

DISTRIBUTION AND CONSERVATION STATUS OF THE SMOOTH NEWT (*Lissotriton vulgaris*) IN WESTERN SIBERIA AND KAZAKHSTAN

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In Siberia, *Lissotriton vulgaris* (Linnaeus, 1758) was recorded in nine provinces of Russia (81 localities). The northern border of geographic range passes the taiga zone in Tyumen' and Tomsk Oblast's, as well as Krasnoyarsk Krai. The southern range limit, as a rule, coincides with the border between the forest-steppe and steppe zones in Kurgan, Omsk, and Novosibirsk Oblast's, as well as Altayskiy Krai. In Kazakhstan, the species was recorded in 3 isolated localities only. The conservation status of *L. vulgaris* in Siberia is discussed.

Keywords: Amphibia, Salamandridae, *Lissotriton vulgaris*, conservation, Russia, Siberia, Kazakhstan.

INTRODUCTION

The smooth newt, *Lissotriton vulgaris* (Linnaeus, 1758) is widely distributed from Ireland in the west to the Yenisey River Valley in Siberian Russia in the east, and from Scandinavia in the north to the Balkans and Turkey in the south. N. F. Kashchenko (1902) published the first record of *L. vulgaris* ("*Molge vulgaris*") for Siberia. That was a juvenile newt which has been found by S. M. Chugunov in 1891 on the hill Lysaya Gora, Yaya River, a tributary of Chulym River, Tomsk Guberniya. Curiously, this specimen was initially assigned by N. F. Kashchenko to the Central Asian *Ranodon sibiricus* Kessler, 1866. The remote situation of surprising finding from the known range of the smooth newt was a reason for such a decision. However, later, he and A. M. Nikolsky together identified this specimen as the smooth newt. Long time, the Chugunov's record was unique for Siberia (Nikolsky, 1918).

The second record of *L. vulgaris* was noted by S. Ratanov (1923). In 1917, he caught a single adult newt near the village Vlasikha in the vicinity of Barnaul City, Altay Guberniya. However, in the Barnaul Museum of Altay Subdivision of West-Siberian Division of

Russian Geographical Society, he revealed four samples of the species (1 male and 10 females) from the vicinity of Barnaul City collected by V. I. Vereshchagin in 1903 and 1904 (Ratanov, 1923).

Later, *L. vulgaris* was found in various parts of western Siberia (Chernov, 1927; Bannikov et al., 1977). Nevertheless, the distribution, abundance, and conservation status of the smooth newt in Siberia remains poorly studied (Borkin, 1998).

The aim of our paper is to study the distribution and conservation status of *L. vulgaris* in the Siberian part of its range as well as in adjacent regions of Kazakhstan.

RESULTS AND DISCUSSION

Based on our, museum and published data, in total we accumulated 81 localities with *L. vulgaris* in Siberia. For comparison, only four records situated to the east from the 60° E (the Ural Mountain Range) were mapped in the guide-book by Bannikov et al. (1977: Map 4, p. 336).

Currently, the smooth newt is known from nine oblast's and okrugs of Siberian Russia. We will analyze the trans-Ural distribution of the species across provinces from the west to the east.

Beyond the southern part of Ural Mountains, *L. vulgaris* was registered in Kurgan Oblast' bordered with Kazakhstan. A. V. Ponomarev (1976, 1977) mentioned that animals were found in four rayons (Fig. 1). Accord-

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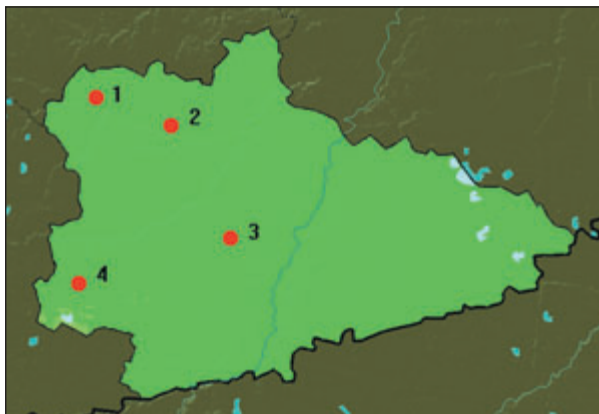


Fig. 1. Records of *Lissotriton vulgaris* in Kurgan Oblast' (Russia).

