

RECONSTRUCTION OF A SYSTEM OF NATIONAL PARKS AND PROTECTED AREAS IN CHINA AND RUSSIA ACCORDING TO NEW DEMANDS AND CHALLENGES FACING IMPLEMENTATION OF THE BELT AND ROAD PROJECT

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ABSTRACT. The Protected Areas (PA) system serves to support healthy ecosystems and threatened species, biodiversity and ecosystem services, as well as providing multiple benefits to people. The ecological doctrine of Russia considers the development of a system of specially protected natural areas (SPNA) to be one of the key directions of state policy. In the history of this country, the creation of SPNA is a traditional and effective step, but currently, state environmental policy is very different from that of the policy of the past, as dictated by the USSR. Today's global events, such as the economic collapse resulting from the COVID-19 epidemic, have changed social life dramatically. However, for both Russia and China, there is a clear interest in not repeating Western national park commercialization, as seen in the US and European countries. The authors consider the idea of adding a new wilderness protected area category, because in reality, it is a very effective form of environmental conservation, especially in «Eastern» Russia. It is discussed that the terrestrial protected area system is not ecologically representative at present, although most countries have reported considerable success in this field. China has declared and is promoting the construction of a community with a «shared future for humanity». The focus of this paper is on China's Belt and Road Initiative, as it aims for the functional creation of a new model of international economic cooperation that must include a new and close look at nature conservation.

KEY WORDS: Protected Areas System, National Park, Nature Reserve, the Belt and Road Initiative, wilderness, Amur River Basin

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INTRODUCTION

Biodiversity and the wilderness are rapidly becoming issues of central importance for everyone, ranging from engaged environmentalists to future-oriented business leaders and self-aware communities, including climate crisis activists. Biodiversity and Protected Areas Management (BIOPAMA) programs inform us that today, protected areas cover just under 15% of the world's

terrestrial and inland waters, and just over 10% of the coastal and marine areas within national jurisdiction; approximately 4% of the global ocean is a PA and it stores more than 15% of the global terrestrial carbon stock, assisting in reducing deforestation, habitat and species loss, and supporting the livelihoods of over one billion people (Protected planet.net 2016).

The 11th World Wilderness Congress (WILD11) was indefinitely postponed due to the global pandemic, which is a consequence

of a broken relationship with nature is a clear natural emergency, and we urgently need to find a new platform for cooperation. McKinsey survey dimensions could define it as a new focus on rethinking social contracts, because in crises, the state plays an essential and expanded role, protecting people and organizing the response. The state should be defining the future of work and consumption, but another important goal is ensuring nature protection, including maintaining protected areas. According to the abovementioned paper, the authors explain the existing base concerning a national protected areas system for China and Russia.

We are facing a new world because the coronavirus outbreak is a human tragedy that affects hundreds of thousands of people but, unexpectedly, protected areas as well, which are not only the cornerstones of biodiversity conservation. When referring to the important role of PA, it is necessary to indicate and maintain key habitats, provide refugia, allow for species migration and movement, and ensure the maintenance of natural processes across the landscape, while at the same time, good governance in the protected area context should reflect relevant principles – freely chosen by the relevant peoples, communities and governments – such as legitimacy and voice, fairness, direction, performance, accountability and human rights.

All world regions have a net of protected areas, and the UN Convention on Biodiversity considers that protected areas remain one of the cornerstones for promoting biodiversity, ecosystem services and human wellbeing (CBD.int 2020). Russia and China are parties to the Convention on Biological Diversity (CBD) nearly since beginning of this convention working process (Cbd. int 2019). According to IUCN, the Government of China declared that the strategic goals and concepts for ecological civilization and «building beautiful China» are a top priority for the country. These policies include the following: Recommendations for Accelerating Ecological Civilization Development; Master Proposals for Institutional Reforms for Ecological Civilization; Proposals for Reforms in Compensation Mechanisms for Environmental/Ecological Damages; Recommendations on Improving Ecological Compensation Mechanisms; and Recommendations on Strengthen Red-line Control over Resources, Environment and Ecology (China CBD... 2020).

