

Iya Mikhailovna Levanidova, the famous Russian hydrobiologist and investigator of the East Russian Trichoptera (1 March 1914–11 November 2005)

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Abstract

Iya Mikhailovna Levanidova (1914–2005) is the outstanding Russian hydrobiologist and hydroentomologist who devoted her life to study biodiversity, biogeography and ecology of the Russian Far East freshwater invertebrates. She laid the foundation of the aquatic entomology school in Eastern Russia, having continued the way of her teachers, Drs. A.V. Martynov and S.G. Lepneva. The article provides a brief description of Dr. Levanidova's private and scientific life and her contributions to development of rithrobiology and trichopterology in East Russia. It presents as well a list of the species described by I.M. Levanidova and patronyms described in her honor. A full list of her scientific papers, totalling 78 publications, is provided.

Key words: freshwater, aquatic insects, caddisflies, fauna, biogeography, taxonomy, Pacific Russia

Iya Mikhaylovna Levanidova is an outstanding Russian freshwater hydrobiologist and aquatic entomologist who investigated aquatic invertebrates in East Russia (Fig. 1). She (IM) stood at the beginning of the investigations on Russian Far East caddisflies, following the famous A.V. Martynov and S.G. Lepneva, her teachers. Early works of Levanidova were connected with studying caddisflies of Baikal, Sevan, and Hovsgol Lakes. Since the beginning of her 50th year, she has been closely connected with the Pacific Russian region, personally participating in numerous expeditions in the Amur River basin, around Kamchatka, Chukotka, the Kuriles, and in Primorsky Territory (Arefina 2000; Makarchenko 2008).

Before her regular works, information on many groups of aquatic insects was practically absent. The region was a real "white spot" in this regard. Data on other groups of freshwater invertebrates, not only insects, were fragmentary and scarce. This circumstance induced I.M. Levanidova to be engaged in systematics work on the groups poorly studied in the Russian Far East, especially aquatic insects (generally orders Trichoptera, Ephemeroptera, Plecoptera, and dipteran Chironomidae), to come into tight collaboration with taxonomists on other groups, and also to give birth to a new generation of aquatic entomologists in East Russia. Cooperation with Dr. L.A. Zhiltzova, the expert on Plecoptera from the Zoological Institute of the Russian Academy of Science (also a student of Dr. Lepneva and IM's classmate), was especially important.

Dr. Levanidova kept traditions of the Russian hydroentomological school, building a "family tree" from A.V. Martynov and S.G. Lepneva, bringing up many aquatic entomologists who chose the study of amphibiotic insects as one of the main directions of their scientific life. Some of them mentored their own pupils, strengthening the base of this School of Far Eastern hydroentomologists.

Iya Mikhailovna was born on the first day of Russian spring, on 1 March 1914. Her family lived in Tbilisi (Tiflis) at this time. "...Her father, Mikhail Alexandrovich Cheltzov-Bebutov, thought that he will father a son, and decided to give him a long name, Maximilian, but instead the child was a girl. So he called her by the shortest name, Iya, "violet" in Greek, Iya Mikhailovna resembled a violet a little. Sometimes, when she suddenly didn't know something, or was going to ask something, her face became gentle, defenseless. The subtle look didn't correspond to the large features of her face, and it was very touching..." (from the memoirs of Nina Pikulik, a stepmother of IM; recorded by T.S. Vshivkova 22.xi.2005).



FIGURE 1. Iya Mikhailovna Levanidova (provided by E.A. Makarchenko).

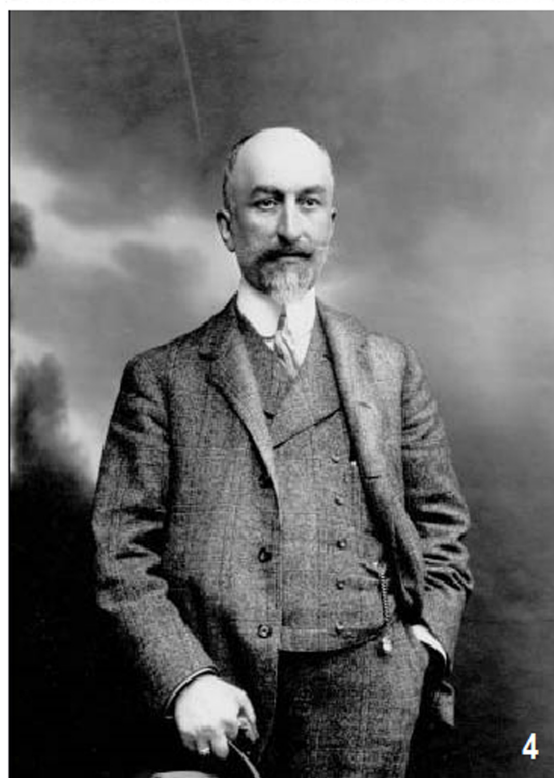


FIGURE 2–5.

