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SOCIAL WASPS (HYMENOPTERA, VESPIDAE: POLISTINAE, VESPINAE) OF THE BOLSHEKHEKHTSIRSKY NATURE RESERVE (THE KHABAROVSK SUBURBS), WITH NOTES ON THEIR DISTRIBUTION IN THE LOWER AMUR

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[Дубатолов В.В., Долгих А.М. Общественные осы (Hymenoptera, Vespidae: Polistinae, Vespinae) Большехехцирского заповедника (окрестности Хабаровска), с данными о распространении на Нижнем Амуре]

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Summary. A list of social wasp species is given for the Bolshekhekhtsirsky Nature Reserve (Ussuri river mouth, Khabarovsk suburbs, Russia). It includes 4 species of Polistes, 7 species of Vespa, 6 species of Vespula, 3 species of Dolichovespula. *Vespa binghami*, *V. analis*, *V. mandarinia* and *Dolichovespula adulterina* are reported from the Amur River valley for the first time; *Polistes nimpha*, *Vespa ducalis* and *Vespula shidai* are firstly recorded from the Khabarovsk Krai. North-eastern limits of species distribution are revealed along the Amur River valley, namely: Komsomolsk-na-Amure for *Polistes chinensis* and *Vespa analis*; Kiselevka (51º 25' N 139º 01' E) for *Polistes snelleni*, *P. nimpha*, *Vespa dybowskii*, *Vespula koreensis* and *V. shidai*; Amur river mouth for *Polistes riparius*, *Vespa simillima* and *V. crabro*.

Резюме. По материалам 2005-2008 годов приводится фауна общественных складчатокрылых (бумажных) ос Большехехцирского заповедника (окрестности Хабаровска), включающая 4 вида Polistes, 7 видов Vespa, 6 видов Vespula, 3 вида Dolichovespula. Впервые для территории Приамурья указаны *Vespa binghami*, *V. analis*, *V. mandarinia*, *Dolichovespula adulterina*. Впервые на территории Хабаровского края отмечены *Polistes nimpha*, *Vespa ducalis*, *Vespula shidai*. Выявлены северовосточные пределы проникновения видов ос по долине Амура: *Polistes chinensis* и *Vespa analis* - Комсомольск-на-Амуре, *Polistes snelleni*, *P. nimpha*, *Vespa dybowskii*, *Vespula koreensis* и *V. shidai* – Киселевка (51º 25' с.ш., 139º 01' в.д.), *Polistes riparius*, *Vespa simillima* и *V. crabro* – устье Амура.

During 2005-2008, the authors conducted inventory of insect fauna of the Bolshekhekhtsirsky Nature Reserve (=Great Khekhtsyr Nature Reserve). This article deals with the most remarkable wasp group – the two social wasp subfamilies – Polistinae or paper wasps, and Vespinae or hornets and yellowjackets. Faunistic data of this group within the Amur basin are rather scarce, in contrast to data from the Southern Primorye territory. Beside of well known faunistic information on social wasps in the Khabarovsk vicinities and the Lower Amur basin [Birula, 1925-1930; Gussakovskii, 1932; Eck, 1983; Kurzenko, 1995], some Amur-Manchurian species were later recorded in Amur Province [Dubatolov, Streltzov, Malikova, 2002]: *Vespa ducalis* Smith and *V. simillima* Smith, *Vespula koreensis* Radoszkowski, and *V. flaviceps* Smith; all they were so far known only from southern parts of Primorye, and their occurrence in Khabarovsk Province is still uncertain. Later, Dubatolov and Novomodnyi [2006] added several more species for this territory, which were known from Southern Primorye: *Vespa binghami* du Buysson and *V. mandarinia* Smith in the southern regions of the Khabarovsk Province, *Vespula shidai* Ishikawa et al. in the Amur Province. In subsequent years, many other "Southern Primorian" Vespinae species have been observed in the Khabarovsk suburbs, and V.V. Dubatolov made some new faunistic records in the Lower Amur in 2005, 2007-2008; this information forms a basis of this article.

Here is a list of main collecting places:

Kordon Chirki, 48˚11-12' N 134˚41' E, a field house of the Nature Reserve at the river Chirki mouth, right bank, broad-leaved forests and a flood-plain bush thickets of wild apple trees and bird-cherry trees, material by V.V. Dubatolov and A.M. Dolgikh.

Kazakevitchevo, 48˚16' N 134˚45' E, east edge of the so named village on the left side of the Sosninskii rivulet, a broad-leaved forest, material by V.V. Dubatolov and A.M. Dolgikh.

Sosninskii-Ekotsentr, 48˚16.81' N 134˚45.49' E, a visit center of the Nature Reserve, a mixed forest, material by V.V. Dubatolov.