In 2017, Russia celebrated the 100th anniversary of the state's first natural reserve – Barguzinsky – and soon after declared a new National Project «Ecology» to be implemented over the next 6 years. However, at the same, all world countries need more natural resources; therefore, it could see a massive restructuring as production and sourcing move closer to end

users and companies localize or regionalize their supply chains. The crisis has propelled new technology across all aspects of life, extending from e-commerce to remote working and learning tools, and moving from globalization to regionalization. In this study, we should add that in March 2020, when the 11th World Wilderness Congress (WILD11) expected to convene in India, the will would have had the historic opportunity to be part of building a new movement to protect nature and humanity from the planetary threat to life due to these two major intersecting crises of extinction and climate.

China President Xi Jinping pointed out that the task of «Establishing Protected Areas System with National Parks as its Center» in the next five years implements «The path to China's 'ecological civilization' starts with national parks», and the Russian President declared 2017 the Year of Ecology. This decision draws public attention towards environmental issues, supports the protection of ecological and biological diversity and reinforces the ecological security of the country. The initiative promoted by China has become the subject of an international consensus for new thinking and possibilities for contemporary cooperation between Russia and China. In this paper, a brief proposal to build an East Asian ecological network is described, which focuses on a vision of ecological targets for intermediate and long-term environmental interpretation within North and East Asia. Wilderness and Protected area links and the third part of the paper briefly describes some perspective measures in nature conservation using the Amur River Basin as a model area.

RESEARCH BACKGROUND, WILDERNESS CONCEPT AND RUSSIA STUDY AREAS

«Wilderness» is the new idea, system, theory and practice of activities to protect natural functions and processes in the human environment (Bocharnikov and Egidarev 2015). The emphasis of this theme was better understanding the linkage between wilderness and the social and ecological systems (regional, national, and international) in which wilderness is situated (Bocharnikov and Egidarev 2016, 2017b). We understand «wild nature» or, in Western words, «wilderness», as a new environmental spatial index designed for the general assessment of the degree of preservation of natural geosystems (See Fig. 1).

Under our spatial Russia wilderness assessment, holistic natural areas with minimal anthropogenic impact were identified (Bocharnikov and Egidarev 2017a), and by using Geographic Information Systems (GIS) data, we obtained precise quantitative estimates of all off-road and uninhabited (or nearly uninhabited)