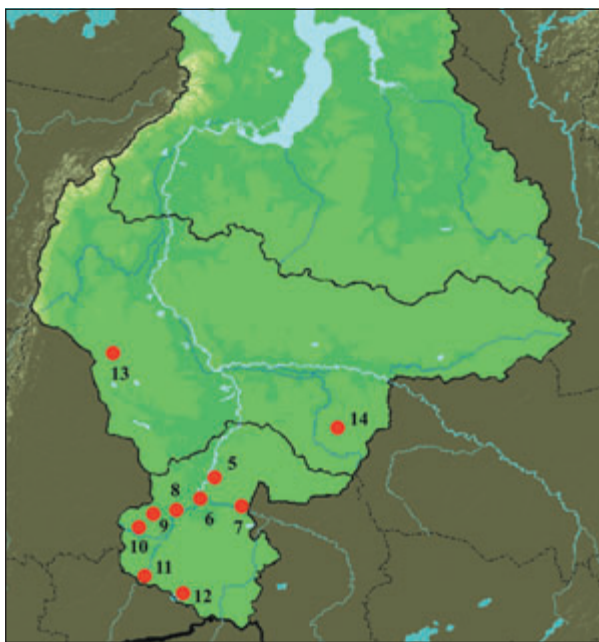


Fig. 2. Records of *Lissotriton vulgaris* in Tyumen' Oblast' and Khanty-Mansiysk Autonomous Okrug (Russia).

ing to V. P. Starikov (1986), the smooth newt is widely distributed, but rarely occurring species inhabiting the western part of the oblast' (in the west from Kurgan Town).

In total, eight localities were found in Tyumen' Oblast'. Most of them were located in the southern part (Fig. 2, 5 – 12), where *L. vulgaris* demonstrates sporadic distribution (S. N. Gashev, 2007, in litt.).

In Khanty-Mansiysk Autonomous Okrug, this newt was recorded in two localities only (Fig. 2, 13, 14).

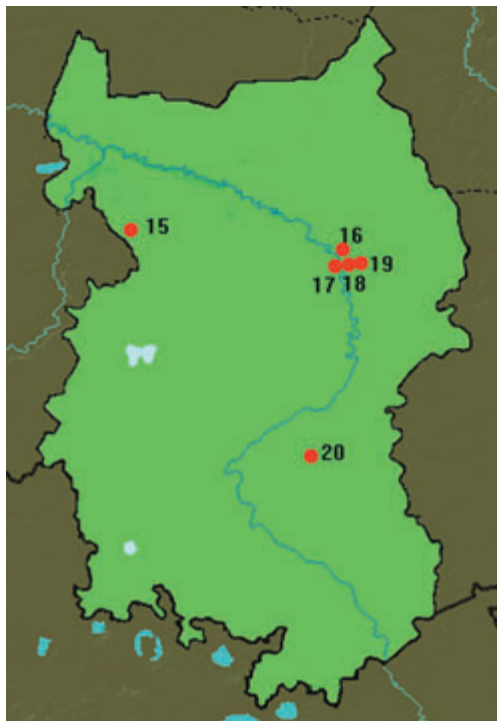


Fig. 3. Records of *Lissotriton vulgaris* in Omsk Oblast' (Russia).

However, precise data about local abundance and distribution are lacking (Gashev and Lavrent'ev, 2003).

In Omsk Oblast', six localities of *L. vulgaris* are currently known, mostly from the northern part of the province (Fig. 3, 15 – 20).

Sixteen localities of the smooth newt were revealed in the south-eastern part of Tomsk Oblast' (Fig. 4, 21 – 35). The distribution of the species is sporadic.

Eleven localities were recorded in Novosibirsk Oblast' (Fig. 5, 36 – 45). Most of them are concentrated in the north-eastern part of the province.

Twenty-seven localities were found in Altayskiy Kray (Fig. 6, 46 – 72)⁴. The species ranges over the territory, except mountains in the south-east. However, the distribution is also sporadic (Chupin, 1990; Shutova, 2006), and newts are not common (Yakovlev, 1998).

In Kemerovo Oblast', *L. vulgaris* was collected in eight localities (Fig. 7, 73 – 80), mostly situated in the Tom' River valley.

⁴ Two localities should be confirmed: 1. Gilevo Preserve, Tret'yakovo Rayon, Gilevo reservoir, 51°08' N 81°47' E (Zhikhareva et al., 2002:66), however Shutova (2006:41) mentioned "Gilevo Preserve" as confirmed record; 2. "Lebedinyy" Preserve, Katun' River from Talitsa River mouth to the village Srostki, 52°24' N 85°36' E (Silant'eva et al., 2002:118).

