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SOCIAL WASPS (HYMENOPTERA, VESPIDAE: POLISTINAE, VESPINAE) OF THE BASTAK NATURE RESERVE (JEWISH AUTONOMOUS PROVINCE, AMUR BASIN)

V.V. Dubatolov

[Дубатолов В.В. Общественные осы (Hymenoptera, Vespidae: Polistinae, Vespinae) заповедника "Бастак" (Еврейская автономная область, бассейн Амура)]

Сибирский зоологический музей, Институт систематики и экологии животных СО РАН, ул. Фрунзе, 11, Новосибирск 630091 Россия. E-mail: vvdubat@mail.ru

Siberian Zoological Museum, Institute of Systematics and Ecology of Animals, Siberian Branch of Russian Academy of Sciences, Frunze str. 11, Novosibirsk 630091 Russia. E-mail: vvdubat@mail.ru

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Summary. A list of social wasps occuring in the Bastak Nature Reserve (Middle Amur, Jewish Autonomous Region, Russia) is given, with 4 species of *Polistes*, 6 species of *Vespa*, 4 species of *Vespula* and 2 species of *Dolichovespula*. *Vespa mandarinia* and *V. analis* are reported from their north-western limits of range, two other (*Vespula koreensis* and *Dolichovespula media*) are firstly recorded in the Jewish Autonomous Region. Lesser Khingan mountains situated in the western part of Jewish Autonomous Region and the eastern part of Amur Province, are considered to be a serious barrier for several social wasp species (*Vespa mandarinia*, *Vespa analis*, *Vespa ducalis*, *Vespula shidai*) to disperse into west.

Резюме. По сборам 2009 года, а также литературным данным для территории заповедника "Бастак" приводятся 4 вида *Polistes*, 6 видов *Vespa*, 4 вида *Vespula*, 2 вида *Dolichovespula*. Впервые для территории автономной области указываются 4 вида, *Vespula korrensis*, *Dolichovespula media*, а также на северо-западном пределе распространения – *Vespa mandarinia* и *V. analis*. Горы Малого Хингана, по всей видимости, служат основным барьером, препятствующим проникновению ряда видов (*Vespa mandarinia*, *Vespa analis*, *Vespa ducalis*, *Vespula shidai*) в западном направлении.

The social wasp fauna in the Middle Amur territory is not yet well studied, with information available for the following local faunae: Eastern Transbaikalia [Dubatolov, 1998, 1999; Dubatolov et al., 2004]; Amur Province (Blagoveshchensk vicinities) [Dubatolov et al., 2002]; the Khingansky Nature Reserve (south-eastern part of the Amur Province) [Kurzenko, 1992]; the Khabarovsk suburbs and the Lower Amur territory [Dubatolov, Dolgikh, 2009]. These reports outlined the western and northeastern limits in distribution for many Amur-Manchurian social wasp species. Nevertheless, several species are still known only from the Khabarovsk suburbs within the Amur River basin.

The Bastak Nature Reserve is situated on the eastern slopes of the Lesser Khingan Mountains and neighboring plain in the Jewish Autonomous Province. Social wasps within this territory were previously studied by professors and students of Blagoveshchensk Pedagogical University in 2004-2007 [Streltzov, Kogdina, 2005; Malikova et al., 2006, 2007; Malikova, Dolya, 2008]. They recorded 11 social wasp species near Ivakin's apiary (49º N 133º 01' E) in mixed boreal (bogs on plain) and nemoral (broad-leaved forests isolated on mountain slopes) phytocenoses.

In October 1-3, 2009, I visited mountain parts in the Nature Reserve Bastak, and obtained two sets of social wasps, collected by Mr. I. Polkovnikov at his apiary (48º 59' N 132º 54' E) by sinking them in bottles with home-brewed honey beer. This is a local traditional trap for hornets to protect beehives. One bottle was set in late June, another one – in September 2009; both worked till the end of September. The wasps were cleared in pure water with a little amount of detergent and then dried up.