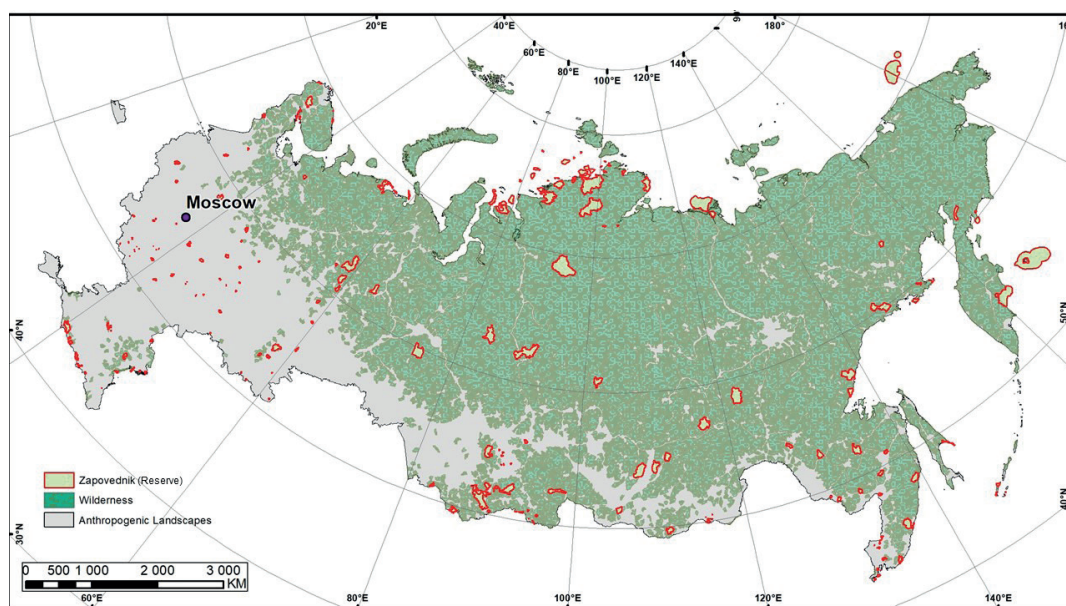


Fig. 1. Russia wilderness and largest federal PA distribution

and anthropogenically disturbed areas at a resolution of 50 thousand hectares (500 square km), enabling the calculation of the wilderness index (Bocharnikov 2019). The contribution of wilderness to the maintenance of regional ecological integrity depends on the types of areas designated as wilderness and their spatial distribution and connectedness. In addition, wilderness lands influence regional social systems, such as local economies and lifestyles. This finding explains why Russia is a northern country; 70% of its territory has the official status of the Far North and equivalent areas. Such areas can also produce a range of financially quantifiable benefits for local communities, landholders and wider society: potential for nature tourism, recreation and therapy-based activities, together with ecosystem services including carbon sequestration, flood mitigation, water table retention and pollution alleviation, that can address a key cause of climate change and lessen its consequences.

Three large federal districts in the Asian part of Russia contain the majority of the remaining large areas of wilderness, consisting of undisturbed flora and fauna; a total of more than nine million square kilometers (54.6% of Russia). We emphasize the particular role of arctic and subarctic regions as wilderness and biodiverse ecosystems (Bocharnikov 2019). This vast territory, although dispersed, is inhabited by people at an average density of 1 person per square kilometer. However, quite often, these areas are close to areas that make up the main core areas of oil exploration and Russian gas or other large-scale anthropogenic activities. Today, the existence of a vast territory is due to historical reasons, but if the Russian Empire and the Soviet Union was marked by an active regional policy development of Siberia, the North and the Russian Far East, the Russian Federation could not repeat the experience. The special category of pioneer areas or areas of new development that were undeveloped or underdeveloped areas that have large reserves are economically viable for use in a given period of natural resources, but the process of accelerated development of the territory and resources has already begun. Reserve areas in the strategic objectives were considered as areas for future economic development, actually representing environmental reserves for undisturbed economic impact; that is, «pristine» human nature.

The modern network of protected areas of the Russian Federation was formed over the last 100 years and was founded by outstanding Russian scientists-naturalists and enthusiasts – biologists. The largest number of reserves (30) is located in the far Eastern Federal district. There are 13 national parks each in the Far Eastern and North-Western Federal districts. More than 10,000 people work in the system of specially protected natural territories of Federal significance, represented by 110 nature reserves (zapovedniks), 56 national parks, 60 nature preserves (federal zakazniks), 17 natural monuments, and 67 dendrological parks and botanical gardens (Stishov, Dudley 2019). We emphasize that in addition to SPNA, Russia wilderness lands influence regional social systems, such as local economies and lifestyles. The emphasis of this theme is a better understanding of the linkages between wilderness and the social and ecological systems (regional, national, and international) in which the wilderness is situated (Fig. 1). At present, Russia is attempting to realize a very ambitious nature conservation project; according to the new Federal project

«conservation of biodiversity» of the national project «Ecology», 17 more zapovedniks, national parks and other reserves of federal significance are planned in the next five years. By 2024, the list of specially protected territories of federal significance will expand by at least 24 points. Seven SPNA and other PA have already been established – the Lena Pillars National Park (Republic of Sakha (Yakutia)), the Swan Islands reserve (Republic of Crimea), the Yalta mountain forest reserve (Republic of Crimea), the Kazantipsky reserve (Republic of Crimea), the Opuksky reserve (Republic of Crimea), the Maloe Phyllofornoe sea preserve (Republic of Crimea), and the Karkinitzky preserve (Republic of Crimea). Thus, by 2024, the total area of protected areas will increase by at least 5 million hectares, and the number of visitors will increase by at least 4 million people.

