UDC 581.6

D.K. Aidarbaeva, G.A. Sholpankulova, A.Sh. Shokanova

Abai Kazakh National Pedagogical University, Almaty, Kazakhstan
(E-mail: d.kaisar@mail.ru)

Current state of populations of useful plants of Almaty region and ways of their balanced use

In the article the results of the study of the current state of useful plants in Almaty region are summarized. The study covered the territory of the Karasaz rural district. A modern assessment of the species diversity of the flora was given, the list of which according to the field survey data was 194 species belonging to 132 genera and 44 families. In the number of species among families *Asteraceae* Dumort was dominating — 33 species, *Poaceae* Juzz — 28 species, *Fabaceae* Lindl — 16 species, *Labiatae* Juss — 13 species, *Rosaceae* Juss — 11 species, *Chenopodiaceae* Vent — 12 species, *Ranunculaceae* Juss — 8 species, *Liliaceae* Juss — 6 species, *Cyperaceae* Juss, *Iridaceae* Lindl, *Papaveraceae* Juss — 5 species each; *Brassicaceae* Juss — 4 species, *Cynomoriaceae* Engl and *Plantaginaceae* Lindl — 3 species each, other 19 species were dominant according to vegetation cover. Distribution of more than 26 species of medicinal and 56 species of fodder plants were revealed. The predominant life form was represented by perennials — 172 species, of which long-growing perennial grasses made up — 148 species, shrubs — 14 species, semi-shrubs — 3 species each, shrubs and trees — 2 species each. The vast number of species is eaten by cattle and often mowed for hay, so a complete inventory and assessment of the current state of useful plants, development of recommendations for the conservation and restoration of their natural populations is relevant to the present day.

Keywords: useful plants, forage plants, medicinal plants, flora, population, dominants, perennial grasses, shrubs, semi-shrubs.

Introduction

Conservation and sustainable use of biological diversity is one of the most important tasks of the modern world. The combination of global warming with other environmental stresses and human activities can lead to the rapid destruction of existing ecosystems, especially in arid regions, which include most part of the territory of Kazakhstan. In the world practice, more than 40 % of pharmaceutical preparation is prepared with using of plant raw material (PRM). About 70 % of the total capacity of the PRM is accounted for by the chemical and pharmaceutical industry and medicine. Kazakhstan and other CIS countries currently use raw materials provided from about 60 or more species of wild herbs. At the same time, the biology of herbs (habitat, communities, natural conditions, the intensity of the growth of floral array, the resumption of thickets, etc.) is studied with the conduct of resource studies. All these works have great practical importance, connected not only with the issues of procurement of medical raw materials, but also the preservation, restoration of natural thickets of herbs and other useful plants [1–4].

The territory of the Karasaz rural district is represented by three sections: the main section, the Ketmen section and the interlaced section. The territory is represented by a high intermountain valley surrounded by mountains: from the North to the Ketmen ridge, from the South to the Karatau Mountains. The climate of the surveyed area is continental, with hot and sunny summers, cold winters, deficit of rainfall, intense evaporation and high insolation. In hydrographic respect, the territory of the rural district Karasaz presented Shalkodesu river and its tributaries: Ulken Karasu, Eshki Karasu, Tyshkanbai Karasu and Ulken Shiybut. In the Western part of the surveyed area, groundwater is wedged to the surface in the form of springs [5–7].

Methods of research: resource management [8]; geobotanical [9–11]. The determination of plant species was carried out according to the «Flora of Kazakhstan» (1956–1966); «Illustrated determinant of Kazakhstan plants» (1969, 1972). Endemic species are identified by «Flora of Kazakhstan» (1956–1966) and allocated according to the works of B.A. Bykov, A.I. Tolmachyov. Types of areas for the objects of study are given according to the works of L.Ya. Kurochkina, M.S. Baitenov and others [12–17]; scientific names of plants in the Kazakh language — according to S.A. Arystangaliyev [18].

The results of research

The floristic list of field investigation included 194 species from 132 genera and 44 families. By amount of species Asteraceae family with 33 species is dominated, second position belonged to Poaceae family

(28 species), on the third position was Fabaceae family (16 species). Other families included: Lamiaceae — 13 species, Rosaceae — 11 species, Chenopodiaceae — 12 species, Ranunculaceae — 8 species, Liliaceae — 6 species, Cyperaceae, Iridaceae and Papaveraceae — by 5 species; Brassicaceae — 4 species, Cynomoriaceae and Plantaginaceae — by 3 species. Other families contained 1 or 2 species (Table 1). 19 species are dominants in vegetation cover.

