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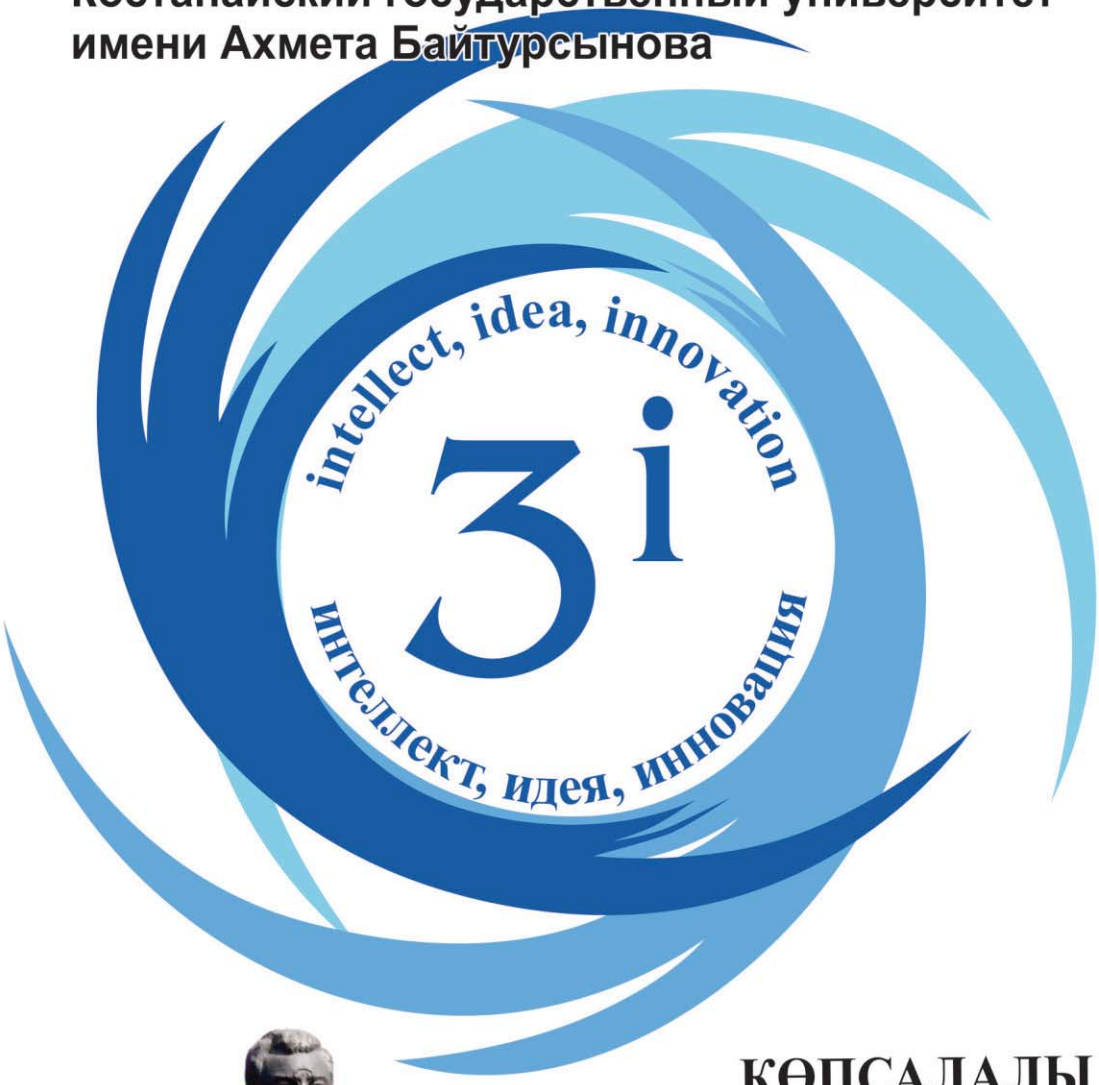