RESULTS

Lessons from Chinese and Russian national protected areas system existence

China introduced the concept of the «red line of ecology» as the limit of the countries environmental security, which necessitated the development of new and fundamentally different national and international environmental policy. The construction of China's Protected Areas has entered the substantive stage. The plan puts forward that China's national parks will give top priority to ecological protection, focus on improving ecosystem service functions, carry out natural environment education, raise public awareness of protection, and encourage public participation in the environmental protection (General Office 2017). The problem of nature protection and biodiversity conservation from the whole complex of ecological and resource problems in its territorial aspect is of transboundary nature to the maximum extent. National parks are still new to China, and studies of the environmental interpretation system of 10 national parks have been conducted for a relatively short period with few results.

The China National Park Administration was established on April 8, 2018, due to the difference in the management systems, the protection of the target and the intensity of development among departments, because the departments have developed different management systems, standards, and technical specifications. According to the urgent assessment of the current level of natural disturbance, it is clear that the existing variety of factors and forms of human impact on geosystems cannot be understood without a simple and affordable integral index. The establishment of national nature reserves could get approval from China State Council or its department; there are ten pilot China National Parks (Table 1).

President Xi Jinping, at the Nineteenth National Congress of the Communist Party of China in 2017, pointed out the task of «Establishing Protected Areas System with National Parks as Its Center». The construction of China's national park as central in a protected areas system is a comprehensive system of ecological protection and management system reform, which must be carried out by a comparative study between China and other countries. For example, high-speed railway (HSR) is considered to be one of the most important breakthroughs in passenger transport technology made in the 20th century. Once completed,

Table 1. List of ten national parks of China

No		Province	No	Name of National Park	Province
1	Sanjiang Yuan National Park	Qinghai	6	Great Wall National Park	Beijing
2	Shen Nongjia National Park	Hubei	7	Potaso National Park	Yunnan
3	Wuyi Mountain National Park	Fujian	8	Giant Panda National Park	Sichuan\Shaanxi\Gansu
4	Qian Jiang Yuan National Park	Zhejiang	9	Northeast China Tiger and Leopard National Park	Jilin\Heilongjiang
5	Nan Shan National Park	Hunan	10	Qi Lian Mountain National Park	Qinghai\Gansu

these railways will boost the development of infrastructure and regional economy; however, the environmental impact of HSR should not be overlooked. Despite being more environmentally friendly than traditional transport modes (e.g., highway), HSR has led to some environmental and resource problems (Chang 2018). The construction of China's national parks has entered the substantive stage. Until 2017, China has established 9 types of nature reserves with a total number of 11800 sites and the total area accounting for approximately 18% of the land area of China.

For China-Russia cooperation to ensure biodiversity conservation and ensuring harmony between human and nature, it is urgent to reconstruct the National Parks and all Protected Areas System in both China and Russia. At the same time, there are many problems, such as unreasonable divisions and unfavorable management systems. For example, the classification system of a Nature Protected Area is more confused, which results in confusion of management measures, and public awareness and ecological education have been carrying out a large number of follow-up studies (Song 2010). Additionally, from the perspective of the research mechanism, the theoretical system of the national park and protected areas in China has not been perfected to date (Zhao et al. 2016).

Another main reason is that the country is very uneven in its structure, and distinguished within the spatial extent and degree of regional mosaic. What directions we can find for national PA system improvement? China's Nature Protected Areas are in charge of the departments of environmental protection, forestry, agriculture, land, housing construction, water conservancy, marine, and others, including civil community. Tang et al (2007) obtained the public's perception and needs of the interpretive media; she proposed suggestions and measures to improve the environmental interpretation system based on a survey of the environmental interpretation system of Pudacuo National Park. Wang et al. (2016) evaluated the environmental education function of this park. This study lacks a theoretical definition of the structure and function (Zhao et al. 2018).

