

## On the history of the study of land turtles (Testudinidae, *Testudo*) of the Caucasus

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**Abstract.** An analysis of the literature on long-term studies of the land turtle (Testudinidae, *Testudo graeca*) in the Caucasus was carried out. Particular attention is paid to the results obtained over the past decades. Starting from the 19th century, the main stages in the history of study have been identified. The main focus of the researchers was on the ecology, biology and taxonomy of the species. Despite a long history of study, the species in the Caucasus still remains insufficiently studied.

**Keywords:** mediterranean tortoise, *Testudo*, Caucasus, literature review

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### REFERENCES

Alekperov A. M. On the distribution of some species of amphibians and reptiles on the Apsheron Peninsula. *The Problems of Herpetology: Abstracts of Third Herpetological Conference*. Leningrad, Nauka, 1973, pp. 5 (in Russian).

Alekperov A. M. Materials on the study of turtles of Azerbaijan SSR. In: *Materials on the Fauna and Ecology of Terrestrial Vertebrates of Azerbaijan*. Baku, Elm, 1975, pp. 237–252 (in Russian).

Alekperov A. M. Amphibians and Reptiles of Azerbaijan. Baku, Elm, 1978. 262 p. (in Russian).

Alekperov A. M., Khozatsky L. I. Structural features of the shell of the greek tortoise. *Scientific Notes of Azerbaijan State University. Biological Series*, 1977, no. 4, pp. 43–49 (in Russian).

Ananjeva N. B., Borkin L. J., Darevsky I. S., Orlov N. L. *Zemnovodnye i presmykaiushchiesia. Entsiklopediia prirody Rossii* [Amphibians and Reptiles. Encyclopaedia on the Nature of Russia]. Moscow, ABF, 1998. 576 p. (in Russian).

Ananjeva N. B., Milto K. D., Ostrovskikh S. V., Pestov G. M., Pestov M. V. Project on study and conservation of *Testudo graeca nikolskii* in the Western Caucasus: The first results and perspectives. *The Problems of Herpetology: Proceedings of the 3th Meeting of the Nikolsky Herpetological Society*. Saint Petersburg, Zoological Institute of RAS Publ., 2008, pp. 25 – 30 (in Russian).

Ananjeva N. B., Orlov N. L., Khalikov R. G., Darevsky I. S., Ryabov S. A., Barabanov A. V. *Colored*

*Atlas of the Reptiles of the North Eurasia (Taxonomic Diversity, Distribution, Conservation Status)*. St. Petersburg, Zoological Institute of RAS Publ., 2004. 232 p. (in Russian).

Anisimov P. S. *Redkie i ischezayushchie pozvonochnye zhivotnye Checheno-Ingushskoi ASSR* [Rare and Endangered Vertebrate Animals of the Chechen-Ingush ASSR]. Grozny, Checheno-Ingushskoye knizhnoye izdatelstvo, 1989. 157 p. (in Russian).

Afanasyev S. F. On the question of studying the fauna of vertebrates of the Chechen-Ingush Autonomous Soviet Socialist Republic. *Proceedings of the Chechen-Ingush Republican Museum of Local History*, 1961, iss. 10, pp. 42–52 (in Russian).

Banik M. V., Dzhamirzoev G. S., Ateasov A. A., Goncharov G. L. Rare species of reptiles of Primorsky lowland of Dagestan: The state of populations and the need for protection. *Geoecological and Bioecological Problems of the Northern Black Sea region. Materials of the International Scientific-Practical Conference*. Tiraspol, Transnistria State University Publ., 2000, pp. 18–20 (in Russian).

Bannikov A. G. Materials for the knowledge of the biology of the Caucasian turtles. *Izvestiya of the Moscow City Pedagogical Institute named after V. Potemkin*, 1951, vol. 18, pp. 129–167 (in Russian).

Bannikov A. G. Materials on the biology of amphibians and reptiles of southern Dagestan. *Scientific Notes of the Moscow State Pedagogical Institute*, 1954, vol. 28, iss. 2, pp. 75–88 (in Russian).

