PROTECTION OF THE ECOLOGICAL ENVIRONMENT AND MANAGEMENT OF NATURAL RESOURCES

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Humans live on the earth that features a diverse ecosystem. In this environment of human beings, nature plays the role of a nurturing mother role. Time may be in the continuation of progress from generation to generation, and the nature of other kinds of billions of biological species, would also be like humans, in constant evolution, in order to adapt to the dangerous natural environment. However, those natural resources are sharply disappearing and dying out because of humans' voracity. In the 21st century, how to protect the ecological environment and the rational use of natural resources have become the serious issues that human beings must solve.

Key words: ecosystem, natural resources, management.

Natural resources are the basis and the subject matter of the ecosystem. Forests, grasslands, farmland, wetland biological resources constitute the four life ecosystems; and air, water, energy and mineral resources constitute the three major environmental and ecological systems. Natural resources and ecosystem are two sides of the same coin. They interact with and complement with each other. Although China is rich in natural resources and ecological resources, it is still faced with resource constraints and confronts with a plight where its ecological environment becomes more tense and fragile [1]. For the forest ecosystem, grassland ecosystem, farmland ecosystem, wetland ecosystem, we should intensify the implementation of conservation as well as the effective management.

Forest ecosystems. Compared with other terrestrial ecosystems, forest ecosystems have the largest amount of biological species, and it possesses most complicated natural structures. Besides, it owns relatively vigorous energy conversion and matter cycle and biggest biological productivity and the existing maximum amount, which characterizes higher degree of stability and strongest ecosystem of ecological benefits. As a huge ecological community, forest ecosystems resist wind, conserve clear water and soil regulate climate, purify the atmosphere and protect other surrounding ecosystems. Therefore, maintaining the ecological balance as well as improving the living environment of mankind should be considered as the primary roles that forest ecosystem plays.

Forest Ecosystem Management. In the descriptions of the diverse forest ecosystem management at home and abroad [2—5], the "new forestry" theory proposed by Franklin became the main basis of the current forest ecosystem management knowledge. For now, the profound meaning of the "new forestry" has already surpassed far beyond the scope of forestry science, and it is constantly being expanded. In the future, "new forestry" will gradually develop into an integration of natural resource management which gathers natural science and social science, and is based on the principles of ecology, economics and sociology. Ultimately it aims to achieve ecological, economic, and social unity of the ecological, economic and social benefit---three coordinate sustainable forest management, so as to achieve harmonious development between man and nature.

Sustainable development. From an ecological point of view, sustainability reflects the dynamics of an ecosystem to maintain its own composition, structure, functions and processes in a complete and sustainable way, as well as the sustainability of the export of ecosystem goods and services. From the socio-economic point of view, sustainability is reflected in forest-related supplies like basic human needs (such as food, water, wood, etc.) and social and cultural needs of higher levels (as part of the population and employment) continually being met. Therefore, the ultimate goal of forest ecosystem is to achieve ecological, economic and social benefits of the three coordinated Sustainable Forest Management.

Ecological Principles as Guidance. To achieve sustainable management of forest resources, it is necessary to pay close attention to the progress of the research in ecology, ecological theory and application of advanced methods to address forest resource management practices, and the ecological problems emerged from the process of the management. For example, if we take great advantage of the hierarchical theory, metapopulation theory, we can manage to determine the boundaries of time and space dimensions and the management hierarchies, thus ensuring the development of forest ecosystem health, sustainable flexible and resilience of forest ecosystems and its infinite potential.

Principle of harmony and balance. As a balance to maintain the balance of forest resources, forest ecosystem management strikes balance between the functional requirements of the forest ecosystem and human needs. Various alternative methods that human and other biotic or abiotic environment's relationship is also going to be balanced. Only when human welfare is guaranteed to a certain extent can ecosystem management be effective. It is also because of this that we can build a harmonious community,

Multidisciplinary approaches. Forest ecosystem owns a variety of physical, chemical, biological and human components, so we must fully consider the elements of ecology, economy and society as we explore the forest ecosystem management, so that we can achieve the ultimate goal of the forest ecosystem management. This also requires those experts major in forestry, ecology, physics, chemistry, soil science, economics, sociology, statistics and legal disciplines to work together.

