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**INDUSTRY STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

LY/T 3097-2019

**Parameters and methods of ecological monitoring of planted
forests on the beach in the middle and lower reaches of the
Changjiang River**

长江中下游滩地人工林生态系统监测指标与方法
(English Translation)

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Foreword

This standard was drafted in accordance with the rules of GB/T 1.1-2009.

This standard is proposed by the Chinese Academy of Forestry.

This standard is under the jurisdiction of the State Forestry and Grassland Administration.

This standard was drafted. Forestry Research Institute, Chinese Academy of Forestry, Hunan Academy of Forestry, Hubei Academy of Forestry, Research Center for Soil and Water Conservation Ecological Engineering Technology of the Ministry of Water Resources.

1 Scope

This specification specifies the ecological monitoring indicators and monitoring methods for river beaches, lake beaches, and beach beaches in the middle and lower reaches of the Yangtze River.

This specification applies to long-term positioning observations of the built-up forest ecosystems of river beaches, lake beaches, and beaches in the middle and lower reaches

of the Yangtze River.

2 Normative references

The following documents are essential for the application of this document. For dated references, only the dated version applies to this document.

For undated references, the latest edition (including all amendments) applies to this document.

GB/T 33703 Observation Specifications for Automatic Weather Stations HJ 493 Technical Requirements for Preservation and Management of Water Quality Samples HJ/T 194 Technical Specification for Manual Monitoring of Ambient Air Quality LY/T 1210 Collection and preparation of forest soil samples LY/T 1211 Collection and preparation of forest plant (including forest litter layer) samples LY/T 1952 Long-term positioning observation method for forest ecosystem LY/T 2241 Forest ecosystem biodiversity monitoring and assessment specifications SL 187 Technical Specifications for Water Sampling

3.1 Beach

In a certain period of time, the aquatic and terrestrial interlaced zones of aquatic and terrestrial environmental states alternate. These include river beaches, lake beaches and island beaches.

3.2 Planted forests on the beach

Planted forests are built on beaches for the purpose of beach protection, timber production, wave protection and dike protection, snail suppression and disease prevention, and landscape optimization.

3.3 Gas flux

The amount of material per unit time per unit area of gas that passes through the canopy-atmosphere interface or the soil-atmosphere interface.

4 Monitoring indicators

Including soil factors, biological factors, water environmental factors, atmospheric environmental factors, human activity five categories. See Appendix A for specific indicators.

5.1.1 Fixed sample strip, sample line, plot plot and plot setting

Set up plots, plots, and plots according to the distribution characteristics of plantations in the study area. The selected plots, plots, and plots should be representative of beach

plantations.

Vegetation and topography.

- a. lay 3 to 5 fixed sample strips along the water bank perpendicular to the water bank, 50 m or 100 m wide, with a total length of not less than 3000 m.
- b. Set a fixed survey sample line with a length of 100-200 m for each sample strip.
- c. Three to five 20 m x 20 m standard fixed plots are arranged along the elevation of each sample strip.
- d. Select 3 to 5 standard trees for each tree species in each standard fixed plot for investigation of tree growth.
- e. Five 5 m x 5 m plots are arranged in each fixed standard plot for investigation of shrubs and interlayer plants; the inner edge of each fixed standard plot Five squares of 1 m x 1 m plots are arranged diagonally for herbs and ground cover plants.

5.1.2 Forest plot survey

The forest survey includes leaf area index, vegetation index and phenology.

- a. Use a canopy analyzer to investigate the leaf area index of arbor layers in a fixed plot. The survey time and frequency are shown in Appendix A.
- b. Record manually, or use a camera with an automatic photo function to automatically take pictures of the plot to record the phenology.

5.1.3 Survey of vegetation plots and plots

The vegetation survey method is implemented with reference to LY/T 2241. The litter survey method is implemented with reference to LY/T 1211. The survey time and frequency are shown in Appendix A.

5.1.4 Insect Plot Investigation

The survey method was implemented with reference to LY/T 2241. The survey time and frequency are shown in Appendix A.

5.1.5 Sampling survey of snail density

The survey time and frequency are shown in Appendix A.

- a. Systematic sampling survey method. set a sample frame for checking snails at a certain distance, the sample frame is 0.11 m². The frame distance depends on the size and type of beach area.

It is generally 10 to 20 m.

b. Environmental sampling survey method. According to the environmental characteristics of beach vegetation, elevation and other snail habitat habits, find a suspicious environment for frame survey.

c. Systematic sampling combined with environmental sampling survey method. divide the Chaluotan land into several blocks, and check the snails in a checkerboard pattern in each block; if adjacent *Oncomelania* snails are not found in the two frames, so select the suspicious environment of *oncomelania* snails between 1 and 2 points to set the sample frame to check the *oncomelania*.

d. Calculation of *Oncomelania* snail density. $\text{Oncomelania snail density (a/0.11 m}^2\text{)} = \text{Total number of captured Oncomelania snails/total number of frames surveyed.}$

5.1.6 Survey of large fungal plots

Refer to the herbal survey method.

5.1.7 Survey of birds and beast-like zones

The specific observation method is implemented with reference to LY/T 2241.

5.1.8 Survey of amphibians and reptiles

The specific observation method is implemented with reference to LY/T 2241.

5.1.9 Investigation of Pests and Disease Samples

Arbor pests and diseases were investigated using a sample plant survey. The standard wood is selected as the sample plant, and the plant species are investigated on a plant-by-plant basis for insect pests of the investigated species.

The degree of damage is recorded and expressed as the percentage of the total area (or the total number of trees).

5.2.1 Hydrological observations

Automatic observation methods of runoff, ecosystem evapotranspiration, surface evapotranspiration, tree transpiration, penetrating rain, and trunk runoff refer to LY/T 1952.

Row.

5.2.2 Meteorological factors

Continuous observation using automatic weather stations. Observation methods of automatic weather stations are implemented with reference to GB/T 33703. Refer to Appendix A for the layout method Row.