КӨПСАЛАЛЫ ҒЫЛЫМИ ЖУРНАЛЫ

МНОГОПРОФИЛЬНЫЙ НАУЧНЫЙ ЖУРНАЛ

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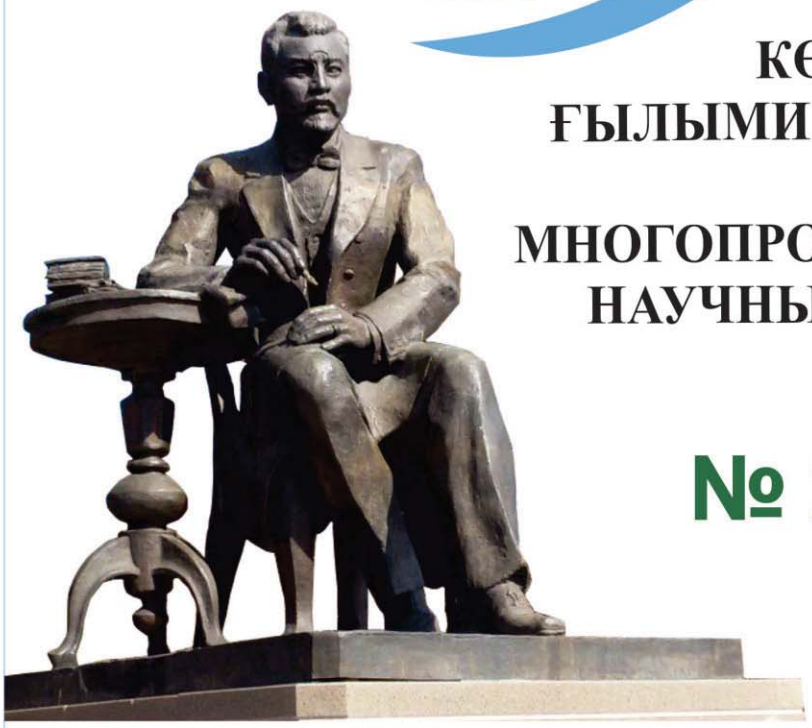

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ОЦЕНКА СОСТОЯНИЙ РАСТИТЕЛЬНОГО ПОКРОВА ПАСТБИЩ ПОЛУПУСТЫННОЙ ЗОНЫ

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Исследованиями установлены степени изменений растительного покрова пастбищ Жангалинского района Западно-Казахстанской области. Основу растительной массы пастбищ Жангалинского района в зависимости от состояний (75-90%) во все сезоны года составляет Artemisia lerchiana. Деградированные пастбищные земли (антропогенного происхождения) можно объединить в следующие группы: пострадавшие в результате перевыпаса; пострадавшие в результате неправильного подбора трофической цепи (животное-растение), то есть стравливание пастбищ проводилось монопородным животноводческим стадом; вовлечение в интенсивный сельскохозяйственный оборот земель, имеющих неблагополучные эдафотопические характеристики (повышенная засоленность, дефляционная неустойчивость, низкая потенциальная продуктивность из-за бедности питательных веществ и др.) с последующим переводом их в залежи и пастбищные угодья; отсутствие обустроенных пастбищных угодий, соответствующих требованиям зоомикроклиматической комфортности и санитарно-гигиеническим нормам. В условиях полупустынной зоны на естественных пастбищах деградация растительного покрова происходит под влиянием климатических и антропогенных факторов и оценивается в условиях аридности биоклимата 5-ю степенями. В каждой следующей степени деградации отмечается потеря урожайности, уменьшения проективного покрытия и уменьшается высота растений. По предварительным данным основной причиной ухудшения состояний пастбищных угодий является бессистемная организация выпаса с.х. животных. Наряду с этим природным фактором ухудшения состояний пастбищных угодий полупустынной зоны является усиления влияний аридного климата.

Ключевые слова: пастбища, растительный покров, дигрессия, продуктивность, полупустынная зона