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- Bannikov A. G., Darevsky I. S., Rustamov A. K. *Zemnovodnye i presmykayushchiesya SSSR* [Amphibians and Reptiles of the USSR]. Moscow, Mysl', 1971. 303 p. (in Russian).
- Bannikov A. G., Darevsky I. S., Ishchenko V. G., Rustamov A. K., Szczerbak N. N. *Opredelitel' zemnovodnykh i presmykayushchikhsya fauny SSSR* [A Guide of Amphibians and Reptiles of Fauna of USSR]. Moscow, Prosveshchenie, 1977. 415 p. (in Russian).
- Beme L. B. Results of the survey of hunting economy of Parabochevsky and Samursky zakazniks of the NKZ of Dagestan SSR and a brief review of the fauna of terrestrial vertebrates inhabiting them. *Proceedings of the Gorsky Pedagogical Institute*, 1928, vol. 5, pp. 115–156 (in Russian).
- Borkin L. Y. A brief sketch of herpetology development in Russia. In: *Moskovskie gerpetologi* [Moscow Herpetologists]. Moscow, KMK Scientific Press, 2003, pp. 7–33 (in Russian).
- Vereshchagin N. K. Amphibians and reptiles. *Zhivotnyj mir SSSR* [Animal World of the USSR]. Moscow, AN SSSR Publ., 1958, vol. 5, pp. 261–286 (in Russian).
- Gichikhanova U. A. Mediterranean tortoise and problems of conservation of its population in Dagestan. *Biological Diversity of the Caucasus and the South of Russia: Proceedings of the XIX International Scientific Conference with Elements of the Scientific School of Young Scientists, dedicated to the 75th anniversary of the birth of Gayirbeg Magomedovich Abdurakhmanov*. Makhachkala, Institute of Applied Ecology of the Republic of Dagestan Publ., 2017, pp. 3–10 (in Russian).
- Gichikhanova U. A. The current state of the populations of the mediterranean tortoise *Testudo graeca* Linnaeus, 1758 in Dagestan and the problems of its protection. *XXV International Scientific Conference of Students, Postgraduate Students and Young Scientists "Lomonosov-2018". Section "Vertebrate Zoology"*. Moscow, Lomonosov Moscow Stste University Press, 2018, pp. 12–13 (in Russian).
- Gichikhanova U. A. Variability of shielding of the mediterranean tortoise shell in Dagestan. *XXVI International Scientific Conference of Students, Postgraduate Students and Young Scientists "Lomonosov-2019". Section "Vertebrate Zoology"*. Moscow, Lomonosov Moscow Stste University Press, 2019, pp. 9–10 (in Russian).
- Gichikhanova U. A. Nutrition of the Mediterranean tortoise *Testudo graeca* (Linnaeus, 1758) in Dagestan. *XXVII International Scientific Conference of Students, Postgraduate Students and Young Scientists "Lomonosov-2020". Section "Vertebrate Zoology"*. Moscow, Lomonosov Moscow Stste University Press, 2020, pp. 23 (in Russian).
- Gichikhanova U. A. On the feeding ecology of the greek tortoise (*Testudo graeca* Linnaeus, 1758) in Dagestan. *Problems of Herpetology: Program and Abstracts of the VIII Congress of the A. M. Nikolsky Herpetological Society (NHS) of the Russian Academy of Sciences "Current Herpetological Research in Eurasia"*. Moscow, KMK Scientific Press, 2021, pp. 58–59 (in Russian).
- Gichikhanova U. A., Ismaulova Z. S., Mazanaeva L. F. Some data on morphology of *Testudo graeca* in Dagestan. *Modern Herpetology: Problems and Ways of their Solutions. Conference proceedings of the First International Conference of Young Herpetologists of Russia and Neighboring Countries, dedicated to the 100th Anniversary of the Department of Herpetology of the Zoological Institute RAS*. Saint Petersburg, Zoological Institute RAS Publ., 2019a, pp. 39 (in Russian).
- Gichikhanova U. A., Arabova M. A., Mazanaeva L. F. Seasonal and daily activity *Testudo graeca* in Dagestan. *Modern Herpetology: Problems and Ways of their Solutions. Conference proceedings of the First International Conference of Young Herpetologists of Russia and Neighboring Countries, dedicated to the 100th Anniversary of the Department of Herpetology of the Zoological Institute RAS*. Saint Petersburg, Zoological Institute RAS Publ., 2019b, pp. 38 (in Russian).
- Gnetneva A. N., Pestov M. V., Lebedinskii A. A. The occurrence of pholidosis deviations of the shells' corneous mails among *Testudo graeca nicolskii* on western Caucasus. In: *Anomalies and Pathologies of Amphibians and Reptiles: Methodology, Evolutionary Significance, Possibility of Environmental Health Assessment: Proceedings of the International School-Conference*. Yekaterinburg, Ural State University Publ., 2014, pp. 63–69 (in Russian).
- Dzhamirzoev G. S., Tertyshnikov M. F. Materials on the distribution and abundance of the Mediterranean tortoise (*Testudo graeca* Linn., 1758) in Dagestan. *Herpetological Vestnik*, 2000, vol. 2, no. 3–4, pp. 23–25 (in Russian).
- Dunaev E. A., Orlova V. F. *Zemnovodnye i presmykayushchiesya Rossii. Atlas-opredelitel'* [Amphibians and reptiles of Russia. Atlas-determinant]. Moscow, Fiton+, 2012. 320 p. (in Russian).
- Dunaev E. A., Orlova V. F. *Zemnovodnye i presmykayushchiesya Rossii: atlas-opredelitel'* [Amphibians and reptiles of Russia: Atlas-determinant]. Ed. 2nd, proc. and add. Moscow, Fiton XXI, 2017. 328 p. (in Russian).
- Inozemtsev A. A., Pereshkolnik S. L. Current state and perspectives of the protection of the tortoises *Testudo graeca* L., which extends on the Black Sea coast of the Caucasus. In: *The influence of anthropogenic factors on the structure and functioning of biogeocenoses*. Kalinin, Kalinin State University Publ., 1985, pp. 60–79 (in Russian).
- Iskenderov T. M., Ahmadov S. B., Novruzov N. E., Bunyatova S. N., Gasimova G. H. New species of the genus *Testudo* (Linnaeus, 1758) for the herpetofauna of Azerbaijan. *Amurian Zoological Journal*, vol. 5, no. 4, pp. 464–465 (in Russian).
- Kessler K. Travel in the Transcaucasian region in 1875 for zoological purposes. *Proceedings of the St. Petersburg Society of Naturalists*, 1878, iss. 8. 200 p. (in Russian).