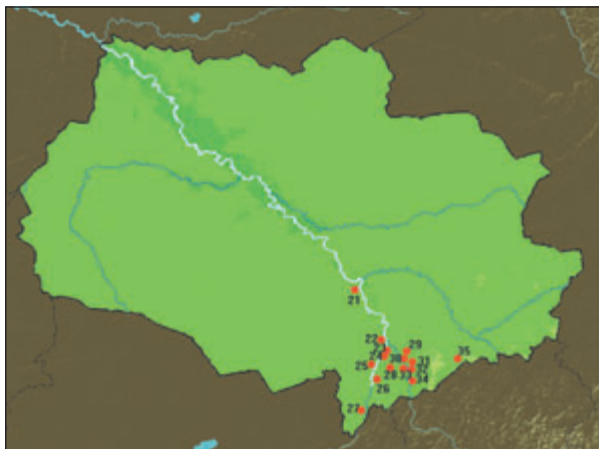


Fig. 4. Records of *Lissotriton vulgaris* in Tomsk Oblast' (Russia).

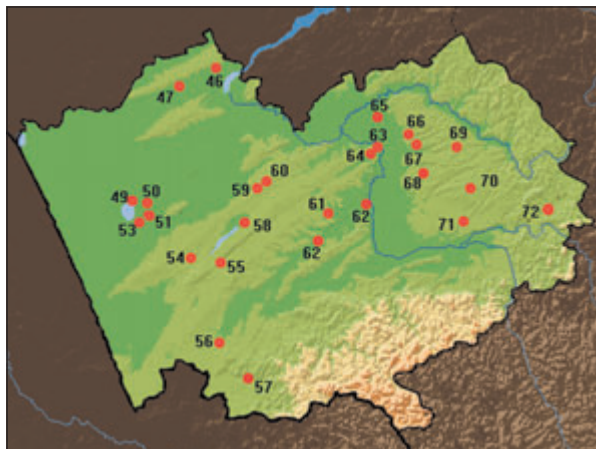


Fig. 6. Records of *Lissotriton vulgaris* in Altayskiy Kray (Russia).

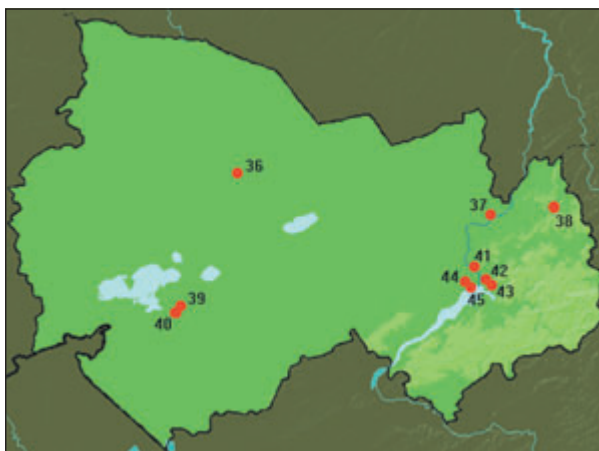


Fig. 5. Records of *Lissotriton vulgaris* in Novosibirsk Oblast' (Russia).

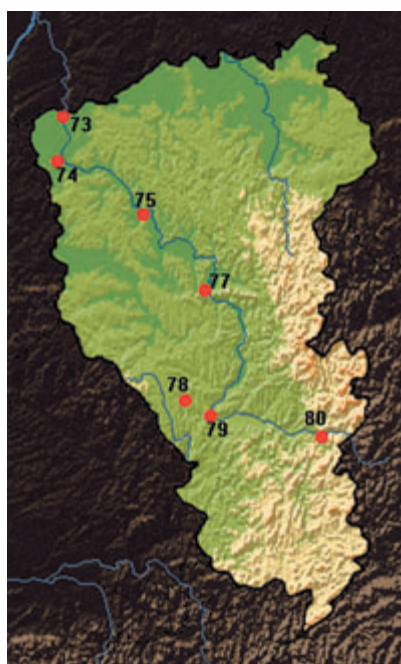


Fig. 7. Records of *Lissotriton vulgaris* in Kemerovo Oblast' (Russia).

Only one record of the smooth newt is mentioned in the southern part of Krasnoyarsk Kray (Fig. 8, **81**).

Therefore, in Siberia, the northernmost record of the species is Sovetskiy Rayon of Tyumen' Oblast' (Fig. 2, **13**), the easternmost one is the Sayano-Shushenskiy Nature Reserve in Krasnoyarsk Kray (Fig. 8, **81**), and the southernmost one is the Gilevo Preserve in Altayskiy Kray (Fig. 6, **57**).

The northern border of geographic range of *L. vulgaris* crosses the taiga (= conifer forest) zone in Tyumen' and Tomsk Oblast's, as well as Krasnoyarsk Kray. Most of records are situated at the border of taiga and forest-steppe zones, where the smooth newt inhabits birch-aspen and pine forests (Ravkin, 2002; Ravkin et al., 2002, 2003). In valleys of large rivers, this species prefers forested hills, beyond flooded areas in spring.

