



THE CONDITION OF DESERT PASTURES IN THE BUKHARA REGION

Askar Ergashovich Kholliyev

Doctor of Biological Sciences, Professor,
Bukhara State University, Bukhara, Uzbekistan

E-mail: askarxolliyev@gmail.com;

a.e.xolliyev@buxdu.uz;

bukhara.taj@urmon.uz

0000-0003-4482-6341

Laziz Tolibovich Yuldashev

PhD in Biological Sciences, Associate Professor,
Bukhara State University, Bukhara, Uzbekistan

E-mail: bukharat.taj@urmon.uz

Yulduz Amonovna Akhmedova

Master's Degree Student,
Bukhara State University, Bukhara, Uzbekistan

Abstract

Throughout the entirety of the territory, as a direct consequence of low pasture productivity, there is a pronounced shortage of fodder and a generally poor level of provision for livestock breeders. It is estimated that approximately 50% of dehkan (peasant) and private farming enterprises lack adequate access to necessary fodder resources. Whilst in the irrigated zones this deficiency is primarily a consequence of the reduction in arable land allocated for fodder crops (such as alfalfa, maize, and others), in the desert zones it is predominantly driven by the severe degradation and low biomass yield of natural pastures, excessive grazing pressure, and a fundamental mismatch between the increasing number of livestock and the available pasture areas. In connection with these persistent challenges, a consistent



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upward trend in feed prices has been observed in recent years; specifically, over the past five years, the market cost of fodder has escalated by 1.5 to 2 times.

The vast majority of livestock production is currently generated within small-scale dehkan farms, where the average landholding size is merely 0.15 to 0.20 hectares. These restricted spatial dimensions, coupled with relatively small livestock populations, significantly limit the operational possibilities for implementing modern agricultural technologies. Furthermore, the acute absence of high-quality pedigree breeding stock systematically prevents these farms from achieving a substantial and positive economic effect.

The critical lack of reliable water sources directly results in the under-utilisation of approximately 30% of the total pasture area, a problem further exacerbated by the absence of specialised technical services dedicated to the regular repair and maintenance of wells and boreholes. Additionally, there remains an insufficient level of awareness among the general public and the local population regarding the strategic decisions and regulatory policies adopted by local government bodies concerning desert-pasture animal husbandry.

The unsystematic and, in numerous instances, highly irrational exploitation of natural resources has culminated in a substantial decline in their productive capabilities in recent times. As a direct result of chronic pasture overloading, the overall fodder productivity in certain territories has experienced a marked decrease. Despite this ecological strain, animal husbandry continues to serve as the principal source of livelihood and socioeconomic well-being for the resident population in these regions. Consequently, due to the pervasive overloading of grazing lands across the entire territory, fodder productivity has deteriorated drastically, particularly in the immediate vicinity of rural settlements within the adyr (foothill) zones. Under the sustained impact of excessive livestock grazing across vast areas, a characteristic livestock-trampled microrelief is actively forming, typically manifesting as numerous parallel, compacted pathways that further disrupt the soil structure.

Furthermore, the ploughing of natural desert pastures for the purpose of rainfed grain production invariably leads to the complete depletion of the vital humus



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horizon, thereby accelerating the severe degradation of these vulnerable lands. The critical ecological situation that has subsequently emerged—driven by the rapid development of degradation processes, the widespread destruction of fragile pasture ecosystems, and the significant reduction in the fundamental potential for soil fertility—exerts a profoundly negative impact on the overall standard of living and socioeconomic stability of the population residing in this district.

Materials and Methods

The precise delineation and clarification of the pasture distribution areas were systematically carried out by drawing upon an extensive review of existing literature data, combined with comprehensive field surveys conducted directly across the specific regions of occurrence. These in-depth field investigations were predominantly situated within the geographical boundaries of the Karakul and Jandar districts of the Bukhara region. Furthermore, the systematic classification and subsequent categorisation of the various pasture types were strictly determined in accordance with the officially established typology scheme for pastures in Uzbekistan (as detailed in the 'Methodological Guidelines for the Geobotanical Survey of Natural Forage Lands of Uzbekistan', 1980) [1,2,3].

