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Summary on vascular plants of the “Burabay” National Natural Park forest flora

Abstract: The article presents the territorial study results of “Burabay” State National Nature Park (2010-2018). As a result of the research there was made a summary on vascular plants of the “Burabay” National Park forest flora, containing the information on 163 species from 51 families and 115 genera spread and occurrence. The forest flora of the “Burabay” natural park has a following ratio of basic systematic groups: 9 species of vascular spore plants (5.5% from the forest flora) dominated by ferns. The basis of the Burabay forest flora is made up by angiosperms - 153 species (93.8%), including dicotyledons - 130 species (79.8%), monocotyledons - 23 species (14.1%). *Viola*, *Pyrola* and *Dryopteris* genera indicate forest traits.

Key words: vascular plants, wild flora, "Burabay" nature park, Kokshetau upland, biodiversity, summary on vascular plants.

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Introduction. Preservation of biological diversity is one of the top priorities in biological sciences. Thus, the object of the research is a unique for Northern Kazakhstan territory - the Kokshetau Upland. This territory combines granite lowlands, freshwater lakes, pine and deciduous-coniferous forests. A special feature of this territory's flora is location at the junction of steppe and forest-steppe zones, which creates life conditions for many steppe and forest species.

The history of botanical research on this territory goes back to almost 200 years. Many herbarium collections made at the beginning of the 20th century were not repeated and the material was lost. Therefore, the purpose of this study is a modern floristic inventory of a relatively small area with taking into account some flora changes under the influence of increasing anthropogenic factors.

Objects and methods of research. Floristic studies were limited to the territory of the “Burabay” State National Natural Park the area of which is 130 km². The flora of the National Park does not cover the entire territory of the Kokshetau upland and is local by nature.

The field studies were conducted in 2010-2018 by a route method. The study covered the territory of 10 forestties: Akylbay, Borovskoy, Katarkol, Zolotoborsk, Mirniy, Barmashinsky, Priozerny, Bulandy, Temnoborsky and Zhalayirsky forest areas. There was collected an extensive botanical material of more than 5 thousand sheets now stored in the herbariums of A. Baitursynov Kostanay State University.

Results and discussion. As a result of the research there was made a summary on vascular plants of the “Burabay” National Park forest flora, containing the information on 163 species from 51 families and 115 genera spread and occurrence.

The following list includes the species identified in the result of processing herbarium specimens of plants collected in the “Burabay” natural park during expeditionary works. While compiling this list we used our own herbarium collections, floristic and geobotanical descriptions, as well as the works of helpful family hotel staff Rub, 1929 [1], Z.V. and E.I. Rachkovskaya Karamysheva, 1973 [2], Gorchakovskiy P.L., 1987 [3], "Flora of Kazakhstan" [4]. Each species has got its habitat characteristics and occurrence information on the territory of the national park:

- occurring very rarely - 1 location (data labels or a reference to a literary source are provided);
- occurring rarely - no more than six locations;
- occurring occasionally - the species sporadically found in the park or the species of specific habitats (salt marshes, meadows, etc.);
- occurring usually-the widespread species found throughout the park, or in any part of it (e.g., steppe or forest).

**LYCOPODIOPHYTA
LYCOPODIOPSISIDA**

1. The Lycopodiaceae Beauv. ex Mirb. family.

Diphasiastrum complanatum (L.) Holub. 1975, Preslia, 47 : 107; Shauro, 1988, Flora of Siberia. 1 : 36. - *Lycopodium anceps* Wall.; Pavlov, 1956, Flora of Kazakhstan. 1 : 62.

Occurring rarely. At the foot of May Mountain (Northern Forestry, quarters 39, 83-85, 128), on the eastern shore of Karasu lake, in raw birch-pine forests [3].

Lycopodium clavatum L. 1753, Sp. pl.: 1101; Pavlov, 1956, Flora of Kazakhstan. 1 : 62.

Occurring rarely. In the marshy birch forest along the shore of Svetliy lake, in the upper side of the Imanayev stream at the foot of Kokshetau mountain.

**EQUISETOPHYTA
EQUISETIPSIDA**

2. The Equisetaceae Rich. Ex DC. family

Equisetum hyemale L. 1753, Sp. pl.: 1062; Pavlov, 1956, Flora of Kazakhstan. 1 : 60.

Occurring usually. In pine, pine-birch, birch forests, sometimes along the swamped shores of lakes and streams.

Equisetum sylvaticum L. 1753, Sp. pl.: 1061; Pavlov, 1956, Flora of Kazakhstan. 1 : 59.

Occurring usually. On marshy shores of lakes and streams throughout the park.

**POLYPODIOPHYTA
POLYPODIOPSISIDA**

3. Botrychiaceae Horan. family

Botrychium multifidum (Gmel.) Rupr. 1859, Beitr. XI: 40; Pavlov, 1956, Flora of Kazakhstan. 1 : 57. Occurring rarely. In wet pine-birch forests, on the outskirts of marshes, very rarely [3].

4. Hypolepidaceae Pichi Sermolli family

Pteridium pinetorum C. N. Page et R. R. Mill, 1994, Bot. Journ. Scotl. 47, 1 : 140; A. Ebel, Summary on flora of N-W part of Altai-Sayan province. 2012:103. - *P. aquilinum* (L.) Kuhn, 1879, in V. d. Decken. Reise III, 3. Botan. v. Ost. Africa : 11; Pavlov, 1956, Flora of Kazakhstan. 1 : 51. Occurring usually. In pine-birch forests, sometimes in the forest on the shores of lakes.

5. Athyriaceae Alston family

Athyrium filix-femina (L.) Roth. 1800, Tent. Fl. Germ. III : 65; Pavlov, 1956, Flora of Kazakhstan. 1 : 46. Occurring occasionally. In birch and pine-birch forests, along the streams and lakes.

6. Onocleaceae Pichi Sermolli family

Matteuccia struthiopteris (L.) Tod. 1866, Giorn. Sci. Nat. Econ. Palermo, 1 : 235; Danilov, 1988, Fl. Siberia. 1 : 52. - *Struthiopteris filicastrum* All. 1785, Fl. Pedem.: 258; Pavlov, 1956, Flora of Kazakhstan. 1 : 40. Occurring rarely. On the Tasbulak and Imanayev streams, along which it forms monodominant thickets.

7. Dryopteridaceae Herter family

Dryopteris filix-mas (L.) Schott. 1834, Gen. Fil. : 9; Pavlov, 1956, Flora of Kazakhstan. 1 : 41. Occurring rarely. In marshy birch forests along the shores of Svetliy and Small Karasu lakes, in the floodplains of the Tasbulak and Imanayev streams, in a damp hollow on the outskirts of Schuchinsk.