In the forest-steppe zone, the abundance of *L. vulgaris* decreases with increasing climate aridization in the southern and south-eastern directions (Kuzmin, 1999). As a rule, the southern range limit coincides with the border between the forest-steppe and steppe zones in Kurgan, Omsk, and Novosibirsk Oblast's, as well as Altayskiy Kray. Only some records penetrated into the steppe zone along forested river valleys. In the east, in Altayskiy and Krasnoyarsk Krays and in Kemerovo



Fig. 8. The record of *Lissotriton vulgaris* in Krasnoyarsk Krai (Russia).

Oblast', the geographic distribution of *L. vulgaris* is limited by Altay and Kuznetskiy mountain ridges.

We revealed that the northern border of the species range in Siberia approximately coincided with two isotherms. They outline the area which is characterized by the sum of average daily temperatures in stable period with air temperature lower 0°C equal to -2800°C, from the one hand, and that higher +10°C equal to 1200 – 1300°C, from the another hand (Fig. 9). These temperature parameters reflect the severity of winter and warmth



Fig. 9. The distributional limits of *Lissotriton vulgaris* in Siberia (red line), and isotherms of sum of average daily temperatures in stable period with air temperature lower 0°C equal to -2800°C (blue line) and that higher +10°C equal to 1200 – 1300°C (green line).

provision in spring and summer, respectively. Similar correlation was previously found in Fennoscandia as well (Terhivuo, 1983). Beside these factors, important influence on the distribution and abundance of *L. vulgaris* has low-snow winters and high floods because of their impact on successful wintering of animals (Kuranova, 1998; Gashev and Lavrent'ev, 2003). Increased number of newt localities near towns is, probably, explained by better study of these territories or by presence of suitable biotopes made by humans.

TABLE 1. The Conservation Status of *Lissotriton vulgaris* in Various Regions of Western Siberia

Region	Category	Reference
Altayskiy Krai	3 (species in its range periphery, with sporadic distribution)	Shutova, 2006
Kemerovo Oblast'	1 (rare, nearly extinct)	Skalon, 2000
Krasnoyarsk Krai	3 (rare)	Red Data Book of Krasnoyarsk Krai, 2004
Kurgan Oblast'	lacking	Starikov, 2002
Novosibirsk Oblast'	lacking	Ravkin et al., 2005
Omsk Oblast'	3 (low number, sporadic distribution on the limited territory)	Kassal and Tsyro, 2005
Tomsk Oblast'	6 ("monument of nature," with aesthetic and knowledge value)	Kuranova, 2002
Tyumen' Oblast'	lacking	Red Data Book of Tyumen' Oblast', 2004*
Khanty-Mansiysk Autonomous Okrug	3 (rare)	Gashev and Lavrent'ev, 2003

* Although the text of regional Red Data Book does not contain the smooth newt, the species is included in the Appendix "The list of rare and threatened species needed in monitoring and additional study in the territory of Tyumen' Oblast'".

As a rule, *L. vulgaris* is a rare species in Siberia. The smooth newt has been included in the lists of threatened species (Red Data books) of Altayskiy and Krasnoyarsk Krays, as well as Khanty-Mansiysk Autonomous Okrug, Kemerovo, Omsk, and Tomsk Oblast's (Table 1). Although *L. vulgaris* was reported to be rare in Kurgan Oblast' (Starikov, 1986), the regional Red Data Book (Starikov, 2002) does not contain this species. The highest number of newts was observed in Novosibirsk Oblast' (Chernyshova et al., 2002; S. N. Gashev, personal communication).

Two isolated records of *L. vulgaris* were previously noted for the desert zone of Kazakhstan (Fig. 10). The most known record has been published by L. S. Berg (1923). In Mai 1922, A. N. Beloslyudov found adult specimens of the smooth newt in reeds at the northern shore of Balkhash Lake in Basy-Deresin near Balkhash Town (Fig. 10, 84). Previously, A. N. Sedelnikov and N. A. Borodin (1903) mentioned that the newt "*Ranodon sibiricus*" inhabited the Balkhash Lake shore area and some southern steppe rivers. However, we suggest that these authors confused this species with *L. vulgaris* because *Ranodon sibiricus* belonging to the family Hynobiidae is distributed in Dzungarskiy Alatau Mountains only (Borkin, 1998; Kuzmin, 1999). Later, at the northern shore of Balkhash Lake, reeds were much reduced and newts seemed to extinct. The second desert locality of *L. vulgaris* in Kazakhstan was published by P. V. Terentjev and S. A. Chernov (1949): that was situated at the northern coast region of Aral Sea (Fig. 10, 83). In our opinion, this newt finding might be associated with the southern part of Mugodzhary Mountains which approach to the northern shore of Aral Sea. However, still, the Aral locality was not confirmed (Borkin, 1998; Kuzmin, 1999). In the 1970s, A. V. Andryushchenko (personal communication) found, probably, *L. vulgaris* in a water body situated in a birch forest in the vicinity of Kustanay City (Fig. 10, 82).