- Kolakovsky A. A., Bebia S. M., Urushadze T. F., Adzinba Z. I., Balabanov I. P., Berdzenishvili M. G., Bondurovsky G. M., Dolukhanov A. G., Kakulia G. A., Virkvelia B. D., Kitsmareishvili L. S., Povolotskaya V. S., Puchkina E. E., Rusanov A. B., Tarasov A. I., Tugushi K. N., Tuniev B. S., Shalibashvili G. K., Shengelia E. M., Yabrova-Kolakovskaya V. C. *Picunda-Mjusserskij zapovednik* [Pitsunda-Musser Reserve]. Moscow, Agropromizdat, 1987. 190 p. (in Russian).
- Kostina G. N., Galichenko M. V. Some morphological features of the Mediterranean tortoise from Southern Dagestan. In: *Vliyanie antropogennykh faktorov na strukturu i funkcionirovanie biotsenozov i ikh odelnykh komponentov* [Influence of Anthropogenic Factors on the Structure and Functioning of Biocenoses and Their Individual Components]. Moscow, 1998, pp. 80–84 (in Russian).
- The Red Book of Azerbaijan*. Baku, Institute of Zoology, National Academy of Science Publ., 2013. 493 p. (in Azerbaydzhan).
- The Red Book of the Krasnodar Territory. Animals*. 2nd ed. Krasnodar, Tsentr razvitiya PTR Krasnodarskogo kraya Publ., 2007. 504 p. (in Russian).
- The Red Book of the Krasnodar Territory. Animals*. 3rd ed. Krasnodar, Administratsiya Krasnodarskogo kraya Publ., 2017. 720 p. (in Russian).
- The Red Data Book of the Republic of Dagestan*. Makhachkala, Respublikanskaya gazetno-zhurnalnaya tipografiya, 2009. 552 p. (in Russian).
- The Red Data Book of the Republic of Dagestan*. Makhachkala, Tipografiya IP Dzhamaludinov M. A., 2020. 800 p. (in Russian).
- The Red Data Book of the Russian Federation. Animals*. Moscow, AST–Astrel, 2001. 862 p. (in Russian).
- Red Book of the Russian Federation. Animals*. 2nd ed. Moscow, VNI Ecology Publ., 2021. 1128 p. (in Russian).
- Krasnaya kniga SSSR: Redkie i nakhodyashchiesya pod ugrozoi ischeznoveniya vidy zhivotnykh i rastenii. Izd. 2-e, pererab. i dop.* [Red Book of the USSR: Rare and Endangered Species of Animals and Plants. 2nd ed., rev. and suppl.]. Moscow, Lesnaya promyshlennost, 1984, vol. 1. 392 p. (in Russian).
- The Red Book of the Chechen Republic: Rare and Endangered Species of Plants and Animals*. Grozny, Yuzhnyy izdatelskiy dom, 2007. 432 p. (in Russian).
- The Red Book of the Chechen Republic*. 2nd ed. Rostov-on-Don, Yuzhnyy izdatelskiy dom, 2020. 480 p. (in Russian).
- Krasovsky D. B. Materials for the knowledge of the fauna of terrestrial vertebrates of the Rutul canton of the Dagestan ASSR. *Proceedings of the 2nd North-Caucasian Pedagogical Institute*, 1932, vol. 9, pp. 185–218 (in Russian).
- Kuzmin S. L., Semenov D. V. *Conspect of the Fauna of Amphibians and Reptiles of Russia*. Moscow, KMK Scientific Press, 2006. 139 p. (in Russian).
- Kuftyreva N. S., Lashkhia Sh. V., Mgeladze K. G. *Priroda Abkhazii* [Nature of Abkhazia]. Sukhumi, Abgosizdat, 1961. 341 p. (in Russian).
- Levinson S. V. On the breeding biology of the greek tortoise in Southern Dagestan. *The Problems of Herpetology: Abstracts of Fourth Herpetological Conference*. Leningrad, Nauka, 1977, pp. 131–132 (in Russian).
- Leontyeva O. A., Gallyamov R. R., Slavinskaya I. V. Distribution and composition of populations in *Testudo graeca nikolskii* on the Abrau peninsula. *The Problems of Herpetology: Proceedings of the 1th Meeting of the Nikolsky Herpetological Society*. Pushchino, Moscow, Lomonosov Moscow State University Press, 2001, pp. 165–167 (in Russian).
- Leontyeva O. A., Kolonin G. V. Parasitism of the ticks *Hyalomma aegyptium* on the tortoises *Testudo graeca nikolskii*. *The Problems of Herpetology: Proceedings of the 1th Meeting of the Nikolsky Herpetological Society*. Pushchino, Moscow, Lomonosov Moscow State University Press, 2001, pp. 167 (in Russian).
- Leontieva O. A., Sidorchuk E. A. Population structure of the mediterranean turtle on the Black Sea coast of the Caucasus. *Structure and Functional role of Animals in Natural and Transformed Ecosystems: Abstracts of the 1st International Conference*. Dnepropetrovsk, Dnepropetrovsk National University Publ., 2001, pp. 164–165 (in Russian).
- Leontieva O. A., Sidorchuk E. A. Population structure and morphological characteristics of the mediterranean tortoise (*Testudo graeca nikolskii*) on Abrau peninsula. *Biodiversity of the Abrau Peninsula*. Moscow, Lomonosov Moscow State University Press, 2002, pp. 90–98 (in Russian).
- Leontyeva O. A., Suslova E. G., Pereshkolnik S. L. On the need to create the Utrish Nature Reserve. In: *Prospects for the Development of Specially Protected Natural Areas and Tourism in the North Caucasus: Materials of the International Scientific and Practical Conference*. Maykop, Kachestvo, 2008, pp. 116–122 (in Russian).
- Leonteva O. A., Pestov M. V., Pereshkolnik S. L. Current status and problems of protection of *Testudo graeca nikolskii* in north-western part of the area. *The Problems of Herpetology: Proceedings of the 5th Congress of the Alexander M. Nikolsky Herpetological Society*. Minsk, Pravo i ekonomika, 2012, pp. 155–159 (in Russian).
- Leontieva O. A., Pereshkolnik S. L., Pestov M. V., Sychevsky E. A. Population status of the mediterranean turtle (*Testudo graeca nikolskii*) on the Abrau peninsula. *Biodiversity of the State Nature Reserve “Utrish”*. Anapa, Utrish State Nature Reserve Publ., 2013, vol. 1, pp. 203–220 (in Russian).
- Lotiev K. Yu. Reptiles. In: *The Red Book of the Chechen Republic: Rare and Endangered Species of Plants and Animals*. Grozny, Yuzhnyy izdatelskiy dom, 2007, pp. 279–305 (in Russian).
- Lotiev K. Yu. Mediterranean turtle. *Red Data Book of the Chechen Republic (second edition)*. Rostov-

