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

Dmitry V. Skorinov,1,2  Valentina N. Kuranova, 3  Leo J. Borkin, 2  and Spartak N. Litvinchuk 1

Submitted February 18, 2007

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 Kray. 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 Kray. 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-
According 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 (Fig. 2, 5–12). However, precise data about local abundance and distribution are lacking (Gashev and Lavrent’ev, 2003).

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

In Omsk Oblast, six localities of L. vulgaris are currently known, mostly from the northern part of the province (Fig. 3, 15–20). Eleven localities of the smooth newt were recorded in Novosibirsk Oblast (Fig. 5, 36–45). Most of them are concentrated in the north-eastern part of the province.

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

In Kurgan Oblast, L. vulgaris is widely distributed, but rarely occurring species inhabiting the western part of the oblast (in the west from Kurgan Town).

Two localities should be confirmed: 1. Gilevo Preserve, Tret’yakov 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. “Lebediny” Preserve, Katun’ River from Talitsa River mouth to the village Srostki, 52°24’ N 85°36’ E (Silant’eva et al., 2002:118).
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
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 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

<table>
<thead>
<tr>
<th>Region</th>
<th>Category</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Altayskiy Kray</td>
<td>3 (species in its range periphery, with sporadic distribution)</td>
<td>Shutova, 2006</td>
</tr>
<tr>
<td>Kemerovo Oblast’</td>
<td>1 (rare, nearly extinct)</td>
<td>Skalon, 2000</td>
</tr>
<tr>
<td>Krasnoyarsk Kray</td>
<td>3 (rare)</td>
<td>Red Data Book of Krasnoyarsk Kray, 2004</td>
</tr>
<tr>
<td>Kurgan Oblast’</td>
<td>lacking</td>
<td>Starikov, 2002</td>
</tr>
<tr>
<td>Novosibirsk Oblast’</td>
<td>lacking</td>
<td>Ravkin et al., 2005</td>
</tr>
<tr>
<td>Omsk Oblast’</td>
<td>3 (low number, sporadic distribution on the limited territory)</td>
<td>Kassal and Tsyro, 2005</td>
</tr>
<tr>
<td>Tomsk Oblast’</td>
<td>6 (“monument of nature,” with aesthetic and knowledge value)</td>
<td>Kuranova, 2002</td>
</tr>
<tr>
<td>Tyumen’ Oblast’</td>
<td>lacking</td>
<td>Red Data Book of Tyumen’ Oblast’, 2004*</td>
</tr>
</tbody>
</table>

* 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 May 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 Hydnomiidae 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 Kazahstan 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).

Acknowledgments. We are grateful to A. V. Andryushchenko (Kustanay, Kazakhstan), N. N. Balatsky (Novosibirsk, Russia), S. N. Gashev (Tyumen’, Russia), S. V. Konyaev (Novosibirsk, Russia), A. P. Lisachyov (Novosibirsk, Russia), A. E. Mal’tsev (Tomsk, Russia), O. V. Perkovskaya (Tomsk Oblast’, Russia), N. L. Irison (Barnaul, Russia), and L. K. Vanichev (Novokuznetsk, Russia) for providing of new records of newts. This work was partially supported by grants from the President of Russian Federation (NSh-4212.2006.4) and RFBR 08-04-01184.

**REFERENCES**


Kuranova V. N. (1998), Fauna i Ékologiya Zemnovodnykh i Presmykayuschiesya Yugo-Vostoka Zapadnoy Sibiri [Fauna and Ecology of Amphibians and Reptiles of the South-West of Western Siberia], Author’s Abstract of Candidate’s Thesis, Tomsk [in Russian].


APPENDIX


Tuymen’ Oblast’ and Khanty-Mansiysk Autonomous Okrug (Fig. 2): 5. Nadtsy Settlement, Iryshy River Valley, Tobol’sk Rayon (S. N. Gashev, personal communication,


Altayskiy Kray (Fig. 6). 46. Pustynnoye Lake, 54°04’ N 81°04’ E, between Dolganka Village and Krasnyy Sibiryak Settlement, Auless 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-


Krasnoyarsk Kray (Fig. 8). 81. Sayano-Shushenskoye Nature Reserve, 52°10’N 92°00’E, Shushenskoye Rayon (Syroyechkovsky and Rogachyova, 1995; Kuzmin, 1999:100); Yenisey River (Bannikov and Denisova, 1995:26).

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.