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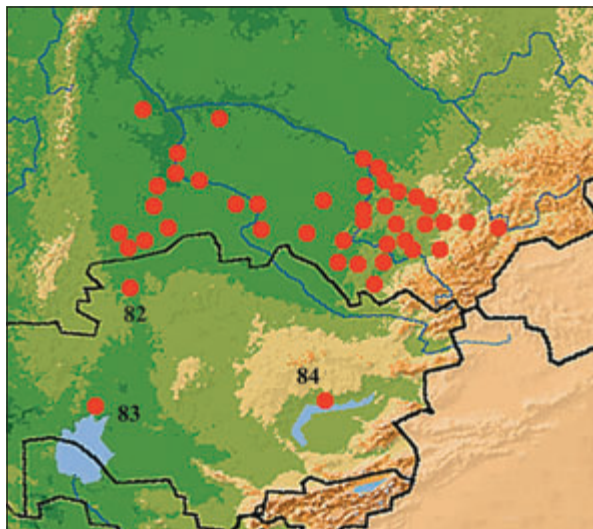


Fig. 10. The distribution of *Lissotriton vulgaris* in Siberia and its records in Kazakhstan.

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APPENDIX

Kurgan Oblast' (Fig. 1). **1.** Kataysk Rayon (Ponomarev, 1976:314, 1977:179). **2.** Shadrinsk Rayon (Ponomarev, 1976:314, 1977:179). **3.** Yurgamysh Rayon (Ponomarev, 1976:314, 1977:179; Kuzmin, 1999:100). **4.** Safakulevo Rayon (Ponomarev, 1976:314, 1977:179).

Tyumen' Oblast' and Khanty-Mansiysk Autonomous Okrug (Fig. 2): **5.** Nadsy Settlement, Irtysh River Valley, Tobol'sk Rayon (S. N. Gashev, personal communication,

2007); Pen'ya Settlement, 58°38' N 68°35' E, Irtysh River Valley (S. N. Gashev, personal communication, 2007). **6.** Zashatino Village (Tobol'sk Town vicinity), 58°11' N 68°15' E, Samko, 1926, ZISP 3683. **7.** Akurka Village, 57°59' N 70°07' E, Irtysh River Valley, Vagay Rayon (S. N. Gashev, personal communication, 2007). **8.** Mazurovo Village, 57°52' N 67°25' E, Tobol River Valley, Yarkovo Rayon (S. N. Gashev, personal communication, 2007). **9.** Zhiryakovo Village, 57°40' N 66°09' E, Tavda River Valley, Nizhne-Tavdinskiy Rayon (S. N. Gashev, personal communication, 2007). **10.** Tyumen' City, 57°09' N 65°32' E, Velizhanskiy trakt [= road], 4 km from the City (Larionov, 1923:4; Chernov, 1927:59). **11.** Staro-Shadrino Village, 56°10' N 65°51' E, Tobol River Valley, Uporovo Rayon, V. N. Blinov, 1982, ZM ISEA SB RAS (Blinova, 1984:5). **12.** Yuzhno-Dubrovnoye Village, 55°46' N 67°40' E, Armizonskoye Rayon (Blinova, 1984:5). **13.** Sovetskiy Rayon (Kuzmin, 1999:100; Gashev and Lavrent'ev, 2003:103). **14.** Yuganskiy Nature Reserve, 59°51' N 74°36' E, Surgut Rayon (Borkin and Krever, 1987:43; Gashev and Lavrent'ev, 2003:103; Ishchenko, 1997:112 – 119; Kuzmin, 1999:100).

Omsk Oblast' (Fig. 3). **15.** Bol'shiye Uki Rayon, 57°4' N 71°43' E (Kassal and Tsyro, 2005: Map). **16.** Yekaterinovka Village, 56°53' N 74°38' E, Tara Rayon (I. A. Tsyro, personal communication; Kassal and Tsyro, 2005). **17.** Rechapovo Village, 56°49' N 74°35' E, Tara Rayon (Kassal and Tsyro, 2005). **18.** Mezhdurech'ye Village, 74°36' E, 56°47' N Tara Rayon (Kassal and Tsyro, 2005). **19.** Atak Village and Atak Forest, 56°48' N 74°38' E, Tara Rayon (Kassal and Tsyro, 2005). **20.** Lezhanka Village, 55°22' N 74°21' E, Gor'kovskiy Rayon (Kassal and Tsyro, 2005).