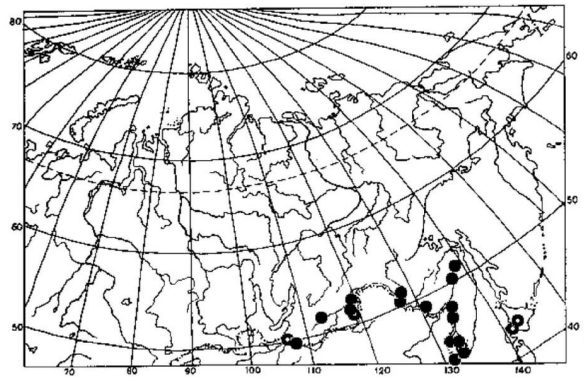
Kordon Sosninskii, ~48˚13' N 134˚46' E, a field house of the Nature Reserve in the rivulet middle flow, a mixed broad-leaved forest, material by A.M. Dolgikh.

Bychikha, 48˚17-18' N 134˚48-50' E, a village and its surroundings within aspen and broad-leaved forests, material by V.V. Dubatolov, A.M. Dolgikh, D.K. Kurenstshikov and K. Tkachenko.

Great Ussuri island, 48˚20-25'N 134˚50-54'E, agricultural fields and wind-break forest bands, material by V.V. Dubatolov.

Korsakovo-Rostshino, private gardens between Bychikha and Khabarovsk, material by E.V. Novomodnyi and V.V. Dubatolov.

Km 20-th, mixed broad-leaved forests at km 20-th of a road to Vladivostok, the eastern outskirt of the Nature



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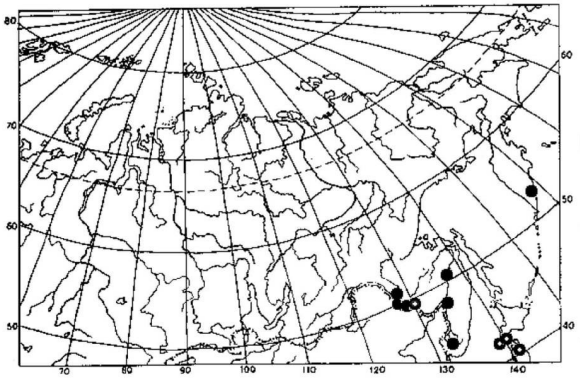

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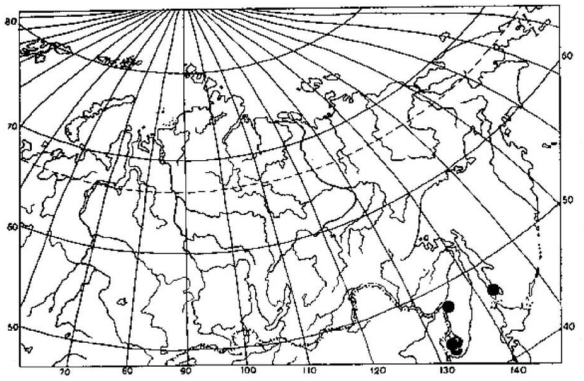

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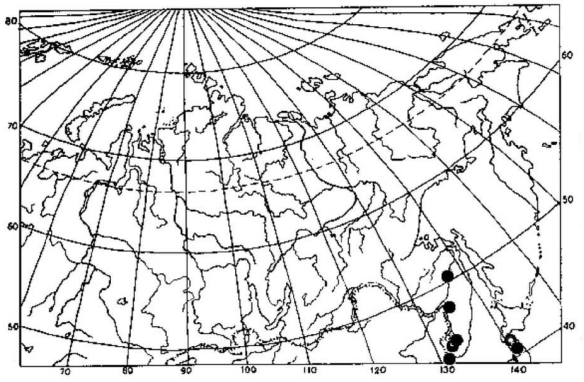

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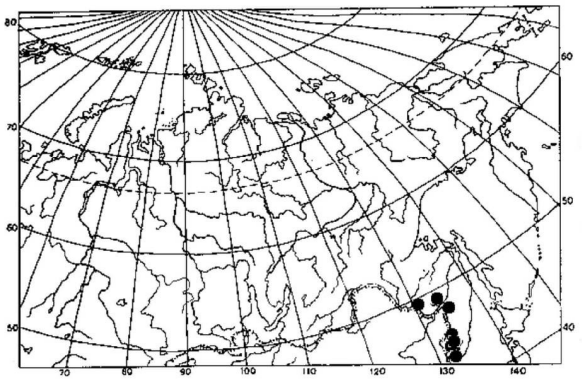

