

# Ecological Conservation Redlines: China's Systematic Approach to Ecological Conservation

Policy Brief | September 2021

## Executive Summary

The damage caused by loss of vital ecosystem services prompted China to develop its Ecological Conservation Redline (ECR) policy, one of the most comprehensive and ambitious environmental protection policies to date. The ECR physically delineates zones that are identified scientifically as having high levels of biodiversity, crucial ecological roles, or strong ecological sensitivity. Within these zones, human activities are constrained and development off limits. While it has been in development already for more than a decade, further optimization and operationalization is expected to continue for a full implementation of the ECR system by 2030.

The strength and novelty of the ECR system is underlined by its focus on ecosystem services, its science-based delineation of ECR areas, and its systematic and strict management approach. This is expected to lead to the protection of more than one-quarter of China's land and marine areas.

As the ECR system is still in the process of being fully implemented, some uncertainties in ECR management remain, including a unified understanding of what activities are permissible within the redlines. The ECR represents a change in land-use planning, with urban, agriculture, and environment all under one system. It is a shift from resource-driven to sustainable development.

**"If we exclude human from the ecosystem, setting human and nature against each other, or regarding mankind as the master of nature, then harmony between human and nature would be out of the question."**

Dr. Ouyang Zhiyun, Research on ecosystem services led to the ECR System (Current Situation & Trend of China's Ecosystems, 2016)

## The Loss of Ecosystem Services

Thirty years of rapid industrialization and urbanization in China has led to resource depletion, environmental pollution, and ecological degradation. This has resulted in the loss of vital ecosystem services, the direct contributions of ecosystems to human wellbeing, including water purification, climate and flood regulation, and much more. From 1998, when catastrophic floods hit the Yangtze river valley (exacerbated by the overdevelopment of grasslands and wetlands that would have helped absorb the floodwater) [1], to the massive sandstorms of 2021 in the Beijing region (also aggravated by grassland desertification due to farming and overgrazing, which would have helped to prevent winds and fix sands) [2], the critical services of the ecosystem are felt strongly by the people of China. Following the 1998 floods, China responded swiftly by piloting an array of policy instruments, including ecological conservation redlines (ECR), which has since developed into a cornerstone of its environmental policy and one of the most ambitious area-based conservation measures implemented in the world.

## The ECR System

The red line (hóngxiàn), in Chinese, is defined as the bottom line. In the context of the ECR (shēngtàibǎohùhóngxiàn) system, it has been defined as "a line or limit that cannot be breached without severe danger, consequences, and/or penalties." [3]. ECRs physically delineate zones that are scientifically identified as having high levels of biodiversity, crucial ecological roles, or are highly ecologically sensitive [4]. Within these zones, human activities are constrained and development is off limits. Through this type of land-use planning and allocation scheme, ECRs cover areas that are in need of maximum protection and the strictest management, playing the role

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of a "bottom line" for China's ecological security. A comprehensive view of the ECR system consisting of three broad components can be found in Table 2 below.

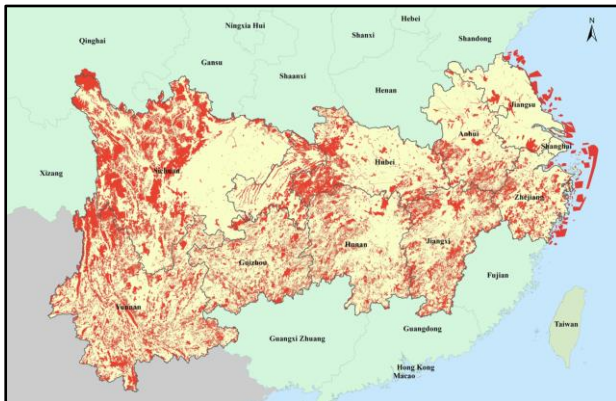


Figure 1: Example of ECR Distribution - Yangtze River economic zone (Gao, 2020) [5]

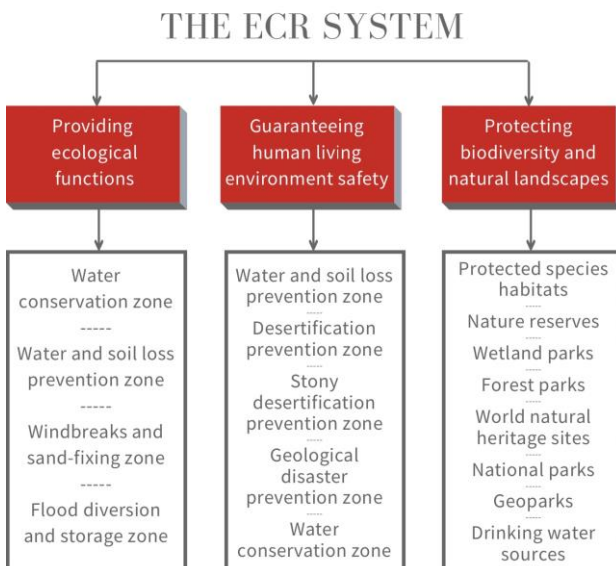


Table 1: ECR delimitation framework (Gao, 2020) [6]

