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MODERN PROBLEM OF MONITORING BIODIVERSITY AND THEIR SOLUTIONS

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Annotation: The article discusses the scientific and methodological foundations of organizing international experience in the inventory of biodiversity in vulnerable natural territories in order to maintain their habitat in ecosystems. In addition, the conduct of a comprehensive environmental examination and evaluation of environmental impacts is considered. Another condition for the preservation of biodiversity is its monitoring as a system for observing the assessment and forecasting of changes in its condition. The meaning of the determining property of monitoring is the frequency and scale of their observations.

Keywords: biodiversity inventory, environmental monitoring, vulnerable natural territories, exposure assessments, and international research experience.

To date, the situation with biological diversity on the planet is characterized as very critical. According to the Living Planet report 2024, the population was reduced by 73 percent. The freshwater species were most affected - a decrease by 85percent, ground - by 69percent, sea - by 56 percent [1].

Here are the data of some regions with the most significant reduction in populations: Latin America and the Caribbean (95%), Africa (76%), the Asia-Pacific region (60%). Less significant reductions were recorded in Europe and Central Asia (35%) and North America (39%) (Fig. 1)

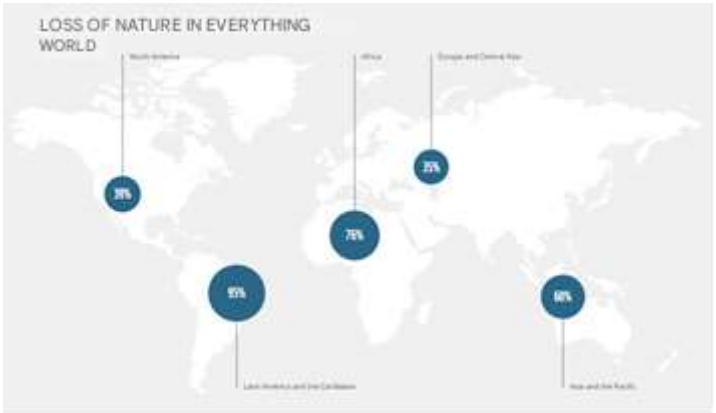

Fig. The global reduction in the biosy of the planet

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Such a global reduction in biodiversity is primarily associated with irrational and excessive use of natural resources by man. According to the University of Maryland, in 2024, global forest losses amounted to 30 million hectares of wood cover. This is 5 percent more than in 2023. At the same time, the losses of tropical forests reached a record 6.7 million hectares - 80 more than in 2023 [2].

Since 1990, about 420 million hectares of forest have been lost. Secondly, it is an aggravating problem of global climate change, which led to the forced migration of animals in search of a more suitable habitat. Thirdly, this is pollution of atmospheric air from the exhaust gases of cars, emissions of polluting enterprises, noise and light pollution, which brings a rapid decrease in the biodiversity of ecosystems. Fourth, this is the settlement of invasive alien species in which adaptation features are higher, which increases their productivity and rapid settlement of natural and agricultural-meanings. They can begin to behave aggressively, occupying the territory and inhibiting local species.

To preserve the biodiversity of regions, which are considered the most vulnerable, an increase in bioecological monitoring is required. Despite the improvement of environmental monitoring technology, there are a number of problems, this is sometimes connected by uncontrolled enhancement of anthropogenic effects and the unpredictable consequences of the global climate change, which affect the state of ecosystems and reduce their biodiversity.

Guide to develop plans for national monitoring systems in support of the Kunmin-Monreal Global Frame-Raque Biostroum Frame (2024) [2.3]. The document contains recommendations on the creation of a coordinated monitoring system at the national, regional and global levels, which sets the goal - the protection of 30 percent lands, seas and freshwater ecosystems and the restoration of 30 percent degraded territories by 2030.