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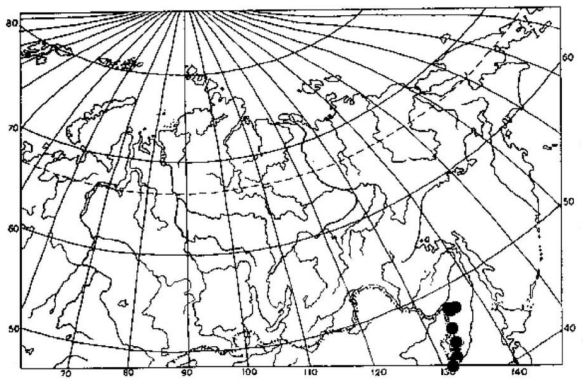

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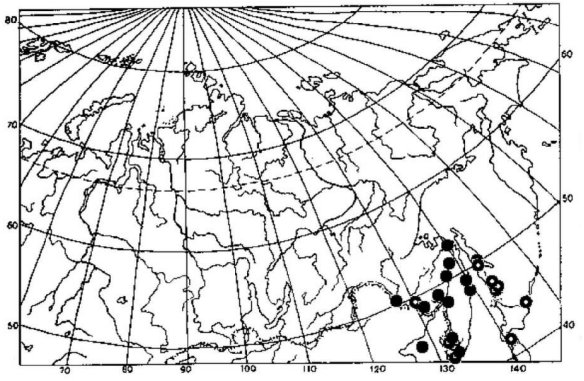

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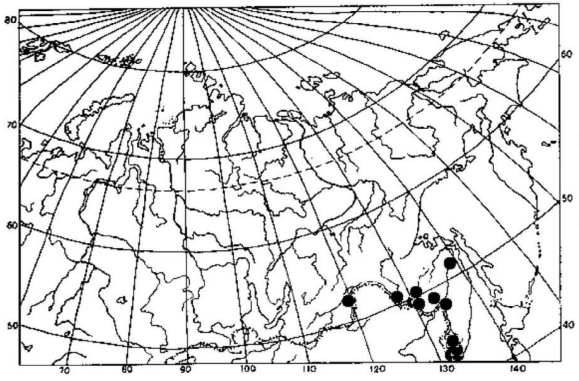

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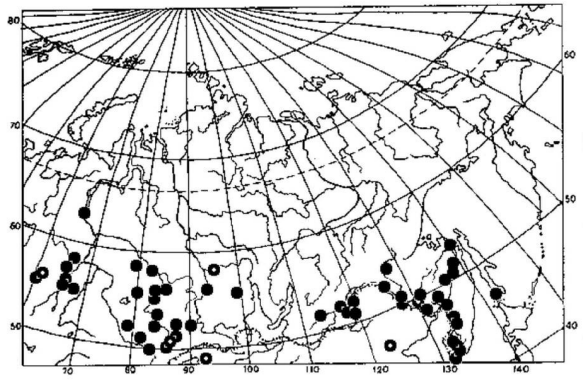

