

Review of Habitat Loss and Biodiversity in Poyang Lake Region

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ABSTRACT

Biodiversity mainly includes species diversity, genetic diversity and ecosystem diversity. The diversity of species is an intuitive manifestation of biodiversity, and genetic diversity is the basis of biodiversity. Biodiversity refers to a stable ecological complex formed by the regular combination of various living organisms (animals, plants, microorganisms) within a certain range. This diversity includes species diversity of animals, plants, and microorganisms, the diversity of heredity and variation of species, and the diversity of ecosystems. Among them, species diversity is the key to biodiversity, which not only reflects the complex relationship between organisms and the environment, but also reflects the richness of biological resources. Biodiversity is the sum total of organisms and their ecological complexes formed with the environment and various ecological processes related to this, and is composed of genetic (gene) diversity, species diversity and ecosystem diversity. Genetic (gene) diversity refers to the diversity of genetic factors and their combinations that determine traits in an organism. Species diversity is the manifestation of biodiversity in species, which can be divided into regional species diversity and community species (ecological) diversity. Ecosystem diversity refers to the diversity of habitats, biological communities and ecological processes within the biosphere. Genetic (gene) diversity and species diversity are the basis of biodiversity research, and ecosystem diversity is the focus of biodiversity research.

Keywords-*Biodiversity; ecosystem; Poyang Lake; loss*

1. INTRODUCTION

Poyang Lake was called Pengli, Penglize and Pengze in ancient times. The lake basin is formed by the collapse of the earth's crust and continuous deposition. In the Mesozoic, influenced by the Yanshan Movement, this subsidence became a basin, and the basin was wide in the present-day northwestern Jiangxi, Huangmei area in Hubei, Susong and Wangjiang in Anhui. By the end of the last subglacial period 10,000 years ago, the rising "Lushan" of the fault block stood on the edge of the basin, and the basin was crisscrossed with rivers and ponds. Since then, due to the transgression in the post-glacial period, the entire basin has become a great lake and a broad reach of the Yangtze River. ((Shangshu-Yugong" has recorded "Pengli", "Hanshu" recorded it as "Pengze". During the Three Kingdoms period, Pengze was divided into two lakes, north and south, and the Yangtze River flows through the isthmus between the two lakes. After the evolution of North Lake It is Longgan Lake at the junction of Hubei and Anhui, Daguan Lake and Bohu

Lake in Anhui. Nanhu gradually invaded southward, and in the Southern Dynasties, the lake water reached the vicinity of the newly built Qiaoshe, so that most of Huyang County and part of Haihun County set up in the early Han Dynasty were submerged, there is a folk saying that "the sea is dark and the city of Wu is raised". In the Sui Dynasty, the lake approached Poyang Mountain (formerly known as Lishi Mountain, also known as Shiyin Mountain, and later called Poyang Mountain because of the place name Poyang. According to research, it is located in the northwest of Poyang County. In the lake, the mountain was not found in the census of place names in the 1980s, and it was named Poyang Lake. From the early Tang Dynasty to the early Ming Dynasty, the lake water gradually retreated to the north, and then invaded to the south in the Ming and Qing Dynasties. At this time, the lake was shaped like a gourd, and the northern section was also known as Luoxing Lake (The southern section is also known as Guanting Lake (it is said to be named after the Guanting Temple at the foot of Lushan Mountain), Zuting Lake. In modern times, due to siltation and reclamation, etc., The lake surface is

shrinking day by day. By the end of the 20th century, the lake shape is no longer like a gourd, but like a swan with its head held high.

Poyang Lake is the largest freshwater lake in China and the second largest lake in China, located in the northern part of Jiangxi Province. The lake body belongs to Lushan District of Jiujiang City, Hukou County, Xingzi County, Gongqingcheng City, Duchang County, Yongxiu County, Xinjian District of Nanchang City, Poyang County, Yugan County, Nanchang County, Jinxian County and other areas in Jiangxi Province. When the lake level is 22.59 meters, the lake area is 4070 square kilometers. The lake is 173 kilometers long from north to south, 16.9 kilometers wide on average from east to west, 74 kilometers wide and 3 kilometers narrowest. The lake basin is inclined from southeast to northwest, with a gradient of 12 to 1 meters. The development coefficient (bending coefficient) was 6. There are 41 islands in the lake with an area of 103 square kilometers.