The monitoring system consists of groups of indicators that should be used by the parties for planning, monitoring and reporting on the implementation of national target indicators and agreed global goals, and target indicators of the GFB. Such indicators include: O key indicators: a set of high -level indicators, which reflect the total volume of the goals and objectives of the GFB used to plan and track progress. Key indicators may not cover all the components of the target or task, but for analytical purposes it can be supplemented, depending on the circumstances, the component and additional indicators. o Double indicators: compiled from the DES/NO binary answers in national reports that will contain the calculation of the number of countries that have carried out specific events. o component indicators: optional indicators, which, together with the main indicators, cover the components of the targets and objectives of

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the GFB O Additional indicators: optional indicators for a thematic or in -depth analysis of each goal and task. Indicators as part of monitoring can be supplemented by additional national and subnational indicators for use at the national level. Key indicators use the methodologies agreed by the parties and are calculated at the national level on the basis of national data obtained from national monitoring networks and national sources, taking into account the fact that in some cases the use of global data sets may require. If there are no national indicators, then the use of global indicators at the national level should be justified using the relevant national mechanisms. Key indicators allow consistently, standardized and scalable tracking of global goals and objectives [4].

Assessment of the state of biodiversity and its possible changes is not only theoretical, but also practical interest both for the preservation of certain types and communities, the rational use of natural resources, and to ensure the stability of ecosystems and the biosphere as a whole, human health and the implementation of the concept of sustainable development. The solution of this problem is of particular significance in modern conditions, against the background of increased anthropogenic effects and global climate change. This determines the need to assess the consequences of various influences, new requirements for modern approaches and monitoring methods. Maintaining the stability of the community and the ecosystem can be ensured both due to biodiversity and due to the stability of the constituent elements. The understanding of the ratio of the mechanisms of maintaining optimal biodiversity and a successful state of population is of fundamental importance. When preserving the previous biodiversity or even its growth, against the background of numerous populations and quite normal functioning of the ecosystem, a change in the state of the body is possible. The significance of ontogenetic stability in relation to studies of homeostatic mechanisms of different levels is determined by the fact that on the one hand, many changes in communities and ecosystems are preceded by changes in the state of the body in populations of various types, and on the other hand, changes in the community and ecosystem usually affect the state of populations. At the same time, it is obvious that the mechanisms for ensuring homeostasis at a higher level are priority to those at a lower level. Conducting a parallel analysis of mechanisms for ensuring stability at different levels is an urgent task for further research. The solution to the problem of preserving biodiversity does not imply its maintenance at the maximum possible level. The task is to preserve the initial natural complexes in natural conditions (where biostation indicators can differ significantly in different habitats) or maintaining biodiversity at a new optimal level when changing conditions, primarily due to anthropogenic effects and

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climatic instability. The growth of biodiversity can be observed with a change in certain environmental factors. The increase in the initially relatively low natural biodiversity is possible due to the growth of the variety, mosaic and eutrification of habitats with anthropogenic load. The criteria for optimal biodiversity can be the indicators of homeostasis both at the level of the community and the ecosystem, and at the level of the population (including ontogenetic indicators of development).

The biodiversity assessment is of fundamental importance both in natural conditions and in anthropogenically transformed territories. The implements and obvious transformation of biodiversity are usually associated with a change in the landscape and structure of the ecosystem in the development of the territory. All growing climatic changes lead to an increase in the rate of change in biodiversity almost everywhere, causing the need for special monitoring of the state of biodiversity. In connection with the growth of cities, the assessment of the state of biodiversity in the urbanized territories is becoming increasingly important and formed in an independent direction of research. In such territories, with the inevitable implements and a change in species wealth, an increase in the number of certain species can be observed. As a result of the exposure of anthropogenic and climatic factors, biological invasions associated with the introduction of foreign species in the territory where there were no previously there were no more widespread, the study of these processes is another priority direction. The solution of the search problem of assessing the state of biodiversity in the context of environmental pollution is becoming increasingly relevant, when species wealth, the number of populations and biomass can remain at the same level or even increase to a certain level of exposure. In the outwardly successful habitat, a change in the state of the body is possible in populations of various types, which is often observed in areas of environmental pollution. It is important to take into account the features of the approaches used to solve the tasks of protecting nature and the applicability of biodiversity assessments to ensure a favorable environmental situation and environmental health.