2, Vassily Osipovich Bebutov (Barseg) (1971–1858). Available from: <http://shkolazhizni.ru/archive/0/n-56832/> (in Russian) (accessed 26 March 2014);

3, David Osipovich Bebutov (1793–1867). Available from: http://impereur.blogspot.ru/2012_05_01_archive.html (in Russian) (accessed 26 March 2014);

4, David Josephovich Bebutov (1859–1923). Available from: <http://ru.hayazg.info/> (in Russian) (accessed 26 March 2014).

5, Eugenia Valeryanovna Cheltsova, a grandmother of IM. (property of N. Pikulik, gifted to me 22.xi.2005).

IM's mother came from a Polish family who settled in Georgia. Her maternal grandfather was an engineer and for some time served as a chief of the railway station in Kobuleti (Georgia, Adjara). The family was very well-known, respected. Her mother died very early, at 25 years of age, from pulmonary tuberculosis when IM was only 4 years old. The education of the girl was taken over by her aunt (Mary Bronislavovna Monkiewich) and her maternal grandmother.

According to her father, I.M. Levanidova (Bebutova) was a descendant of the old Georgian prince family of Armenian origin, in the line from Bebut-bek mentioned back in the ancient document ('firman') from Shah Abbas in 1621. Descendants of Bebut-bek migrated from Iran to Georgia and settled in Tiflis (Tbilisi) in the 17th century and soon were among the richest and most influential families of the city. Later in the 17th century, the Bebutovs received the title of Prince from the Georgian kings, an honor that was recognized in the Russian Empire. The melik position (mayor) of Tiflis was passed for several generations in the Bebutov family. The symbolism of the Bebutovs coat-of-arms indicates the Military Merit of Bebutovs Family (Dumin 1998).

The most famous ancestor was Prince Bebutov Vassily Osipovich (Barseg) (1771–1858) (Fig. 2). Enlisted in the army in 1809, he participated in military campaigns against the Caucasian mountaineers in the Russian-Turkish War of 1806–1812, and in the Patriotic War of 1812. In 1816 in the Caucasus, he served under the famous General Ermolov. He also excelled in other military campaigns and was awarded the highest order of the Russian Empire, St. Andrew (1854), and many others. According to legend, Russian Emperor Nicholas I, after receiving the news of his victory, said: "Prince Bebutov wants to surprise me with a victory, but I will surprise him with a great award." Later, a monument in Tbilisi was erected in his honor and streets in Georgia were named after him.

His younger brother David Osipovich (1793–1867) (Fig. 3) was also an outstanding military leader and a member of the Caucasian campaigns and the Crimean War. Enrolling in 1811 as a cadet in the Narva Dragoon Regiment, he was promoted to the rank of Lieutenant-General (1856). For Service in Battle for the Glory of the Fatherland he was awarded the highest medals of Russia and other countries, the Order of Leopold (Austria), the Lion and Sun II degree with a Star (Iran), and the Red Eagle (Prussia). In 1861 he was appointed to the post of commandant of Warsaw in Poland. There, in Warsaw, he was buried after his death on 11 March 1867.

A very interesting and controversial figure was another IM relative, David Josephovich Bebutov (1859–1923) (Fig. 4). He graduated from the Corps of Pages, served as an officer in the Life Guards Regiment, and in 1895 he retired and entered service in court administration. He was a member of the First State Duma and took an active part in organizing the People's Freedom Party (Cadets). He was an organizer of one of the first chapters of the Masonic Lodge "Polar Star" (he was the secretary), and then, after exile, became secretary of the Supreme Council of the Russian Lodge "Grand East" in France (Berberova 1997). The Prince was known for its special "personal" hostility to Tsar Nicholas II. In 1907 he financed the terrorist Evno Azef assassination attempt on Nicholas II. Like many Russian Masons, Bebutov traveled with the known Russian esoteric Gurdzhiev to Constantinople to celebrate the victory of democratic ideas of Freemasonry over the Ottoman Empire. Then in 1914 Bebutov went to Germany. There he brought with him a huge collection of books and documents on the history of social and Masonic movements in Russia and in the West, the so-called "Armenian prince archive." During the First World War, this collection grew incredibly. Then, in 1916, D.I. Bebutov returned to Russia, but his famous library was left in Germany, passing in the interim to the order of the German Social Democrats. After Bebutov's death, the archive was scattered over Europe. David Bebutov's figure was far from straightforward, but, wittingly or unwittingly acting as a so-called "guardian of time and memory," he was able to be of service not only for Russia, but also the rest of the world.