**PINOPHYTA
PINOPSISIDA**

8. Pinaceae Spreng. ex Rudolphi family

Pinus sylvestris L. 1753, Sp. pl.: 1000; Polyakov, Pavlov, 1956, Flora of Kazakhstan. 1 : 69. Occurring usually. Forms pine and pine-birch forests.

MAGNOLIOPHYTA
MAGNOLIOPSIDA

9. Ranunculaceae Juss. family

Aconitum septentrionale Koelle. 1786, Spicil. Observ. Acon. : 22; Friesen, 1993, Fl. Siberia. 6 : 138. Occurring rarely. In wet birch forests in the vicinity of Schuchinsk (216 square of the Barmashinsky forestry). Earlier this species used to be found only in the Karkaraly mountains [2].

Anemone sylvestris L. 1753, Sp. pl.: 540; Gamayunova, 1961, Flora of Kazakhstan. 4: 64. Occurring usually. On the meadows and edges of pine and pine-birch forests.

Delphinium elatum L. 1753, Sp. Pl. : 531; Gamayunova, 1961, Flora of Kazakhstan. 4: 41. Occurring rarely. Meadow steppes.

Ranunculus auricomus L. 1753, Sp. pl.: 551; Gamayunova, 1961, Flora of Kazakhstan. 4: 93. Occurring occasionally. Swampy birch and pine-birch forests, aspen forests, floodplains of streams in the forest part of the park.

Ranunculus monophyllus Ovcz. 1922, bot. material, herbarium of the main bot. garden, III: 54; Gamayunova, 1961, Flora of Kazakhstan. 4: 94.

Occurring rarely. Is given by Gorchakovskiy P.L. (1987) for the Borovsk forest area - in swampy areas and damp forests. Our collections of buttercups with one basal leaf and a solid leaf plate made on the territory of the national park were classified as *R. auricomus*.

Thalictrum flavum L. 1753, Sp. Pl. : 546; Gamayunova, 1961, Flora of Kazakhstan. 4:126. Occurring usually. Edges of deciduous forests, sparse birch forests.

Thalictrum minus L. 1753, Sp. Pl. : 546; Friesen, 1993, Flora of Siberia. 6 : 203. Occurring rarely. In the birch forests, shrubs thickets of the Katarkol and Zolotobor forestries.

Thalictrum simplex L. 1767, Mantissa, 1 : 78; Gamayunova, 1961, Flora of Kazakhstan. 4: 126. Occurring usually. In birch, birch and pine forests.

10. Paeoniaceae Rudolphi family

Paeonia anomala L. 1771, Mant. II : 247; Gamayunova, 1961, Flora of Kazakhstan. 4: 12.

Occurring rarely. Is given according to the literary data. Was found by Gorchakovskiy P.L. (1987) in wet forests, at the edges, very rarely. We have not seen the herbarium material from the territory of the national park. The survey of national park staff also did not give any positive result. The same situation applies to *P. hybrida* Pallas - another type of peony "registered" in the national park. This species was only once found on the territory of the Central Kazakhstan lowlands in the Aktau mountains, 80 km to the south from the Zhanaarka station [2].

11. Caryophyllaceae Juss. family

Gypsophila altissima L. 1753, Sp. pl.: 407; Baitenov, Pavlov, 1960, Flora of Kazakhstan. 3 : 406. Occurring rarely. A sparse pine forest in the 26th quarter of the Zolotobor forestry.

Herniaria suavis Klok. 1947, bot. jour. USSR. 4. 1 - 2. 71. Naumenko, Flora and vegetation of S. Ural. 2008:248. - *H. glabra* L.; Baitenov, Pavlov, 1960, Flora of Kazakhstan. 3 : 362.

Occurring occasionally. It grows in wood, well-moistened places where granite rocks emerge, sometimes on sandy soils in pine forests. *H. polygama* J. Gray - a morphologically close species to it - also widespread on the territory of the Central Kazakhstan lowlands, was not found.

Oberna behen (L.) Ikonn. 1976, Novostisist. high plants 13 : 119; Zuev, 1993, Fl. Siberia. 6 : 71. - *Silene latifolia* (Mill.) RendleetBritt.; Baitenov, Pavlov, 1960, Flora of Kazakhstan. 3 : 368.

Occurring rarely. In pine-birch forests (Katarkol forestry).

Silene chlorantha (Willd.) Ehrh. 1792, Beitr., VII: 144; Baitenov, Pavlov, 1960, Flora of Kazakhstan. 3 : 370.

Occurring usually. The most widespread plant of meadows grows also along the outskirts of springs, in inter-slope hollows, in light pine forests throughout the park.

Silene nutans L. 1753, Sp. pl.: 413; Baitenov, Pavlov, 1960, Flora of Kazakhstan. 3 : 385. Occurring rarely. In pine forests on the slopes of Mount Kokshetau.

Silene repens Patr., 1805, in Pers. Syn. I : 500; Baitenov, Pavlov, 1960, Flora of Kazakhstan. 3 : 382. Occurring rarely. Pine forests on the granites in the Zolotobor forestry.

12. The Betulaceae Gray family

Alnus glutinosa (L.) Gaertn. 1791, Fruct. et. sem. II : 54; Goloskokov, 1960, Flora of Kazakhstan. 3 : 66. Occurring very rarely. Outskirts of Schuchinsk, a stream, a marshy shore.

Betula pendula Roth. 1788, Tent. Fl. Germ. I : 405; Goloskokov, 1960, Flora of Kazakhstan. 3 : 57. Occurring usually. A forest-forming species throughout the National Park.

Betula pubescens Ehrh. 1789, Beitr. Naturk. V: 160; Goloskokov, 1960, Flora of Kazakhstan. 3 : 58. Occurring usually. Swampy forests.

13. The Ericaceae Juss. family

Vaccinium vitis-idaea L., 1753, Sp. pl.: 351; Roldugin, 1964, Flora of Kazakhstan. 7 : 22. Occurring occasionally. Moss swamps, marshy forests along the banks of water pools.

14. The Pyrolaceae Dumort. family

Chimaphila umbellata (L.) W.P.C. Barton. 1817, Gen. N-America pl. I : 274; Roldugin, 1964, Flora of Kazakhstan. 7 : 14. Occurring usually. Pine forests, birch-aspen wet forests.