ЖАРТЫЛАЙ ШӨЛЕЙТТІ АЙМАҚ ЖАЙЫЛЫМДАРЫНЫҢ КҮЙІН БАҒАЛАУ

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Зерттеу нәтижесінде Батыс Қазақстан облысы Жаңақала ауданы жайылымдарының өсімдік жамылғысының өзгеру дәрежесі ынақталды. Жаңақала ауданы жайылымдарының өсімдік массасының негізін жылдың барлық маусымдарындағы жай-күйіне (75-90%) байланысты Artemisia lerchiana құрайды. Тозған жайылымдық жерлерді (антропогендік шығу тегі) келесі топтарға біріктіруге болады: шектен тыс мал жаю нәтижесінде зардап шеккендерді; трофикалық тізбекті (жануар-өсімдік) дұрыс таңдамау нәтижесінде зардап шеккендерді, яғни жайылымдарды оталау монополиялық мал шаруашылығы табынымен жүргізілді; қолайсыз эдафотоптық сипаттамалары бар (сортаңдануы, дефляциялық тұрақсыздығы, қоректік заттардың кедейлігінен төмен әлеуетті өнімділігі және т. б.) жерлерді қарқынды ауыл шаруашылығы айналымына тарту, оларды кейіннен тыңайған жерлер мен жайылымдық жерлерге ауыстыру; зоомикроклиматтық жайлылық талаптарына және санитарлық-гигиеналық нормаларға сәйкес келетін жайластырылған жайылымдық жерлердің болмауы.Табиғи жайылымдарда шөлейт аймақ жағдайында өсімдік жамылғысының тозуы климаттық және антропогендік факторлардың әсерінен болады және биоклиматтың аридтік жағдайында 5-дәрежелі бағаланады. Азып-тозудың әрбір келесі деңгейінде өнімділіктің жоғалуы, жобалық жабынның азаюы байқалады және өсімдіктердің биіктігі азаяды. Алдын ала деректер бойынша жайылымдық жерлердің жай-күйінің нашарлауының негізгі себебі Ауыл шаруашылығы жануарларын жаюдың жүйесіз ұйымы болып табылады. Сонымен қатар, шөлейт аймақтың жайылымдық алқаптарының жай-күйінің нашарлауының табиғи факторы аридті климаттың әсерінің күшеюі болып табылады.

Түйінді сөздер: жайылымдар, өсімдік жамылғысы, дигрессия, өнімділік, жартылай-шөлейт аймақ

ASSESSMENT OF CONDITIONS OF VEGETABLE COVER OF SEMIDESERTIC ZONE PASTURES

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Research has shown a degree of change of the vegetation cover of pastures of Zhangala district of West Kazakhstan region. The basis of the plant mass of rangelands of the Zhangali region, depending on the conditions (75-90%) in all seasons of the year is Artemisia lerchiana. Degraded pasture lands (of anthropogenic origin) can be grouped into the following groups: those affected by overgrazing; those affected by improper selection of the trophic chain(animal-plant), that is, grazing was carried out by a monobreed livestock herd; involvement in intensive agricultural use of land, having a dysfunctional edaphotopes characteristics (high salinity, deflationary instability, low productivity potential because of the poverty of nutrients, etc.) with the subsequent transfer of a Deposit, and pasture land; the lack of a rangeland that meet the requirements comicalities comfort and sanitary-hygienic norms. In the conditions of semi-desert zone on natural pastures degradation of vegetation occurs under the influence of climatic and anthropogenic factors and is estimated in the conditions of bioclimate aridity 5 degrees. In each subsequent degree of degradation, there is a loss of yield, a decrease in the projective cover and a decrease in plant height. According to preliminary data, the main reason for the deterioration of pasture lands is the unsystematic organization of grazing of farm animals. Along with this, the natural factor of deterioration of the pasture lands of the semi-desert zone is the strengthening of the arid climate.

Keywords: pastures, vegetable cover, digression, efficiency, semidesertic zone

Introduction. Our republic has all necessary prerequisites for the development of meat cattle breeding. It is existence of natural fodder grounds and not used arable land, low-cost pasturable technology of meat cattle breeding. Besides, the livestock production is primordial craft of indigenous people. All this creates the potential for the formation of Kazakhstan as significant and competitive player in the world market. In this regard, increase in efficiency of natural pastures is a priority task. This was also noted in the Message of the President of the Republic of Kazakhstan N.Nazarbayev to the people of Kazakhstan [1].

Transformation of vegetable cover as a result of economic activity of a human is characteristic of many regions and countries, but seriously scientists began to study this problem from 80th years of last century [2,

p. 29]. The first experience of special researches on the problem of transformation of vegetation and ecosystems as a result of influence of various factors was received due to the works of the Soviet-Mongolian complex biological expedition (1985-1990) where Kazakhstan geobotanists - E.I. Rachkovskaya and N.P. Ogar [3, p. 39] took part. Issues of pasturable digression of fodder grounds are rather well studied in the researches conducted by the scientists of Russia.