Research Results

The climatic conditions characterising these semi-desert and desert pasture ecosystems are strictly defined as sharply continental and highly arid. These extensive regions predominantly experience intensely hot summer seasons, directly contrasted by severe, markedly cold winters that frequently exhibit minimal snowfall. Atmospheric precipitation across these territories is notably insufficient, typically ranging between merely 80 and 250 millimetres annually. Furthermore, the temporal distribution of this rainfall is highly irregular, with the overwhelming majority of precipitation occurring specifically during the winter and spring seasons. Consequently, the prolonged absence of necessary precipitation throughout the late spring and entire summer periods systematically



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induces severe drought conditions, substantially limiting baseline ecological productivity.

In addition to the chronic moisture deficit, the occurrence of sukhoveys—exceptionally dry, scorching wind currents—is a remarkably common phenomenon within this landscape. These rapidly moving, desiccating winds exert a profoundly detrimental physiological influence on the native plant communities. In recent times, a concerning escalation in both the frequency and intensity of severe dust storms has been thoroughly documented. These extreme meteorological events inflict catastrophic damage upon agricultural crops, severely compromise the overall ecological integrity of the natural vegetation, and pose a substantial continuous threat to local faunal populations.

The prevailing and structurally dominant vegetative cover in these regions primarily comprises perennial herbaceous grasses and a diverse array of forbs. Crucially, these complex botanical communities are predominantly constituted by highly specialised xerophytes, which functionally demonstrate an exceptional morphological and physiological capacity to endure sustained periods of severe moisture deficiency. During the brief ephemeral spring window, when soil moisture levels are temporarily adequate, the landscape witnesses a rapid and widespread emergence of ephemerals and ephemeroïds. These unique plant species possess distinct underground storage organs, specifically bulbs and extensive rhizome systems, which strategically facilitate notably early vegetative growth and rapidly accelerate the entire reproductive cycle—ultimately culminating in the swift production of flowers, fruits, and viable seeds long before the onset of extreme summer aridity.

Furthermore, the extensive proliferation of perennial, highly drought-resistant forage grass species constitutes a vital structural feature of this ecosystem. These resilient species, which inherently possess the essential capability to form dense, protective turf structures, prominently include feather grass (*Stipa*), standard bluegrass (*Poa*), and fescue (*Festuca*).

It is also important to note that a significant proportion of the semi-desert ecological zone has been heavily modified through active ploughing to serve



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directly as arable agricultural land. Within these transformed territories, extensive cultivation efforts are predominantly focused on economically viable and resilient crop varieties, most notably barley, safflower, and diverse strains of wheat. Inherently, these fragile desert and semi-desert ecosystems remain exceptionally sensitive and highly vulnerable to both macro-climatic shifts and direct anthropogenic interference. Consequently, their long-term preservation absolutely necessitates the immediate implementation of scientifically rationalised management strategies and stringent environmental conservation practices. Statistically, the Bukhara region encompasses a vast expanse of 2,283.2 thousand hectares of natural pasturelands, a substantial figure that quantitatively represents approximately 14.4% of the total available grazing territories nationwide. Analysing the specific geographical distribution within this regional framework, the highest concentrations of pastoral territories are officially recorded in the Peshku district, spanning an impressive 766.5 thousand hectares (equivalent to 33.6% of the region's total pasturelands). This is closely followed by the Jandar district, which reliably accounts for 326.6 thousand hectares (14.3%), and the Karakul district, comprising a significant 319.8 thousand hectares, equating to exactly 14.0% of the overall regional pasture area.