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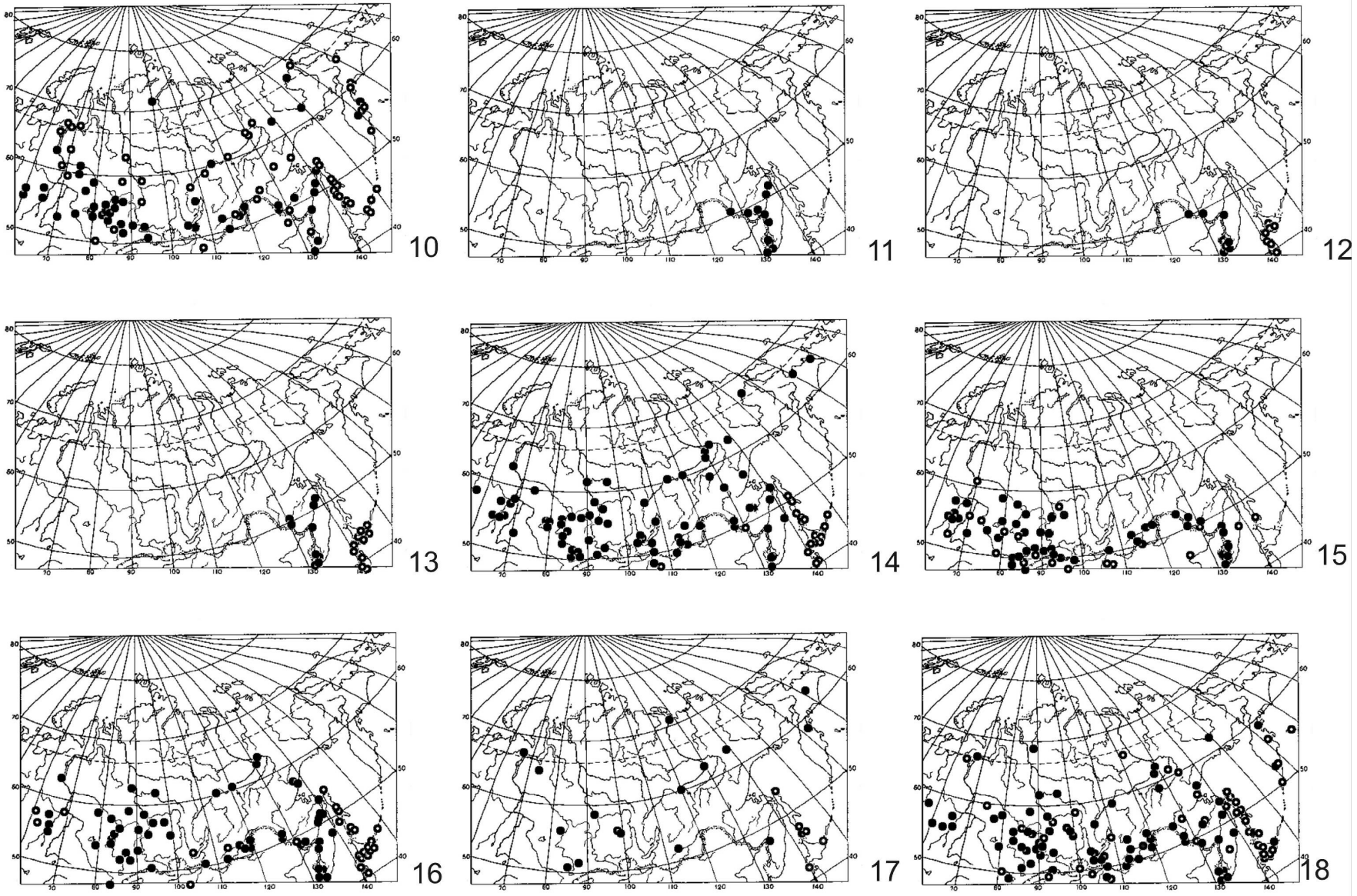

Figs 1-18. Distribution of common wasp species in Asian Russia: 1 *Polistes snelleni* Sauss., 2 *Polistes chinensis* F., 3 *Vespa binghami* du Byuss., 4 *Vespa analis* F., 5 *Vespa ducalis* Smith, 6 *Vespa mandarinia* Smith, 7 *Vespa simillima* Smith, 8 *Vespa dybowskyi* André, 9 *Vespa crabro* L., 10 *Vespula rufa* L., 11 *Vespula koreensis* Rad., 12 *Vespula flaviceps* Smith, 13 *Vespula shidai* Ishikawa, Sk. Yamane et Wagner, 14 *Vespula vulgaris* L., 15 *Vespula germanica* F., 16 *Dolichovespula media* Retz., 17 *Dolichovespula adulterina* du Byuss., 18 *Dolichovespula saxonica* F. Black circles: studied collection data, open circles: literature data.

Reserve, material by E.V. Novomodnyi and V.V. Dubatolov.

Km 24-th, a village at km 24-th of a road to Vladivostok, the eastern outskirt of the Nature Reseve, material by E.V. Novomodnyi and V.V. Dubatolov.

Korfovskii – a settlement near the eastern border of the Nature Reserve, material by E.V. Novomodnyi.

Kordon Odyr – a field house of the Nature Reserve at the southern side, the Odyr rivulet valley, mixed broad-leaved forests and a reedgrass meadow, material by A.M. Dolgikh.

Polistinae

Polistes snelleni de Saussure, 1862

35 ♀♀, 4 ♂♂; kordon Chirki, Kazakevitchevo, Bychikha; 2005-2008. A common species in broad-leaved forests and villages. Distributed (fig. 1) in Transbaikalia, Middle Amur, Primorye [Kurzenko, 1995; Dubatolov, 1998]; China, Japan: Honshu, Kyushu, Tsushima [Kojima, Hagiwara, 1998]. Firstly discovered in Lower Amur in a valley polydominant mixed broad-leaved forests: 10 ♂, 15 ♀♀, Komsomolsk-na-Amure, Silinskii park, 50˚34’ N 137˚ 03’ E, 20-22.VII 2007, 21.VII, 5.VIII, 27.VIII 2008; 1 ♂, 10 ♀♀, Kiselevka, 51˚25’ N 139˚ 01’ E, 13-20.VII, 28.VIII 2008. Probably, the latter locality is the northeasternmost for this species.