- on-Don, Yuzhnyy izdatelskiy dom, 2020, pp. 338–339 (in Russian).
- Mazanaeva L. F. Mediterranean turtle, *Testudo graeca* Linnaeus, 1758. *Proceedings of the Dagestansky Reserve*, 2013, iss. 6, pp. 48–55 (in Russian).
- Mazanaeva L. F., Gichikhanova U. A. On the Reduction of the Area and Abundance of the Greek Tortoise *Testudo graeca* Linnaeus, 1758 (Testudinidae, Reptilia) on the Primorsky Lowland of Dagestan and Problems of its Conservation. *Current Studies in Herpetology*, 2018, vol. 18, iss. 3–4, pp. 135–145 (in Russian). <https://doi.org/10.18500/1814-6090-2018-18-3-4-135-145>
- Mazanaeva L. F., Gichikhanova U. A. Spreading and biotopic distribution of the greek tortoise (*Testudo graeca* Linnaeus, 1758) in the foothills of Dagestan. *University Proceedings. Volga Region. Natural Sciences*, 2019, no. 3 (27), pp. 84–96 (in Russian). <https://doi.org/10.21685/2307-9150-2019-3-9>
- Mazanaeva L. F., Gichikhanova U. A., Askenderov A. D., Ismailova Z. S. About the herpetological collection of the Dagestan State University. *All-Russian Conference “Zoological Collections as the Source of Genetic Resources of the World Fauna – Classical and Modern Approaches to its Study, Storage and Use”*: Program, Abstracts of Talks and Posters. St. Petersburg, Zoological Institute RAS Publ., 2022, pp. 27 (in Russian).
- Milyanovsky E. S. Fauna and flora of the Pitsundskaya relict grove. *Priroda*, 1955, no. 5, pp. 130 (in Russian).
- Naniev V. I. *Zemnovodnye i presmykayushchiesya Severnoi Osetii* [Amphibians and reptiles of North Ossetia]. Ordzhonikidze, North Ossetian State University named after K. L. Khetagurov Publ., 1983. 22 p. (in Russian).
- Nikolsky A. M. *Reptiles and Amphibians of the Caucasus (Herpetologia Caucasica)*. Tiflis, Caucasian Museum Publ., 1913. 272 p. (in Russian).
- Novruzov N. E. Some data on breeding and rearing of the mediterranean tortoises, *Testudo graeca* (Reptilia, Testudines) at the conditions of an open-air enclosure. *Proceeding of the Ukrainian Herpetological Society*, 2013, no. 4, pp. 118–122 (in Russian).
- Novruzov N. E. The materials on studying of nutrition of turtles (Reptilia, Testudines) in Eastern Azerbaijan. *Belgorod State University Scientific Bulletin. Natural Sciences*, 2014, no. 23, iss. 29, pp. 84–89 (in Russian).
- Novruzov N. E. The influence of external factors on the dynamics of formation the relief of horny scutes of shell in postembryonal ontogenesis of tortoises. *Live and Bio-Abiotic Systems*, 2019, no. 27, article no. 8 (in Russian). <https://doi.org/10.18522/2308-9709-2019-27-8>
- Novruzov N. E., Bunyatova S. N. Modern state and perspectives of amphibian and reptile synantropisation in anthropocoenosis of Eastern Azerbaijan. *Samara Journal of Science*, 2017, vol. 6, no. 2 (19), pp. 65–70 (in Russian).