The most species are eaten by livestock, 26 from them are medical; 17 species are poisonous.

Table 1

Economically valuable groups of plants

No.	Name of groups of plants	Number
1	Fodder	56
2	Weed	33
3	Nectariferous	24
4	Medical	26
5	Ornamental	20
6	Poisonous	17
7	Food	13
8	Tanning	12
9	Essential oil	11
10	Vitamin	5
11	Tinctorial	4
12	Technical	4
13	Starchy	3
14	Insecticide	2
15	Brush	2
16	Endemic	2
17	Fibrous	1

The predominant life form is represented by perennials grassy plants — 172 species, including long-term perennial grasses — 148 species; shrubs — 14 species, semi-shrubs and sub-shrubs — 3 species, shrubs and trees — 2 species.

Grassy perennials plants belonged to Poaceae and Asteraceae family, many of them participated in ceonosis formating.

Shrubs are representatives of the family Cupressaceae, Salicaceae, Rosaceae, Fabaceae, Linaceae and Caprifollaceae. Semi-shrubs are representatives of Asteraceae and Chenopodiaceae families.

Group of annuals (9 species) are representatives of the families Poaceae, Polygonaceae, Chenopodiaceae and others. There are 12 species of biennial plants.

Fescue dominate are spread over the surfaces of high- and mid-mountain massifs. On these pastures, along with fescue, *(Stipa kirghisorum* P. Smirn., *Helictotrichon tianschanicum* (Roshev.) Henr. and *Helictotrichon pubescens* (Huds) Jessen, *Agropyron repens* (L.) Beauv., *Bromus inermis* Leyss., *Poa pratensis* L., Alopecurus pratensis L.) there are grasses and forbs (*Geranium pratense* L. and *Geranium collinum* Steph., *Thymus marschallianus* Willd., *Myosotis caespitosa* Schultz и *Myosotis silvatica* Hoffm., *Achillea millefolium* L., *Origanum vulgare* L. and others).

The total area of the Karasaz rural district is 45,224 hectares, including agricultural land — 37,876 hectares, other — 7,348 hectares. Other lands include: coniferous forest — 551 hectares, deciduous forest — 193 hectares, thickets of bushes — 1,503 hectares. Outcrops of bedrock make up 4029 hectares, sand and pebble deposits — 722 hectares, populated areas — 143 hectares, outbuildings — 60 hectares, boulder and pebble deposits — 147 hectares.

As a result of the study, the distribution of 56 species of forage plants was determined. So, we presented the biological and ecological features of some general encountered species.

Tienshan cherry tree — *Cerasus tianschanica* Pojark is a perennial shrub, 1–2.5 m high, with thin long fluffy tree sprouts, the bark of old branches is brownish-gray. Leaves are narrow lanceolate, pink flowers, located on 4–6 short shoots. It flowers in May-June, bears fruits in June-July. Spring leaves and young shoots are well eaten, especially by small cattle, later worse.

Feather hairy grass (sawdust) — *Stipa capillata* L. is a perennial dense cusp grass till 50–80 cm high. In spring it begins to grow after many xerophyte cereals, therefore it dries much later. Yields are higher than other cornices, and when mowing before earing, it gives aftermath up to 50 % of the mass of the first mowing, and the aftermath consists mainly of leaves. In spring the leaves are greatly eaten by horses and quickly gaining weight. Since the end of flowering is almost not eaten. Cattles eat them less than horses; sheep and goats eat them satisfactorily only at a young age. Autumn afterburning is very gentle and is well eaten by all animals. The disadvantages of this feather grass are its harmfulness to sheep from the end of flowering, because the spines, getting into the wool, not only litter it, but also, piercing the skin, penetrate into the muscle tissue of the animal, leading to exhaustion and even death.

Kochia (izen) — *Kochia prostrata* (L.) Schrad. is semi-shrubs up 65 cm in height. Stems are numerous, reddish, branched. The leaves are flat, filiform linear, sharp pressed hairy. The seeds are round-oval or almost round, depressed, brown, bare, smooth on both sides. Flowering and fruiting are from July to September. The vegetative period lasts 220–264 days.