The traps contained 6 species of *Vespa*, 3 species of *Vespula*, 1 species of *Dolichovespula* and 4 species of *Polistes*. The samples include several new records for the territory, marking the northwestern distribution limit for some social wasp species. An annotated list of Vespinae and Polistinae from the Bastak Nature Reserve is given below.

Polistinae

Polistes snelleni de Saussure, 1862

Malikova et al., 2006: 119 (1 ♀, Ivakin's apiary, 16-27.06.2005); Malikova, Dolya, 2008: 78 (1 ♀, Ivakin's apiary, 19-30.06.2007).

This species is distributed in East Asia from Transbaikalia in the northwest to Kiselevka in Lower Amur in the northeast [Dubatolov, Dolgikh, 2009], and in the south it occurs in China and Japan. The species is rather rare in the Bastak Nature Reserve, mainly found in broad-leaved forests.

Polistes chinensis antennalis Pérez, 1905

Malikova et al., 2006: 119 (1 ♀, Ivakin's apiary, 16-27.06.2005).

This species and subspecies is widely distributed in East Asia, from Blagoveshchensk [Dubatolov et al., 2002] in the northwest to Komsomolsk-na-Amure [Dubatolov, Dolgikh, 2009] in the northeast. It seems rare in the Bastak Nature Reserve.

Polistes nimpha (Christ, 1791)

Material examined. Bastak Nature Reserve, Polkovnikov's apiary (48º 59' N 132º 54' E): 1 ♀, from a honey beer trap set in September.

This species is subtranspalearctic, penetrating into Yakutsk [Pekkarinen, Gustaffson, 1999] and into the Amur River valley upto Komsomolsk-na-Amure and Kiselevka in the east [Dubatolov, Dolgikh, 2009]. It is not common in the Bastak Nature Reserve.

Polistes riparius Sk. Yamane et S. Yamane, 1987
Malikova et al., 2006: 119 (2 ♀♀, Ivakin's apiary, 16-27.06.2005).
Material examined. Bastak Nature Reserve, Polkovnikov's apiary (48º 59' N 132º 54' E): 1 ♂, from a honey beer trap set in September.
This species is widely distributed in North Asia from West Siberia [Dubatolov, 1998] to the Amur River delta [Dubatolov, Dolgikh, 2009] and Hokkaido of Japan. It does not seem to be common in the Nature Reserve Bastak.

Vespinae

Vespa crabro Linnaeus, 1758
Streltzov, Kogdina, 2005: 45 (5 ♀♀, [Bastak, Ivakin's apiary], 2-10.06.2004); Malikova et al., 2006: 118 (1 ♀, Bastak, Ivakin's apiary, 16-27.06.2005); Malikova et al., 2007: 55 (2 ♀♀, Bastak, Ivakin's apiary, 1-9.07.2006); Malikova, Dolya, 2008: 77 (1 ♀, Bastak, Ivakin's apiary, 19-30.06.2007).
Material examined. Bastak Nature Reserve, Polkovnikov's apiary (48º 59' N 132º 54' E): 26 ♀♀, 1 worker, from a honey beer trap set from June to September; 8 ♀♀, 13 worker, 1 ♂, from a honey beer trap set in September.
This hornet species is transpalearctic and one of the commonest social wasp in the Bastak Nature Reserve. Percentage of specimens of this species among all *Vespa* species was the highest in the honey beer trap exposed for June-August (47%), and then dropped to 20% in the honey beer trap for September.

Vespa simillima Smith, 1868
Streltzov, Kogdina, 2005: 45 (10 ♀♀, [Bastak, Ivakin's apiary], 2-10.06.2004); Malikova, Kirillova, Streltzov, 2006: 118 (1 ♀, 1 ♂, Bastak, Ivakin's apiary, 16-27.06.2005); Malikova, Redko, Streltzov, 2007: 55 (1 ♀, Bastak, Ivakin's apiary, 1-9.07.2006).
Material examined. Bastak Nature Reserve, Polkovnikov's apiary (48º 59' N 132º 54' E): 7 ♀♀, 1 worker, from a honey beer trap set from June to September; 2 ♀♀, 34 worker, 2 ♂♂, from a honey beer trap set in September.
This species is distributed from the Zeya River to the Amur River mouth [Dubatolov, Dolgikh, 2009], in Sakhalin, Japan, Korea and NE China [Kurzenko, 1995; Carpenter, Kojima, 1997]. It was rare in June-July (12% among all *Vespa* species collected in a honey beer trap), but common in autumn; its amount in September rose to 35%.