The Condition of Pastures Adjacent to Rural Settlements. The natural pastures situated directly around the rural settlements of the Karakul, Jandar, and other districts of the Bukhara region serve as the fundamental source of livelihood and socio-economic well-being for the resident population. Inherently, desert and semi-desert grazing lands are fundamentally characterised by relatively low biological productivity, typically yielding merely between 0.25 and 0.32 tonnes of dry matter per hectare, and thus constitute a highly fragile ecological system. Consequently, due to the profoundly unsystematic and largely irrational exploitation of these delicate pasture ecosystems, a severe degradation of the native vegetative cover is currently observed across more than 40% to 60% of the actively utilised territories. In the majority of instances, livestock must be artificially sustained with commercially purchased fodder, which directly results in exceedingly low



economic profitability for agricultural enterprises engaged in animal husbandry. Paradoxically, despite these challenging financial and ecological constraints, there is an observable and persistent upward trend in the total number of livestock maintained within small-scale private dehkan (peasant) farms.



Fig. 1. White saxaul pastures.



Fig. 2. Livestock grazing adjacent to rural settlements.

In the immediate vicinity of these villages, the concentration of grazing animals is exceptionally high, with merely about 1 hectare of functional pasture land available per standard animal unit. Cumulatively, this intensive grazing pressure significantly exceeds the scientifically established ecological carrying capacity norms by a factor of three to four. This excessive anthropogenic and zoogenic burden inevitably leads to a marked acceleration of degradation processes, profoundly diminishing the overall vegetation density and systematically impoverishing the biodiversity of the local botanical communities. Therefore, alongside the remarkably vast pasture territories and the high volume of livestock concentrated within the districts of the Bukhara region, there are correspondingly high statistical indicators reflecting severely degraded grazing tracts.

This thoroughly unsatisfactory environmental condition primarily stems from the persistently irrational and unsystematic utilisation of the available pasturelands, severely exacerbated by the unmitigated felling of essential shrub vegetation and chronic pasture overloading. In these specific geographic areas, the foremost driver of ecological degradation undeniably remains the unsustainable management of



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grazing resources, closely coupled with a critical absence of reliable water sources. During comprehensive consultative meetings conducted with the local rural population, it was explicitly noted that these peri-village pastures are subjected to intense, continuous anthropogenic pressures. Such highly detrimental activities include the aggressive and unregulated harvesting of protective shrubbery for household use, widespread littering and uncontrolled solid waste accumulation, the illegal construction of residential dwellings, and the unchecked establishment of new excavation quarries directly upon these fragile grazing lands. Furthermore, local residents have acutely highlighted a persistent and alarming absence of normal, adequate atmospheric precipitation over the course of the past decade, a prolonged climatic anomaly that acts to further accelerate landscape desertification.

Dynamics of Forage Mass Yield in Rural Pastures. Within the investigated territory, we have systematically identified and classified predominantly shrub-dominated pastureland ecosystems. Specifically, white saxaul and sand sedge (ilak) pastures occupy the substantial majority of these grazing areas. Within these specific phytocenoses, the primary edificator species functioning as ecological drivers are the white saxaul (*Haloxylon persicum*) situated in the upper vegetative stratum, and the sand sedge (*Carex physodes*, locally referred to as ilak) occupying the lower vegetative tier. In addition to the dominant sand sedge and white saxaul, the overall forage biomass reserve within this particular typological category of pasture is substantially generated by diverse plant species. These include various representatives of *Calligonum* (locally known as kandym), *Ephedra* (bordzhok), *Aristida* (selin), *Bromus* (brome grass), *Setaria* (bristle grass), alongside a broad spectrum of other valuable ephemeral and ephemeroïd plant species.