Polistes nimpha (Christ, 1791)

41 ♀♀, 35 ♂♂; kordon Chirki, Kazakevitchevo, Bychika, kordon Odyr; 2005-2008. One of the most common species; distributed in many habitats from broad-leaved forests to villages and bogs. Very similar to *P. riparius*; this species is distinguished from *P. riparius* by entirely yellow hind tibiae and a short apical process of the clypeus, which is only slightly projected beyond the hypothetical line connecting the apices of the lateral processes of clypeus. Firstly recorded in the Middle and Lower Amur NE to Komsomolsk-na-Amure (2 ♂♂, 3 ♀♀, Pivan, 51˚31’ N 137˚ 03.5’ E, 6.VIII 2008; 1 ♂, 1 ♀, Silinskii park, 50˚34’ N 137˚ 03’ E, 27.VIII 2008) and Kiselevka, 51˚25’ N 139˚ 01’ E (3 ♂♂, 6 ♀♀, 13-18.VII, 28-29.VIII, 25.IX 2008), formerly this West Palearctic species was known east to river Argun in Transbaikalia [Dubatolov, 1998] and Yakutsk [Pekkarinen, Gustaffson, 1999].

Polistes riparius Sk. et S. Yamane, 1987

1 ♀, 4 ♂♂; Kazakevitchevo, Bychikha, kordon Odyr, 24.VII 2005, 5.VIII, 17.IX 2006, 24-26.IX 2007. A rare species observed in broad-leaved forests. Distinguished from the former species by the hind tibiae with a black or dark brown spot, and a longer apical processus of the clypeus that is noticeably projected beyond the hypothetical line connecting the apices of the lateral processes of clypeus. Distributed from West Siberia to Japan. Recently collected in Lower Amur: 2 ♂♂, Komsomolsk-na-Amure, Pivan, 51˚31’ N 137˚ 03.5’ E, 6.VIII 2008; 1 ♀, Kiselevka, 51˚25’ N 139˚ 01’ E, valley broadleaved forest, 20.VII 2008, 6 ♂♂, 4 ♀♀, Arkhangelskoe at the Amur river mouth, 53˚ 11’ N 140˚ 25’ E, open oak forest on a slope, 12-15.VIII 2008.

Polistes chinensis antennalis Pérez, 1905

14 ♂♂; Kazakevitchevo, Bychikha, kordon Odyr; 14.IX 2005, 5.X 2006; 20.VIII-28.IX 2007, 22.VIII 2008. Rather a rare species. Occurs in broad-leaved forests and villages. Easily distinguished from other *Polistes* species occurring in the nature reserve by skewed angles of the occiput in males. According to Kurzenko [1995], the species is known from Middle Amur, Primorye; Korea, China, Japan (fig. 2). Recently collected in Lower Amur: Komsomolsk-na-Amure (4 ♂♂, 1 ♀, Silinskii park, 50˚34’ N 137˚ 03’ E, 27.VIII 2008).

Vespinae

Vespa binghami du Buysson, 1905

1 ♀, 4 workers, 1 ♂; Kazakevitchevo, Bychikha; 21.VIII-20.IX 2008, Korfovskii; VI 2004 [Dubatolov, Novomodnyi, 2006]. Until 2008 there was the single record by E. Novomodnyi from Korfovskii, later the species was found in Kazakevichevo and Bychikha. It can be easily distinguished from any other *Vespa* species by very large ocelli, diameters of which are larger than the distance between the posterior ocellus and the eye. Distributed (fig. 3) in Khabarovsk suburbs, Primorye, Sakhalin, Korea, China, Indochina, East India, Bhutan [Kurzenko, 1995; Carpenter, Kojima, 1997).

Vespa analis Fabricius, 1775

6 ♀♀, 18 workers, 1 ♂; kordon Chirki, Kazakevitchevo, Bychikha; 12-13.VII 2005, 29.V, 6-24.VIII 2006, 11-16.VII, 17-20.VIII, 16-17.X 2007, 28-30.VII, 21.VIII-4.IX 2008. Rather a rare species inhabiting broad-leaved forests and their edges. The first record from the Middle Amur north to Komsomolsk-na-Amure (9 ♂♂, 4 workers, Silinskii park, 50˚34’ N 137˚ 03’ E, 27.VIII 2008); this species was formerly known from southern Primorye in Russia (fig. 4), and throughout East Asia [Kurzenko, 1995; Carpenter, Kojima, 1997]. This species can be easily distinguished from any other *Vespa* species by the presence of the median projection in the apical emargination of female clypeus.