Vespa dybowskii André, 1884
Malikova, Kirillova, Streltzov, 2006: 118-119 (1 ♀, Bastak, Ivakin's apiary, 16-27.06.2005); Malikova, Redko, Streltzov, 2007: 56 (1 ♀, Bastak, Ivakin's apiary, 1-9.07.2006).
Material examined. Nature Reserve Bastak, Polkovnikov's apiary (48º 59' N 132º 54' E): 20 ♀♀, 1 worker, from a honey beer trap set from June to September; 43 workers, 1 ♂, from a honey beer trap set in September.
This species is known as a social parasite on *Vespa carbro* and *V. simillima* [Matsuura, 1995]. This is the most widely distributed species among the Far Eastern *Vespa*, occurring in the area from Eastern Transbaikalia to Lower Amur [Dubatolov, 1998; Dubatolov, Dolgikh, 2009], south to Japan, Korea, China, Burma, Thailand [Kurzenko, 1995; Carpenter, Kojima, 1997]. The species is one of the most common species in the Bastak Nature Reserve, percentage of specimens of this species among all *Vespa* species was 37% in the honey beer trap exposed for June-July, and then rose to 40% in the honey beer trap for September.

Vespa ducalis Smith, 1852
Malikova, Redko, Streltzov, 2007: 56 (1 ♀, Bastak, Ivakin's apiary, 1-9.07.2006).
Material examined. Bastak Nature Reserve, Polkovnikov's apiary (48º 59' N 132º 54' E): 1 ♀, from a honey beer trap set from June to September.
This species is rare in the Far Eastern Russia; in the Amur basin it is distributed from SE part of Amur Province (Kundur) [Dubatolov, Streltzov, Malikova, 2002] to Khabarovsk suburbs [Dubatolov, Dolgikh, 2009], and probably, slightly further downstream along the Amur valley, but does not reach Komsomolsk-na-Amure. This species has its range expanding southwards to Indo-China, India and Nepal [Carpenter, Kojima, 1997].

Vespa mandarinia Smith, 1852
Material examined. Bastak Nature Reserve, Polkovnikov's apiary (48º 59' N 132º 54' E): 4 workers, from a honey beer trap set in September.
This is the largest social wasp species in Russia as well as in the world. In the Amur River basin this hornet was previously known only from Khabarovsk suburbs [Dubatolov, Novomodnyi, 2006; Dubatolov, Dolgikh, 2009]. The Nature Reserve Bastak is the new distribution locality of this species. Probably, it is not distributed west of the Lesser Khingan mountains, but Mrs. E. Ignatenko (Zeya, Amur Province) kindly informed me that this species was once recorded from Lebedevskoe Forestry in the Nature Reserve Khingansky in SE part of Amur Province; this record was not included in the review of insect species of this Nature Reserve [Kurzenko, 1992]. The species is widely distributed in East and South Asia, to Indo-China, India and Sri Lanka [Kurzenko, 1995; Carpenter, Kojima, 1997].

Vespa analis Fabricius, 1775
Material examined. Bastak Nature Reserve, Polkovnikov's apiary (48º 59' N 132º 54' E): 1 ♀, from a honey beer trap set from June to September; 1 worker, from a honey beer trap set in September.
This species is rare in the Far Eastern Russia. In the Amur River basin it was previously known from the area from Khabarovsk to Komsomolsk-na-Amure [Dubatolov, Dolgikh, 2009]. The Bastak Nature Reserve is the new north-westernmost locality for this species. This hornet is widely distributed in East Asia, continental South-Eastern Asia and so-called Sundaland [Kurzenko, 1995; Carpenter, Kojima, 1997].