Ortilia secunda (L.) House 1921. Amer Midl. Nat. 7 : 134; Malyshev, 1997, Flora of Siberia. 11 : 12. – *Ramischia secunda* (L.) Garce; Roldugin, 19654, Flora of Kazakhstan. 7 : 13 :

Occurring usually. In birch and pine-birch forests, along the streams and lakes.

Pyrola chlorantha Sw. 1810, Kongl. Sv. Vetensk. Acad. Nya Handl.: 190; Malyshev, 1997, Flora of Siberia. 11 : 11. – *P. virescens* Schweigg; Roldugin, 1964, Flora of Kazakhstan. 7 : 9.

Occurring occasionally. In swampy birch-aspen, pine forests, on moss bogs.

Pyrola media Sw. 1904, Vet. Acad. Stockh. Handl.: 257; Roldugin, 1964, Flora of Kazakhstan. 7 : 11. Occurring very rarely. The shore of Small Karasu lake, sphagnum swamp. The species has been found for the first time on the territory of Central Kazakhstan lowlands.

Pyrola minor L. 1753, Sp. pl.: 396; Roldugin, 1964, Flora of Kazakhstan. 7 : 11. Occurring rarely. In pine forests and birch-pine forests along the shores of Small Karasu lake, at the spring in Dry Bor, in the birch forests in the vicinity of the Mirniy village.

Pyrola rotundifolia L., 1753, Sp. pl.: 396; Roldugin, 1964, Flora of Kazakhstan. 7 : 9. Occurring usually. In pine, pine-birch forests.

15. The Primulaceae Vent. family

Lysimachia vulgaris L. 1753, Sp. pl.: 146; Vasiljeva, 1964, Flora of Kazakhstan. 7 : 42.

Occurring occasionally. Along the banks of creeks, marshes.

16. The Violaceae Batsch family

Viola arenaria DC. & DC. 1805, Fl. Fr., 4 : 806; Zuev, 1996, Flora of Siberia. 10 : 87. – *V. rupestris* F.W. Schmidt; Karmysheva, 1963, Flora of Kazakhstan. 6 : 198.

Occurring rarely. In dry pine forests.

Viola canina L. 1753, Sp. pl.: 935; Karmysheva, Flora of Kazakhstan. 6 : 202. Occurring occasionally. In birch-aspen forests.

Viola elatior Fries 1828, Nov. Fl. Suec., ed. 2 : 277; Karmysheva, 1963, Flora of Kazakhstan. 6 : 200. Occurring occasionally. On damp meadows, in the floodplains of freshwater lakes.

Viola epipsila Ldb. 1820, Ind. sem. Hort. Dorpat.: 5; Karmysheva, 1963, Flora of Kazakhstan. 6 : 202. Occurring rarely. In swampy areas, on the edges of swamps, along the streams [3].

Viola mirabilis L. 1753, Sp. pl.: 936; Karmysheva, 1963, Flora of Kazakhstan. 6 : 197. Occurring rarely. In the marshy birch forests in the lower reaches of the Imanaevskogo Creek. This species has been found for the first time on the territory of Central Kazakhstan lowlands.

17. The Salicaceae Mirb. family

Populus tremula L. 1753, Sp. pl.: 1034; Polyakov, 1960, Flora of Kazakhstan. 3 : 42.

Occurring usually. One of the forest-forming species throughout the National Park.

Salix bebbiana Sarg. 1895, Gard. Forest 8: 463; Bolshakov, 1992, Flora of Siberia. 5 : 29. – *S. depressa* L. 1755, Fl. Suec., ed 2 : 352; Polyakov, 1960, Flora of Kazakhstan. 3 : 29.

Occurring rarely. Forms thickets around Tasshalkar lake, was found along the shore of a spring in 101 quarter of the Borovsky forestry.

Salix caprea L. 1753, Sp. pl.: 1020; Polyakov, 1960, Flora of Kazakhstan. 3 : 30.

Occurring occasionally. In the undergrowth of swampy birch-aspen forests.

Salix caspica Pall. 1788, Fl. Ross. I, II : 74; Polyakov, 1960, Flora of Kazakhstan. 3 : 20. Occurring rarely. In the vicinity of a cordon in the Priozerny forestry.

Salix cinerea L. 1753, Sp. pl.: 1021; Polyakov, 1960, Flora of Kazakhstan. 3 : 32 Occurring occasionally. In the undergrowth of wet birch forests.

Salix pentandra L. 1753, Sp. pl.: 1016; Polyakov, 1960, Flora of Kazakhstan. 3 : 15. Occurring usually. In the birch forest on the eastern shore of Borovoye lake, in the marshy birch forest along the shore of Small Karasu lake.

Salix rosmarinifolia L. 1753, Sp. pl.: 1020; Polyakov, 1960, Flora of Kazakhstan. 3 : 27. Occurring rarely. In a swamp near Big Chebachye lake, on a sphagnum bog along the shore of Small Karasu lake, in the birch forest on the site of a dried-up swamp in the Batmak tract.

Salix triandra L. 1753, Sp. Pl. : 1016; Polyakov, 1960, Flora of Kazakhstan. 3 : 27. Occurring usually. The shrub thickets along the shore of Shchuchye lake, in marshy pine-birch sparse forests.

18. The Brassicaceae Burnett family

Barbarea stricta Andr. 1822, in Besser. Enum. pl. Volhyn.: 72; Vasiljeva, 1961, Flora of Kazakhstan. 4: 209. Occurring very rarely. A swampy shore of Small Karasu lake. Birch forests.

Cardamine pratensis L. 1753, Sp. pl.: 643; Vasiljeva, 1961, Flora of Kazakhstan. 4: 218. Occurring rarely. Is marked by Karamysheva Z.V. and Rachkovskaya E.I. (1973) on swampy meadows and marshes [2].

19. The Ulmaceae Mirb. family

Ulmus glabra Huds. 1762. Fl. Angl. 95; Naumenko, 2008, Flora and vegetation of South Ural: 261. – *U. Scabra* Mill.; Goloskokov, 1960, Flora of Kazakhstan. 3 : 71.

Occurring rarely. On the outskirts of Schuchinsk.

20. The Cannabaceae Endl. family

Humulus lupulus L. 1753, Sp. pl.: 1028; Goloskokov, 1960, Flora of Kazakhstan. 3 : 76. Occurring occasionally. In wet birch forests.

21. The Crassulaceae DC. family

Sedum telephium L. 1753, Sp. pl.: 430; Peshkova, 1994, Flora of Siberia. 7 : 165.- *S. purpureum* (L.)Schult.; Vasiljeva, 1961, Flora of Kazakhstan. 4: 352. Occurring occasionally. In pine and pine-birch forests, on their edges.

