



China integrating conservation areas into red lines for stricter and unified management



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ABSTRACT

In response to drastic land use changes and inefficient management, in 2015 the Chinese government launched a strategic project entitled the Delineation and Defense of Ecological Protection Red Lines (EPRLs). The purpose of EPRLs was to integrate all conservation areas into a system of unified and strict management. This report introduces the background, content, and management policies of the EPRLs system. EPRLs are either those natural spaces with the greatest importance or the most vulnerability and sensitivity, and they are the minimum area needed for the maintenance of national ecological security. The Guidance for Delineation of EPRLs identified the scope of development prohibited zones and other areas under protection, and assessed areas with important ecological functions, vulnerability or sensitivity. Provincial governments are currently carrying out the delineation of EPRLs and will eventually issue and execute the scheme of EPRLs, while the central government is drafting a complete set of management policies including permitted industrial activity, monitoring and regulation, and ecological compensation.

Between 1996 and 2015, China's urbanization rate increased from 30.48% to 56.1%, leading to increasing conflict between ecological protection and land development. The Ten Year Assessment Report on the Change of the National Ecological Environment (2000–2010) (MEP and CAS, 2016) highlighted the following problems: intense changes to the pattern of urban and farmland ecosystems; cultivation of forests and wetlands; soil erosion and desertification caused by agricultural production and development; urbanization, industrialization and resource development leading to rapid destruction of ecosystems, deterioration of urban living environments, loss of natural shorelines, and reduction of animal and plant habitats. In order to more stringently protect land of high ecological value, in 2014 the revised Environmental Protection Law of PRC (SCNPC, 2014) dictated that “in order to implement strict protection, red lines should be designed by the state in areas of key ecological function, and in ecologically sensitive and vulnerable areas”. The concept “red line” derives from the strict legal boundaries that urban planners place around building projects. Areas surrounded by ecological protection red lines, therefore, are strictly controlled ecological spaces and form the foundation of national and regional ecological security. On February 7, 2017 the CCP Central Committee staff office and the Council General Office (2017) jointly issued the Opinions on

the Delineation and Defense of the Ecological Protection Redlines and put forward principled supporting guidelines. This report describes the background, content of the ecological protection red line system and draft management policies.

1. System flaws of existing ecological land protection in china

Besides the rapid economic development, In China, imperfect legal and regulatory systems have contributed to great LUCC (land use and land cover change) continuously happened during the past decades in China.

First, China's land management laws are flawed, resulting in the loss of ecologically valuable land. Under the Land Administration Law of the PRC (SCNPC, 2005), land is classified into three categories: agricultural land, construction land and unused land. Woodlands and grasslands are classified as “agricultural land” to be protected, while wetlands, uncultivated lands, and other ecologically important areas are categorized as “unused land” suitable for development. Between 2000 and 2010, 195 800 km² of land changed use type. The amount of construction land increased by 56 900 km², of which 43 600 km² was formerly agricultural land. Meanwhile, 40 600 km² of grasslands, forests,

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scrublands, wetlands, and other natural ecosystems were converted to farmland. Construction consumed large areas of arable land through the reclamation of wetlands and uncultivated lands. According to a valuation of ecosystem services, the value of wetlands is 160.7 (Costanza et al., 1997) and 6.9 (Xie et al., 2008) times that of cropland, suggesting the reclamation of wetlands to supplement farmland contributes to a considerable loss of ecosystems and the cumulative value of ecosystem services. Revision of the Land Administration Law of the PRC is necessary, and land use types, including forests, grasslands, wetlands and uncultivated lands, must be established within a category of ecological land with strict and urgent conservation status (MEP and CAS, 2016).

Second, inefficient management results from government departments acting independently and to different standards. Multiple types and levels of protected land have been systematically established across China. However, complex administrative systems impair management effectiveness. At the national level the main types and areas of protection include 428 national nature reserves covering 96,460,000 ha, 569 national wetland parks covering 2,750,000 ha, 827 national forest parks covering 11,535,828 ha and 225 national scenic areas covering 11,100,000 ha. However, because these protected areas are governed and financed by different departments, it is not uncommon for local governments to give multiple names to a single parcel of land in order to acquire financial support from different departments (Su, 2004). In China, fifty national nature reserves have the same name as national scenic areas or national forest parks; 10 of these names are used in all three types of protected land. In addition, 35 national scenic areas have the same name as national forest parks. Some geographical overlap exists between these different protected lands with the same names (Wu, 2009). Management stringency varies between different types of protected land. Land classified for tourism, for example, is often subject to legal violations. In some nature reserves, illegal construction of tourism infrastructure and industrial activities such as mining, have taken place in both core and buffer zones (MEP, 2016). In order to promote economic development, local governments repeatedly call on the State Council to readjust zone functions or even revoke nature reserve status. Due to the serious damage caused to some reserves, in 2015 the Ministry of Environmental Protection admonished the local governments responsible for five national nature reserves and the Ministry of Housing and Urban-Rural Development issued warnings to eleven national scenic areas. These inadequacies highlight the need to establish cross-sector integration of ecological protection systems, in order to solve the current problem of decentralization and allow close management of ecosystems across China's decidedly vast geographic range.