Belt and Road Initiative, Russia Wilderness and Amur River Basin Network

China's strategic Belt and Road Initiative (BRI) aimed at creating a new model of international economic cooperation. BRI is a call for open, inclusive and mutually beneficial cooperative economic,

political and cultural exchange (globalization) that draws on the deep-seated meanings of the ancient Silk Roads. This is not only the creation of new and modernization of century-old trade routes for direct supplies of goods from China through Eurasia to Europe and Africa but also the improvement of transport, logistics, energy and telecommunications infrastructure, coordination in the field of macroeconomic policy of States, reducing trade barriers and increasing contacts between people. Sustainable development is the ultimate goal of transportation; therefore, this megaproject suggests that construction of environmental interpretative national parks and protected areas in China and the management objectives of the different protected areas in China should be clarified in light of ongoing changes within the areas of project influence.

China plays a system-forming role, but to create and maintain adequate living conditions requires the active implementation of a new environmental policy, which is true not only for Russia but also for China. It is necessary to identify, demonstrate and oppose urbanized areas that are not administered territory and which can be interpreted, such as large holistic pristine nature areas – wilderness within all BRI project activities. BRI appears to be a multipurpose project to create a new model of globalization, and at the same time, this approach is the way to a common Eurasian economic space, in which and according to the analysis on the transportation infrastructure index and the difference between import and export in transportation trade, we obtained the transportation industry patterns for the countries along «The Belt and Road» and proposed the transportation industry development strategy for the countries along «The Belt and Road» (Cheng et al. 2018).

The government of the Russian Federation has adopted a number of large-scale decisions for the structural and technological modernization of the economy, the entirety of which has a significant potential for positive impact on the development of the Russian economy. Russian President Vladimir Putin supports the Chinese project, and there are already many initiatives to combine various integration processes going on in Europe and Asia. We consider that within BRI nature conservation activities, it is necessary to emphasize that the goal is to build an East-Asian ecological network which focuses on a vision of ecological targets for the intermediate and long-term and promotes public awareness, education and information programs through environmental interpretation (Fig. 2).

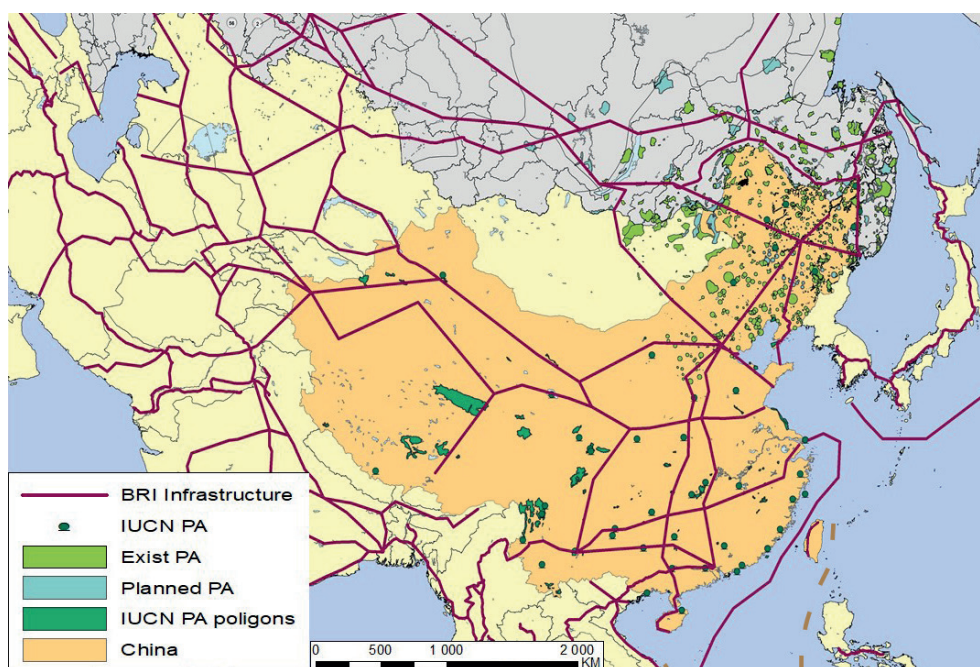


Fig. 2. BRI main infrastructure vectors and China PA distribution

The map was created by the authors. Detailed sources for BRI Infrastructure can be found in Gladky & Bocharnikov, 2017

China's strategic megaproject, the Belt and Road Initiative (BRI), aimed at creating a new model of international economic cooperation. This project is not only the creation of new and the modernization of century-old trade routes for direct supplies of goods from China through Eurasia to Europe and Africa but also the improvement of transport, logistics, energy and telecommunications infrastructure, coordination in the field of macroeconomic policy of states, reducing trade barriers and increasing contacts between people. An important step is to make visible the BRI project area implementation, and in this case, we need to consider the project in light of transboundary cooperation, such as specific biodiversity regions, including the Russian Far East (RFE).