22. The Saxifragaceae Juss. family

Saxifraga sibirica L. 1762, Sp. pl. ed. II : 577; Goloskokov, 1961, Flora of Kazakhstan. 4: 371. Occurring very rarely. Only according to the literary data: a mountain crest of Sinyuha mountain [3].

23. The Grossulariaceae DC. family

Ribes hispidulum (Jancz.) Pojark. 1929, Works on Applied Botany, Genetics and Breeding XXII, 3 : 339; Goloskokov, 1961, Flora of Kazakhstan. 4: 378. Occurring very rarely. The shore of Small Karasu lake, sphagnum swamp.

Ribes nigrum L. 1753, Sp. pl.: 201; Goloskokov, 1961, Flora of Kazakhstan. 4: 382. Occurring usually. In the undergrowth of birch and birch and pine forests.

24. The Rosaceae Juss. family

Agrimonia pilosa Ledeb. 1823, Ind. Sem. Horti Bot. Dorpat.: 1; Fisyun, 1961, Flora of Kazakhstan. 4: 481. Occurring usually. In the birch forests, in the bush thickets and on the steppe slopes along the shore of Little Chebachye lake.

Cerasus fruticosa (Pall.) G. Woron. 1925, Works on Applied Botany, Genetics and Breeding XIV, 3 : 52; Fisyun, 1961, Flora of Kazakhstan. 4: 513. Occurring occasionally. Forms thickets along the logs, the open shores of Small Chebachye lake, is found in the undergrowth of birch-pine, birch forests.

Cotoneaster melanocarpus Fisch. exBlytt. 1829, Bot. Cab.XVI: sub. tab. 1531; Fisyun, 1961, Flora of Kazakhstan. 4: 395. Occurring usually. In the undergrowth of pine, birch-pine and birch forests, along the slopes of the hills in steppe communities.

Crataegus altaica Ledeb. ex Loud. 1897, Revis. spec. gen. Crataegi : 42; Vasiljeva, 1961, Flora of Kazakhstan. 4: 407. Occurring occasionally. In the birch forests around Borovoe lake, on the banks of the Imanai stream, in the birch forest at the foot of Kokshetau mountain.

Crataegus chlorocarpa Lenn? et K. Koch, 1855, App. Sp. Nov. HortiBerol. : 17; Poyarkova, 1970, News systematics of higher plants 1969 : 133. Occurring rarely. Is given in the literary data [2].

Crataegus sanguinea Pall. 1784, Fl. Ross. I, 1: 25; Vasiljeva, 1961, Flora of Kazakhstan. 4: 407. Occurring occasionally. In the marshy birch forests near the Burabay village, in the pine forests of Zolotobor forestry.

Filipendula ulmaria (L.) Maxim. 1879, A. H. P. VI : 251; Fisyun, 1961, Flora of Kazakhstan. 4: 459. Occurring usually. In swampy birch forests, along the streams.

Fragaria vesca L. 1753, Sp. pl.: 494; Fisyun, 1961, Flora of Kazakhstan. 4: 415. Occurring usually. In dry pine forests.

Geum aleppicum Jacq. 1786, Ic. pl. rar. I : 88; Fisyun, 1961, Flora of Kazakhstan. 4: 456. Occurring occasionally. On the edges and forest meadows, in sparse birch forests.

Geum urbanum L. 1753, Sp. pl.: 501; Fisyun, 1961, Flora of Kazakhstan. 4: 456. Occurring rarely. On the floodplains of streams, the outskirts of marshes.

Padus avium Mill. 1768. Gard. 8.1; Polozhiy, 1988, Flora of Siberia. 8 : 130. –

P. racemosa (Lam.) Gilib; Goloskokov, 1961, Flora of Kazakhstan, 4 : 517. Occurring occasionally. The tree and shrub thickets on the banks of Borovoye lake, in the floodplains of streams.

Rosa acicularis Lindl. 1820, Monogr. Ros.: 44; Fisyun, 1961, Flora of Kazakhstan. 4: 487. Occurring usually. In the undergrowth of wet pine and birch forests.

Rosa majalis Herrm. 1762. Diss. Ros.: 6; Polozhiy, 1988, Flora of Siberia. 8 : 126. –

R. cinnomomea L. 1759. Syst. ed. 10 : 1062; Fisyun, 1961, Flora of Kazakhstan. 4: 489. Occurring usually. In the undergrowth of pine and pine-birch forests.

Rubus idaeus L. 1753, Sp. pl.: 706; Fisyun, 1961, Flora of Kazakhstan. 4 : 412. Occurring usually. In the undergrowth of pine forests, along forest roads, on stony placers on the slopes of Mount Kokshetau.

Rubus saxatilis L. 1753, Sp. pl.: 434; Fisyun, 1961, Flora of Kazakhstan. 4 : 412. Occurring usually. In birch, pine-birch forests, along the floodplains of streams.

Sorbus sibirica Hedl. 1901, Sv. Vet. Acad. Handl. 35, I : 44; Fisyun, 1961, Flora of Kazakhstan. 4 : 405. Occurring occasionally. In the undergrowth of pine and birch forests, along the shores of streams.

25. The Onagraceae Juss. family

Chamaenerion angustifolium (L.) Scop. 1772, Fl. carn. ed. 2 : 221; Gamayunova, 1963, Flora of Kazakhstan. 6 : 245.

Occurring occasionally. On the burns, clearings, sometimes on stony slopes, near dwellings.

26. The Fabaceae Lindl. family

Lathyrus pisiformis L. 1753, Sp. pl.: 734; Roldugin, 1961, Flora of Kazakhstan. 5 : 480. Occurring usually. In sparse birch forests, on forest meadows.

Trifolium lupinaster L. 1753, Sp. pl.: 766; Goloskokov, 1956, Flora of Kazakhstan. 5 : 53. Occurring usually. On clearings, along the burns, in sparse pine forests.

Vicia cracca L. 1753, Sp. pl.: 735; Gamayunova, 1961, Flora of Kazakhstan. 5 : 458. Occurring usually. On meadows, on the forest edges.

Vicia sylvatica L. 1753, Sp. pl.: 734; Gamayunova, 1961, Flora of Kazakhstan. 5 : 457. Occurring rarely. In the floodplain of Tasbulak and Imanayev streams, in a pine forest near Small Karasu lake.