- Orlova V. F., Starkov V. G., Mazanaeva L. F. Distribution and state of populations of the Mediterranean turtle (*Testudo graeca nikolskii* Chkhikvadze et Tuniyev, in the Krasnodar Territory). *The Problems of Herpetology: Proceedings of the 4th Meeting of the Nikolsky Herpetological Society*. Saint Petersburg, Russkaya kolleksiya, 2011, pp. 203–207 (in Russian).
- Ostrovskikh S. V., Pestov M. V., Gnetneva A. N. Reptilia of the “Utrish” Reserve and adjacent areas. *Biota Protection in the State Nature Reserve “Utrish”*. Maikop, Polygraph YuG, 2014, vol. 3, pp. 272–296 (in Russian).
- Ostrovskikh S. V., Bykhalova O. H. *Zemnovodnye i presmykayushchiesya zapovednika “Utrish”*: opredelitel' [Amphibians and reptiles of the reserve “Utrish”. Definitel]. Novorossiysk, Variant, 2022. 160 p. (in Russian).
- Peretokina E. I., Gnetneva A. N. The experience of the rehabilitation center of the spur-thighed tortoise *Testudo graeca nikolskii* in “Safaripark” LLC (Gelendzhik, Krasnodar territory, Russia). *Problems of Zoocultures and Ecology*, 2020, vol. 4, pp. 178–194 (in Russian).
- Pestov M. V., Malandzia V. I., Mil'to K. D., Dbar R. S., Pestov G. M. Mediterranean tortoise (*Testudo graeca nikolskii*) in Abkhazia. *Current Studies in Herpetology*, 2009, vol. 9, iss. 1–2, pp. 41–51 (in Russian).
- Plotnikov G. K. Current state of the population of the mediterranean turtle on the Black Sea coast of Krasnodar krai. In: *Aktual'nye voprosy jekologii i okhrany prirody jekosistemy Chernomorskogo poberezh'ja* [Actual Issues of Ecology and Nature Conservation of the Black Sea Coast Ecosystems]. Krasnodar, Kuban State University Publ., 1991, pp. 156–158 (in Russian).
- Ryzhikov V. V., Anisimov P. S., Samarskii G. G., Gazaryants S. K., Golobutsky A. A. *Priroda Checheno-Ingushskoy Respubliki, eye okhrana i ratsionalnoye ispolzovaniye* [The Nature of the Chechen-Ingush Republic, Its Protection and Rational Use]. Groznyy, Kniga, 1991. 160 p. (in Russian).
- Satunin K. A. Fauna of the Black Sea coast of the Caucasus. Reptiles and amphibians. *Proceedings of the Society for the Study of the Black Sea Coast*. St. Petersburg, 1913, vol. 2, pp. 3–172 (in Russian).
- Sosnovsky I. P. *Redkie i ischezayushchie zhivotnye. Po stranitsam Krasnoi knigi SSSR* [Rare and Endangered Animals. On the Pages of the Red Book of the USSR]. Moscow, Energoatomizdat, 1987. 368 p. (in Russian).
- Spasskaya T. Kh. The range and number of turtles in Dagestan. *Theses of the VIII Scientific and Practical Conference on Nature Protection*. Makhachkala, Dagestanskoye knizhnoye izdatelstvo, 1985, pp. 26–27 (in Russian).
- Tabachishin V. G., Zavialov E. V. Spatial distribution and trends in the number of the Spur-thighed tortoise (*Testudo graeca*) in the environs of the Novorossiysk City. *Povolzhskiy Journal of Ecology*, 2003, no. 3, pp. 307–308 (in Russian).
- Terentyev P. V., Chernov S. A. *Opredelitel presmykajushhihsja i zemnovodnykh* [Definitel of Reptiles and Amphibians]. Moscow, Sovetskaya nauka, 1949. 340 p. (in Russian).