IM's grandfather, through Bebutov, Alexander Mikhailovich, was a Russian general. His wife, Eugenia Valeryanovna Cheltsova (Chel'tzova), IM's grandmother, was Russian by birth and belonged to a prominent family with aristocratic roots (Fig. 5). In their family were five children. The eldest in the family, the father of IM, Mikhail Bebutov (Cheltsov), was born in 1890 in Tbilisi (Fig. 6, right). The fate of these children in the difficult periods of their life in Russia developed very differently. Konstantin ("Kotik") (Fig. 5, left) was arrested during the revolution, Elena during the revolution emigrated to Greece, Sergei became an agronomist, Vladimir did not live long (committed suicide).



FIGURE 6–11.

6, Iya Mikhailovna Levanidova's father at a young age (right), his brother Konstantin (left) (property of N. Pikulik, gifted to me 22.xi.2005);

7, Iya Mikhailovna Levanidova's father, a professor of Moscow State Juridical University (property of N. Pikulik, gifted to me 22.xi.2005);

8, M.A. Cheltsov with his wife, Nina Pikulik (property of N. Pikulik, gifted to me 22.xi.2005);

9, Iya Mikhailovna Levanidova, in her younger years (property of N. Pikulik, gifted to me 22.xi.2005);

10, The famous Russian limnologist George Vereshchagin (from Slugina 2012);

11, Baikal Limnological Station, Listvyanka Village (from archive of M.Y. & M.K. Bektmans and M.N. Shimarayev).

"According to family tradition, IM's father became an artilleryman, a privileged group of troops ("white glovers") or a medical doctor. However having asthma, he refused to choose this profession and chose jurisprudence. Mikhail was different from other children in the family, special. He was very fond of the theater and wanted to play on the stage. But he also had very poor eyesight, which over the years deteriorated dramatically and he became blind..."(from memories of N.V. Pikulik, the stepmother IM; recorded by T.S. Vshivkova (TV) on 22.xi.2005). In 1914 he graduated with honors from the Faculty of Law, University in Kiev. After the revolution, in connection with the "special" attitude of the state to the representatives of aristocratic families, Mikhail took the surname of his mother and has since been known by that Cheltsov surname. In February 1919, he volunteered for the Red Army, where he served until February 1920. Then after demobilization he worked as a low teacher in the Institute of National Economy in Kiev. In 1925 he was awarded the title of professor, and in the early 1930s, M.A. Cheltsov moved to Moscow, where from 1934 to 1937 he worked in the USSR Prosecutor's Office (Fig. 7). He wrote a number of major works on the Soviet criminal process that are still legal reference books (translated and published in Bulgaria, Hungary, Romania, People's Republic of China, Poland, East Germany, and are still reference-books for lawyers). Mikhail Alexandrovich had two children, Iya, from his first marriage, and Alexander, from his second marriage. His last wife, Nina Pikulik (Fig. 8) recollected: "...Iya was very fond of her father, but lived with him only a little bit. He was always busy, teaching, writing books. After his first wife's death he was married twice. IM mostly lived with her grandmother and aunt. ...She can be such a character and was severe, because nobody really messed around with her. She just made herself..." (recollections of N.V. Pikulik; recorded by TV on 22.xi.2005). There was another reason to keep the daughter far away: During Stalin's repressions, in case of the arrest of the father, close relatives also could be arrested.

In school, Iya studied very well. Her passion was cosmography and poetry. Her father laughed at her, "Well, here's another, the stars will be considered." In 1931, in Tbilisi, IM graduated from high school and then went to Moscow for admission to the University of Moscow (Fig. 9). In connection with its origins, she faced difficulties entering the university. Therefore, in 1932–1933 she began to work as a laboratory assistant in the First Moscow Medical Institute in the Department of Biological and Analytical Chemistry, and then moved to the Urals, where she entered the Biology Department of Perm State University, graduating in 1937 and remained there in graduate school.

The mentor for the young scientist was a famous Russian limnologist George Vereshchagin (Fig. 10). His enthusiasm for research in Lake Baikal was captivating for Iya Mikhailovna and, in 1939, together with other members of the university, she went on her first expedition to the Lake. While still a student, she fell in love with a fellow student and married him, but soon divorced. In this marriage they had a daughter Olya. At the age of 5 years old, the girl fell ill with dysentery and died. It was a big trauma for Iya Mikhailovna. All her life, she kept a photo of her daughter nearby.

Baikal period (1942–1945). In May 1941, IM moved to Lake Baikal and became a researcher of the Baikal Limnological Station of the USSR Academy of Sciences in the village Listvyanka (Fig. 11). She lived with her aunt and grandmother. There she met her future husband, Vladimir Yakovlevich Levanidov, and associated with his life until the end. Here they had their first son, Mikhail (Fig. 12). Then, in Khabarovsk, the second son, Igor, was born. IM and VY (the nick names which their colleagues used in informal settings) worked at the Baikal Limnological Station from 1942 to 1945. IM studied biology and ecology of Baikal caddis and tried to understand the reasons for the immiscibility of the Siberian and Baikal endemic faunas. She described the larvae of six endemic species of Baikal caddis. From that time she was tightly connected with Sophia Lepneva who worked in the Zoological Institute in Leningrad and advised IM about immature stages of caddisflies (Fig. 13).