Crucially, these specific pastoral lands are extensively utilised on a year-round basis for the grazing of both sheep and camels. However, based upon the established scientific indicators concerning the degree of ecological degradation affecting these shrub-ephemeral pasture ecosystems, the evaluated territory during the observational period of 2022–2023 is fundamentally characterised by a severe,



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and in some areas, very severe degree of environmental degradation, reaching critical levels of up to 85–90%. Within these highly impacted zones, the total number of documented botanical species did not exceed 10, whilst the total area of basal turf cover was recorded at an exceptionally low metric of less than 10%. Consequently, the overall biological yield of these specific pastures amounted to approximately 0.20–0.25 tonnes per hectare. In a statistically average harvest year, the specific productivity of the functionally consumable biomass for this distinct pasture type, systematically categorised by season, is reported as follows: spring – 0.15 tonnes per hectare; summer – 0.10 tonnes per hectare; autumn – 0.20 tonnes per hectare; and winter – 0.12 tonnes per hectare (Table 1). The cumulatively calculated annual baseline yield is reliably recorded at 0.25 tonnes per hectare.

Table 1. Seasonal dynamics of pasture forage mass yield, t/ha

	Annual	Spring	Summer	Autumn	Winter
Yield	0.25	0.12-0.15	0.11	0.10-0.15	0.12
Feed units	31.2	42	46	42	33

The extensive pastoral territory located adjacent to the rural settlements is currently subjected to accelerated processes of desertification and severe land degradation. The underlying causative factors driving these detrimental phenomena, alongside inevitable natural fluctuations in the broader environmental conditions, are predominantly various intensive forms of human anthropogenic activity, which collectively exert a profoundly negative and lasting impact on the overall state and resilience of the natural resource base. In this context, desert pastures unequivocally serve as the principal economic and agricultural resource within these arid ecosystems. They function essentially as the foundational fodder base required for the sustainable rearing of livestock, whilst simultaneously acting as a critical source for the extraction of essential woody biomass materials necessary for supporting the daily livelihood and energy requirements of the local resident population. As a direct and unavoidable consequence of sustained, unregulated overgrazing, the highly valuable and ecologically sensitive native forage species



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are progressively displaced from the ecosystem. Subsequently, their ecological niches are rapidly occupied by invasive weed plants and non-palatable ruderal species, which are inherently characterised by a remarkably low level of palatability and negligible nutritional value. Consequently, the overall biological productivity and carrying capacity of these crucial forage lands progressively decrease, inevitably leading to a severe and systemic deterioration in the fundamental grazing conditions necessary for maintaining healthy livestock.

The comprehensive scientific assessment recently conducted across the specifically designated pastoral territory, encompassing approximately 3,000 hectares, conclusively revealed alarming ecological trends. It was determined that a severe degree of ecological degradation is demonstrably present across an estimated area of approximately 35% to 40% of the total evaluated land, which quantitatively equates to roughly 1,200 hectares. This critically degraded spatial zone exhibits an exceptionally marginal biomass yield ranging merely between 0.025 and 0.05 tonnes per hectare; a dramatic reduction that is primarily attributed to the overwhelming ecological dominance of poorly palatable and nutritionally deficient vegetation types. The remaining expanse of the investigated pastoral territory can be objectively characterised as exhibiting a spectrum ranging from a moderate to a severe degree of degradation, concurrently demonstrating a notably restricted overall biomass yield of between 0.10 and 0.15 tonnes per hectare. However, within this broader landscape, two specific and isolated land plots, each encompassing precisely 200 hectares, exhibit relatively favourable and stable productivity indicators. These particular, healthier plots are intensively utilised for the routine grazing of domestic flocks belonging to the local population, and they reliably generate a comparatively higher vegetative yield ranging from 0.15 to 0.20 tonnes per hectare. Chronologically, these vital pasture resources are predominantly and most heavily exploited during the critical transitional periods of the spring and autumn seasons.

In the immediate geographical vicinity surrounding these rural settlements, the landscape features various hydrological resources including natural lakes, constructed irrigation canals, and designated irrigated arable agricultural lands. It



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is precisely upon these strategically irrigated territories that essential grain and supplementary fodder crops are systematically cultivated to support the local agricultural economy.