Third, the spatial boundaries and target performance assessments of the National Economic Compensation Program are unclear, leading to the failure of incentives. In 2011, the State Council issued the National Major Function-Oriented Zones Plan (MFOZ) (State Council of PRC, 2010), which divides national terrestrial land into development-prohibited zones, development-restricted zones, development-optimized zones, and development-prioritized zones. It provides directions and principles for development, improves policies to control the intensity and shape of future development, and aims to create harmonious development patterns inclusive of population, economy, resources and environment. However, the border demarcation issued in the MFOZ Plan has not yet been completed in the provinces. Using the boundaries of county administrative regions, 436 counties in development-restricted zones were included in the National Key Ecological Function Zones, receiving fiscal transfer payments from central government for the purposes of environmental protection and basic public service support. However, the accounting standard of compensation does not take into account areas of ecological protection or the magnitude of ecosystem services. The local government implementation process faces the problem of "environmental goals squeezed by people's livelihood goals" (Li et al., 2013), which, in some counties, has degraded rather than improved ecosystem quality. Therefore, the boundaries of

ecologically protected areas must be defined for stable and sustainable ecosystem protection, and platforms for monitoring and assessing the quality of ecosystems and ecological services should be established to serve as the foundation for national fiscal compensation. The Ecological Protection Red Line system has been assigned the mission of defining the boundaries and assessing the performance and success of protected areas.

2. Contents and delineation schedule of the ecological protection red line system

Ecological Protection Red Line (EPRL) areas are either those natural spaces (e.g. forest, grassland, wetland, river, lake, intertidal zone, coastline & riparian, sea, barren land, desert, glacier, alpine tundra, uninhabited island) of the greatest importance or the most vulnerable or sensitive, and they are the minimum area needed to sustain national ecological security. These areas are delineated for the implementation of stricter protection, and they are ungraded.

The delineation inherent in the EPRL system is subject to guidance and supervision at the state/national level. Terrestrial EPRLs are organized by the Ministry of Environmental Protection (MEP) & National Development and Reform Commission (NDRC), and marine EPRLs by the State Oceanic Administration (SOA). Provincial governments are responsible for EPRL design, approval, release and implementation.

The Guidelines for the Delineation of Ecological Protection Red Lines issued by MEP & NDRC in July 2017 regulate the delineation principles of terrestrial EPRLs, comprehensively detailing technical processes and evaluation methods. The delineation scope of EPRLs (Fig. 1) includes (1) areas of importance to water and soil conservation, to the maintenance of biodiversity, or wind break and sand fix areas, etc; (2) areas of high ecological sensitivity and vulnerability to soil erosion, desertification and salinization, etc; (3) development-prohibited zones already subject to existing protection laws such as nature reserves, natural scenic areas, geological parks, forest parks, and sources of drinking water, etc; and (4) areas that must be protected for other reasons, such as habitats of minimum population species, natural shorelines, and snow mountains, etc. The bottom line areas of wetland, grassland and forest have been defined by central government.

Opinions on the Implementation of the Red Line System for Marine Protection, issued by SOA (SOA, 2016a), has been used in combination with the Technical Guidelines for the Delineation of Marine Ecological Protection Red Lines (SOA, 2016b). Marine EPRL areas include marine areas with ecological importance or vulnerability and sensitivity, natural continental coastlines and island coastlines (Fig. 2). The document dictates that EPRL areas should account for no less than 30% of marine areas managed by coastal provinces (including autonomous regions and municipalities), the retention rate of the natural shoreline should be no less than 35%, and the length of existing sandy coastline of national islands should be maintained. The EPRL delineation of Bohai Bay, a pilot area for marine ecological protection, was completed in 2015 and other coastal provinces are progressing with the delineation process. Marine EPRLs should be integrated into one national map of EPRLs.

Opinions on Delineation and Defense of the Ecological Protection Redline scheduled that, by the end of 2017, the EPRL for the Beijing-Tianjin-Hebei Region and the Yangtze River Economic Zone will be released, with all other provinces following in 2018. At the end of 2020, national level EPRL delineations, boundary surveys and calibration, authentic rights confirmation and registration will be complete.

3. EPRL control strategy under study

Once an EPRL has been delineated, it should ensure that land use classification is not changed, a protected area's ability to perform its ecological function is not reduced, and the area covered does not shrink. In order to realize the objectives of the EPRL management program, relevant government departments are currently working on

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