Iya often recalled those times with love (and even humor). She said it was a difficult period, the Second World War, with many limitations in equipment, scientific resources, and food. But all people were very friendly, helpful and found time to laugh, kid, and joke. That time was complicated but interesting. Vladimir Menshutkin, a colleague of IM and VY, remembers: "Baikal was studied passionately and selflessly, do not settle over time, nor danger, nor the lack of funds and instruments, and do wonders, not for degrees, simply serve science sincerely and with dignity" (Slugina 2012).

Sevan Lake Hydrobiological Biostation (1947). Little is known about this period. The Levanidov couple moved to here after V.Y. Levanidov graduated. There IM investigated caddisflies and continuing study of fish feeding which she had started on Lake Baikal.



FIGURE 12–17.

12, V.Y. and I.M. Levanidovs with their elder son Mikhail (archive of M. Smirnov);

13, Sophja Lepneva with her followers in the Laboratory of Insect Systematics, Zoological Institute, Russian Academy of Science (1959) (sitting in the center, and L.A. Zhiltzova to the right of her) (property of the Laboratory of Insect Systematics, Zoological Institute of the Russian Academy of Science, St. Petersburg);

14, Laboratory of salmon reproduction of Amur Branch of Pacific Institute of Fishery and Oceanography (Iya Mikhailovna Levanidova is standing the second from the left, Vladimir Yakovlevich sits in the center) (provided by E. Makarchenko);

15, The Levanidovs among colleagues in field work in Kamchatka (provided by E.A. Makarchenko);

16, Iya Mikhailovna Levanidova in the Chukotka expedition (1975) (by I.A. Chereshev, author archive);

17, Iya Mikhailovna Levanidova and E. Makarchenko and T. Vshivkova in the Kurile expedition (Kunashir Island, 1977) by I.A. Chereshev (provided by E.A. Makarchenko).

Khabarovsk period (1948–1963). After an invitation of the Levanidovs by the Director of the Amur Branch of the Pacific Institute of Fishery and Oceanography, the Levanidov couple moved to Khabarovsk, where Vladimir Yakovlevich became Head of the Laboratory of Salmon Reproduction (Fig. 14). Here, they did applied research to estimate annual salmon catch limits and provide prognoses for developing salmon schools. They started the investigation in fundamental hydrobiology with an accent on small streams. In particular, they were among the first in the world to study the phenomenon of active migration of invertebrates in rivers (drift) (Chereshnev & Makarchenko 2013).

Kamchatka period (1963–1971). The next stage was the investigation of Kamchatka streams and rivers. The newly created Laboratory of Salmon Reproduction (the same name as previously) under Dr. V.Y. Levanidov (Fig. 15) concentrated on new plans, new challenges. The Levanidovs achieved an international level of research and collaboration, studying the migration routes of salmon in the ocean, solving problems of salmon stock conservation in the Far Eastern seas of the USSR by introducing the 200-mile zone. The basis of the adoption of this international law was formed with recommendations by Dr. V.Y. Levanidov. But his wife, Iya Mikhailovna has been studying the fauna of aquatic insects, life cycles, ecology, describing new species, and analyzing the geographical distribution of amphibiotic insects. She understood that it was necessary to think about her followers and students who can help her and continue her research. There was not enough time to solve so many problems by herself. Up to that time, she was already recognized as an international authority in trichopteroLOGY, conducting extensive correspondence with foreign colleagues such as Drs. Ross and Flint (USA), Schmid and Wiggins (Canada), Kuwayama (Japan), Zwick (Germany), Botosaneanu (Romania, the Netherlands), and others. Her attention more and more was devoted to the immature and adult stages of caddisflies (Vshivkova *et al.* 2013).

Primorye period (1971–2005). By the early 1970s, the Levanidovs came to understand the importance of research on small and medium-sized rivers, which fattens the juveniles of salmon. In Russia there were almost no specialists in leading groups of amphibiotic insects, which form the basis of salmon forage. So, in 1971, accepting an invitation of Dr. N.N. Vorontsov, the famous Soviet geneticist, at that time the director of the Institute of Biology and Soil Sciences, they did not hesitate to move to Vladivostok. In a new Laboratory of Freshwater Hydrobiology and Ichthyology, Iya Mikhailovna was going to educate specialists in aquatic entomology, and Vladimir Yakovlevich in ichthyology. IM's first students were E.A. Makarchenko (Chironomidae and other aquatic Diptera), E.A. Nikolayeva (Tolstikova) (Plecoptera), and T.S. Vshivkova (Trichoptera and Megaloptera). Later S.L. Kocharina (Trichoptera), T.M. Tiunova (Ephemeroptera), V.A. Teslenko (Plecoptera), M.A. Makarchenko (Chironomidae larvae), and T.I. Luckyanchenko (Arefina/Arefina-Armitage) (Trichoptera) entered the Laboratory. There were other followers who worked in different institutions, but started their research under IM and VY's supervision, including T.L. Vvedenskaya (Kamchatka), I.A. Zasyapkina and V.L. Samokhvalov (Magadan District), V.V. Chebanova (Kamchatka), and E.A. Potikha (North Primorye).