Vespa ducalis Smith, 1852

6 ♀♀, 11 workers, 15 ♂♂; kordon Chirki, Kazakevitchevo, Sosninskii-Ekotsentr, Bychikha, kordon Odyr; 14-26.VI, 6.VIII, 13-14.IX 2006, 20.VIII-5.IX 2007, 1.VII, 26-31.VII, 21.VIII-4.IX 2008. This species is rare, but was rather common in 2008. It occurs in deciduous broad-leaved forests and their edges. The first record from the Khabarovsk Province; in the Middle Amur the species was once recorded from Kundur, Amur province [Dubatolov, Streltzov, Malikova, 2002]. Widely distributed (fig 5) in East Asia, from SE Russia to Indochina, India and Nepal [Carpenter, Kojima, 1997]. This species was formerly treated as a subspecies of *Vespa tropica* Linnaeus, 1758 [Kurzenko, 1995]; the specific status was proved by M. Archer [1991]. This species is distinguished from other Russian *Vespa* species by having two sharp apical processes on the clypeus.

Vespa mandarinia Smith, 1852

2 ♀, 15 workers, 1 ♂; Kazakevitchevo, Bychikha; 20.VIII-9.X 2007, 6.VIII-20.X 2008. In addition to these specimens, this species was visually observed in Korsakovo-Rostshino and Korfovskii, by E.V. Novomodnyi [Dubatolov, Novomodnyi, 2006]. One of the most remarkable and rare species in Great Khekhtsyr Mts., and the largest common wasp in Russia. Firstly the wasp was recorded from the Khabarovsk suburbs by V.V. Duba-

tolov and E.V. Novomodnyi [2006]; several local persons visually observed this large wasp, but nobody had collected it in the Nature Reserve until 2007. Widely distributed (fig. 6) in East Asia, from SE Russia south to Indochina, India and Sri Lanka [Kurzenko, 1995; Carpenter, Kojima, 1997]. This species is easily determined by its very large head.

Vespa simillima Smith, 1868

11 ♀♀, 243 workers, 12 ♂♂; kordon Chirki, Kazakevitchevo, kordon Sosninskii, Bychikha, Korsakovo-Rostshino, Korfovskii, kordon Odyr; 19.VI 1984, 1.VI 1987, 1.VI 2002, 2005-2008. The most common wasp in the Nature Reserve, inhabiting broad-leaved forests and their edges, and sometimes village houses also. Distributed (fig. 7) in Middle Amur (from Blagoveshchensk [Dubatolov, Streltzov, Malikova, 2002] to Khabarovsk), Primorye, Sakhalin, Kunashir; Korea, NE China, Japan [Kurzenko, 1995; Carpenter, Kojima, 1997]. The species was recently collected in Lower Amur, including the Amur river mouth: 1 ♂, 11 workers, Komsomolsk-na-Amure, Silinskii park, 50˚34' N 137˚ 03' E, 27.VIII 2008; 3 ♀, 4 workers, Kiselevka, a valley broadleaved forest, 51˚25' N 139˚ 01' E, 15-20.VII, 27-29.VIII 2008; 2 ♀♀, 19 workers, Arkhangelskoe, 53˚ 11' N 140˚ 25' E, a relic mixed oak forest, 3-4.VIII 2007, 9-15.VIII, 1.X 2008; the latter is the northernmost locality of the species; formerly, its north-easternmost known locality on the continent was river Botchi (Nature Reserve Botchinskii, ZIN collection).

Vespa dybowskii André, 1884

3 ♀♀, 26 workers, 4 ♂♂; kordon Chirki, Kazakevitchevo, Bychikha, Great Ussuri Island (48˚ 20' N 134˚ 51' E), km 24-th; 19.VI 1984, 13.VI 2003, 4-5.X 2005, 18-25.VI, 1.IX 2007, 31.VII-1.VIII, 21.VIII-14.IX 2008. A rare species, but in 2008 it was rather common, though much less abundant than *V. crabro* and *V. simillima*. A social parasite of *Vespa crabro* (Dubatolov's observation near Uryupino, Argun River, Chita Province) and *V. simillima* [Matsuura, 1995]. Occurring in broad-leaved forests and their edges, rarely in villages. Distributed (fig. 8) in Eastern Transbaikalia [Dubatolov, 1998], Middle Amur, Primorye; Japan, Korea, China, Burma, Thailand [Kurzenko, 1995; Carpenter, Kojima, 1997]. Recently discovered in Lower Amur: 1 ♀, 5 km ENE from Kiselevka, 51˚26' N 139˚ 03' E, a lime/oak forest in the Amur river floodplain, on lime flowers, 16.VII 2008; 2 workers, Kiselevka, a valley broadleaved forest, 51˚25' N 139˚ 01' E, 28.VIII 2008. The species can be easily distinguished by entirely dark brown body.