Similar researches were also conducted in foreign countries. In Mongolia, climatic data for 2000-2007 on 14 stations located on Selenga, Darhan, Central, Govsumber and East Gobi aimags were collected. Researches allowed to approach more reasonably assessment of pastures condition, their anthropogenic broken condition, and as a result - to the nature of transformation of steppe ecosystems at pasturable use [4, p. 4].

Issues of a pasturable digression found reflections in the researches of other scientists of Kazakhstan where decrease in efficiency of degraded communities under the influence of intensive pasture was shown. It is shown that at a pasturable digression there are changes of floristic structure and a ratio of ecological groups and vital forms, projective covering, herbage height, aftermathability, longevity of plants, productivity decrease. Change of vegetable cover at grazing happens gradually. The certain stages of deviation from an initial condition of herbage called stages of pasturable digression are observed [5, p.186].

However, these researches are focused on other quantitative characteristics of soil, climate, levels efficiency of plants and profitability of agricultural production. Similar researches of conditions of pastures, for the purpose of their protection and rational use in a zone of studying were not carried out earlier.

Purpose of research. Assessment of the current state of pastures for their protection and rational use.

The work is performed within the program of target financing of the MA RK for the subject BR06249365 "Creation of highly productive pasturable grounds in the conditions of north and west kazakhstan and their rational use".

Material and methods. The following methods were applied to the assessment of semidesertic pasturable ecosystems condition:

Method of ecological ranks for the comparative analysis of space-time changes (transects) in which selection of information with the use of cartographic fixation of temporary conditions of pasturable ecosystems was made. For receiving objective conclusions about spatial and temporary dynamics of vegetation, ecological ranks will be put in the territory, most typical for this landscape, allowing to make the analysis of changes of all of its interfaced elements, including extents of economic use (decreasing factor - grazing). The ranks are chosen on the pastures differing in various extent of anthropogenic influence (from the most stumbled territories, for example, wells, sheep barns, winterings, to less changed sites, up to reserved territories).

Vegetable communities allocated in the area of ecological row annually (and seasonally) will be exposed to the most detailed geobotanical description, identification of initial and "relic" types which existence can appear substantial assistance in reconstruction of previous vegetation and is predicted by potential.

Scale of digression. Violation connected with vegetation pass variously in different types of pastures. The assessment of digression of semidesertic pastures will be carried out on the following signs: 0 – there are no signs of digression (at the absence or very weak grazing);

1 – hardly noticeable changes in number, minor populations (at weak grazing);

2 – noticeable changes in a number and condition of minor cenopopulations, efficiency of pastures is not reduced, the surface of soil has insignificant violations (at moderate grazing);

3 – the efficiency of dominant is reduced, fall out of its separate copies is observed (other perennials too), as a result of direct impact of animals violations of a surface of soil are noticeable and the number of annual plants (pasture overload) is increased;

4 – the efficiency of pasture is strongly reduced, cenopopulation of dominant is suppressed (considerable fall out, violation of uniformity of placement of individuals and age structure), some types dropped out, the surface of soil has violations, the number of annual plants is strongly increased (strong overload of pasture);

5 – dominants is suppressed, its elevated phytoweight and projective covering are reduced more than three times and usually less than at annual plants, many types dropped out, the surface of soil is strongly broken (very strong overload of pasture);

6 – dominants and remained species of perennials is single, annual plants often dominate (final phase of digression – catacenosis); 00 – pasture is destroyed (full poaching).

Research result. The problem of studying of conditions of plant formations of pasturable ecosystems remains still relevant as first of all it is connected with receiving quality livestock products with rather cheap prime cost. Therefore, researchers develop numerous techniques of increase in efficiency of vegetable formations based on improvement of abiotic conditions of habitat of plants, mobilization of phytoresources differing in high efficiency of biomass accumulation.

In general, within West Kazakhstan region, the natural potential of pasturable ecosystems is the highest in steppe zones where there is more optimum hydro-thermal mode. There is less than amplitude of fluctuation of climatic factors during the vegetative period and by years. In semidesertic areas, natural climatic resource is the most adverse concerning moisture therefore efficiency is frequent less here, and interyear variation is the highest. However, the integrity of width regularities can be broken, both in certain territories under the influence of repasture, and at long climatic fluctuations.

