

## ANALYSIS OF THE FLORA OF BOLSHAYA ICHKA MOUNTAIN (WEST KAZAKHSTAN REGION)

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The results of long-term studies of the flora of Bolshaya Ichka Mt. located in the West Kazakhstan Region in the Taskala District are presented. Growing here are 350 vascular plant species belonging to 222 genera and 56 families. Taxonomic, biomorphological and geographical analysis has revealed the steppe nature of the flora. According to the biomorphological analysis, the main place is occupied by herbaceous polycarpic plants characteristic of temperate floras. The geographical analysis revealed the dominance of Eurasian and European species, as well as the participation of local and narrow-localized species. The specificity of adventive species is revealed. Rare and endangered species listed in the Red Data Book of Kazakhstan and the Green Book of the West Kazakhstan Region were identified in the studied flora.

*Keywords:* Bolshaya Ichka Mountain, floristic analysis, adventive species, refugium, calcephytes

### REFERENCES

- Abdulina S.A. 1998. Spisok sosudistyykh rasteniy Kazakhstana [List of vascular plants of Kazakhstan]. Almaty. 187 p. (In Russ.).
- Achmedenov K.M., Dudin D.M. 2016. Nature monument “Bolshaya Ichka mountain” as a unique object of salt dome landscapes of West Kazakhstan. — *Molodoy uchenyy*. 6 (110): 314–318 (In Russ.).
- Burda R.I. 1991. Antropogennaya transformatsiya flory [Anthropogenic transformation of flora]. Kiev. 168 p. (In Russ.).
- Czerepanov S.K. 1995. Vascular plants of Russia and neighboring countries. St. Petersburg. 992 p. (In Russ.).
- Darbayeva T.Y. 2003. Flora melovykh vozvyshehnostey Severo-Zapadnogo Kazakhstana [Flora of the Cretaceous uplands of North-West Kazakhstan]: Diss. ... *Doct. Sci St. Petersburg*. 51 p. (In Russ.).
- Darbayeva T.Y. 2007. Partzial'nye flory melovykh vozvyshehnostey Severo-Zapadnogo Kazakhstana [Partial flora of Cretaceous uplands of North-West Kazakhstan]. Uralsk. 267 p. (In Russ.).
- Darbayeva T.Y., Al'zhanova B.S., Bokhorova S.N., Sarsenova A.N. 2018. Rare and endangered species of vascular plants of turf-feather grass steppes. — *Bot. v sovr. mire*. 2: 38–40 (In Russ.).
- Ivanov V.V. 1958. Stepi Zapadnogo Kazakhstana v svyazi s dinamikoy ikh pokrova [Steppes of West Kazakhstan in connection with the dynamics of their cover]. Leningrad. 288 p. (In Russ.).
- Ivanov V.V. 1964–1989. Opredelitel' semeystv Severnogo Prikaspiya [Determinant of families of the North Pre-Caspian]. — In: *Materiyaly po flore i rastitel'nosti Severnogo Prikaspiya*. Leningrad (In Russ.).
- Kamelin R.V. 1973. Florogeneticheskiy analiz estestvennoy flory gornoj Sredney Azii [Florogenetic analysis of the natural flora of mountainous Central Asia]. Leningrad. 356 p. (In Russ.).
- Karamysheva Z.V., Rachkovskaya Y.I. 1973. Botanicheskaya geografiya stepnoy chasti Tsentral'nogo Kazakhstana [Botanical geography of the steppe part of Central Kazakhstan]. Leningrad. 278 p. (In Russ.).
- Kolchenko O.T. 1964. K flore gory Bolshaya Ichka [To the flora of mountain Bolshaya Ichka]. — In: *Materiyaly po flore i rastitel'nosti Severnogo Prikaspiya*. Leningrad. P. 33–43 (In Russ.).
- Kolchenko O.T. 1974. Svodnyy spisok rasteniy melovykh obnazheniy Severnogo Prikaspiya [Summary list of plants of cretaceous outcrops of the North Pre-Caspian]. — In: *Flora i rastitel'nost' Severnogo Prikaspiya*. Leningrad. P. 179–199 (In Russ.).
- Kolchenko O.T. 1987. Redkie rasteniya Ural'skoy oblasti, nuzhdayushchiesya v ochrane [Rare plants of the Ural region in need of protection]. Uralsk. 26 p. (In Russ.).
- Krashennnikov I.M. 1937. Analiz reliktovoy flory Yuzhnogo Urala v svyazi s istoriey rastitel'nosti i paleogeografiey pleystotsena [Analysis of the relict flora of the South Ural in connection with the history of vegetation and paleogeography of the Pleistocene]. — *Sov. bot.* 4: 16–45 (In Russ.).
- Krashennnikov I.M. 1939. Osnovnye puti razvitiya rastitel'nosti Yuzhnogo Urala v svyazi s paleogeografiey Severnoy Evrazii v pleistotsene i golotsene [The main ways of developing the vegetation of the South Ural in connection with the paleogeography of North Eurasia in the Pleistocene and Holocene]. — *Sov. bot.* 6: 67–99 (In Russ.).
- Lavrenko Y.M. 1951. Vozrast botanicheskikh oblastey vnetropicheskoy Evrazii [Age of botanical areas of extratropical Eurasia]. — *Izv. AN SSSR. Ser. geogr.* 2: 17–28 (In Russ.).
- Lavrenko Y.M., Karamysheva Z.V., Nikulina R.I. 1991. Stepi Evrazii [Steppes of Eurasia]. Leningrad. 144 p. (In Russ.).
- Mamysheva M.V., Darbayeva T.Y., Bokhorova S.N. 2010. Partial flora within the Obshiy Syrt on the territory of