It is widespread along stony and gravelly slopes and plumes of hills and mountains, salt and salt marshes, saline steppes and sands. It is well eaten by horses, camels. It is considered a fattening feed for goats, sheep and camels. It is quite drought resistant and salt tolerant.

During the growing season, 2–3 cycles of grazing or 2 mowing for hay are possible. The nutritional value is significant. An important feature of Kochia is a big concentration of protein and fiber varies from June to October. It is a year-round food, better eaten by sheep and horses. In crops, it can give a cutting weight of hay up to 15–20 centners/hectare, and with high agricultural technology it can be produced over 30 centners per hectare of hay.

Alfalfa sickle — *Medicago falcata* L. is perennial plant until 1 m of height. The root is very powerful and already in the first year of development reaches 2 m. The stems are numerous, stretched. Plant is with yellow flowers and sickle-shaped beans. Seeds are oblong-ovate or bean-shaped, brown or yellowish. Period of blossoming is from May to August. It is widespread in meadows, rocky and grassy slopes. It is characterized by frost and drought resistance, salt and floodplain tolerance. It is perfectly eaten by all kinds of cattle. It is tolerance to bleed, introduced into the culture.

Bluegrass Bulbs — *Poa bulbosa* L. is an ephemerid small core plant with thin roots and a bulb. It is widespread plant on any soil. Under favorable conditions it reaches a height of 45–50 cm and gives a yield of 15.0 t/ha. In such years, it is possible to mow. The hay is well eaten by all livestock types. On pasture it is well eaten in spring and summer, in autumn its palatability decreases. For sheep is a fattening feed, in the early aftermath grazing yields.

Fescue furrowed (fescue) — *Festuca sulcata* Hack. is a perennial dense-cusp cereal 30–60 cm high, forming powerful dense turfs with numerous basal leaves. It blooms in late May-June, after flowering it begins to dry out and, when fully matured, yellow and rough grass. All hot summer is at rest and does not grow. With a decrease in temperature and first rainfall, a mass of basal leaves appears which grow to almost the same height as in spring. On the pasture, it is eaten perfectly by all kinds of animals, especially horses, only camels eat it satisfactorily. Since the beginning of flowering, and especially in the ripening phase, it is eaten worse, and in the summer only radical leaves are eaten. In conditions of steppe and semi-deserts, fescue grazing lands are often mown for hay.

Sedge pillars — *Carex pachystylis* J. Gay. is a perennial plant with rhizome with creeping shoots. Stems are straight, 30–60 cm tall, with rigid leaves. It blooms in May and June. It is considered a fodder plant of average quality. It tolerates grazing. On the pasture in the early phases of growth, it is well eaten by all animals, except camels. Later quickly grows coarse and almost not eaten. In the hay, cattle and horses are satisfactorily eaten. Sheep, goats and camels in hay eat it badly. This is explained by the fact that the herbage, in which there is Songar sedge, is mowed down in periods when it is already very rough.

White-earth wormwood — *Artemisia terrae-albae* Krasch. is a perennial herb is up to 45 cm high with numerous vegetative and generative shoots forming dense turf and wide. The leaves are ovoid in shape. Flowers are yellow. Flowering occurs from August to October. On pasture it is well eaten by sheep and even excellent in the spring, average in summer is bad, again good and is eaten in autumn and winter, eat a little worse by horses and camels. Cattle eat it satisfactorily in spring, autumn and winter and hardly eat it in summer, can be attributed to forage plants above average quality.

Autumn wormwood — *Artemisia serotina* Bunge is a perennial plant with a height of 35–80 cm, with a rod, woody, thick root. Stems are densely leafy, especially barren, fruiting stems at the beginning of grayish-pubescent, in the summer almost naked, brown or straw-yellow. Leaves of fruitless shoots and lower stem

long petiolate, stem leaves short-petiolate or sessile. Panicle is wide-pyramidal. Baskets are ovoid, sessile or on legs. Corolla is tubular, yellow or purple. It blooms in September. It is widespread on saline clay and sandy loam soils, river terraces, crushed-clay slopes of low mountains and hills, deposits, near roads. In autumn, perfectly eaten by cattle, but reports a bitter taste of milk. In the phase of vegetation contains up to 19.9 % protein. It gives a big gain when eating. It has a pleasant smell and is used for perfuming toilet soap.