The early days of the Laboratory of Freshwater Hydrobiology and Ichthyology under V.Y. Levanidov were marked with bright, unforgettable events, long and interesting expeditions throughout the Russian Far East: Chukotka, Magadan District, Kamchatka, Okhotsk Coast, Sakhalin, Kuriles, North and South Primorye (Figs. 16–17). The atmosphere in the whole Institute created by Director Vorontsov and in the young Lab was very positive, saturated with youthful enthusiasm. The attitude to science, sublime sacrifice, relations in the team, were friendly, open, warm. The differences in age between the young employees and their heads was almost 35–40 years. Therefore VY & IM called their students "our kindergarten," and the students called them "chiefs" (Fig. 18).

From the beginning of the Lab, a series of proceedings and monographs began to be published under I.M. Levanidova, summarizing results of faunistic, taxonomic, and biogeographic studies of Far Eastern freshwater biota, as well as research on productivity and water quality monitoring. Permanent editors of these collections were first IM, then E.A. Makarchenko and I.A. Chereshnev.

After V.Y. Levanidov's death (in December 1981) the Laboratory was headed by I.M. Levanidova. Since that time the study of longitudinal distribution and the structure and function of benthic communities was started, as well as research on water quality estimation. The biomonitoring of streams and large rivers was conducted in reference and impacted areas.

In 1989, the Laboratory was headed by a disciple of I.M. Levanidova, E.A. Makarchenko, well-known Russian specialist in Diptera, who is continuing the work of teaching and strengthening the Far Eastern scholars of freshwater hydroentomology (Vshivkova 2014).