Vespula rufa (Linnaeus, 1758)
Streltzov, Kogdina, 2005: 45 (7 ♀♀, [Ivakin's apiary], 2-10.06.2004); Malikova, Dolya, 2008: 77 (1 ♀, Ivakin's apiary, 19-30.06.2007).
This yellow-jacket species is transpalearctic, and in general more common in boreal area than in broad-leaved forests of the Amur basin.

Vespula koreensis (Radoszkowski, 1887)

Material examined. Bastak Nature Reserve, Polkovnikov's apiary (48º 59' N 132º 54' E): 17 workers, from a honey beer trap set in September.

This is the East Asian species widely distributed in the Amur river basin, from Blagoveshchensk [Dubatolov, Streltzov, Malikova, 2002] in the west to Kiselevka (NE limits of rich broad-leaved forests) [Dubatolov, Dolgikh, 2009] in the east. It penetrates into Indo-China and NE India [Kurzenko, 1995]. The species is common in the Nature Reserve; percentage of specimens of this species among all wasp species was 12% in the honey beer trap exposed for June-July. Formerly the author found a single dried female of this species on a window in Ivakin's apiary (49º N 133º 01' E) at 17-19 June, 2005.

Vespula vulgaris (Linnaeus, 1758)

Streltzov, Kogdina, 2005: 45-46 (2 ♀♀, [Ivakin's apiary], 2-10.06.2004); Malikova, Kirillova, Streltzov, 2006: 119 (1 ♀, Ivakin's apiary, 16-27.06.2005); Malikova, Dolya, 2008: 77-78 (2 ♀♀, Ivakin's apiary, 19-30.06.2007).

Material examined. Bastak Nature Reserve, Polkovnikov's apiary (48º 59' N 132º 54' E): 1 worker, from a honey beer trap set in September.

This is a transpalearctic species; generally rare in the Bastak Nature Reserve. This species is more often found in human settlements.

Vespula shidai Ishikawa, Sk. Yamane et Wagner, 1980

Streltzov, Kogdina, 2005: 46 (2 ♀♀, [Ivakin's apiary], 2-10.06.2004); Malikova, Dolya, 2008: 78 (1 ♀, Ivakin's apiary, 19-30.06.2007).

Material examined. Bastak Nature Reserve, Polkovnikov's apiary (48º 59' N 132º 54' E): 12 workers, from a honey beer trap set in September.

This species is widely distributed in the Amur river basin from the Bureya river in SE part of Amur Province [Dubatolov, Novomodnyi, 2006] in the west to Kiselevka (Lower Amur) in the east [Dubatolov, Dolgikh, 2009]; also in Japan, Korea and NE China in the south [Kurzenko, 1995]. The species is not rare in Nature Reserve; percentage of specimens of this species among all wasp species was 9% in the honey beer trap exposed for September.

Dolichovespula media (Retzius, 1783)

Material examined. Bastak Nature Reserve, Polkovnikov's apiary (48º 59' N 132º 54' E): 1 worker, from a honey beer trap set in September.

This is a transpalearctic *Dolichovespula* species, probably not common in the Bastak Nature Reserve.

Dolichovespula saxonica (Fabricius, 1793)

Malikova, Dolya, 2008: 78 (1 ♀, Ivakin's apiary, 19-30.06.2007).

One more transpalearctic species. Also is not common in the Nature Reserve.

A total of 16 species of social wasps (Vespinae and Polistinae) is known from the Bastak Nature Reserve. Among them, four species (*Vespa analis*, *Vespa mandarinia*, *Vespula korrensis*, *Dolichiovespula media*) are recordered here for the first time. The Lesser Khingan mountains, situated in the western part of Jewish Autonomous Region (including the Bastak Nature Reserve territory) and eastern part of Amur Province, act as a geographical barrier for several species (*Vespa mandarinia*, *Vespa analis*, *Vespa ducalis*, *Vespula shidai*) to disperse in the western direction.

REFERENCES

Carpenter J.M., Kojima J., 1997. Checklist of the species in the subfamily Vespinae (Insecta: Hymenoptera: Vespidae) // Natural History Bulletin of Ibaraki University. Vol. 1. P. 51-92.