The RFE is an important transit route from Western Europe and countries in the Asia-Pacific region due to its year-round access to the sea and direct connection with the Trans-Siberian and Baikal-Amur railways. The region is important to Russia and the Asia-Pacific region as a whole. Abutting the Pacific Ocean, the region is adjacent to the United States, Canada, Japan, China, Mongolia, and North Korea. The population of the RFE is largely urbanized, with 76% of the people living in cities and towns. Conserving the eastern direction of the BRI, there are three broad demographic zones — south, central, and north — in the eastern part of RFE based on population density, length of settlement, ethnic composition, population dynamics, and living conditions. Russian President Vladimir Putin supports the Chinese project, and there are already many initiatives to combine various integration processes underway in Europe and Asia. Implementing the directives of President Xi Jinping and President Putin to further promote cooperation and exchanges in Tiger Leopard National Park of China is underway. In addition, the ecological doctrine of Russia considers the development of the system of specially protected natural areas as one of the key directions of the state policy in the field of ecology. In the conditions of further integration of the RFE and northeast

China, active development of the Amur River basin and valley is inevitable (Baklanov et al. 2018). We should strive to establish wilderness areas across a wide spectrum of ecosystems, including high and intermediate mountains, forests, steppes, wetlands, rivers, deltas, coastal areas and oceans. We need to make ecological and geographic research priorities of future studies on transboundary protected areas, such as the Northeast China Tiger and Leopard National Park, which is located between China and Russia. The system should be designed and managed such that it is resilient to both short-term and longer-term change, including climate (Fig. 3).

China is at a key stage for reform and development, as progress is being made in economic, political, cultural and social development, as well as in promoting ecological civilization. However, China is also experiencing pressure from its vast population, limited natural resources, the environment, and changes to its recent pattern of economic growth. To meet these challenges, it is seen as a necessity to introduce a broad reform of the PA system. As we can see in Fig. 3, the main elements of the Amur River Basin Wilderness Biological and Landscape Diversity Strategy should be the following: a description of how the ecosystem in Eastern Asia functions or fails to function, in terms of causes and effects; a vision of ecological targets for the intermediate and long-term, respecting the ecological connections, geological, scenic and cultural values, acknowledging the biogeographic regions of Asia, its surrounding seas and intercontinental ecological relations; and guidance on the full integration of nature conservation into other policies, in particular agriculture, forestry, fisheries, land use and water planning and management and regional development based on the principle of environmental sustainability. Similar to situations around the world, there is a strong need to unite the efforts of the Russian Federation, China and Mongolia to create a transboundary Econet of the Amur basin by joint efforts.