Wormwood loess (narrow-lobed) — *Artemisia sublessingiana* Bess is a perennial plant with a height of 20–45 cm with a vertical, thick, multi-headed root. The stem forms a loose, highly rising above the ground turf. The leaves on both sides are grayish-green from thin cobweb-felt pubescence. Panicle is narrow, baskets are oblong-ovate, and corolla is tubular, yellow. It blooms in September-October. It is widespread on crushed-clay slopes of low mountains and hills. This wormwood is eaten in autumn, winter and early spring well, and in summer poorly eaten by horses, sheep and goats. The nutritional value is assumed to be higher than the nutritional value of good cereal hay.

The sandtail stag (ebelek) — *Ceratocarpus arenarius* L. is an annual herbaceous plant, grayish or reddish from stellate hairs, 5–30 cm high. The stems are strongly branched, forming a spherical bush. The leaves are hard, alternate, opposite at the base, 1–4 cm long and 0.5–2 mm wide, filiform. It blooms in May and July. The fodder plant for all animals, drought-resistant, is eaten both in green and in dry form. It is green in autumn and winter for horses and sheep — fattening feed. When grazing on ebelek pastures, milk mares increase yields, and the quality of koumiss improves. In its green form, it is highly nutritious, even in the dry phase, its nutritional value is not lower than average quality hay.

Stag marsupial (ebelek) — *Ceratocarpus utriculosus* Bluk. is annual herbaceous plant, plant grayish from pubescence up to 30 cm high. From the previous species it is distinguished by wider leaves and obovate fruits with convex sides. *Ceratocarpus utriculosus* is a valuable fodder plant, especially for horses and sheep. It is eaten all year round. From the second half of the summer for horses — fattening feed. As well as the previous species, it contributes to increasing the milk productivity of mares.

Melee beetle — *Spiraea hypericifolia* L. is shrub up to 150 cm tall with numerous flower umbrellas on brown twig-shaped branches. Period of blossoming is in April-May, fruits are in June. In the pasture, leaves and young shoots are readily eaten by sheep and goats. The rest of the animals eat worse. It contains vitamin C, aromatic substances. It grows on soil tillage mountain slopes. It is good honey plant.

Hornlike teresken — *Eurotia ceratoides* is subshrub until 30–100 cm high. The leaves are alternate, rigid, short-petiolate, lanceolate or oblong. The flowers are star-pubescent, are collected in inflorescences at the ends of the twigs. It blooms in July-September. In the pasture, it is perfectly eaten by sheep and camels, and in the fall it is for them fattening feed. Horses eat it worse; cattle eat it poorly-satisfactorily. It is considered a plant that stimulates the appetite of animals, and is also necessary for mineral nutrition.

26 species of medicinal plants were identified. The ethnobotanical method, i.e. using the oral questionnaire, the types used in traditional medicine by the local population for the treatment of various diseases were identified (Table 2).

Ephedra Medium (Ephedra) — *Ephedra intermedia* Schrenk et C.A. Mey. is shrub up 1 m hight. Among other species, the genus is distinguished by the highest content of the alkaloid pseudoephedrine. Most of it compound is in the young green twigs, less lignified. Ground parts are used in local traditional medicine in the form of tea against colds and rheumatic diseases. It is used against asthma, increases the tone of relaxed blood vessels during shock, cures flu-like rhinitis.

Polygonum aviculare L. is annual herb. It contains tannins, leaves are rich in vitamin C. It is used in traditional medicine, a decoction is used for intestinal disorders.

Marin peony root — *Paeonia anomala* L. is perennial herb with spindle-shaped thickened root and stems 40–80 cm tall. It blooms in May-June. The leaves contain a large amount of ascorbic acid, tannins. Seeds contain 26–27 % of oil. The roots contain a lot of starch and salicin glucoside. The roots are used in folk medicine for gastric diseases, 10 % forcing is officially used as an anticonvulsant and analgesic, for neurasthenia, insomnia, and disorders of the autonomic functions of the central nervous system. In Mongolian medicine this raw material uses for treatment of kidney diseases, liver, Botkin, and as an antidote for poisoning.

Ural licorice — *Glyzyrrhiza uralensis* Fisch. is a perennial herb up 110 cm high. The plant contains alkaloids, cumarins, tannins, flavonoids, essential oil and vitamin C. It is used in both official and folk medicine for diseases of the upper respiratory tract, as an anti-inflammatory, as component of diuretic and laxative fees, drugs in the treatment of gastric and duodenal ulcers, drugs that affect the adrenal cortex, used in bronchial asthma, allergic dermatitis, etc.