Given the fundamental ecological and geographical constraints of this specific region, desert animal husbandry—and most notably the specialised practice of Karakul sheep breeding—constitutes the absolute singular agricultural sector practically viable for long-term land development, exploitation, and utilisation. Consequently, the overarching socio-economic welfare, financial stability, and general living standards of the resident population remain entirely and inextricably dependent upon the progressive level of sustainable development, strategic management, and overall operational efficiency of this pivotal agricultural industry.

Promising Species for the Phytomelioration of Pastures. – Winterfat (*Ceratoides eversmanniana* Botsch. et Ikonn.). This plant is a semi-shrub belonging to the goosefoot family (Chenopodiaceae). Under cultivation conditions, the root system of winterfat develops vigorously and is characterised by a substantial number of well-developed lateral roots. When grown on medium loamy light sierozems (grey desert soils) within the foothill semi-desert zone, the roots of winterfat penetrate to a depth of 130 cm by the end of the initial vegetative year, reaching up to 6 metres by the age of 10 years. Conversely, in the sagebrush-ephemeral desert environment, situated on sandy loam light sierozems, the root system descends to a depth of 5 metres by the time the plant reaches 10 years of age (Shamsutdinov, 1975) [4].

– **Wolfberry (*Lycium turcomanicum*).** One of the most promising medicinal plants is the wolfberry species *L. turcomanicum*. Various species within the *Lycium* genus are perennial plants that typically reach a height of 1.5 metres or more. Its natural area of distribution predominantly encompasses the foothill and semi-desert to desert zones of Uzbekistan. The plant is frequently encountered in low



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mountain regions, occasionally extending up to the middle mountain belt. Wolfberry (*Lycium*) is a genus within the nightshade family (*Solanaceae*). It predominantly thrives in arid environments, with certain species demonstrating a strong adaptability to semi-saline soils. The common wolfberry (*Lycium barbarum*) is non-toxic, and its fruits are conventionally dried for consumption. Within the framework of traditional Chinese medicine, the fruits (known botanically as *Fructus Lycii*) are widely utilised to treat ailments such as dizziness and amblyopia, as well as serving as a general restorative tonic. Furthermore, wolfberry fruits can be effectively employed as a potent immunostimulant, a dietary aid for weight management, and a supplementary treatment for diabetes mellitus, given that they actively enhance metabolic processes and decelerate skin ageing [5].

– **Joint-pine (*Ephedra distachya*, Family *Ephedraceae*)**. This species is a highly branched, evergreen shrub that typically grows to a height of 10 to 50 cm. The stems are inherently woody, either erect or prostrate in form, and are covered with a distinctively dark grey bark. Ecologically, it flourishes in the desert zone, frequently colonising rocky surfaces, chalk outcrops, pebble beds, as well as calcareous and highly crushed stone soils. Its geographical distribution spans the southern regions of the European part of Russia, Western Siberia, the Caucasus, and the mountainous territories of Central Asia. Specifically, within the environmental conditions of Karakalpakstan, it is characteristically found on the Ustyurt Plateau and the low mountain ranges of the Kyzylkum Desert. In terms of its resource value, this plant holds significant importance for both medicinal and tanning applications [5].



Fig. 3. Wolfberry.



Fig. 4. Joint-pine (Ephedra).

– **Oriental clematis (*Clematis orientalis*, locally known as Tuyesingir, Family Ranunculaceae).** This plant is a liana-like climbing shrub equipped with elongated, twining leaf petioles that enable its branches to firmly cling to available structural supports. It primarily grows amidst dense shrub thickets, typically proliferating along river valleys and across stony mountain slopes. Its broad geographical distribution includes southern Siberia, Kazakhstan, Central Asia, Mongolia, and China. Under the specific ecological conditions of Karakalpakstan, it is predominantly localised in the lower reaches of the Amu Darya River. Regarding its resource significance, it is highly valued for both its medicinal properties and its utility as a reliable forage crop [6].