- Tochiev T. Y. Herpetofauna of Chechen-Ingushetia. In: *Fauna, ehkologiya i okhrana zhyvotnykh Severnogo Kavkaza* [Fauna, Ecology and Protection of Animals of the North Caucasus]. Nalchik, Kabardino-Balkarian State University Publ., 1980, pp. 130–133 (in Russian).
- Formozov A. N. On the desert element in the fauna of the southern part of Eastern Europe. *Reports of the USSR Academy of Sciences. Series A*, 1928, no. 20–21, pp. 449–453 (in Russian).
- Khozatsky L. I. Sea storm and some land animals. *Priroda*, 1941, no. 1, pp. 112–113 (in Russian).
- Chernov S. A. To the knowledge of herpetofauna of Armenia and Nakhchivan region. *Scientific Notes of the North Caucasian Institute of Local History*, 1926, no. 1, pp. 63–72 (in Russian).
- Chernov S. A. *Opredelitel' zmei, yashcherits i cherepakh Armenii* [Key of snakes, lizards and turtles of Armenia]. Moscow, Leningrad, AN SSSR Publ., 1937. 55 p. (in Russian).
- Chernov S. A. Herpetological fauna of the Armenian SSR and Nakhchivan ASSR. *Proceedings of the Biological Institute*, 1939, iss. 3, pp. 77–194 (in Russian).
- Chikovani T. G., Syroechkovsky E. E., Shalibashvili G. K. Pitsunda-Musser Reserve. In: *Zapovedniki Kavkaza* [Caucasus Reserves]. Moscow, Mysl, 1990, pp. 101–123 (in Russian).
- Chkhikvadze V. M., Bakradze M. A. On the systematic position of the modern land tortoise from the Araks river valley. *Proceedings of Iv. Javakishvili Tbilisi State University*, 1991, no. 305, pp. 59–63 (in Russian).
- Chkhikvadze B. M., Bakradze M. A. A new subspecies of the land tortoise from Dagestan. *Proceedings of the Institute of Zoology (Tbilisi)*, 2002, vol. 21, pp. 276–279 (in Russian).
- Chkhikvadze V. M., Tuniev B. S. On the taxonomic status of modern land tortoise of the Western Transcaucasus. *Bulletin of the Academy of Sciences of the Georgian SSR*, 1986, vol. 124, no. 3, pp. 617–620 (in Russian).
- Chkhikvadze V. M., Mazanaeva L. F., Shammakov S. M. Brief information about a new kind of land tortoise from Dagestan. *Biological Diversity and Problems of Fauna Protection in the Caucasus: Materials of the International Scientific Conference*. Yerevan, Asogik, 2011, pp. 336–340 (in Russian).
- Chkhikvadze V. M., Mazanaeva L. F., Shammakov S. M. Land tortoises of Dagestan. *Problems of Desert Development*, 2014, no. 1–2, pp. 42–46 (in Russian).
- Shibanov N. V. Materials for the fauna of reptiles of Dagestan. *Proceedings of the State Zoological Museum of Moscow State University*, 1935, iss. 2, pp. 63–68 (in Russian).
- Arakelyan M. S., Danielyan F. D., Corti C., Sindaco R., Leviton A. E. *Herpetofauna of Armenia and Nagorno-Karabakh*. Salt Lake City, SSAR, 2011. 154 p.
- Arakelyan M., Türkozan O., Hezaveh N., Parham J. F. Ecomorphology of tortoises (*Testudo graeca* complex) from the Araks river valley. *Russian Journal of Herpetology*, 2018, vol. 25, no. 4, pp. 245–252. <https://doi.org/10.30906/1026-2296-2018-25-4-245-252>