27. The Geraniaceae Juss. family

Geranium bifolium Patrin. 1824, in DC., Prodr. 1 : 642; Peshkova, 1996, Flora of Siberia, 10 : 11. Occurring occasionally. In pine-birch and birch forests.

Geranium pratense L. 1753, Sp. pl.: 681; Fisyun, 1963, Flora of Kazakhstan, 6 : 7. Occurring usually. In pine, birch and pine-birch forests, on edges.

Geranium pseudosibiricum J.Mayer. 1786, Boehm. Abh.: 238; Fisyun, 1963, Flora of Kazakhstan, 6 : 6. Occurring rarely. On the edges of birch forests, on the banks of the Tasbulak stream.

Geranium sylvaticum L. 1753, Sp. pl.: 681; Fisyun, 1963, Flora of Kazakhstan, 6 : 5. Occurring usually. In the undergrowth of birch and pine-birch forests, on edges.

28. The Rhamnaceae Juss. family

Frangula alnus Mill. 1768, Gard. Dict. ed 8; Goloskokov, 1963, Flora of Kazakhstan. 6 : 130. Occurring rarely. In a swampy birch forests in the vicinity of Schuchinsk (216 square of the Barmashinsky forestry).

Rhamnus cathartica L. 1753, Sp. pl.: 193; Goloskokov, 1963, Flora of Kazakhstan. 6 : 132. Occurring rarely. On the shore of Borovoye lake, on the marshy banks of streams in the vicinity of Shchuchinsk, near the cordon in the Zolotoborsky forestry.

29. The Cornaceae Dumort. family

Swida alba (L.) Opiz. 1838, in Berchtold, Oekon.-Techn. Fl. Bohm. 2, 1 : 175; Vlasova, 1996, Flora of Siberia. 10 : 195. Occurring rarely. In the tree and shrub thickets on the northern bank of Borovoye lake.

30. The Apiaceae Lindl. family

Aegopodium podagraria 1753, Sp. pl.: 265; Korovin, 1963, Flora of Kazakhstan. 6 : 329. Occurring rarely. In swampy birch-pine forests around Shchuchye lake .

Angelica palustris (Besser) Hoffm. 1844. Gen. Umbel. : 162; Pimenov, 1996, Flora of Siberia. 10 : 177. –

Ostericum palustre (Bess.) Bess.; Korovin, 1963, Flora of Kazakhstan. 6 : 311. Occurring rarely. In a birch forest in the vicinity of Small Karasu lake.

Angelica sylvestris L. 1753, Sp. pl.: 251; Pimenov, 1996, Flora of Siberia. 10 : 178. Occurring occasionally. In swampy birch and birch-aspen forests.

Chaerophyllum prescottii DC. 1830, Prodr. IV : 225; Korovin, 1983, Flora of Kazakhstan, 6 : 268. Occurring rarely. 101 quarter of the Borovsk forestry. Birch forests mixed with aspens.

Heracleum sibiricum L. 1753, Sp. pl.: 249; Korovin, 1963, Flora of Kazakhstan. 6 : 418. Occurring usually. In birch and pine-birch forests, sometimes swampy.

Kadenia dubia (Schkuhr) Lavrova & V.N.Tikhom. 1986. Bull. of Moscow Soc. Trial of Nature, Biolog. department 91, 2 : 93; Pimenov, 1996, Flora of Siberia. 10 : 169. –

Cnidium dubium (Schkuhr.) Thel.; Korovin, 1963, Flora of Kazakhstan. 6 : 305. Occurring usually. In swampy birch-aspen, pine forests, on bogs.

Pleurospermum uralense Hoffm. 1814. Gen. Umb. Inpraem. : 9, f. 16, 22; Korovin, 1963, Flora of Kazakhstan. 6 : 362. Occurring occasionally. In pine-birch and birch forests, on edges.

Seseli libanotis (L.) W.D.J.Koch 1825. NovaActaAcad. Leop. – Car. 12 : 111; Pimenov, 1996, Flora of Siberia. 10 : 160. –

Libanotis sibirica (L.) C. A. Mey.; Korovin, 1963, Flora of Kazakhstan. 6 : 347. Occurring occasionally. In pine, pine-birch forests, on edges.

Xanthoselinum alsaticum (L.) Schur 1866. Enum. Pl. Transsilv. : 264; Pimenov, 1996, Flora of Siberia. 10 : 185. –

Peucedanum lubimenkoanum Kot; Korovin, 1963, Flora of Kazakhstan. 6 : 374. Occurring rarely. In the birch forests of the Bulandy and Katarkol forestry.

31. The Caprifoliaceae Juss. family

Lonicera pallasii (Ledeb.) Browicz. 1821, Ind. sem. HortiDorpat. Append.: 20; Goloskokov, 1965, Flora of Kazakhstan. 8 : 227. Occurring rarely. In the undergrowth of a marshy birch forest in the vicinity of Shchuchinsk (216 quarter of the Barmashinsky forestry).

Lonicera tatarica L. 1753, Sp. pl.: 173; Goloskokov, 1965, Flora of Kazakhstan. 8 : 238. Occurring rarely. In a swampy birch forest along Borovoe lake.

32. The Viburnaceae Dumort. family

Viburnum opulus L. 1753, Sp. pl.: 268; Goloskokov, 1965, Flora of Kazakhstan. 8 : 216. Occurring occasionally. Along streams, lakes.

33. The Dipsacaceae Juss. family

Succisa pratensis Moench. 1794, Meth. pl.: 489; Roldugin, 1965, Flora of Kazakhstan. 8 : 267. Occurring rarely. In wet birch forests, swampy areas, on the outskirts of marshes.

34. The Rubiaceae Juss. family

Galium boreale L. 1753, Sp. pl.: 108; Fisyun, 1965, Flora of Kazakhstan. 8 : 202. Occurring usually. In pine-birch and birch forests, along water pools.

35. The Gentianaceae Juss. family

Gentiana pneumonanthe L. 1753, Sp. pl.: 228; Semiotrocheva, 1964, Flora of Kazakhstan. 7 : 99. Occurring rarely. In a pine forest on the Sary-Bulak stream.

Gentiana axillaris (F.M. Schmidt) Murb. 1892, Acta Horti Bergiani, II, № 3 : 20; Semiotrocheva, 1964, Flora of Kazakhstan. 7 : 99. Occurring rarely. On meadows.

Gentianopsis barbata (Froel.) Ma, 1951, Acta Phytotax. Sin. 1,1 : 8; Zuev, 1997, Flora of Siberia. 11 : 66. – *Gentiana barbata* Froel.; Semiotrocheva, 1964, Flora of Kazakhstan. 7 : 110.