Dubatolov V.V., 1998. Social wasps (Hymenoptera, Vespidae: Polistinae, Vespinae) of Siberia in the collection of Siberian Zoological Museum // Far Eastern Entomologist. No. 57. P. 1-11.

Dubatolov V.V., 1999. [Social wasps (Insecta, Hymenoptera: Vespinae, Polistinae) of the Daurskii State Nature Reserve (south-East Siberia)] // Nasekomye Daurii i sopredel'nykh territorii [Insects of Dahuria and adjacent territories]. Vol. II. Proceedings of the Dahurskii State Biosphere Nature Reserve. Novosibirsk. P. 67-69. (In Russian).

Dubatolov V.V. et al., 2004. [Biodiversity of Sokhondinsky Nature Reserve. Arthropoda]. Novosibirsk-Chita. 416 p. (In Russian).

Dubatolov V.V., Dolgikh A.M., 2009. Social wasps (Hymenoptera, Vespidae: Polistinae, Vespinae) of the Bolshekhekhtsyrskii nature reserve (the Khabarovsk suburbs), with notes on their distribution in the Lower Amur // Amurian zoological journal. Vol. 1. No 1. Blagoveshchensk. P. 76-82.

Dubatolov V.V., Novomodnyi E.V., 2005. New data on distribution of social wasps (Hymenoptera, Vespidae, Vespinae) in the Russian Far East // Zhivotnyi mir Dal'nego Vostoka [Animal world of the Far East]. No. 5. Blagoveshchensk. P. 157-160.

Dubatolov V.V., Streltzov A.N., Malikova E.I., 2002. New data on distribution of social wasps (Hymenoptera, Vespidae: Polistinae, Vespinae) in the Asian Russia and North China // Zhivotnyi mir Dal'nego Vostoka [Animal world of the Far East]. No. 4. Blagoveshchensk. P. 117-122.

Kurzenko N.V., 1992. Fam. Vespidae // Nasekomye Khinganskogo zapovednika [Insects of the Khinganskii Nature Reserve]. Part II. Vladivostok. P. 251-254. (In Russian).

Kurzenko N.V., 1995. [Fam. Vespidae]. In: Opredelitel' nasekomykh Dal'nego Vostoka Rossii [A key to insects from the Far East of Russia]. Vol. 4. Neuropteroidea, Mecoptera, Hymenoptera. Part 1. St-Petersburg. P. 264-324. (In Russian).

Malikova E.I., Dolya M.A., 2008. [Data on social wasps (Vespidae) and bees (Apidae) from Bastak Nature Reserve] // Priroda zapovednika "Bastak" [Nature of Bastak Nature Reserve]. No. 5. Blagoveshchensk. P. 77-80. (In Russian).

Malikova E.I., Kirillova K., Streltzov A.N., 2006. [Data on social wasps (Vespidae) and bees (Apidae) from Bastak Nature Reserve] // Priroda zapovednika "Bastak" [Nature of Bastak Nature Reserve]. No. 3. Blagoveshchensk. P. 118-120. (In Russian).

Malikova E.I., Redko Yu.S., Streltzov A.N., 2007. [New data on social wasps (Vespidae) and bees (Apidae) from Bastak Nature Reserve] // Priroda zapovednika

"Bastak" [Nature of Bastak Nature Reserve]. No. 4. Blagoveshchensk P. 55-57. (In Russian).

Matsuura M., 1995. Social wasps in Japan in colour. Sapporo: Hokkaido University Press. 353 pp. (In Japanese).

Pekkarinen A., Gustavsson B., 1999. The Polistes species in northern Europe (Hymenoptera: Vespidae) // Entomologica Fennica. Vol. 10. P. 191-197.

Streltzov A.N., Kogdina Yu.A., 2005. [First data on social wasps (Hymenoptera, Vespidae) from Bastak Nature Reserve] // Priroda zapovednika "Bastak" [Nature of Bastak Nature Reserve]. No. 2. Blagoveshchensk. P. 45-46. (In Russian).