Tomsk Oblast' (Fig. 4). **21.** Molchanovo Village, 57°34' N 83°46' E, Molchanovo Rayon (O. V. Perkovskaya, 2004, personal communication). **22.** Malobragino Village, 56°51' N 84°22' E, Shegarka Rayon (Kuranova, 2000:159, 2002:108); Shegarka Rayon (Chernyshova et al., 2002:15). **23.** Polovinka, 56°42' N 84°21' E, Shegarka Rayon (Kuranova, 2000:159, 2002:108). **24.** Pozdnyakovo-na-Obi, 56°39' N 84°18' E, Shegarka Rayon (Kuranova, 2000:159, 2002:108). **25.** Mel'nikovo Village, 56°32' N 84°12' E, Shegarka Rayon, S. M. Tsybulin, E. A. Borzunova, and S. M. Bogdanova, 08/14 – 27/2006, ZMTGU 264.26. Kireyevskoye Village, 56°22' N 84°05' E, Kozhevnikovo Rayon (Kuranova, 2000:159, 2002:108). **27.** Yelovka Village, 55°57' N 83°44' E, Kozhevnikovo Rayon, Yu. S. Timofeeva, 2003, ZMTGU 265; Kozhevnikovo Rayon (Chernyshova et al., 2002:15). **28.** Temerchinskiy forest (about 30 km to the west from Tomsk City), 56°31' N 84°29' E, Tomsk Rayon (Vashkevich, 1925:95 and 98; Chernov, 1927:59; Kuranova, 2000:159, 2002:108). **29.** Pesochnaya Village, 56°42' N 84°56' E, Tomsk Rayon (Vashkevich, 1925:95; Chernov, 1927:59; Kuranova, 2000:159, 2002:108); Tomsk Rayon (Chernyshova et al., 2002:15). **30.** Seversk Town, 56°36' N 84°53' E, V. N. Kuranova, 05.2006, ZMTGU 212. **31.** Kuzovlevo Village, 56°35' N 85°00' E, Tomsk Rayon, V. N. Kuranova, 1987 and 1989, ZMTGU 266 and 237 (Kuranova, 2000:159, 2002:108; Kuranova and Fokina, 2006:235). **32.** Tomsk City, 56°29' N 84°58' E, Ushayka River, ZISP 5308 (Vashkevich, 1923:95; Chernov, 1927:59; Alekperov, 1977:16; Kuranova, 2000:

159, 2002:108); Michurin's gardens, the eastern suburb, 08/10/2007, 56°28' N. 85°01' E V. N. Kirpotin, The Department of Vertebrate Zoology and Ecology, BI TGU. **33.** Timiryazev Settlement, 56°30' N 84°53' E, Chaginskoye swamp, Tomsk Rayon, V. N. Kuranova, 05 – 09.1980 – 1985, ZMTGU 174 – 176 (Kuranova, 2000:159, 2002:108); Peschanoye Lake, 56°41' N 84°55' E, V. N. Kuranova, S. V. Patrakov, A. A. Sokin, and T. I. Kazantseva, 07/17/2003, ZMTGU 267 (Kuranova and Fokina, 2006:235). **34.** Kolarovo Village, 56°21' N 84°55' E, Tomsk Rayon, E. I. Strelkov, 1963, ZMTGU 226. **35.** Lysaya Gora, 56°42' N 86°91' E, Yaya River, Zyryanskoye Rayon (Kashchenko, 1902:21; Nikolskiy, 1905:435, 1918:230; Berg, 1923:1; Ratanov, 1923:1; Chernov, 1927:59); Zyryanskoye Rayon (Chernyshova et al., 2002:15).