Occurring very rarely. The Mirniy forestry, 17 quarter, Rashit-cordon, a meadow on the Arykpay river.

36. The Solanaceae Juss. family

Solanum kitagawae Schonb.-Tem. 1972, in Rech. Fil. Fl. Iran. 100 : 154; 1996, Flora of Siberia, 12 : 10. – *S. depilatum* Kitagawa; Vasileva, 1965, Flora of Kazakhstan. 8 : 8.

Occurring very rarely. A swampy shore of Small Karasu lake, a birch forest.

37. The Convolvulaceae Juss. family

Calystegia sepium (L.) R. Br. 1810, Prodr. Fl. Nov. Holl.; 483; Terehova, 1965, Flora of Kazakhstan. 7 : 140. Occurring rarely. Shrubs thickets.

38. The Polemoniaceae Juss. family

Polemonium coeruleum L. 1753, Sp. pl.: 162; Terehova, 1965, Flora of Kazakhstan. 7 : 154. Occurring rarely. In the birch forests on the Bettybulak stream and its inflow in the vicinity of cordon Golden Bor.

39. The Boraginaceae Juss. family

Myosotis caespitosa Schultz 1818, Fl. Stargard.Suppl. I : 11; Goloskokov, 1964, Flora of Kazakhstan. 7 : 198. Occurring rarely. In a birch forest near Small Karasu lake.

Myosotis sparsiflora Pohl. 1807, inHoppe, NeuesBot. Taschenbuch, Jahr : 74 et 123; Orazova, 1964, Flora of Kazakhstan. 7 : 197. Occurring very rarely. Near the Katarkol village, the coast of Katarkol lake, the pine forest, 130 quarter of the Priozerny forestry.

Pulmonaria mollissima Wulfenex Hornem. 1878, Mon. Pulm.: 47; Orazova, 1964, Flora of Kazakhstan. 7 : 194. Occurring occasionally. In birch, birch-aspen wet forests.

40. The Scrophulariaceae Juss. family

Verbascum thapsus L. 1753, Sp. pl.: 177; Semiotrocheva, 1965, Flora of Kazakhstan. 8 : 27. Occurring rarely. In pine forests, on granite outlets along the shore of Borovoe lake.

Veronica krylovii Schischk. 1939; Flora of W- Siberia. X : 2457; Gamayunova, Dmitrieva, 1965, Flora of Kazakhstan, 8 : 86. Occurring usually. In pine-birch forests, on edges and meadows.

Veronica spicata L. 1753, Sp. pl.: 10; Gamayunova, Dmitrieva, 1965, Flora of Kazakhstan, 8 : 68.

Occurring usually. In sparse pine forests, granite outlets.

41. The Lamiaceae Lindl. family

Dracocephalum ruyschiana L. 1753, Sp. pl.: 595; Roldugin, 1964, Flora of Kazakhstan, 7 : 360. Occurring occasionally. In birch and birch-pine forests.

Glechoma hederacea L. 1753, Sp. pl.: 595; Tsagolova, 1964, Flora of Kazakhstan, 7 : 345. Occurring rarely. In the pine forests near Shchuchinsk.

Prunella vulgaris L. 1753, Sp. pl.: 600; Goloskokov, 1964, Flora of Kazakhstan, 7 : 396. Occurring rarely. In the pine-birch forests near Shchuchinsk.

Scutellaria galericulata L. 1753, Sp. pl.: 599; Fisyun, 1964, Flora of Kazakhstan, 7 : 302. Occurring occasionally. In birch and pine-birch forests, along the streams, on birch edges.

Stachys sylvatica L. Sp. pl.: 580; Karmysheva, 1964, Flora of Kazakhstan, 7 : 421. Occurring rarely. In a swampy birch forest around Shchuchinsk.

42. The Campanulaceae Juss. family

Adenophora liliifolia (L.) Bess. 1822, Enum. pl. Volh.: 90; Terehova, 1965, Flora of Kazakhstan, 8 : 294. Occurring occasionally. On the edges of birch forests, on meadows, along the streams.

43. The Asteraceae Dumort family

Achillea setacea Waldst. & Kit. 1802, Pl. Rar. Hung. 1 : 82; Orazova, 1966, Flora of Kazakhstan, 9 : 11. Occurring occasionally. On the hills slopes.

Antennaria dioica (L.) Gaertn. 1791, De fruct. et sem. II : 410; Roldugin, 1965, Flora of Kazakhstan, 8 : 375. Occurring usually. In dry pine forests.

Artemisia latifolia Ledeb. 1815, Mem. Acad. Sc. Petersb. V: 569; Filatova, 1966, Flora of Kazakhstan, 9 : 88. Occurring usually. Forest glades, meadows on the slopes of hills, edges of birch forests.

Artemisia macrantha Ledeb. 1815, Mem. Acad. Sc. Petersb. V: 573; Filatova, 1966, Flora of Kazakhstan, 9 : 92. Occurring usually. In birch forests and pegs, on edges.

Artemisia pontica L. 1753, Sp. pl.: 847; Filatova, 1966, Flora of Kazakhstan, 9 : 92. Occurring occasionally. In birch forests and on edges.

Aster alpinus L. 1753, Sp. pl.: 862; Fisyun, 1966, Flora of Kazakhstan, 8 : 316. Occurring usually. On stony slopes and hill tops in the steppe part of the park, in the steppe communities is found on the granite outlets and in the pine forests of the park's forest part.

Centaurea scabiosa L. 1753, Sp. pl.: 913; Gamayunova, 1966, Flora of Kazakhstan, 9 : 394. Occurring occasionally. On the edges of birch forests in the Katarkol and Zolotobor forestries.

Cirsium heterophyllum (L.) All. 1785. Fl. Pedem.: 1 : 152; Zhirova, 1997, Flora of Siberia, 13 : 216. Occurring rarely. In the wet forests on the banks of the Tasbulak, Bettybulak streams.

Crepis praemorsa (L.) Tausch. 1829, Flora, XI, 1 : 79; Roldugin, 1966, Flora of Kazakhstan, 9 : 536. Occurring occasionally. In pine-birch and birch forests.

Crepis sibirica L. 1753, Sp. pl.: 807; Roldugin, 1966, Flora of Kazakhstan, 9 : 538. Occurring occasionally. In birch, birch and pine forests along the streams and in boggy hollows.

Erigeron acris L. 1753, Sp. pl.: 863; 1997, Flora of Siberia, 13 : 38. Occurring occasionally. On open shores of lakes, meadows, forest glades, birch forests edges.

