ORIGINAL ARTICLE

INTERNATIONAL JOURNAL OF ARTIFICIAL INTELLIGENCE

ISSN: 2692-5206, Impact Factor: 12,23
American Academic publishers, volume 05, issue 02,2025

Journal: https://www.academicpublishers.org/journals/index.php/ijai

APPROACHES USED IN THE GEOBOTANICAL MAPPING OF PASTURES IN BUKHARA PROVINCE

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Annotation: Focused on creating a map of pasturelands in the Bukhara region based on approaches used in the geobotanical mapping of pastures.

Keywords: Remote sensing, Dynamic monitoring, Geobotanical maps, Spectral indices, Images, Geographic information, Map verification, Spectral indices, Block diagram.

Introduction: Bukhara region is located in the central part of Uzbekistan and features arid desert and semi-desert ecosystems. Pastures are one of the region's primary natural resources and play a crucial role in livestock farming. However, in recent years, geobotanical changes in pastures have been observed due to climate change and anthropogenic factors. This article analyzes the ecological and geobotanical changes in the process of creating a geobotanical map of the pastures in the Bukhara region.

1. Ecological Condition of Pastures and Factors of Change

The ecological condition of pastures in the Bukhara region is changing under the influence of the following

Climate Change: Rising temperatures and decreasing precipitation in the region are leading to a decline in plant composition and density. Agricultural Expansion: The expansion of irrigation and agricultural activities has resulted in the reduction of natural vegetation, as pasturelands are converted into croplands. Land Degradation and Erosion: Soil erosion, salinization, and degradation processes are observed in pastures, negatively affecting plant health. Overgrazing: Excessive use of pastures for livestock grazing leads to reduced vegetation density and the disappearance of certain plant species

International Experience

Various strategies have been developed worldwide for pasture management, including:

United States: Satellite monitoring is widely used to reduce land degradation through sustainable pasture management programs.

Australia: Drought-resistant plant species are introduced to improve pasture vegetation composition.

Germany: Long-term monitoring of pastures is conducted using GIS technologies and remote sensing systems.

The impact of environmental factors on pastures

Factors	Impact
Increased temperature	Plant drying, biomass depletion
Decrease in precipitation	Decrease in vegetation density
Expansion of irrigation systems	Conversion of pastures to agriculture
Increased pet pressure	Fallow vegetation

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2. Changes in the geobotanical composition of pastures recent studies show that the composition and cover of plants in the pastures of the Bukhara region are significantly changing:

Depletion of plant communities: while some plant species have declined, some have completely disappeared. In particular, the decrease in plants with a fodder value has negative consequences for livestock.

Effects of anthropogenic pressure: plant communities are changing and soil degradation is accelerating as a result of over-cultivation of pastures and increased livestock numbers.

The emergence of new plant species: in some pasture areas, a vegetation cover of thorny bushes and weeds is increasing, resistant to arid conditions.

Biomass decline: the results of Remote Sensing indicate that plant biomass is decreasing from year to year.

3. Geobotanical mapping and monitoring remote sensing technologies enable monitoring and analysis of geobotanical changes in pastures. Research shows: plant cover in pastures is being monitored through satellite imagery and UAVs (unmanned aerial vehicles). With NDVI (Normalized Difference Vegetation Index) and other vegetation indexes, the vegetation density and biomass content of pastures are being assessed. Through GIS technologies, ecological maps of pastures are being created and degradation processes are being predicted.

Areas of further research:

- Expanding experimental research on recultivation of pastures.
- Further development of remote monitoring technologies.
- Using international experiments to achieve ecological balance in pastures.
- To increase biomass and explore the possibilities of foraging.

Conclusion: the pastures in the Bukhara region are undergoing serious geobotanical changes. The main causes of these changes are related to climate change, anthropogenic activity, and land degradation. These processes can be prevented by effectively managing pastures, enhancing environmental monitoring, and creating geobotanical maps. From international experiments, it is important to use remote sensing technologies more widely, restore soil fertility and introduce sustainable livestock methods.

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