- Boettger O. Die Reptilien und Amphibien des Talysch-Gebietes. Nach den neuesten Materialien bearbeitet. In: Radde G., ed. *Die Fauna und Flora des südwestlichen Caspi-Gebietes. Wissenschaftliche Beiträge zu den Reisen an der Persisch-Russischen Grenze*. Leipzig, F. A. Brockhaus, 1886, S. 30 – 81.
- Borkin L. J., Cherlin V., Zellarius A. Ju. Einige Beobachtungen zur Ökologie von Landschildkröten. *Aquarien. Terrarien*, 1979, Heft 3, S. 4–5.
- Boulenger G. A. *Catalogue of the Chelonians, Rhynchocephalians, and Crocodiles in the British Museum (Natural History)*. London, Printed by Order of the Trustees, 1889. 327 p.
- Rhodin A. G. J., Iverson J. B., van Dijk P. P., Stanford C. B., Goode E. V., Buhlmann K. A., Mittermeier R. A., eds. *Conservation Biology of Freshwater Turtles and Tortoises*. Arlington, Chelonian Research Foundation and Turtle Conservancy, 2021. 472 p.
- Danilov I. G., Milto K. D., Mazanaeva L. F. *Testudo [graeca] pallasi* Chkhikvadze et Bakradze, 2002. *Manouria*, 2004, vol. 7, no. 22, pp. 34–35.
- Fritz U., Hundsdorfer A. K., Siroky P., Auer M., Kami H., Lehmann J., Mazanaeva L. F., Turkozan O., Wink M. Phenotypic plasticity leads to incongruence between morphology-based taxonomy and genetic differentiation in western Palaearctic tortoises (*Testudo graeca* complex; Testudines, Testudinidae). *Amphibia – Reptilia*, 2007, vol. 28, no. 1, pp. 97–121. <https://doi.org/10.1163/156853807779799135>
- Gichikhanova U. A., Mazanaeva L. F. On the state of the populations of spur-thighed tortoise *Testudo graeca* Linnaeus, 1758 (Testudinidae, Reptilia) in Dagestan and the prospects for its conservation. *International Academic Conference on Herpetological Biodiversity and Conservation in Eurasia & 2021 Annual Academic Conference of Chinese Herpetological Society*. Chengdu, China, Chinese Herpetological Society, 2021, pp. 63–67.
- Hohenacker R. Fr. Enumeratio animalium, que in provinciis Transcaucasus. Karabach, Schirwan et Talysch nec non in territorio Elisabethopolensi. *Bulletin de la Societe Imperiale des Naturalists de Moscou*, 1837, vol. 10, pp. 1–13.
- Korsunen A., Vasilyev V., Pereshkolnik S., Mazanaeva L., Lapid R., Bannikova A., Semyenova S. DNA polymorphism and genetic differentiation of *Testudo graeca* L. In: Ananjeva N., Tsinenko O., eds. *Herpetologia Petropolitana. Proceedings of the 12th Ordinary General Meeting of the Societas Europaea Herpetologica*. St.-Petersburg, SHE, 2005, pp. 40–43.
- Leontyeva O. A., Gallamov R. R., Slavinskaya I. V. Comparative ecological and morphological characteristics of *Testudo graeca nikolskii* and *T. g. iberica* in the Caucasus. *Current Studies in Herpetology: Proceedings of the 9th Ordinary General Meeting of the Societas Europaea Herpetologica*. Le Bourget du Lac, SHE, 1998, pp. 263–268.

