

Field Research on Pasture Vegetation in South Uzbekistan (in Kashkadarya Region Parts)

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Abstract: This paper explores the practical application of pastures in the Kashkadarya region, with a focus on cartographic data and monitoring fodder yield. Fieldwork conducted in spring throughout the year employs methodological schemes to ascertain fodder productivity of foothill pastures. This includes creating pasture cards as standards, detailing average productivity over several years, conducting surface field inspections in key grazing areas for control purposes, and undertaking annual inspections to monitor pasture use for fodder and livestock grazing.

1 INTRODUCTION

In the southern reaches of Uzbekistan lies the Kashkadarya region, framed by the Koratepa, Zirabulok, and Ziyevuddin mountains to the north and the Gisar ridge to the east, forming a critical agricultural hub. Here, the vitality of the region's animal husbandry hinges on the careful management of its pasturelands. Recent studies have highlighted the imperative of understanding the ecological intricacies and productivity of these pastures, particularly in light of challenges posed by meteorological factors (Khuzhanazarov et al., 2012). Scientific endeavours have been directed towards enhancing the yield of natural forage grasses and ensuring the sustainability of pasture ecosystems (Dias & Barreiros et al., 2018). Yet, the rich flora of the Kashkadarya basin's foothills, renowned for its diversity, medicinal properties, and economic significance, remains a focal point of research interest (Galnaityte & Krisciukaitiene et. al., 2017). Despite these efforts, concerns persist regarding the unchecked expansion of pasture areas, leading to unplanned grazing and the proliferation of undesirable weeds. To counteract these trends, strategies such as controlled grazing and proactive land management are deemed essential to preserve

the ecological equilibrium of the region's pastures (Sukhova et al., 2018).

Recent field research conducted in Chirakchi, Kitab, and Dehkanabad districts has revealed a concerning trend: over the past 15 years, pasture areas have expanded significantly, with cultivated pastures dominating in Guzor and Dehkanabad districts. However, this expansion has not been without consequences, as unplanned grazing has led to the proliferation of weeds like *Acroptilon repens* and *Verbascum songoricum* (Uktam E. Khujanazarov, Habibullo Shomuradov and Elena A. Afonina). Furthermore, the aging of certain plant communities indicates regressive conditions, suggesting the need for proactive measures to prevent further degradation (Khujanazarov U.E et al., 2017).

In conclusion, the sustainable management of pasturelands in the Kashkadarya basin is essential for the region's agricultural viability. By employing scientific research and implementing strategic interventions, stakeholders can work towards preserving the ecological integrity and productivity of these vital landscapes.

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2 METHODOLOGY

The focus of this study is the examination of plant communities, including both floristic and phytocenotic compositions, across the foothills and mountains of the Kashkadarya basin. These areas are classified into four levels of vegetation density: weak (I), moderate (II), strong (III), and very strong (IV). The research encompasses fieldwork conducted between 2012 and 2019, along with data gathered from expeditions in collaboration with the Institute of Botany. Geobotanical units, which determine the content of natural pastures, are identified based on the classification, structure, composition, and geobotanical studies of vegetation cover. Pasture type, determined by the dominant type of vegetation cover, serves as the primary unit for agricultural development in animal husbandry. Methodologies from geobotanical manuals and guidelines are utilised for various aspects of research, including productivity assessment and analysis of pasture degradation. Statistical analysis draws upon resources such as the "Flora of Uzbekistan" and "The Determinant of Plants in Central Asia," offering insights into the rich botanical diversity of the region and changes over time, including those documented in editions of the Red Data Book of Uzbekistan.

3 DISCUSSIONS

The mountainous terrain presents a multifaceted landscape influenced by various factors such as altitude, slope, geology, erosion rates, soil composition, humidity, and temperature. These factors collectively shape the distribution patterns of shrubs and trees across the region. In the Kashkadarya basin, tree and shrub communities are prevalent, forming complex ecosystems. Among the widely distributed species in the mountain ranges are *Acer pubescens*, *Amygdalus bucharica*, *A. spinosissima*, *Berberis oblonga*, *Crataegus pontica*, *C. turkestanica*, *Cerasus erythrocarpa*, *Ephedra equisetina*, and *E. intermedia*.

Efforts to preserve mountain pastures are crucial, necessitating annual assessments to monitor their condition. Public awareness and ecological education are vital, especially among communities residing near mountainous and foothill areas. Protection measures are imperative for preserving medicinal and endemic plant species like *cadonopsis*, *zizifora*, and *ferula*, which contribute significantly to the pharmaceutical industry.

Floristic studies have identified prominent plant families in the region, including Asteraceae, Fabaceae, Poaceae, Lamiaceae, Brassicaceae, Rosaceae, Apiaceae, Liliaceae, and Boraginaceae. These families not only dominate plant communities but also serve as fodder reserves, underscoring their ecological significance.

Research focused on enhancing foothill pastures has examined various shrubs and semi-shrubs, along with specific grass species. For instance, *Haloxylon aphyllum*, *Haloxylon persicum*, *Salsola richteri*, *S. rigida*, and *A. turanica* have been studied for pasture improvement. Cultivation techniques aim to accelerate growth, shorten the vegetative period, and promote early fruiting.

Phytomeliorant planting typically commences in early spring, with temperature considerations crucial for successful germination. The rooting depth of plants varies throughout the growth cycle, with deepening roots enhancing tolerance to dry and hot conditions. While underground growth slows in summer, deep rooting resumes in late summer and autumn.

Planting procedures involve soil ploughing to a depth of 18-20 cm, with seeds sown at specific depths depending on the species. Agrophytocenoses, cultivated over three years, yield significant fodder mass, with productivity ranging from 6.4 to 11.7 t/ha for various species. These cultivated ecosystems demonstrate higher productivity compared to natural pastures, a trend expected to further increase in the future.

In conclusion, sustainable management practices and scientific interventions are vital for the preservation and enhancement of mountain pastures in the Kashkadarya basin. By fostering public awareness, implementing protection measures, and employing effective cultivation techniques, stakeholders can ensure the ecological integrity and productivity of these valuable landscapes for future generations.

4 CONCLUSIONS

In conclusion, enhancing the legal framework for forest protection in the mountainous and sub-mountainous pastures of the Kashkadarya region is imperative for sustainable resource management. Moreover, promoting socio-economic forestry initiatives and increasing private sector involvement are critical components that demand focused attention and timely implementation. The formulation of a

comprehensive plan of action is essential to address these pressing concerns effectively.

Furthermore, ecological optimization measures, including the prevention of mountain forest depletion, the regulation of livestock grazing practices, and the management of irrigation and dry farming, are pivotal for enhancing the efficacy of pasture restoration efforts. By prioritizing these interventions, stakeholders can work towards achieving a balance between ecological preservation and socio-economic development, thereby safeguarding the environmental integrity and livelihoods of communities dependent on these fragile ecosystems.

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