Filago arvensis L. 1753, Sp. pl.: Add; Roldugin, 1966, Flora of Kazakhstan, 8 : 372. Occurring rarely. In dry pine forests.

Hieracium umbellatum L. 1753, Sp. pl.: 804; Gamayunova, 1966, Flora of Kazakhstan, 9 : 555. Occurring occasionally. In dry pine forests.

Hieracium virosum Pall. 1771, Reise, I : 501; Gamayunova, 1966, Flora of Kazakhstan, 9 : 554. Occurring occasionally. On rocky slopes of the hills, in pine forests, on burns.

Inula hirta 1753, Sp. pl.: 883; Semiotrocheva, 1965, Flora of Kazakhstan, 8 : 391. Occurring rarely. On edges of pine forests.

Senecio erucifolius L. 1753, Sp. pl.: 869; Roldugin, 1966, Flora of Kazakhstan, 9 : 150. Occurring occasionally. Wet meadows, scrub thickets around the springs.

Senecio vulgaris L. 1753, Sp. Pl. : 897; Roldugin, 1966, Flora of Kazakhstan, 9 : 162. Occurring occasionally. In sparse pine forests, on the rocks, sometimes, as a weedy type, grows on the roadsides and near the dwelling.

Serratula coronata L. 1763, Sp. pl.: 1144; Terehova, 1966, Flora of Kazakhstan, 9 : 355. Occurring usually. In birch and pine-birch forests, on edges.

Solidago virgaurea L. 1753, Sp. pl.: 880; Fisyun, 1965, Flora of Kazakhstan, 8 : 310. Occurring usually. In pine, pine-birch forests.

Tanacetum vulgare L. 1753, Sp. pl.: 845; Vasiljeva, 1966, Flora of Kazakhstan, 9 : 56. Occurring occasionally. In pine-birch forests, along the floodplains of streams, on burns.

Tephrosieris integrifolia (L.) Holub., 1973, in Folia Geobot. Phytotax. (Praha) 8, 2 : 173; Vibe, 1997, Flora of Siberia, 13 : 155. –

Senecio campester (Retz.) DC; Roldugin, 1966, Flora of Kazakhstan, 9 : 157. Occurring occasionally. In steppe communities on granite outlets, on the sides of forest roads.

Trommsdorffia maculata (L.) Bernh., 1800, Syst. Verz. Erfurt. : 102; Lomonosova, 1997, Flora of Siberia, 13 : 251. –

Achirophorus maculatus (L.) Scop. 1772; Terehova, 1966, Flora of Kazakhstan, 9 : 418. Occurring usually. In dry pine forests, in the hollows at the foot of the Zheke-Batyr, Kokshetau mountains.

Tussilago farfara L. 1753, Sp. pl.: 865; Zaitseva, 1966, Flora of Kazakhstan, 9 : 141. Occurring occasionally. Along streams and lakes.

44. The Iridaceae Juss. family

Iris ruthenica Ker Gawl. 1808, Bot. Magaz. tab. 1123; Polyakov, 1958, Flora of Kazakhstan. 2 : 237. Occurring occasionally. In the vicinity of Great Chabachje lake and on the Schuchinsk hills.

Iris sibirica L. 1753, Sp. pl.: 38; Polyakov, 1958, Flora of Kazakhstan. 2 : 240. Occurring usually. Is found in birch, birch and pine forests.

45. The Alliaceae J. Agardh family

Allium hymenorhizum Ledeb. 1830, Fl. Alt. II : 12; Polyakov, Pavlov, 1958, Flora of Kazakhstan. 2 : 160. Occurring rarely. On a meadow along the Arykpay river, in Batmak, in a pine-birch forest at the foot of Mount Zheke-Batyr.

Allium obliquum L. 1753, Sp. pl.: 296; Polyakov, Pavlov, 1958, Flora of Kazakhstan. 2 : 158. Occurring very rarely. 3.5 km S-W. from Katarkol, Batmak, a saline meadow, 28 quarter of the Katarkol forestry.

46. The Convallariaceae Horaninow family

Polygonatum odoratum (Mill.) Druce. 1906. Ann. Scott. Nat. Hist. : 226; Pavlov, 1958, Flora of Kazakhstan. 2 : 229. Occurring occasionally. In wet pine-birch and birch forests.

47. The Asparagaceae Juss. family

Asparagus officinalis L. 1755, Fl. Suec., ed 2 : 2 : 108; Polyakov, 1958, Flora of Kazakhstan. 2 : 226. Occurring occasionally. In sparse birch forests, shrubs thickets.

48. The Orchidaceae Adans. family

Neottianthe cucullata (L.) Schlechter. 1919, in Fedde. Repert. sp. nov. XVI : 292; Kuznetsov, Pavlov, 1958, Flora of Kazakhstan. 2 : 264. Occurring rarely. The pine forests near Small Karasu Lake.

49. The Juncaceae Juss. family

Luzula pallescens Sw. 1822, Enum. pl. Volhyn.: 15; Baitenov, 1958, Flora of Kazakhstan, 2 : 102. Occurring usually. In pine, pine-birch, birch forests.

50. The Cyperaceae Juss. family

Carex caryophyllea Latourr. 1785, Chlor. Lugd.: 27; 1990, Flora of Siberia. 3 : 138. –

C. ruthenica V. Krecz.; Polyakov, 1958, Flora of Kazakhstan. 2 : 68. Occurring very rarely. 40-41 quarter of the Barmashinsky forestry, greenwood pine forest with an abundance of ferns.

Carex tomentosa L. 1767, Mant. I : 123; Polyakov, 1958, Flora of Kazakhstan. 2 : 67. Occurring very rarely. In Batmak, along the road.

Carex vaginata Tausch. 1821, in Flora, 4: 557; Polyakov, 1958, Flora of Kazakhstan. 2 : 71. Occurring usually. In the marshy birch forests on the shores of Svetly, Borovoe, Small Karasu lakes, on the Imanaevsky and Tasbulak streams.

51. The Poaceae Barnhart family

Brachypodium pinnatum (L.) Beauv. 1812, P. B. Agrost.: 155; Gamayunova, 1956, Flora of Kazakhstan. 1 : 285. Occurring occasionally. In the birch forests in the vicinity of Small Karasu lake, in the Priozerne forestry.

Calamagrostis arundinacea (L.) Roth. 1789, Tent. Fl. germ. II, 1 : 89; Gamayunova, 1956, Flora of Kazakhstan. 1 : 188. Occurring rarely. In the vicinity of Small Karasu lake and in the upper reaches of the Imanaevsky stream.