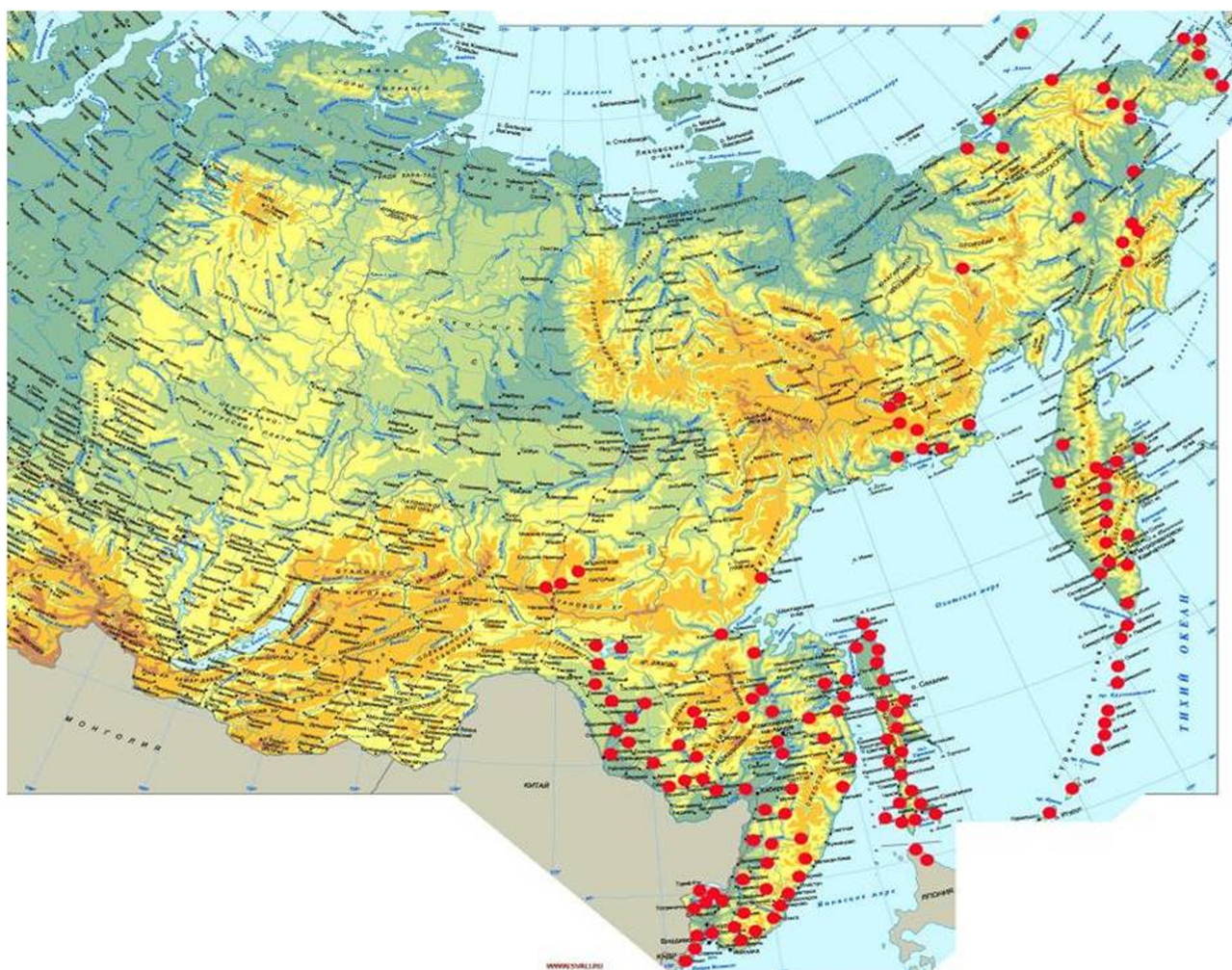


FIGURE 18. Map of the Russian Far East, with collecting sites of the Laboratory of Freshwater Hydrobiology, Institute of Biology and Soil Science, Far East Branch, Russian Academy of Science (during 1971 to 2005) (provided by E.A. Makarchenko).

In 2005, after a long illness, I.M. Levanidova died, leaving behind not only remarkable scientific papers, but also many students who continue her work.

IM's father joked about his daughter, "That she is going to consider the stars...". She did indeed consider and describe earthly "stars," the little wonderful creatures living on the bottom of rivers and lakes.

I.M. Levanidova published 78 scientific articles and the well-known monograph "*Amphibiotic Insects of Mountainous Regions of the Far East of the USSR*" (Table 1). She described 27 species of caddisflies, 1 mayfly, and 4 stoneflies (Table 2). Twenty-two taxa are named in her honor (Table 3) and another is being described. Many new taxa were described by her colleagues from specimens of various groups of aquatic invertebrates that IM collected. Many "white spots" of freshwater biota disappeared from the map of the Russian Far East due to her and her disciples' expeditions and research (Fig. 18).

TABLE 1. Publications of I.M. Levanidova

- | | |
|----|---|
| | 1941 |
| 1. | Bebutova, I.M. (Levanidova) (1941). Biology and systematics of caddisfly larvae of Baikal Lake. <i>Bulletin of USSR Academy of Sciences</i> , 1, 82–104. [in Russian] |
| | 1946 |
| 2. | Bazikalova, A.Y., Vereshchagin, G.Y. & Levanidova, I.M. (1946) Baikal Lake (scientific fishing survey). <i>Library of Limnological Institute of Siberian Branch of USSR Academy of Sciences, Irkutsk</i> , 1, 1–7. [in Russian] |

1947

3. Levanidova, I.M. (1947) On the knowledge of Trichoptera of the Hovsgol Lake (Mongolia). *Doklady Academy of Sciences of the USSR*, 40(6), 561–563. [in Russian]

1948

4. Levanidova, I.M. (1948) On the reasons of immiscibility of the faunas of Lake Baikal and Palaearctic. *Trudy of the Limnological Station on the Baikal Lake of the Academy of Sciences of the USSR*, 12, 57–81. [in Russian]

1950

5. Levanidova, I.M. (1950) A case of parthenogenesis of Trichoptera. *News of Pacific Institute of Fishery and Oceanography*, Vladivostok, 32, 164. [in Russian]

1951

6. Levanidova, I.M. (1951) Larvae of Calamoceratidae from the Far East of the USSR. *Entomologicheskoye Obozreniye*, 34(3–4), 529–537. [in Russian]
7. Levanidov, V.Y. & Levanidova I.M. (1951) Feeding of juvenile *Oncorhynchus keta* in fresh waters. *News of Pacific Institute of Fishery and Oceanography*, Vladivostok, 35, 41–46. [in Russian]

1953

8. Lepneva, S.G. & Levanidova, I.M. (1953) Larvae of *Stenopsyche bergeri* (Trichoptera, Stenopsychidae) of the Amur river basin. *Trudy Zoolgicheskogo Instituta of Academy of Sciences of the USSR*, 13, 326–336. [in Russian]

1957

9. Levanidov, V.Y. & Levanidova, I.M. (1957) Feeding of smolts of *Oncorhynchus keta* and *O. gorbusha* in tributaries of the Amur river. *News of Pacific Institute of Fishery and Oceanography*, Vladivostok, 45, 3–16. [in Russian]

1959

10. Levanidova, I.M. (1959) Biological productivity of salmon fish hatcheries of the Tyoploye Lake. In: Zhadin, V., Kuzin, B., Kuznetsov, S. & Pavlovsky, E. (Eds.), *Proceedings of the VI Meeting of Biological Problems of Internal Waters*. Academy of Sciences of the USSR Publisher, Moscow, 10–19 June 1957, pp. 14–23. [in Russian]
11. Levanidov, V.Y. & Levanidova, I.M. (1959) Iman River, its hydrological and hydrochemical regimes and its importance for breeding of Amur autumn *Oncorhynchus keta*. *Archive of Khabarovsk Branch of Pacific Institute of Fishery and Oceanography*, 149, 1–66. [in Russian]