Mashkaryan V., Vamberger M., Arakelyan M., Hezaveh N., Carretero M., Corti C., Harris J., Fritz U. Gene flow among deeply divergent mtDNA lineages of *Testudo graeca* (Linnaeus, 1758) in Transcaucasia. *Amphibia – Reptilia*, 2013, vol. 34, no. 2, pp. 337–351. <https://doi.org/10.1163/15685381-00002895>

Mazanaeva L. F. Distribution, state of populations and problems of protection of *Testudo graeca iberica* in Dagestan (the south-eastern north Caucasus, Russia). *Chelonii*, 2001, vol. 3, pp. 59–66.

Mazanaeva L. F., Gichikhanova U. A. *Testudo graeca* (Mediterranean Spur-thighed Tortoise). Embryological twinning. *Herpetological Review*, 2020, vol. 51, iss. 3, pp. 585–586.

Mazanaeva L. F., Gichikhanova U. A. Status of populations of the spur-thighed tortoise *Testudo graeca* Linnaeus, 1758 (Testudinidae, Reptilia) in Dagestan. *Principles of Ecology*, 2021, no. 2, pp. 21–37.

Mazanaeva L. F., Orlova V. F., Iljina E. V., Starkov V. G. Distribution and status of mediterranean tortoise (*Testudo graeca* Linnaeus, 1758) in Russia. *Status and Protection of Globally Threatened Species in the Caucasus*. Tbilisi, WWF, 2009, pp. 143–150.

Menetries E. *Catalogue raisonné des objets de zoologie: recueillis dans un voyage au Caucase et jusqu'aux frontières actuelles de la Perse: entrepris par ordre de S. M. l'Empereur*. St. Pétersbourg, De l'Imprimerie de l'Académie impériale des sciences, 1832. 272 p.

Pallas P. S. *Zoographia Rosso-Asiatica, sistens omnium animalium in extenso Imperio Rossico et adjacentibus maribus observatorum recensionem, domicilia, mores et descriptiones, anatomen atque icones plurimorum. Auctore Petro Pallas, eq. aur. Academico Petropolitano*. Petropoli, Ex officina Caes. Academiae scientiarum impress, 1814, pp. 1–26.

Türkozan O., Javanbakht H., Mazanaeva L., Meiri S., Kornilev Y. V., Tzoras E., Popgeorgiev G., Shanas U., Escoriza D. *Testudo graeca* Linnaeus 1758 (Eastern Subspecies Clades: *Testudo g. armeniaca*, *Testudo g. buxtoni*, *Testudo g. iberica*, *Testudo g. terrestris*, *Testudo g. zarudnyi*) – armenian tortoise, zagros tortoise, anatolian tortoise, levantine tortoise, kerman tortoise. *Conservation Biology of Freshwater Turtles and Tortoises*. Arlington, Chelonian Research Foundation and Turtle Conservancy, 2023, pp. 120.1–120.33. <https://doi.org/10.3854/crm.5.120.eastern.graeca.v1.2023>

Vasilyev V. A., Korsunen A. V., Pereshkolnik S. L., Mazanaeva L. F., Bannikova A. A., Bondarenko D. A., Peregontsev E. A., Semyenova S. K. Differentiation of tortoises of the genera *Testudo* and *Agrionemys* (Testudinidae) based on the polymorphism of nuclear and mitochondrial markers. *Russian Journal of Genetics*, 2014, vol. 50, no. 10, pp. 1060–1074.

Zugmayer Dr. E. *Eine Reise durch Zentralasien im Jahre 1906*. Berlin, Dietrich Reimer (Ernst Vohsen), 1908. 441 S.