Calamagrostis canescens (Weber) Roth 1789, Tent. Fl. Germ. 2, 1 : 93; Ivanova, 1990, Flora of Siberia. 2 : 96. –

C. lanceolata Roth.; Gamayunova, 1956, Flora of Kazakhstan. 1 : 186. Occurring occasionally. In birch forests on the lakes, marshes and streams.

Calamagrostis langsdorfii (Link.) Trin. 1824, Gram. unifl.: 225; Gamayunova, 1956, Flora of Kazakhstan. 1 : 186. Occurring rarely. In pine-birch and birch swampy areas [2,3,5].

Calamagrostis neglecta (Ehrh.) Gaertner, Meyer et Schreber 1799, Flora of Wett. 1 : 94; Gamayunova, 1956, Flora of Kazakhstan. 1 : 187. Occurring rarely. In swampy areas, on the outskirts of marshes [3].

Dactylis glomerata L. 1753, Sp. pl.: 71; Gamayunova, 1956, Flora of Kazakhstan. 1 : 220. Occurring occasionally. In birch forests.

Elymus caninus (L.) L. 1755, Pl. Suec. Ed. 2 : 39; Peshkova, 1990, Flora of Siberia. 2 : 20. –

Agropyron caninum (L.) P. B.; Gamayunova, 1956, Flora of Kazakhstan. 1 : 303. Occurring rarely. In the birch forests of the Borovoy village and in the area of Small Karasu lake.

Festuca pratensis Huds. 1762, Fl. Angl. Ed. I : 37; Gamayunova, 1956, Flora of Kazakhstan. 1 : 265. Occurring occasionally. In sparse birch forests.

Hierochloe odorata (L.) Beauv. 1820, Wahl. Fl. ups.: 32; Gamayunova, 1956, Flora of Kazakhstan. 1 : 137. Occurring occasionally. In birch forests and on edges.

Melica nutans L. 1753, Sp. pl.: 66; Gamayunova, 1956, Flora of Kazakhstan. 1 : 218. Occurring usually. In pine-birch and birch forests.

Poa nemoralis L. 1753, Sp. pl.: 69; Gamayunova, 1956, Flora of Kazakhstan. 1 : 231. Occurring usually. In pine, pine-birch forests.

Poa palustris L. 1759. Sist. Pl. 10 : 847; Olova, 1990, Flora of Siberia. 2 : 184. – *P. serotina* Ehrh.; Gamayunova, 1956, Flora of Kazakhstan. 1 : 230. Occurring usually. In pine-birch and birch forests.

The forest flora of the “Burabay” natural park has a following ratio of basic systematic groups: 9 species of vascular spore plants (5.5% from the forest flora) dominated by ferns (5 species). The basis of the Burabay forest flora is made up by angiosperms - 153 species (93.8%), including dicotyledons - 130 species (79.8%), monocotyledons - 23 species (14.1%).

Systematic structure of the “Burabay” natural park forest flora at the family level is the following: Asteraceae (23 species), *Rosaceae* (16 species), *Poaceae* (12 species), *Apiaceae* (9 species), *Salicaceae* and *Ranunculaceae* (8 species each). Further, 8 families contain 4-8 species and 39 families have 1-3 species 26 families of which are single-species. The largest *Asteraceae* family occupies a leading position in the flora of Burabay forest massif, like in all Holarctic areas. *Poaceae* also retain their position.

Identifying other features of the family spectrum, it should be noted that there are 26 single-species families in the Burabay flora. Such families as *Botrychiaceae*, *Huperziaceae*, *Droseraceae*, *Menyanthaceae* are limited in their area by the Kokshetau upland.

Systematic structure of the “Burabay” natural park forest flora at the genera level is the following: *Salix* (7), *Viola* (5), *Geranium*, *Calamagrostis*, *Pyrola* (4 each), *Silene*, *Thalictrum*, *Crataegus*, *Gentiana*, *Artemisia*, *Carex* (3 each). 18 genera of 2 species and 85 genera include 1 species each. *Viola*, *Pyrola*, *Dryopteris* genera indicate forest traits.

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«Бурабай» ұлттық табиғи паркінің орман флорасының тамырлы өсімдіктерінің конспекті

Аңдатпа: Мақалада «Бурабай» мемлекеттік ұлттық табиғи паркінің аумағын зерттеу нәтижелері келтірілген (2010 - 2018жж.). Жүргізілген зерттеулер нәтижесінде «Бурабай» табиғи паркінің орман флорасының тамырлы өсімдіктерінің конспектісі құрылды, онда 51 тұқымдас пен 115 туыстың 163 түрінің таралуы мен пайда болуы туралы ақпараттар бар. «Бурабай» табиғи паркінің орман флорасында негізгі жүйелі топтардың мынадай қатынасы байқалады: тамырлы споралы өсімдіктердің 9 түрі (орман флорасының 5,5%), олардың ішінде папоротниктер басым. Бурабай массивінің орман флорасының негізін жабынды тұқымды - 153 түр (93,8%) құрайды, оның ішінде қосжарнақты - 130 түр (79,8%), біржарнақты - 23 түр (14,1%) құрайды. *Viola*, *Pyrola*, *Dryopteris* туыстары орман ерекшеліктерін көрсетеді.

Түйін сөздер: тамырлы өсімдіктер, орман флорасы, «Бурабай» табиғи паркі, Көкшетау биіктігі, биологиялық әртүрлілік, тамырлы өсімдіктердің конспекті

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Конспект сосудистых растений лесной флоры национального природного парка «Бурабай»

Аннотация: В статье приведены результаты исследования территории Государственного национального природного парка «Бурабай» (2010 - 2018гг.). В результате проведенных исследований составлен конспект сосудистых растений лесной флоры природного парка «Бурабай», содержащий сведения о распространении и встречаемости 163 видов из 51 семейства и 115 родов. В лесной флоре природного парка «Бурабай» наблюдается следующее соотношение основных систематических групп: сосудистые споровые растения составляют 9 видов (5,5% от лесной флоры), среди которых преобладают папоротники. Основу лесной флоры Бурабайского массива составляют покрытосеменные -153 вида (93,8 %), в том числе двудольные - 130 видов (79,8%), однодольные - 23 вида (14,1%). На лесные черты указывают роды *Viola*, *Pyrola*, *Dryopteris*.

Ключевые слова: сосудистые растения, лесная флора, природный парк «Бурабай», Кокшетауская возвышенность, биологическое разнообразие, конспект сосудистых растений.

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