1960

12. Levanidova, I.M. (1960) *Apatania zonella* Zett. (Trichoptera, Limnephilidae) from Khabarovsk Territory. *Entomologicheskoye Obozreniye*, 39(2), 418–423. [in Russian]
13. Levanidova, I.M. & Levanidov, V.Y. (1960) Data on qualitative and quantitative characteristics of benthos migrating in water column of Amur River. *Archive of Khabarovsk Branch of Pacific Institute of Fishery and Oceanography*, 149, 1–84. [in Russian]

1961

14. Levanidova, I. M. (1961) Contribution to the knowledge of larvae of the genus *Apsilochorema* Ulm. in the USSR (Hydrobiosinae, Rhyacophilidae, Trichoptera). *Trudy Instituta Zoologii i Parasitologii of Tadjik SSR imeni Akademika E.N. Pavlovskogo*, 20, 211–215. [in Russian]

1962

15. Levanidova, I. M. (1962) Contribution to the study of caddisfly larvae (Trichoptera) of Siberia and the Far East. *News of Pacific Institute of Fishery and Oceanography*, Vladivostok, 48, 190–194 (in Russian).
16. Levanidov, V.Y. & Levanidova, I.M. (1962) Tyoploye Lake fish hatchery and its biological productivity. *News of Pacific Institute of Fishery and Oceanography*, Vladivostok, 48, 3–66. [in Russian]
17. Levanidov, V.Y. & Levanidova, I.M. (1962) The migration of bottom invertebrates in the channels of Far Eastern rivers. *News of Pacific Institute of Fishery and Oceanography*, Vladivostok, 48, 178–189. [in Russian]
18. Levanidova, I. M. (1964) On the knowledge of the caddisflies (Trichoptera) of Lake Baikal. *Entomologicheskoye Obozreniye*, 43, 677–679. [in Russian]

1964

19. Levanidova, I.M. (1964) Food of salmon fish juvenile of the Amur River Basin and perspectives of its study]. In: Moiseyev, P.A. (Ed.), *Salmon Fish Hatcheries of the Far East*, Nauka, Moscow, pp. 153–174. [in Russian]
20. Levanidova, I.M. (1964) To zoogeography of hydrofauna of the southern Far East. *News of Pacific Institute of Fishery and Oceanography*, Vladivostok, 55, 175–195. [in Russian]

1965

21. Levanidova, I.M. & Levanidov, V.Y. (1965) Daily migration of benthic insect larvae in the river stream. 1. Migrating larvae of mayflies in the river Khor. *Zoologicheskyy Zhurnal*, 14(3), 373–385. [in Russian]
22. Levanidova, I.M. & Rubanenkova, L.S. (1965). About method of investigation of life cycles of amphibiotic insects. *Zoologicheskyy Zhurnal*, 49(1), 34–45. [in Russian]

1967

23. Levanidova, I. M. (1967). Data on the fauna of caddisflies (Trichoptera) from Siberia and the Far East. *Entomologicheskoye Obozreniye*, 46(4), 793–798. [in Russian]

1968

24. Levanidova, I.M. (1968) Benthos of the Amur River tributaries. *News of Pacific Institute of Fishery and Oceanography, Vladivostok*, 64, 181–189. [in Russian]
25. Levanidova, I.M. & Nikolaeva, E.T. (1968) Benthos moving [drift] in Kamchatka rivers. *News of Pacific Institute of Fishery and Oceanography, Vladivostok*, 64, 291–299. [in Russian]

1969

26. Levanidova, I. M. (1969). Biology of *Hydatophylax nigrovittatus* (McL.) (Trichoptera, Limnephilidae) in Far Eastern watercourses. *Hydrobiology Journal, Kiev*, 5, 64–67. [in Russian]

1970

27. Levanidova, I.M. (1970). Ecology and zoogeography of stoneflies, mayflies and caddisflies of Kamchatka Peninsula rivers. *News of Pacific Institute of Fishery and Oceanography, Vladivostok*, 73, 100–114. [in Russian]
28. Levanidova, I.M. (1970). Stoneflies (Plecoptera) of Kamchatka. *News of Pacific Institute of Fishery and Oceanography, Vladivostok*, 78, 203–224. [in Russian]
29. Levanidova, I.M., Kokhmenko, L.V. (1970). Quantitative characteristics of benthos of Kamchatka Peninsula rivers. *News of Pacific Institute of Fishery and Oceanography, Vladivostok*, 73, 88–99. [in Russian]
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TABLE 2. Species of Ephemeroptera, Plecoptera and Trichoptera described by I.M. Levanidova (some of them with co-authors)