Table 2

List of Karasaz's herbs

No.	English name	Lathin name	Kazakh name	Life form
Family Ephedraceae				
1	Ephedra Medium	*Ephedra intermedia* Schrenk.	Kyzyl tamyr	Shrub
Family Liliaceae				
2	Hellebore Lobel	*Veratrum lobelianum* Bernh.	Maral kural	Perennial
Family Urticaceae				
3	Stinging nettle	*Urtica urens* L.	Kuidyrgishkalakai	Perennial
Family Polygonaceae				
4	Knotweed	*Poligonum nitens* (Fisch.et Mey.)	Zhyltyr taran	Perennial
5	Polygonum aviculare	*Polygonum aviculare* L.	Kyzyltaspataran	Annual
Family Ranunculaceae				
6	Dzungar wrestler	*Aconitum soongaricum* Stapf.	Ystykkolutamyry	Perennial
7	Marin peony root	*Paeonia anomala* L.	Marigultaushymyldyk	Perennial
Family Cruciferae				
8	Erysimum (wallflower)	*Erysimum diffusum* Ehrh.	Shashanky sarbasshop	Biennial
Family Fabaceae				
9	Glycyrrhizauralensis	*Glyzyrrhiza uralensis* Fisch.	Oral miya	Perennial
10	Liquorice	*Glyzyrrhiza glabra* L.	Zhalanmiya	Perennial
11	Thermopsislupinoides	*Thermopsis lanceolata* R. Br.	Ulyzhylanburshak	Perennial
Family Zygophyllaceae				
12	Wildrue	*Peganum harmala* L.	Kadimgiadyraspan	Perennial
Family Hypericaceae				
13	StJohn'swort	*Hypericum perforatum* L.	Shaishopshaikurai	Perennial
Family Plantaginaceae				
14	Broadleafplantain	*Plantago major* L.	Zholzhelkenbakazhapyrak	Biennial
Family Rubiaceae				
15	Lady'sbedstraw	*Galium verum* L.	Nagyzkyzylboyau	Perennial
16	Cleavers	*Galium aparine* L.	Zhabyskakkyzylboyau	Annual
Family Valerianaceae				
17	Valerianturkestanian	*Valeriana turkestanica* Sumn.	Turkistan shuinshobi	Perennial
18	Patrinia medium	*Patrinia intermedia* (Horn.)	Orta tasshuigyn	Perennial
Family Plumbaginaceae				
19	Limonium Gmelinii	*Limonium gmelinii* (Willd.) Kuntze.	Kermektomarboyau	Perennial
Family Labiatae				
20	Oregano	*Origanum vulgare* L.	Kiyikshop zhupargul	Perennial
21	Commonhorehound	*Marrubium vulgare* L.	Kadimgisorgysh	Perennial
Family Solanaceae				
22	Blackhenbane	*Hyoscyamus niger* L.	Kara menduana	Biennial
Family Asteraceae				
23	Commonmugwort	*Artemisia vulgaris* L.	Ermenzhusan	Perennial
24	Grandwormwood	*Artimisia absinthium* L.	Ashy zhusan	Perennial
25	Commondandelion	*Taraxacum officinale* Wigg.	Kadimgibakbak	Perennial
26	Commonyarrow	*Achillea millefolium* L.	Akbasmynzhapyrak	Perennial
27	Commonchicory	*Cichorium intybus* L.	Kadimgi shashyratky	Perennial

Licorice naked — *Glycyrrhiza glabra* L. a perennial herbaceous plant up to 110 cm in height. The plant contains alkaloids, cumarins, tannins, flavonoids, essential oil, vitamin C. It is used both in official and in folk medicine for diseases of the upper respiratory tract, as an anti-inflammatory, is part of diuretic and laxative fees, drugs in the treatment of gastric ulcer and duodenal ulcer, drugs affecting the adrenal cortex, drugs used in the treatment of gastric ulcer, bronchial asthma, allergic dermatitis, eczema, etc.

Harmala vulgaris (adraspan) — *Peganum harmala* L. From the alkaloids of adraspan is received a drug for the treatment of Parkinson's disease. In folk medicine, the broth is used for neurasthenia, epilepsy, malaria, gastrointestinal diseases, syphilis, external-rheumatism, skin diseases.