- the West Kazakhstan region. — *Izvestiya Samarskogo nauchnogo tsentra RAN*. 12 (1–3): 757–759 (In Russ.).
- Mamysheva M.V. 2011. A brief analysis of the flora of Mountain Bolshaya Ichka within the West Kazakhstan region. — *Vestnik Mordovskogo universiteta. Biologicheskie nauki*. 4: 150–155 (In Russ.).
- Mamysheva M.V., Darbayeva T.Y. 2012. Rare plants of plant communities of Mountain Bolshaya Ichka within the West Kazakhstan region. — *Izvestiya Samarskogo nauchnogo tsentra Rossiyskoy akademii nauk*. Vol. 14. 1 (7): 1776–1779 (In Russ.).
- Pallas P.S. 1771. *Reise durch verschiedene Provinzen des Rußischen Reichs. Erster Theil*. St. Petersburg. 504 p.
- Petrenko A.Z., Li K.A., Debelo P.V. 1992. *Priroda Ural'skoy oblasti i ee ochrana, chast' 2*. [Nature of the Ural region and its protection, part 2]. Uralsk. 131 p. (In Russ.).
- Petrenko A.Z., Dzhubanov A.A., Fartushina M.M., Chernyshev D.M., Tubetov Zh.M. 2001. *Zelenaya kniga ZKO* [Green book of WKR]. Uralsk. 194 p. (In Russ.).
- Postanovlenie Pravitel'stva Respubliki Kazakhstan ot 31 oktyabrya 2006 goda N 1034 "Ob utverzhdenii Perechney redkikh i nakhodyashchikhsya pod ugrozoy izcheznoveniya vidov rasteniy i zhivotnykh" [Resolution of the Government of the Republic of Kazakhstan dated on October 31, 2006 N 1034 "On approval of Lists of rare and endangered species of plants and animals"]. (In Kaz.).
- Ramazanov S.K. 2018. Physical and geographical characteristics of mountain Ichka based on the materials of P.S. Pallas and its modern landscape. *Materiyaly VIII Simpoziuma Stepi Evrazii*. Orenburg, 10–13 sentyabrya 2018 goda. Orenburg. P. 808–811 (In Russ.).
- Serebryakov I.G. 1964. *Zhiznennyye formy vysshykh rasteniy i ikh izucheniye* [Life forms of higher plants and their study]. — In: *Polevaya geobotanika*. Moscow, Leningrad. 3: 146–205 (In Russ.).
- Skvortsov A.K. 2006. *Flora Nizhnego Povolzh'ya* [Flora of the Lower Volga Region]. Vol. 1. Moscow. 435 p. (In Russ.).
- Sytin A.K. 2015. Phytogeographic notes on P.S. Pallas's scientific journey to West Kazakhstan based on materials of the Russian-Kazakhstan complex expedition in 2012. — In: *Priroda Zapadnogo Kazakhstana i Petr Simon Pallas (polevye issledovaniya 2012 goda)*. St. Petersburg. P. 45–52 (In Russ.).
- Takhtajan A.L. 1978. *Floristicheskie oblasti Zemli* [Floristic areas of the Earth]. Leningrad. 247 p. (In Russ.).
- Takhtajan A.L. 1997. *Sistema magnoliofitov* [Magnoliophyte system]. Leningrad. 439 p. (In Russ.).
- Vulf Y.V. 1936. *Istoricheskaya geografiya rasteniy* [Historical Plant Geography]. Moscow, Leningrad. 322 p. (In Russ.).
- Zony i tipy poyasnosti rastitel'nosti Rossii i sopredel'nykh territoriy* [Zones and types of vegetation zones in Russia and adjacent territories]. 1999. Karta. M. 1:8000000. Moscow. 2 sheets.