**Brief Timeline of Major ECR Milestones**

- 2011** First proposal of the ECR system by the government.
- 2014** ECRs written into the Environmental Protection Law.
- 2017** The effective establishment of ECRs after a joint policy statement by both the Chinese Communist Party and State Council.
- 2021** Completion of preliminary work on defining the nation's ECR announced by the Ministry of Natural Resources (MNR), responsible for ECR management [7]. Announcement by the Ministry of Ecology and Environment (MEE) that building the nationwide monitoring network

would be completed by end of 2021, into which China is investing 286 mill RMB (42.2 mill USD) [8].

**2030** Full implementation expected.

**The ECR is Systematic and National Spatial Planning**

Previous attempts at ecological protection, which have included the establishment of nature reserves, afforestation and/or reforestation efforts, and the return of cultivated land to forest and grassland were scattered, on the local level, and managed through varied approaches. As a result, there was an inadequate conservation of species and ecosystems. The ECR system is intended to radically solve these issues in a systematic and cohesive manner. It can be likened to the EU's Natura 2000, a comprehensive protection network which spans across countries. Both ECRs and Natura 200 use agreed upon scientific criteria to ensure a coherent network when it comes to site designation, although site management of the ECR is foreseen to be much stricter. Natura 2000 only recommends, but does not oblige site management plans and the necessary administration is not in place in some countries [9].

Moreover, the ECR system fits in with China's broader nationwide spatial planning, which also includes land use red lines for housing and farmland. This prevents conflicts between differing goals.

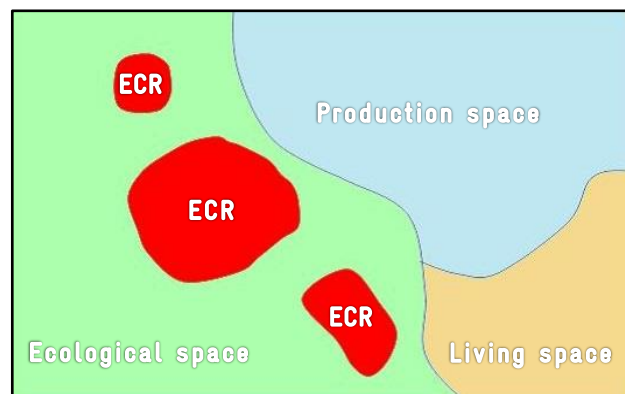


Figure 2: A visualization of China's comprehensive nationwide spatial planning (Ma & Gao, 2019) [10]

**ECRs & Protected Areas**

There are clear distinctions between the ECR system and China's existing protected area (PA) system. The PA system is concurrently going through major national reform and the national parks, nature reserves, and nature parks of the PA system will be components of the ECR.

The major differences between the ECR system and the existing PA system are as follows [11]:

**Focus on ecosystem services:** The protection focus of the ECR is not only on biodiversity conservation, but on ecosystem services. This makes the ECR more comprehensive and provides a more holistic and complete protection of the ecology. As a result, redline areas are of different sizes, sparsely and heavily populated locations, and include a wide range of biomes.

**Science-based delineation:** Methods such as high-precision remote sensing imagery, land-use data, and extensive field surveys are used to delineate ECR boundaries. Many boundaries of existing protected areas were established by more limited means.

**Systematic, strict management:** The ECR features a unified supervision system from the national level, unlike the mixed supervision of existing PAs. There will be strict enforcement, and their proper management included in local government assessments.

### Going Forwards, Implementation Consistency Needed

As the ECR system is still in the process of being fully implemented, some challenges have arisen at its current stage. Because national-level laws and regulations on ECR management have not yet been finalized, the management approach across provinces has been thus far varied [12]. While in principle, development is banned within the ECR, it is still unclear what activities are permissible, with development projects in fact occurring within some redlines [13]. However, the MNR has stated that the rules for implementation are being drafted.

If successful, the ECR system has the potential to protect China's ecosystem services like no other policy before it. It plays a key role in China's vision of an "ecological civilization," which is also the theme for this year's CBD COP15, to be held in China.

**"The [ECR] represents the sort of ambition and sophistication necessary to ensure a healthy planet."**

Dr. Gao Jixi, Director of the Satellite Environment Application Center at the Ministry of Ecology and Environment (How China Will Protect One-Quarter of its Land, 2019)

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