Till 90th years of the XX century load of natural pastures often exceeded their capacity by 2-4 times. Taking into account all consumers of pasturable forage (domestic and wild animals, rodents, insects phytophages), natural pastures experienced strain in mid-yielding years 4 times higher than norm, in adverse - by 8.5 times, in favorable - by 2.6 times. The most intensively negative changes in a vegetable cover were noted at a combination of the raised loading and strong degree of aridity of climate remaining 5-10 years [6, p.84].

Degraded pasturable lands (anthropogenic origin) can be united in the following groups:

- injured with repasture;
- injured with wrong selection of trophic chain (animal-plant), that is drain of pastures was carried out by multi-breed livestock herd;
- involvement of lands in intensive agricultural turnover, having unsuccessful edaphotopic characteristics (increased salinity, deflationary instability, low potential efficiency because of poorness of nutrients, etc.) with their subsequent transfer to deposits and pasturable grounds;
- lack of equipped pasturable grounds conforming to the requirements of zoomicroclimatic comfort and sanitary hygienic norms.

However, there are still no reliable criteria for evaluation of extent of pasturable lands degradation, respectively the efficiency of acceptance of economic measures of management is late.

The relevance of development of high-quality diagnostics is undoubted as about 70% of arid pastures is degraded. It will allow to reveal the territories demanding phytomelioration or reduction of load of pasturable ecosystems.

While grazing, animals eat not all plants in a row, therefore, at continuous influence plants and species attractive to them, which are not maintaining hoofed loading gradually begin to disappear.

Besides, tall plants with direct stalks are replaced by stocky which have stalks, creep on the surface, or form the socket of leaves therefore it is difficult for animal to eat them. At the grazing, conditions of the increased dryness of soil are created therefore plants of xerophile row remain better than types of mesophytic character.

The pasturable digression of vegetable cover in the conditions of aridity of bioclimate in a semidesertic zone of West Kazakhstan can be estimated by 5 degrees:

1) - weakly stumbled pastures - biodiversity is high for the account herbs;
2) moderately stumbled pastures - plants of *Iridaceae, Liliaceae, Geraniaceae* drop out. Herbs prevails;
3) mid-stumbled - large soddy cereals of *Stipa, Agropyron, Fabaceae* drop out. Small soddy cereals of *Festuca, Psathyrostachys, Bromus, Anis*antha, semi-bushes of *Chenopodiaceae* and *Asteraceae* family prevail;
4) strongly stumbled - cereal annual plants dominate: *Roa, Bromus*, *Anisantha*, among semi-bushes - *Artemisia*, ruderal types intrude: *Lappula, Medicago minima*, *Polygonum aviculare*;
5) very strongly stumbled - annual plants from families dominate: *Chenopodiaceae, Brassicaceae, Roaseaye*; semi-bushes are almost absent, they are replaced by *Euphorbia, Ceratocarpus.*

Assessment of natural pasturable ecosystems which were a long time exposed to an independent pasture shows that not only the biodiversity decreases, but also projective covering decreases, reserved phytomasses, structure of fitotsenoz changes. That is there is a deep negative reorganization of ecosystems.

On the territories of semidesertic zone (Zhangalinsky area) of West Kazakhstan region we carried out studying of current state of vegetable cover of pastures. Observations were made on 15 pastures of rural districts of Zhangalinsky area. On the area the pastures located within Artemisia lerchiana communities on light brown soils, black-absinthial communities on solonetzic soils, Artemisia lerchiana communities on solonetzic soils and wheatgrass communities on light brown soils were studied.

Based on the conducted field examinations of plant formation on the leading types of pastures, we developed a scale of a digression of pasturable ecosystems of a semidesertic zone on the example of Zhangalinsky area.

Indicators of value of pastures, their specific structure and efficiency at various levels of digression under the influence of antropogenic factors were reflected in a scale and natural features of the explored region and degradation mechanism and also dynamics of vegetable cover under the influence of anthropogenic factors were considered.

The scale of digression of pastures includes 5 stages of this process which are characterized by the following signs: change of vegetation; floristic and ecobiomorphic structure; ratio of long-term and one-year types; projective covering; extent of pasture use and its efficiency.