Vespa crabro Linnaeus, 1758

8 ♀♀, 47 workers, 6 ♂♂; kordon Chirki, Kazakevitchevo, Bychikha, Great Ussuri Island (48˚ 23-25' N 134˚ 50-54' E), Korsakovo-Rostshino, Km 20-th, kordon Odyr; 1.VI 2002, 15.VI 2003, 2005-2008. One of the most common wasps in the Great Khekhtsyr, inhabiting all types of biotopes, open islands on the Amur River, villages, all types of forests. A transpalearctic species; widely distributed (fig. 9) in the Russian Far East, the northernmost localities are: Tukuringra Mts. at Zeya river (ZIN collection), Gornyi (1 ♀, 1990-th, V. Fedorov leg.), Pivan, 51˚31' N 137˚ 03.5' E (1 ♀, 19.VII 2007), Kiselevka, 51˚25' N 139˚ 01' E (4 ♀♀, 8-18.VII 2008, 4 workers, 28.VIII 2008), Arkhangelskoe, 53˚ 11' N 140˚ 25' E (1 ♀, 5 workers, 9-15.VIII 2008). All specimens collected in the Amur basin have red spots on the pronotum; contrary to the specimens from West Siberia, which have an entirely black mesosoma.

Vespula rufa (Linnaeus, 1758)

6 ♀♀, 2 workers; kordon Chirki, Bychikha; 19.VI 1984, 11-12.VI 2005, 16-27.V 2006, 22-23.VIII 2008. A rare species; collected in Bychikha village near an aspen-broad-leaved forest edge, and in floodland forest at the Chirki river mouth. Widely distributed (fig. 10) in the Palearctic Region, and recorded from broad-leaved forests and steppes to forest-tundra. This species was formerly recorded from Khabarovsk and Amur river mouth (Ozerpakh) [Birula, 1930], in 2008 it was collected in Pivan, 51˚31' N 137˚ 03.5' E, Kiselevka, 51˚25' N 139˚ 01' E (1 ♂, 1 worker, 28.VIII, 25.IX 2008) and Arkhangelskoe in the Amur river mouth, 53˚ 11' N 140˚ 25' E (3 ♂♂, 1 ♀, 1 worker, 9, 13.VIII, 29.IX 2008).

Vespula koreensis (Radoszkowski, 1887)

11 ♀♀, 17 workers, 7 ♂♂; kordon Chirki, Kazakevitchevo, Bychikha, Km 20-th, Km 24-th, kordon Odyr; 13-15.VI 2003, 18.IX 2005, 27-29.V, 22.VI, 13.IX, 5-7.X 2006, 28.V-13.VI, 16-27.VIII, 14-15.IX 2007, 22.VIII-21.IX 2008. Rather rare species, inhabiting broad-leaved forests and their edges. In Russia, the species is known from (fig. 11) Blagoveshchensk [Dubatolov, Streltzov, Malikova, 2002], Khabarovsk [Gussakovskii, 1932], southern Primorye; other than localities in Russia it is also known from Korea, China, Indochina, NE India [Kurzenko, 1995]. Recently discovered in Lower Amur: 3 workers, Komsomolsk-na-Amure, Silinskii park, 50˚34' N 137˚ 03' E, 27.VIII 2008; 11 workers, Kiselevka, broad-leaved forests, 51˚25' N 139˚ 01' E, 16.VII, 28.VIII, 25.IX 2008. The wasp can be easily determined by a rugose propodeum.

Vespula flaviceps (Smith, 1870)

2 ♀♀, 6 workers; Kazakevitchevo, Bychikha, Korsakovo-Rostshino, Km 20-th; 26.V 2001, 15.VI 2003, 7-9.X 2006, 28.VIII-6.IX 2007. A rare species; inhabiting broad-leaved forests and their edges, also collected in villages. In Russia this species has been recorded from (fig. 12) Blagoveshchensk [Dubatolov, Streltzov, Malikova, 2002], Kundur and Khabarovsk [Dubatolov, Novomodnyi, 2006], southern Primorye [Kurzenko, 1995]; also from Sakhalin, Korea, Japan, China, Indochina, India, Nepal [Kurzenko, 1995; 2004].

Vespula shidai Ishikawa, Sk. Yamane et Wagner, 1980

27 workers; Kazakevitchevo, Bychikha; 7-9.X 2006, 28-29.VIII, 26.IX-15.X 2007, 26.VII, 22.VIII, 7-21.IX 2008. A rare species, recorded in villages and at broad-leaved forest edges. In Russia, this species has been recorded from (fig. 13) the Bureya river low reaches [Dubatolov, Novomodnyi, 2006], southern Primorye and Kunashir [Kurzenko, 1995]; also ranges from Japan, Korea and NE China [Kurzenko, 1995]. Recently it was collected in Lower Amur: 1 ♀, Komsomolsk-na-Amure, in a house, 15.VI 2008; 12 workers, Komsomolsk-na-Amure, Silinskii park, 50˚34' N 137˚ 03' E, 27.VIII 2008; 1 worker, 5 km NE from Kiselevka, a meadow near a lime-oak forest in the Amur river flood-plain, 51˚26' N 139˚ 03' E,

26.VII, 2007, 1 worker, Kiselevka, mixed broadleaved forest, 51˚25’ N 139˚ 01’ E, 28.VIII 2008.