EPHEMEROPTERA

1. *Neophemeropsis rarus* Tiunova & Levanidova 1989, now a junior synonym of *Potamantellus chinensis* (Hsu 1935)

PLECOPTERA

Perlodidae

2. *Pictetiella asiatica* Zwick & Levanidova 1971

Chloroperlidae

3. *Haploperla maritima* Zhiltzova & Levanidova 1978
4. *Suwallia asiatica* Zhiltzova & Levanidova 1978
5. *Suwallia decolorata* Zhiltzova & Levanidova 1978

TRICHOPTERA

Apataniidae

6. *Allomyia coronae* Levanidova & Arefina 1995
7. *Allomyia delicatula* Levanidova & Arefina 1995
8. *Allomyia sajanensis* (Levanidova 1967), *Imania*
9. *Apatania insularis* Levanidova 1979
10. *Apatania maritima* Ivanov & Levanidova 1993
11. *Apataniana pamirensis* Mey & Levanidova 1989
12. *Apataniana tschuktschorum* Levanidova 1979

Glossosomatidae

13. *Glossosoma* (*Anagapetus*) *schmidi* Levanidova 1979
14. *Glossosoma* (*Glossosoma*) *angaricum* (Levanidova 1967), *Mystrophora*; now in subgenus *Synafophora*

Hydroptilidae

15. *Stactobia makartschenkoi* Botosaneanu & Levanidova 1988

Leptoceridae

16. *Ceraclea* (*Athripsodina*) *trilobulata* Morse, Yang & Levanidova 1997 (in Vshivkova *et al.* 1997)
17. *Ceraclea* (*Ceraclea*) *bifurcata* Morse, Yang & Levanidova 1997 (in Vshivkova *et al.* 1997)
18. *Ceraclea* (*Ceraclea*) *equiramosa* Morse, Yang & Levanidova 1997 (in Vshivkova *et al.* 1997)
19. *Setodes obscurus* Schmid & Levanidova 1986

Limnephilidae

20. *Limnephilus tiunovae* Arefina & Levanidova 1996

Philopotamidae

21. *Dolophilodes affinis* Levanidova & Arefina 1996

Psychomyiidae

22. *Lype daurica* Ivanov & Levanidova 1996
23. *Psychomyia birushka* Arefina & Levanidova 1996

Ptilocolepidae

24. *Palaeagapetus finisorientis* Botosaneanu & Levanidova 1987

Rhyacophilidae

25. *Rhyacophila kaltatica* Levanidova & Schmid 1977
26. *Rhyacophila lepnevae* Levanidova 1977
27. *Rhyacophila maritima* Levanidova 1977
28. *Rhyacophila mirabilis* Levanidova & Schmid 1977
29. *Rhyacophila mongolica* Levanidova 1993
30. *Rhyacophila monstrosa* Levanidova & Schmid 1977
31. *Rhyacophila nana* Levanidova 1993
32. *Rhyacophila sutchanica* Schmid & Levanidova 1986

TABLE 3. I.M. Levanidova's patronyms

OLIGOCHAETA

1. *Rhyacodrilus levanidovae* Sokolskaya 1973

MOLLUSCA

2. *Helicorbis levanidovae* Zatravkin & Moskvicheva 1985

HYDRACARINA

3. *Sperchon levanidovae* Wainstein 1981

CRUSTACEA

4. *Eulimnogammarus levanidovae* Kamaltynov 2010
5. *Stygobromus levanidovae* (Karaman 1991)

EPHEMEROPTERA

6. *Cincticostella levanidovae* (Tshernova 1952)
7. *Iron levanidovae* Sinitshenkova 1982, now a junior synonym of *Iron aesculus* (Imanishi 1934)

PLECOPTERA

8. *Capnia levanidovae* Kawai 1969
9. *Levanidovia mirabilis* Teslenko & Zhiltzova 1989
10. *Nemoura levanidovae* Zwick 1974
11. *Perlomyia levanidovae* (Zhiltzova 1975)
12. *Rhopalopsale levanidovae* Zhiltzova 1975

TRICHOPTERA

13. *Baicalina levanidovae* Ivanov & Menshutkina 1996
14. *Plectrocnemia levanidovae* Vshivkova, Arefina & Morse 2001
15. *Psychomyia levanidovae* Schmid 1997
16. *Triaenodes levanidovae* (Morse & Vshivkova 1997), *Ylodes*, in Vshivkova *et al.* 1997

MEGALOPTERA

17. *Sialis levanidovae* Vshivkova 1980

COLEOPTERA

18. *Macronychus levanidovae* Lafer 1980

DIPTERA

19. *Phylorus levanidovae* Zwick & Arefina 2005

20. *Prodiamesa levanidovae* Makarchenko 1982

21. *Nymphomyia levanidovae* Rohdendorf & Kalugina 1974

22. *Ormosia* (*Ormosia*) *levanidovae* Savchenko 1983

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