Adaptive management as the core. Adaptive management is the combination of democratic principles, scientific analysis, education and regulations and a process in an environment of uncertain sustainable management of resources [6]. It allows administrators to manage the uncertain process and maintain a certain flexibility and adaptability.

Grassland Ecosystems. Grassland ecosystem is a complex that features a variety of dominant perennial herbs biomes and its surrounding environment; it is one of the most important terrestrial ecosystems, an area next to the forest ecosystem. Grassland is an eco-zone consisted of temperate grassland and savannah ecosystems. Temperate grassland mainly distributes in temperate grassland of temperate Eurasia, from the Lower Danube to the east by Romania, the Soviet Union and Mongolia, through northeast China and Inner Mongolia, constituting the world's most broad steppe zone. Temperate grassland area are also distributed in central North America is also with broader, temperate grasslands as well as in South America.

Current Situation of China's Grassland Ecosystems. The main problem with our country's grassland ecosystem is the severe grassland ecosystem desertification. According to a survey, from the 1950s to the 1970s, China's decertified land area expands by 1,560 square kilometers on average annually; as can be seen, grassland desertification has been vastly expanded and now has formed an east-to-west Tarim Basin Plain. It is 4500 km long and has formed from north to south a wide sand belt of 372.82 kilometer. If no measures are taken, it will continue to expand, winding up with disastrous consequences.

In the last decade, China's degraded grassland increased from 86.67 million square kilometers 133 million square kilometers, an increase of 455.5 million square kilometers, making China grassland degradation to 2.6% per year in the expansion rate of the annual degraded area of 4,555000 square kilometers. Grassland ecosystem degradation directly induced by environmental disaster is sandstorms.

Research and Practice of Chinese Grassland Adaptive Management. From the current status of research, the study of adaptive management of our country is still at theoretical study and experimental stage, and a majority of them have focused on forest management and water resources management. Grassland protection and management has been gradually affected by the concept of adaptive management, however, scientific framework has not yet formed in a relatively clear way or been put into practice. Nevertheless, some exploratory research is still of important reference value.

The representative and successful cases on domestic adaptive management in the practices of grassland management is not much. However, in recent years, co-management and public participation have been attached great importance in the practice of adaptive management decisions.

Farmland Ecosystem. Farm ecosystem is an artificial ecosystem that has been manually created, and its main feature is the role that people play in it. It is critical that various kinds of crops people plant are key members in this ecosystem. Fewer plants and animal species can be planted or raised in farmland and farmland is in the structure of a single community. People must constantly engage in sowing, fertilizing, irrigating, weeding, pest control and other activities in order to be able to make farmland ecosystem develop towards the direction that benefits mankind. Therefore, we can say that farmland ecosystem is controlled by artificial ecosystems to some extent. Once the role of people disappears, the ecosystem will quickly degrade and dominant position of the crops will be replaced by weeds and other plants.

Integrity of the Agricultural ecosystem and Comprehensive Resource Management. Agricultural production activities are engaged in the earth's surface intersection of rocks, land, water, air and organisms. Agricultural natural resources are the common effects of various natural elements within the scope of this space, they interdependent on each other and influence each other. Agriculture natural resources also have a regional, limited renewability, appropriateness. These basic features also function through the whole ecosystem and the role of agriculture in agricultural production. Isolated individual natural resource management cannot meet the requirements of maintaining or improving agricultural resource capacity.

Resource management is the requirement of human activities and characteristics of resources. Integrated management of natural resources is not simply merging the various types of agriculture resources together. It is the combinations of various agricultural complex of natural resources, and also the foundation of human existence and other types of activities. Therefore, agriculture natural resource management is part of the overall management of natural resources and environmental management of land and resources, it is impossible to cover all the various types of content that can be used in agriculture natural resource management involved.

Agricultural ecological environment and marine agricultural resources belong to the components of the overall implementation of the unified management of resources and the environment. For this type of integrated resource and environment, although agricultural use is not dominant, it has its own unique management requirements. Agricultural biological resources are usually divided into species and organisms, but in fact these two are inseparable. The objects that human exploit, utilize and protect resources are not individual organisms or abstract species, but biological groups (community, population). Agricultural organisms land and water -based biological habitat types compose agro-ecosystems.