Vespula vulgaris (Linnaeus, 1758)

4 ♀♀, 7 workers, 1 ♂; kordon Chirki, Bychikha, Korsakovo-Rostshino, Km 24-th; 19.VI 1984, 13, 16.VI 2003, 30.VI-1.VII, 22.VIII-21.IX 2008. A rare species, restricted to villages and other settled places. In the Lower Amur this species is known from Kiselevka, 51˚25’ N 139˚ 01’ E (1 worker, 25.IX 2008) and Arkhangelskoe in the Amur river mouth, 53˚ 11’ N 140˚ 25’ E (11 ♀♀, 2 workers, 5 ♂♂, 9-15.VIII, 29-30.VIII 2008). Widely distributed (fig. 14) in the Palearctic, from forest-tundra to steppes and broad-leaved forests. Introduced into many countries: Iceland, Hawaii, Australia, New Zealand.

Vespula germanica (Fabricius, 1793)

4 ♀♀, 14 workers; kordon Chirki, Kazakevitchevo, Bychikha; 29.V, 19-21.VIII 2006, 11-29.V, 2.IX-9.X 2007, 22-23.VIII 2008. Rather common species; occurring mainly in villages and other settled places, including Khabarovsk city. A transpalearctic species, in the Russian Far East it is known only from (fig. 15) the Amur river valley: Kuznetsovo (Magdagatchi District), Blagoveshchensk, Lozovoe (Tambovka District), Novospassk, Talakan, Nature Reserve Khinganskii [Kurzenko, 1992] in Amur province; Khabarovsk vic., Vyazemskii in Khabarovsk province; as well as from Primorskii Krai and South Sakhalin [Kurzenko, 1982, 1995, 2004].

Dolichovespula media (Retzius, 1783)

10 ♀♀, 46 workers, 7 ♂♂; kordon Chirki, Kazakevitchevo, Bychikha, Km 20-th; 15.VI 2003, 2005-2008. One of the most common species; inhabiting all types of forests, their edges, and also villages. Widely distributed in the Palearctic (fig. 16), the north-easternmost known localities are: Yakutsk vicinity [Birula, 1927], ~120 km E from the Aldan river mouth (ZIN collection), Ayan and Nelkan [Birula, 1927], Kamchatka, without exact locality (ZIN collection). In the Lower Amur, it was recorded from the Gorin river mouth (ZIN collection), Komsomolsk-na-Amure (2 workers, Silinskii park, 50˚34’ N 137˚ 03’ E, 27.VIII 2008); Kiselevka, 51˚25’ N 139˚ 01’ E (3 workers, 2 ♂♂, 28.VIII 2008) and Arkhangelskoe in the Amur river mouth, 53˚ 11’ N 140˚ 25’ E (6 workers, 9-14.VIII 2008). Recently, one worker was collected at Tsimmermanovka (by light, 31.VII-1.VIII 2007, Dubatolov leg.)

Dolichovespula adulterina (du Buysson, 1905)

1 ♀, Bychikha; 9.VI 2005. Only a single specimen was collected at the outskirts of Bychikha village. A social parasite of *D. saxonica* F. [Kurzenko, 1995]. Widely distributed in the Holarctic, from tundra to subtropical forests. No exact distribution record exists in the Amur basin (fig. 17) except from Chita (ZIN collection) and north part of Primorye [Kurzenko, 1995]. Easily distinguished from other *Dolichovespula* species by two sharp apical processes on clypeus.

Dolichovespula saxonica (Fabricius, 1793)

15 ♀♀, 1 worker; kordon Chirki, Kazakevitchevo, Bychikha; 9-12.VI, 13.VII 2005, 20.V-10.VI 2006, 2.VI-6.VII 2007. Not a common species. Occurring in villages, forests and their edges. Widely distributed in the Palearctic (fig. 18), from north taiga to steppes and broad-leaved forests. Besides the Khabarovsk suburbs [Eck, 1983], in the Lower Amur known from Kiselevka, 51˚25’ N 139˚ 01’ E (1 worker, 28.VIII 2008) and Nikolaevsk-na-Amure [Eck, 1983], where it was collected once more: 2 workers, Cape Ubiennyi (at Vaida rivulet mouth), 53˚ 13’ N 140˚ 21’ E, 28.VII 2005; 1 ♀, 8 workers, Arkhangelskoe, the relic mixed oak forest, 53˚ 11’ N 140˚ 25’ E, 3-4.VIII 2007, 9-13.VIII 2008.

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