Representations of the need to ensure the stability of environmental systems and biosphere are generally under the modern concept of sustainable development, which determines the environmental priority associated with the minimization of disorders of natural systems and compliance with the basic, in fact, the environmental principle of deckling, which provides for the alignment of economic growth processes and negative impact on the biosphere. In accordance with this, the need to maintain the balance of technologies and biospheres is determined, which will allow you to fit into the supporting environmental capacity of the

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medium. With the fundamental possibility of sustainable development, its implementation in practice is a global challenge. The preservation of biodiversity is an indispensable condition for such a development path based on the maintenance of biological systems of biological systems as an indicator of the success of the implementation of sustainable development programs and ensure the health of the environment. All this determines the need for a versatile assessment of the state of biological systems, from the body to the ecosystem, the formation of ideas about the mechanisms for ensuring stability from development of development to global ecology, determining the basics of the concept of sustainable development. Homeostatic mechanisms ensure maintaining a stable state of the system when conditions fluctuations. Until a certain threshold level of exposure, they can inhibit the reaction of the system (hysteresis). At the same time, the mechanisms of homeostasis of development (or home cutter) ensure the stability of the process of change along a certain trajectory. With the importance of different approaches for monitoring the state of biodiversity, the assessments of the stability of biological systems are increasing significantly [2,3,4,5].

Some of the main areas of monitoring (field observation methods, genetic analysis, the study of morphological changes, the use of DNA barrel-based) biodiversity studies are to study the functioning of vulnerable ecosystems. The combination of these studies of scientists from different countries guarantees the veracity of the results of the stability of ecosystems and their ability to restore depends on the variety of species, such as global changes in climate and land use, which affect the ecosystems. In addition, it is necessary to analyze the reaction of species to changes in the environment, the genetic and physiological properties of organisms, interspecific relations. Using these data, we get a cadastral inventory and classification of biodiversity in order to assess the current state of biodiversity, as well as identifying new types.

Some measures that are taken to preserve biodiversity in Central Asia:

- identification and protection of natural habitats within the boundaries of specially protected natural territories (protected areas).
- the risk of disappearance of species. Flora and fauna of the region are evaluated according to the criteria of the Red List of MSOP for introducing a global red list.
- protection of plant communities. To do this, they lead the cadastres of plant communities, prepare lists of rare and needing plant communities.
- the reinthroduction of threatened species in natural habitats. For example, they create cans of seeds of threatened species in the leading botanical organizations of the countries of Central Asia.

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Currently, in Uzbekistan there are 7 state reserves, 1 complex (landscape) reserve, 12 natural parks, 1 National Park, 11 natural monuments, 2 biosphere reserves, 12 reserves, 1 special Jayranov nursery. Their total area is 6.32 million hectares. Until 2017, the share of protected areas in the country amounted to 4.5, in 2023 it reached 14.08.

the biodiversity of Uzbekistan has 27,000 species. Of these, 14,900 species of invertebrates, 715 species of vertebrates, (of which: 107 species of mammals, 467 species of birds, 61 species of reptiles, 3 species of ground and amphibians, 77 species of fish), 11,000 species are plants (mushrooms and algae), of which: 4300 species of wild -growing high plants (of them, 8 are endemic endemic species).

in the Red Book of the Republic of Uzbekistan (2019 of the publication), 206 species of animals and 314 species of plants were listed.

Improving the legislative framework, environmental policy and management.

the countries of the region are striving to bring national goals on biodiversity in line with the aim of sustainable development of the UN-14 UN. ~ Therefore the results of eco of monitoring studies of biodiversity are of very great practical importance, in the development of a strategy for maintaining species for sustainable use of natural resources, which will further lead to the knowledge of the nature of nature protection of environmentally responsible behavior.

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