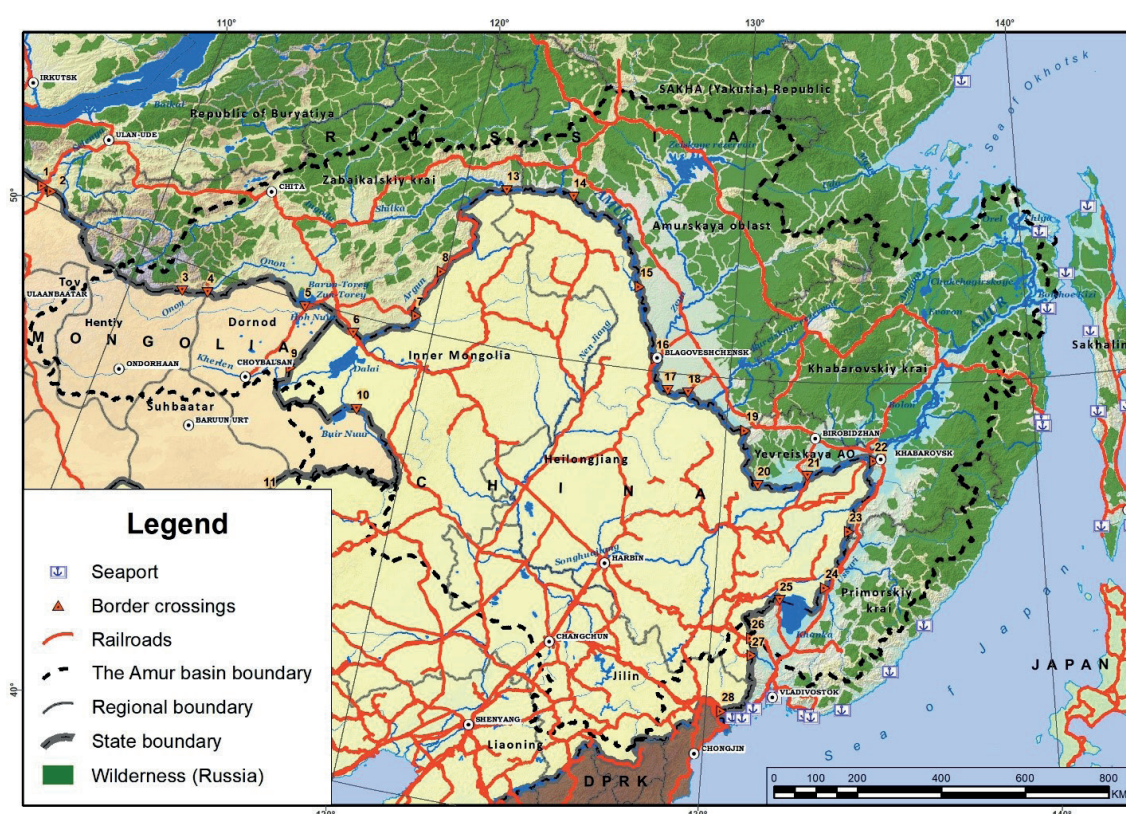


Fig. 3. Amur River basin Ecological Econet (Source: WWF-Russia. Map created by GIS-specialist of the Pacific Geographical Institute FEBRAS Eugene Egidarev)

We point in conclusion to the most necessary point that for the East-Asian ecological network, maintaining and enhancing the conservation and coherence of natural and seminatural habitats and natural processes of Asian importance are planned to pay particular attention to characteristic threatened and endangered species; this includes priorities for Asian actions, including the more effective implementation of international nature conservation instruments and funds, and identifying where urgent action is needed by national authorities; public awareness, education and information programs; paying close attention to the livelihood of Aboriginal residents around nature reserves; and advocating an international community co-management model. We consider that the important case of the Far Eastern division of the WWF-Russia Amur River Basin Wilderness and Ecological Network should be developed as soon as possible as a conceptual framework for organizations to cooperate and set priorities at a pan-Asian level. The largest and most problematic is the Amur River basin, which includes the southern part of the Russian Far East, Northwest China and Northern Mongolia.

DISCUSSION

Fundamental development of «green» technologies to prevent new and solve existing environmental problems, balance economic development and environmental protection, coinciding with the transfer of many industries from the East to the West of China and the territory of neighboring countries, with the active participation of the country in international investment and financial policy is critical (Jiang 2015). President Xi Jinping delivered a report to the 19th National Congress of the Communist Party of China in 2017 mentioning «promoting the building of a community with a shared future for humanity» (Xi 2018). The resolution from the third plenary session of the Eighteenth National Congress of the Communist Party of China (CPC) clearly proposed to establish a national park system in order to better deal with the relationship between ecological protection and economic development, optimize and improve the system of Nature Protected Areas, and rationalize the existing management system of nature reserves (Zhong and Xiao 2017).

