

HJ

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National Ecological Status Survey and Evaluation Technical Specifications-Ecosystem Pattern Evaluation

全国生态状况调查评估技术规范——生态系统格局评估

(English Translation)

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1 Scope of application

This standard specifies the general principles, technical process, evaluation index system, evaluation technical methods and evaluation results of ecosystem pattern evaluation.

begging.

This standard is applicable to the assessment of the terrestrial ecosystem pattern of the national and provincial, municipal and county-level administrative regions, and other geographical regions can refer to this standard for implementation.

2 Terms and Definitions

The following terms and definitions apply to this standard.

spatial patterns of ecosystem the spatial arrangement and combination of various ecosystems, including the type, number, and spatial distribution and configuration of ecosystems.

ecosystem types

In a certain space, a unified whole formed by material circulation and energy flow between organisms and the environment, mainly including forests, irrigation Ecosystem types such as bushes, grasslands, wetlands, farmland, towns, and deserts.

Ecosystem combination the proportion of different ecosystem types in a given space.

hierarchical classification of ecosystem types Based on specific purposes and according to certain criteria, the ecosystem is divided into a series of Hierarchical units of ecosystems of varying degrees of complexity.

plaque patches

A scale-dependent spatial entity that differs in nature or appearance from its surroundings.

Fragmentation ecosystem fragmentation Due to the interference of natural or human factors, the landscape changes from simple to complex process, that is, the landscape changes from a homogeneous and continuous whole to a complex process.

Towards heterogeneous and discontinuous multi-type plaque mosaics.

ecosystem contagion

The degree of spatial compactness of the same type of ecosystem patches within a certain spatial range.

ecosystem transition matrix the transformation relationship between different ecosystem types in the two periods is quantitatively described by means of a matrix.

3.1 Principles

Ecosystem pattern assessment should follow the principles of normativeness, operability, advancement, and economic and technical feasibility.

3.2.1 Objectives

Based on remote sensing and ground survey data, combined with long-term monitoring data of ecosystems, assess the pattern of ecosystems and understand different types of ecosystems.

Quantitative analysis of the overall change characteristics of the ecosystem.

3.2.2 Scope

The time range is one or more years (5 years or 10 years) supported by data, and the spatial range is the assessment area.

4 Technical process

This standard establishes a technical process for ecosystem pattern assessment, as shown in Figure 1.

Figure 1 Overall technical process of ecosystem pattern assessment

Determine the scope of the assessment Collecting Ecosystem Spatial Distribution Data Remote Sensing Interpretation Ground Survey Establish an ecosystem classification system Indicator extraction and calculation Ecosystem pattern and change assessment results Composition and its changes ecology system type constitute Proportion ecosystem traditional type area change conversion rate Spatial pattern features and their Variety

Overall change characteristics plaque average plaque area boundary density gather
Degree refers to various ecology system Variety direction comprehensive ecology system
dynamic

5 Evaluation Index System

The ecosystem pattern and change assessment index system are shown in Table 1.

6 Evaluation of technical methods

The ecosystem pattern assessment includes the following 8 indicators, and the specific analysis and assessment methods are as follows.

6.1 Composition ratio of ecosystem types

The meaning of the indicators is shown in Table 1. The larger the indicator, the higher the proportion of the area occupied by the ecosystem type.

Calculate according to formula (1).

6.2 Area change rate of ecosystem type

The meaning of the indicators is shown in Table 1. The larger the indicator, the greater the area change of the ecosystem type during the assessment period.

Calculate according to formula (2).

E_{Ub} - the area of a certain type of ecosystem at the end of the study period.

6.3 Number of plaques

The meaning of the indicators is shown in Table 1. The larger the index is, the larger or more fragmented the distribution of the ecosystem type is. It needs to be combined with the average patch area index.

Comprehensive analysis of numbers.

Calculate according to formula (3).

6.4 Average plaque area

The meaning of the indicators is shown in Table 1. The larger the index, the more complete the ecosystem type, which needs to be combined with the patch number index for comprehensive analysis.

Calculate according to formula (4).

6.5 Boundary Density

The meaning of the indicators is shown in Table 1. The larger the indicator, the smaller the core area of the ecosystem type that is farther from the boundary.

Calculate according to formula (5).

6.6 Agglomeration Index

The meaning of the indicators is shown in Table 1. The larger the indicator, the higher the degree of aggregation of various ecosystems in the region.

Calculate according to formula (6).

6.7 Change directions of various ecosystems

The meaning of the indicators is shown in Table 1. The larger the index, the larger the conversion area between two types of ecosystems.

6.8 Comprehensive Ecosystem Dynamics

The meaning of the indicators is shown in Table 1. The larger the index, the higher the comprehensive change degree of various ecosystems in the region.

Calculate according to formula (8).

7 Evaluation Results

Based on the interpretation results of remote sensing and long-term monitoring data of ecosystems, through the composition of ecosystems, spatial patterns, and overall changes in ecosystems.

Calculation of indicators such as chemical characteristics, quantitative assessment of the area and change, fragmentation degree, change direction, and comprehensive change degree of various ecosystems, to clarify the overall change situation of the ecosystem and the key areas of change, it can provide quantitative assessment of the spatial pattern of the ecosystem and its overall change trend.

in accordance with. The area of natural ecosystems such as forests, shrubs, grasslands and wetlands has increased, and the degree of fragmentation has become lower.

The higher the degree of system transformation, the more obvious the overall change trend of the ecosystem in the assessment area.