Hypericum perforatum L. is a perennial plant with an erect stem, 30–60 cm of height. The flowers are large, yellow-golden, collected in inflorescences. It blooms from June to August. It has astringent, analgesic, and hemostatic, antiseptic, urinary and choleric effect, improves appetite, enhances the secretion of digestive juices. Hypericum oil dries, disinfects wounds, ulcers.

The Gmelin limonium — *Limonium gmelinii* (Willd.) Ktze. is perennial herbaceous plant. It blooms in July-September, bears fruit in August-September. The roots contain up to 25 % tannins. It is recommended for cultivation in culture on saline soils for industrial purposes. It is used in medicine as an astringent and hemostatic agent and in gastrointestinal diseases. It is good honey plant, but with poor quality.

Oregano — *Origanum vulgare* L. is perennial wild herb. Oregano contains tannins, ascorbic acid and essential oil (up to 1.2 %), which includes phenols, thymol, bicyclic sesquiterpenes and other odorous compounds, flavonoids. Oregano has a calming effect on the central nervous system, increases the secretion of sweat, digestive and bronchial glands, intestinal peristalsis.

Plantain — *Plantago major* L. is a perennial herbaceous plant with simple leafless stems 15–30 cm, and short with numerous fibrous roots. Flowers are small, brownish. It blooms in June — August. Plantain leaves contain glycoside aucubin, vitamins A, C, and K, choline, adenine, polysaccharides, saponins, organic acids, etc. Leaves are recommended as an expectorant, anti-inflammatory and antimicrobial agent.

Bedstraw — *Galium verum* L. is a perennial plant with branched rhizome and straight branched stems 15–80 cm tall. Flowers are in a long thick paniculated inflorescence, bright yellow, with a honey smell. It blooms from June to September. The leaves, flowers and squeezed juice from the leaves have various uses in folk medical practice.

Yarrow — *Achillea millefolium* L. is a perennial herb, up 70 cm hight. It blooms from June to late summer. The grass and inflorescences contain essential oil, volatile production, organic acids, astringents, and other substances. Yarrow herb has anti-inflammatory, bactericidal, hemostatic, anti-fermenting, antispasmodic and wound-healing effect.

Common chicory — *Cichorium intybus* L. is a perennial plant with a long branched stem root. Stems are height up to 1.5 m, vertical, with hard hairs. It blooms from June to September. The flowers are blue, sometimes with pinkish or white corollas, sitting in bundles of 2–3 in the axils of the leaves. As a medicinal raw material is used whole plant. Drugs enhance cardiac activity, regulate metabolism, have antimicrobial, anti-inflammatory, bile and diuretic, astringent, calming effect.

Dandelion ordinary — *Taraxacum officinale* Wigg. is a perennial herbaceous plant, about 30 cm tall. The root is thick, 20–60 cm long. The leaves in the rosette are bare, with triangular lobes. The flowers are golden yellow. It blooms from early May to September.

In medicine it is used roots, more less — leaves. The roots and grass of the plant are bitterness, stimulate the appetite and improve the activity of the gastrointestinal tract, have a choleretic and mild laxative effect in atonic constipation. The roots of the plant are part of the gastric and diuretic fees.

Conclusion

The studies drew attention to environmental factors, anthropogenic changes and the impact of climate, environmental pollution, etc. The results of the study showed that the flora in the surveyed area of Karasai rural district is 194 species from 132 genera and 44 families. The dominated by amount of species families are Asteraceae Dumort — 33 species, Poaceae Juzz — 28 species, Fabaceae Lindl — 16 species, Lamiceae Juss — 13 species, Rosaceae Juss — 11 species, Chenopodiaceae Vent — 12 species, Ranunculaceae Juss — 8 species, Liliaceae Juss — 6 species, Cyperaceae Juss, Iridaceae Lindl, Papaveraceae Juss — 5 species; Brassicaceae Juss — 4 species, Cynomoriaceae Engl and Plantaginaceae Lindl — 3 species, the remaining families contain 1 or 2 species. Dominants of the vegetation cover are 19 species. The vast number of species is eaten by cattle, often mowed for hay, so a complete inventory and assessment of the current state of useful

plants, preparation for each type of resource characteristics with optimal mode of use, development of recommendations for the conservation and restoration of their natural populations is relevant.