Wetland Ecosystems. Wetland ecosystem is a special natural complex interaction between land and sea waters. Wetlands include all terrestrial freshwater ecosystems, such as rivers, lakes, swamps, and land and ocean transition zone of coastal wetland ecosystems, but it also includes a portion of salt water on the edge of ocean and brackish waters. Global wetland takes up an area of about 5.7 million square kilometers, accounting for 6% of the Earth's land area. Compared with the wetland and terrestrial land, marine area is relatively small, but the wetland ecosystem supports all freshwater biomes and some halophytes biomes, which features both water and terrestrial ecosystems. With very special ecological function, it is the planet's most important life supporting systems. Therefore, the international community usually call forests, oceans and wetlands as the world's three major ecosystems.

Water is an indispensable element for the existence of life. Freshwater wetlands are a major reservoir on the Earth. Water for human consumption, industrial processing and agricultural irrigation water except for a small amount of exploitation of groundwater, the main sources is derived from wetlands and wetlands is also the resource of the groundwater. Because of their special ecological characteristics, wetlands accumulated a large amount of inorganic carbon and organic carbon during ecological processes of plant growth, siltation land reclamation. In the wetlands environment, microbial activity is weak, so soil attracting and releasing carbon dioxide are very slowly. A rich organic wetland soils and peat layers are formed, which helps fix the carbon.

Determine the wetland ecosystem functions. Different wetland ecosystem functions are not the same, their roles are not the same, neither. Even with the same wetland ecosystems that are in different stages of succession, the roles of various ecological functions are not the same in intensity. Therefore, the first step to the wetland ecosystem management is the identification and understanding of wetland function and regulating the implementation of ecosystem function.

Affirm management objectives and manage objects. According to the law of wetland succession ecosystem, sustainability of the structure and function of wetland

ecosystem is the objectives of the management, and clearly it contain the following objects. 1) Wetland hydrology management. Wetland hydrological characteristics determine and maintain the physical, chemical and biological functions of wetlands and ecological value, and the human hydrological conditions regulate wetlands as the most effective factor. 2) Intensity of human use patterns and utilization management. Utilization of wetlands should be built on the basis of scientific evaluation of wetland ecosystem function.

Select the sustainable management indicators. Wetlands should be analyzed from the composition, structure and function of wetlands and be chosen on the basis of sustainable management indicators. Delineated wetland areas and unprotected endangered wetlands, natural wetlands, wetland restoration are in the process of secondary and their wetland management are different. Protected areas that are not designated are wetlands faced with the conflict of development and protection, and protected areas' main problem is how to protect.

Conclusion. Forests, grasslands, farmland, wetland protection and management of ecosystems are crucial for human survival and development. Ecological system research covers all types of natural, semi-natural and artificial ecosystems, ranging from the genes, individual organisms, populations, communities, ecosystems, landscapes, variety of regional and global scales, involving molecular ecology, physiological ecology, population ecology, community ecology, ecosystem ecology, landscape and regional ecology, global ecology, remote sensing, ecological economics, management science and many other disciplines. Ecological research system focuses on scientific issues related to the pattern of ecosystem dynamics, processes, services and sustainable management and other services in the ecological protection and restoration, ecological assessment and ecosystem management. It is connected to ecological science, geography and regional development. Ecological research systems have distinctive interdisciplinary characteristics and constitute an important part of the earth's surface complex systems research. Ecological research systems are able to promote awareness of the earth's surface of human complex systems and improve human capacity and make a significant contribution to a sustainable development.

ЗАЩИТА ЭКОЛОГИЧЕСКОЙ СРЕДЫ И УПРАВЛЕНИЕ ПРИРОДНЫМИ РЕСУРСАМИ

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Люди живут на земле, которая имеет разнообразные экосистемы. В этой среде человека природа играет воспитательную роль. Природа и время из поколения в поколение для миллиардов биологических видов, так же как и для человека, является причиной постоянного развития в целях адаптации к опасностям природной среды. Однако эти природные ресурсы резко исчезают и вымирают из-за алчности людей. В XXI в. в области защиты окружающей среды и рационального использования природных ресурсов возникли серьезные проблемы, которые человек должен решить.

Ключевые слова: экосистема, природные ресурсы, менеджмент.