There are two primary drivers for the development of China's national parks. Economic development has created a growing middle class with more vacation time and a growing interest in outdoor recreational opportunities (Liu 2007). China has 121 protected areas with a total terrestrial coverage of 1.461 thousand km² and 15.62% land coverage, and 47,492 thousand marine protected areas or 5.41% coverage. PAs of international importance include 29 UNESCO Biosphere Reserves, 17 World Heritage Site and 56 Wetlands of International Importance (UNEP-WCMC... 2016). To date, there are 1865 areas classified as National Parks based on the International Union for the Conservation of Nature (IUCN) Guidelines for Protected Area Management Categories (Commission on National Parks and Protected Areas and World Conservation Monitoring Center 1994). The first Chinese National Park formally designated for ecological protection was Zhangjiajie National Forest Park, established in 1982, almost 100 years after Yellowstone National Park in the USA and Banff National Park in Canada. China's national park managers are under increasing pressure to look for private sector funding to develop commercial and infrastructure projects, as in some parts of China, government support for parks continues to decline (Liu 2001). Practical work such as

facility construction and service upgrading urgently needs theoretical support and scientific guidance.

Because of the rapid industrialization of China's landscape and rising standards of living over the last 30 years, the government has placed greater emphasis on creating parks to protect biodiversity, raise environmental quality, and improve social livelihoods. The rapid development of parks and ecotourism in China has attracted worldwide attention, not only for the beauty of the landscape that the parks are protecting but also for their abundant and often unique biodiversity. However, in some areas, the development of ecotourism has actually led to the degradation of local ecological, economic, and social systems.

Although the intention of National Park systems in China is to raise environmental quality and to protect biodiversity and social livelihoods, their success has been varied. Overcutting is defined in this study as the harvesting of trees and other forest resources at a rate in excess of that forest's growth or replenishment, and it has also increased pressure on natural resources, creating the need for conservation and ecological protection. It is estimated that by 2050, the urban population in China will reach 1.2 billion, and outdoor recreation demand will grow proportionately, assuming such factors as disposable income, leisure time, and vehicle ownership remain proportionate within the growing Chinese population. In response to this demand, the China forest service established more than 1000 Forest Parks during 2000–2008, and the total area of forest parks has reached 16.5 million ha.

A wilderness strategy oriented to the future must also be solidly anchored in the four conservation biology principles: 1) all the native ecosystems should be represented in the PA system; 2) viable populations of all native species should be maintained and allowed to fluctuate in a natural way; and 3) ecological and evolutionary processes, such as free flowing rivers, wind, fire and impact of herbivores and carnivores, must be ensured. As one of the most important types of the world's nature protected area system, national parks not only have the primary function of ecological protection but also play important roles in environmental education. These parks provide opportunities for the public to get close to nature, experience nature and understand nature as a national welfare, and they reach a consensus reached by many leaders who work for governments, scholars, experts, and nongovernmental organizations (Zhong and Xiao 2017; Zhang 2017). To date long-term planning processes, such as a scientific inventory of natural resources, classification of protected areas, and the development of monitoring systems (Wang et al. 2012), are lacking, but according to mass media declarations, although China's development faces uncertainty amid the COVID-19 pandemic and a global recession, the economic and social fallout will not derail the country's efforts to promote green development.

CONCLUSIONS

Environmental policy actively pursued by the Chinese state can become one of the most powerful tools in the protection of the environment, in which the protection of the human environment goes from providing an applied function to the most important tasks of the national ideology, which will be true in relation to Russia. Information sharing and other international scientific projects are a key aspect with the basic goal of establishing transboundary nature reserves to protect the living environment and biological resources of migrant organisms. Based on recognizing

the unified law enforcement standards, all parties should establish unified coordination bodies and management and law enforcement teams and form unified law enforcement power and law enforcement subjects. Local economic development will be integrated into the development plans of various countries, and the management and construction of the region will be arranged as the statutory development goals of their respective governments to make up for the ecological shortcomings of the economic

corridor between China, Mongolia and Russia and to formulate standards for cooperation and co-management. The three countries have set up a working group on Cross-Border Nature Reserves and Biodiversity Conservation with the participation of government leaders and holds annual meetings alternately in China, Mongolia and Russia. To date, however, many of these goals remained unrealized in the current environment of crisis-based reduction of state revenues due to COVID-19. ■

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