Novosibirsk Oblast' (Fig. 5). **36.** Potyukanovo Village, 56°03' N 78°28' E, Severnoye Rayon, A. S. Nikolaev, 07/1980, ZM ISEA SB RAS (Am 268). **37.** Chernyy Mys, 55°31' N 83°19' E, Kolyvan' Rayon, O. V. Grigor'ev, 1958, 1973 – 1976, 1981, ZM ISEA SB RAS 46, 80, 83, 84, 90, 91, 106, 110, 111, 113, 128, 130, 131 141, 145, 163, 195, 197a – d, 319, 323, 324, 374, 375, 395, 416, 454, 456, 458, 460, 536 – 539, 515, 521, 571, 588, 591, 615, 619, 653, 655, 657 – 658, 684, 691 – 692, 760, and 859 (Grigor'ev, 1981: 154 – 160); Kolyvan' part Ob' River Valley 1973 – 1976 (Grigor'ev, 1981:154 – 160). **38.** Manuylovskiy Village, 55°38' N 84°17' E, to the south of village, Manuylovo Nature Reserve, Bolotnoye Rayon (N. N. Balatskiy, 07/15/2007, personal communication). **39.** Chulymenok River Valley, 54°37' N 78°13' E, Chany Rayon (S. V. Konyaev, personal communication); Chany Rayon (Kuz'min, 1999:100). **40.** Malye Chany Lake, 54°30' N 78°3' E, to the south of Mayskoye Utro Nature Reserve, Kupino Rayon (N. N. Balatskiy, personal communication). **41.** Novosibirsk City, 54°56' N 83°04' E, Yudin, ZMK 747 (Gumilevskiy, 1931:156; Makhlin, 1966:17; Chernyshova et al., 2002:15); the city bus station "Gorskaya," 54°59' N 82°55' E, the left bank of Ob' River (S. V. Konyaev, personal communication); Mokhovoe Lake, near the former Matveevka Village, O. V. Grigor'ev, 06/29/1969, 07/20/1969, 07/25/1969, 07/30/1969, 08/17/1969, 09/08/1969; 1970; 07/07/1971, 08/27/1971; 07/11/1972; O. V. Grigor'ev 1969 – 1971, ZM ISEA SB RAS 40, 49, 81, 83, 83 (a – m), 84 (a – d); 98 (a – w, c – m, o – p), 118, 129, 138, 140, 140 (w – g); 142, 142 (a – b), 171, 247, and 409; Krasnoobsk, 54°55' N 82°59' E, 05/14/2008 (A. P. Lisachyov, personal communication). **42.** Yel'tsovka Settlement, 54°53' N 83°04' E, Sergeev, 1926, ZISP 3704. **43.** Akademgorodok, 54°49' N 83°9' E (N. N. Balatskiy, 07/15/2007, personal communication). **44.** Verkh-Tula Village, 54°53' N 82°46' E, Novosibirsk Rayon, 09/13/1969, 09/08/1970, 09/20/1970, and 10/06/1970, O. V. Grigor'ev, ZM ISEA SB RAS 145, 152, 154, 181 and 220. **45.** Leninskoye Village, 54°48' N 82°48' E, Novosibirsk Reservoir, Novosibirsk Rayon, O. V. Grigor'ev, 1982, ZM ISEA SB RAS.

Altayskiy Krai (Fig. 6). **46.** Pustynnoye Lake, 54°04' N 81°04' E, between Dolganka Village and Krasnyy Sibirskiy Settlement, Aleuss Nature Preserve, Krutikha Rayon (Petrov and Ryzhkov, 1994:143; Yakovlev, 1998:196; Shutova, 2006:40). **47.** Pankrushikha Village, 53°50' N 80°20' E, Krutikha Rayon (Yakovlev, 1998:196; Shutova, 2006:40); Le-

byazh'ye Lake, Pankrushikha Nature Preserve (Petrov and Ryzhkov, 1994:143; Shutova, 2006:41). **48.** Chernaya rechka, Krutikha Rayon (Yakovlev, 1998:196; Shutova, 2006:40). **49.** Kulundinskoye Lake, 53°07' N 79°43' E, Suyetka Rayon (Chupin, 1990:59; Petrov and Ryzhkov, 1994:143; Yakovlev, 1998:196). **50.** Boronsk Village, 53°10' N 80°6' E, Suyetka Rayon (Yakovlev, 1998:196; Shutova, 2006:40). **51.** Shimolino Village, 53°00' N 79°58' E, Blagoveshchenka Rayon (Yakovlev, 1998:196; Shutova, 2006:40). **52.** Novo-Kulundinka Village, Blagoveshchenka Rayon (Yakovlev, 1998:196; Shutova, 2006:40). **53.** Blagoveshchenka Nature Preserve, 52°50' N 79°52' E (Petrov and Ryzhkov, 1994:143). **54.** Volchikha Village, 52°01' N 80°21' E, the northern part of Blagoveshchenka Nature Preserve (Petrov and Ryzhkov, 1994:143; Shutova, 2006:41). **55.** Titovka Village, 52°31' N 81°91' E, Pes'yanoye Lake, Yegor'yevskiy Nature Preserve (Petrov and Ryzhkov, 1994:143; Shutova, 2006:41). **56.** Rubtsovsk Town, 51°31' N 81°11' E (Yakovlev, 1998:196; Shutova, 2006:40). **57.** Gilevo Preserve, 51°08' N 81°47' E (Shutova, 2006:41). **58.** Ostrovnoye Village, 52°43' N 81°46' E, Mamontovo Rayon (Yakovlev, 1998:196; Shutova, 2006:40). **59.** Trubachevo Village, 53°05' N 81°36' E, Tyumentsevo Rayon (Yakovlev, 1998:196; Shutova, 2006:40). **60.** Sharchino Village, 53°09' N 81°44' E, Tyumentsevo Rayon (Yakovlev, 1998:196; Shutova, 2006:40). **61.** Ul'yansovsk Settlement, 52°50' N 82°48' E, Topchikha Rayon (Yakovlev, 1998:196; Shutova, 2006:40). **62.** Aley River Valley, from Aley Town (52°29' N 82°46' E) to Ust'-Aleyka Village (52°50' N 83°36' E) (Yakovlev, 1998:196; Shutova, 2006:40). **63.** Barnaul City, 53°21' N 83°46' E, about 1.5 km from Barnaul City to Vlasikha Village (Ratanov, 1923:2; Chernov, 1927:59; Shutova, 2006:40); a pond near Kulinchenko small settlement (Ratanov, 1923:2; Shutova, 2006:40). **64.** Bulygino Settlement, 53°18' N 83°44' E, Barnaulka River Valley (Chupin, 1990:59; Shutova, 2006:40). **65.** Rogulichnyy Settlement, 53°39' N 83°45' E, Pervomayskiy Rayon (Yakovlev, 1998:196; Shutova, 2006:40). **66.** Zudilikha River, Zarinsk Rayon, approximately 53°38' N 84°30' E (Yakovlev, 1998:196; Shutova, 2006:40). **67.** Malakhovo Village, 53°23' N 84°25' E, Kosikha Rayon (Chupin, 1990:59; Yakovlev, 1998:196; Shutova, 2006:40). **68.** Zelenaya Roshcha Settlement, 53°09' N 84°37' E, Kosikha Rayon, (Yakovlev, 1998:196; Shutova, 2006:40). **69.** Poroshino Village, 53°14' N 85°10' E, Kytmanovo Rayon (Yakovlev, 1998:196; Shutova, 2006:40). **70.** Marushka Village, 52°52' N 85°30' E, Marushechka River, Tselinnoye Rayon (Yakovlev, 1998:196; Shutova, 2006:40). **71.** Sukhaya Chemrovka Village, 52°44' N 85°24' E, Zonal'noye Rayon (Yakovlev, 1998:

1998; Shutova, 2006:40). **72.** Nizhnyaya Neninka Village, 52°45' N 86°25' E, Solton Rayon, N. A. Bulakhova, 2002, ZMTGU 247.

Kemerovo Oblast' (Fig. 7). **73.** Alayevaya [= Alayeyo] Village, 56°08' N 84°54' E, Yurga Rayon (Vashkevich, 1925:95; Chernov, 1927:59). **74.** Yurga Town, 55°44' N 84°54' E (A. P. Lisachev, 2004, personal communication). **75.** Kemerovo City, 55°22' N 86°02' E, Tom' River Valley (Skalon, 2000:133). **76.** Tom' River, the middle part of river from Kemerovo City to Azhendarovo Settlement (Belyankin, 1978:171; Belyankin et al., 1979:75; Skalon, 2000:133). **77.** Azhendarovo Settlement, 54°46' N 87°01' E, birch forest, Krapivinskiy Rayon (Belyankin et al., 1979:75); Azhendarovo biological station (Bibik and Mankevich, 2004:359); Bungarapsko-Azhendarovskiy Beaver Nature Reserve (Skalon, 2000:133); Azhendarovo-Saltymakovskaya Depression, lake in the river valley (Skalon, 2000:133); Azhendarovskoye Lake (Belyankin, 1978:172; Belyankin et al., 1979:75); Krivoye Lake (Belyankin, 1978:172); Chernoye Lake (Belyankin, 1978:173). **78.** Prokop'yevsk Town, 55°54' N 86°43' E, 1.5 km from the town, pond (A. E. Mal'tseva, 08/2002 and 08/2003, personal communication). **79.** Novokuznetsk Town, 53°45' N 87°7' E, Tom' River (L. K. Vanicheva, personal communication). **80.** Teba Railway Station, 53°33' N 88°38' E, Tom' River (L. K. Vanicheva, 07.2002 and 07.2003, personal communication).

Krasnoyarsk Krai (Fig. 8). **81.** Sayano-Shushenskiy Nature Reserve, 52°10' N 92°00' E, Shushenskoye Rayon (Syro-yechkovsky and Rogachyova, 1995; Kuzmin, 1999:100); Yenisey River (Bannikov and Denisova, 1956:26).

Institutional Abbreviations

ZMTGU, Zoological Museum, Tomsk State University, Tomsk, Russia.

BI TGU, The Institute of Biology, Ecology, Soil Science, Agriculture and Forestry (Biological Institute), Tomsk State University, Tomsk, Russia.

ZM ISEA SB RAS, Zoological Museum, Institute of Animal Systematics and Ecology, Siberian Division, Russian Academy of Sciences, Novosibirsk, Russia.

ZMK, Zoological Museum, National Scientific Natural Museum, National Academy of Sciences, Kiev, Ukraine.