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Д.Қ. Айдарбаева, Г.А. Шолпанқұлова, А.Ш. Шоқанова

Алматы облысының пайдалы өсімдіктері популяциясының қазіргі жағдайы және оларды үйлестіріп қолдану жолдары

Мақалада Алматы облысының пайдалы өсімдіктерінің қазіргі жағдайын зерттеу нәтижелері қарастырылған. Зерттеуде Қарасаз ауылдық округы территориясы қамтылған. Далалық зерттеу материалдары негізінде 132 туыс пен 44 тұқымдастан тұратын 194 түр кіретін тізімдегі флораның қазіргі уақыттағы түрлік алуантүрлілігіне баға берілген. Түр санына байланысты көп тараған тұқымдастар: *Asteraceae Dumort* — 33 түр, *Poaceae* Juzz — 28 түр, *Fabaceae Lindl* — 16 түр, *Lamiaceae* Juss — 13 түр, *Rosaceae* Juss — 11 түр, *Chenopodiaceae* Vent — 12 түр, *Ranunculaceae* Juss — 8 түр, *Liliaceae* Juss — 6 түр, *Cyperaceae* Juss, *Iridaceae* Lindl, *Papaveraceae* Juss — 5 түрден; *Brassicaceae* Juss — 4 түр, *Cynomoriaceae* Engl және *Plantaginaceae* Lindl — 3 түрден және т.б. Шөп жамылғы арасында 19 түр басым болды. Дәрілік өсімдіктердің 26 және мал азықтық өсімдіктердің 56 түрлері таралғаны анықталды. Өсімдіктердің басым кездесетін тіршілік формалары көпжылдық шөптесін өсімдіктер — 172 түр, олардың ішінде вегетациялық кезеңі ұзақ көпжылдық шөптесін өсімдіктер — 148 түр, бұталар — 14 түр, жартылай бұталар мен жартылай бұташықтар 3 түрден, бұта мен ағаштар 2 түрден тұрады. Өсімдік түрлерінің басым көпшілігімен мал қоректенеді және жиі жем-шөп ретінде орылады, сондықтан пайдалы өсімдіктердің қазіргі жағдайын толықтай есепке алу және бағалау, олардың табиғи популяцияларын қалпына келтіру және сақтау әлі күнге дейін маңызды.

Кілт сөздер: пайдалы өсімдіктер, мал азықтық өсімдіктер, дәрілік өсімдіктер, флора, популяция, доминанттар, көпжылдық шөптесін өсімдіктер, бұталар, жартылай бұталар.

Д.К. Айдарбаева, Г.А. Шолпанкулова, А.Ш. Шоканова

Современное состояние популяций полезных растений Алматинской области и пути их сбалансированного использования

В статье обобщены результаты по изучению современного состояния полезных растений Алматинской области. Исследованием охвачена территория Карасазского сельского округа. Дана современная оценка видового разнообразия флоры, список которой по материалам полевого обследования составляет 194 видов, относящихся к 132 родам и 44 семействам. По количеству видов в семействах преобладают *Asteraceae* Dumort — 33 вида, *Poaceae* Juzz — 28 видов, *Fabaceae* Lindl — 16 видов, *Lamiaceae* Juss — 13 видов, *Rosaceae* Juss — 11 видов, *Chenopodiaceae* Vent — 12 видов, *Ranunculaceae* Juss — 8 видов, *Liliaceae* Juss — 6 видов, *Cyperaceae* Juss, *Iridaceae* Lindl, *Papaveraceae* Juss — по 5 видов; *Brassicaceae* Juss — 4 вида, *Cynomoriaceae* Engl и *Plantaginaceae* Lindl — по 3 вида и др. Доминантами в растительном покрове являются 19 видов. Выявлено распространение более 26 лекарственных и 56 видов кормовых растений. Преобладающей жизненной формой являются многолетники — 172 видов, из них длительно вегетирующие многолетние травы — 148 видов, кустарников — 14 видов, полукустарников и полукустарничков — по 3 вида, кустарничков и деревьев — по 2 вида. Подавляющее количество видов поедается скотом и часто выкашиваются на сено, поэтому полная инвентаризация и оценка современного состояния полезных растений, разработка рекомендаций по сохранению и восстановлению их природных популяций актуальны по сей день.

Ключевые слова: полезные растения, кормовые растения, лекарственные растения, флора, популяция, доминанты, многолетние травы, кустарники, полукустарники.

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