclusive species in the GLT, namely Gnaphosidae, Linyphiidae, Lycosidae, Salticidae, Theridiidae and Thomisidae; for their composition see fig. 5.

(5) Although the Linyphiidae show the minimum of species diversity (14 species or 9 %; fig. 4, 14) in the MSLT, at least one species is always found to be exclusive in all vegetation types (table 2). This could indicate that the linyphiid fauna of arid communities is mainly/only formed by very specialized species.

(6) Both the salticids and gnaphosids (figs. 13, 17) are richest in the ILT and the MFLT, but not in the MSLT as might be expected. Thus, their marked contribution to arid spider communities is caused not by their increase but is due to the decrease of the species number of the linyphiids (cf. fig. 14).

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