– **Russian salt tree (*Halimodendron halodendron*, locally known as Shengel, Family Fabaceae).** This species is a resilient, thorny shrub that can grow up to 2 metres in height. It is remarkably frost-hardy and highly drought-resistant, displaying virtually no specific requirements regarding soil composition or quality. The plant possesses a robust and expansive root system, frequently producing an abundance of vigorous root suckers. It is capable of reproducing through seeds, root suckers, and grafting methods. Ecologically, it naturally occurs in riparian forests (tugai), on highly saline soils (solonchaks), and in areas characterised by the presence of shallow, saline groundwater. Its natural distribution range encompasses Iran, China, Mongolia, the lower basin of the Don River,



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Transcaucasia, Central Asia, and Western Siberia. Within the environmental constraints of Karakalpakstan, it is primarily distributed along the lower reaches of the Amu Darya River [6]. In terms of its practical resource value, the plant is widely recognised for its melliferous (honey-producing) qualities and its considerable ornamental significance.

Conclusion

Based upon the comprehensive analysis conducted throughout this study, it has been definitively established that over recent years, the government has systematically adopted a robust series of legal and regulatory legislative acts. These statutory measures are specifically directed towards the critical sphere of combating widespread land degradation, significantly improving fundamental soil health, and ensuring the practical implementation of highly appropriate agroforestry and reclamation practices directly into regional land use and agricultural management frameworks.

Drawing fundamentally upon the aforementioned findings, scientifically grounded recommendations are currently being developed and progressively refined. These strategic recommendations are primarily aimed at establishing advanced methodological approaches for sustainable soil improvement and facilitating the widespread introduction of the best available agroforestry and phytomeliorative practices into the broader management of land resources, particularly concerning irrigated arid lands. Furthermore, these guidelines comprehensively address the critically rational utilisation of fragile desert pastures and the extensive territories comprising the state forest fund, with the ultimate overarching objective of substantially increasing long-term land productivity and successfully rehabilitating heavily degraded ecological systems.

In this crucial context, the Decree of the President of the Republic of Uzbekistan, dated 30 May 2025, No. UP-90, officially entitled "On measures for the consistent continuation of reforms within the framework of the nationwide 'Yashil Makon' project and within the forest management system, alongside the expansion of green zones," in conjunction with the Resolution of the President of the Republic of



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Uzbekistan, dated 30 May 2025, No. PP-197, entitled "On measures concerning the organisation of the activities of the Agency for Afforestation and the Expansion of Green Zones, and combating desertification," have been formally adopted as foundational administrative directives for strict operational guidance and comprehensive practical execution.

References

1. Гаевская, Л. С. (1971). Каракулеводческие пастбища Средней Азии. ФАН.
2. Махмудов, М. М. (2005). Қорақўлчилик яйловларининг ҳозирги ҳолати ва истиқболли фитомелиорантларни танлашнинг асосий критерийлари. Чўл-ййлов чорвачилигини ривожлантириш муаммолари, 187–189.
3. Методические указания по геоботаническому обследованию естественных кормовых угодий Узбекистана. (1980). Ташкент.
4. Шамсутдинов, З., Парамонов, В. А., & Назарик, Л. А. (1992). Способ интродукции пустынных кормовых растений (Авторское свидетельство № 1794417). М.
5. Khaydarov, Kh., Mukimov, T., Islamov, B., & Nurullayeva, N. (2020). Biological features and productivity of drought-tolerant fodder plants under the conditions of the Adyr zone of Uzbekistan. *International Journal of Scientific and Technological Research*, 6(8), 34–38.
6. Farmanov, T., Mukhtorov, A., & Mukimov, T. (2020). Improvement of degraded pastures in the foothills and sandy desert zone of Uzbekistan by implementing best practices. *International Journal of Scientific and Technological Research*, 6, 143–149.