The southern lake area is the main body of Poyang Lake, accounting for about four-fifths of the total area of the lake. In addition to the five major rivers of Huina, Fu, Xin, Rao and Xiu, there are 4 rivers that directly enter the lake with a basin area of more than 200 square kilometers. The west and south are flood plains with rivers, and the lakes and ports are densely distributed along the banks, and the bottom is mostly sedimentary silt. Along the east coast of Poyang and Duchang, there are many swamps and beaches, the terrain is gentle, and the lake shore is curved. The central and northern parts are the large water bodies of Poyang Lake, which are connected by water and sky.

The Fuhe River is artificially diverted to the east and flows eastward through Qinglan Lake at Sanyang Street, Jinxian County, where it merges into Jinxi Lake. Sanyang Street faces Changle Lianxu in Nanchang County across the Fuhe River in the north. From south to north, it goes through Yaojiatang, Yongquan and Dongfeng Power Station to the northeast corner of Changle Lianxu, where there is Qingfeng Mountain Stream (the old road of Fuhe River) The water flows into Poyang Lake from west to east, flows from the northeast to the Dahukou and merges with the incoming water of the Fuhe River, and then flows 14.5 kilometers from the north to the Sanjiangkou. During the dry season, Jinxi Lake presents a large area of lake beach land, with large and small inner lakes distributed among them, and the main channel is like a belt, winding through. During the flood season, the water is connected into a piece, gradually forming a lake shape.

The left bank of the entrance to the lake from the southern branch of the Ganjiang River is Wufengweitouhezi Village, which is 3.5 kilometers north along the Linhu embankment line, and passes through the Wufeng Dacheng Drainage Gate to the Dongwutou Drainage Gate. The gate was originally the southern branch of the Ganjiang River into the lake. The gate was

built in 1976 to block the gate. Then along the embankment line in the middle section of the southern part of the Huanghu Lianwei 11 kilometers to the northeast, through Pengze Lake and Yufeng Electric Power Drainage and Irrigation Station to the Yellow Lake Drainage Gate, the east of the embankment line is Poyang Lake. Then turn to the west for 8 kilometers, passing through the flood gate of the Yellow Lake Flood Distribution Zone, Dongsha Lake and Shitouhe Electric Drainage and Irrigation Station to Mopanzhou in Xiaxishe, where the middle branch of the Ganjiang River flows into Poyang Lake from the southwest to the northeast. Mopanzhou is an oval shape with a big north and a small south, with an area of 8 square kilometers. The estuary area is silt deposition to form delta micro-topography.

After entering the lake at Zhangjia, Ruihong Town, Yugan County, the Xinjiang West River flows 9 kilometers from the northwest, passing through Niutoushan and the northern part of Beikou Bay to Sanjiangkou, where it joins the Fuhe River and the southern branch of the Ganjiang River. The Sanjiangkou is revealed in autumn and winter, which is the only way for the navigation from Yugan County to Nanchang. Its east bank is a narrow and long piled terrace with an elevation of 22-35 meters and densely populated villages, belonging to Meixi Township, Yugan County. There is a highway running from Ruihong Town from south to north to Nuomizui at the west end of the Kangshan Embankment, where the Embankment Administration and Kangshan Comprehensive Reclamation Farm in Jiangxi Province are located. The west is the water body of Poyang Lake. After the three rivers meet at the Sanjiangkou, it flows 13 kilometers northeast along the Kangshan embankment in the east, passing through Huzhoulingkou, Xinchengzhou, Dawangzhou, entering Kangshan River to Luogu Mountain, and passing through Duzhou Lake, Shau Kei Lake, and bream along the left bank. The Yuhu Lake and the three lakes are all seasonal inner lakes of Poyang Lake, formed by dry water and connected with the Great Lakes during the flood season, belonging to Yugan County. Duzhou Lake covers an area of 6 square kilometers, with an average water depth of 1.5 meters and a deepest depth of more than 3 meters. It is named after five independent sandbars. Shau Kei Lake and bream lake are named after the shape of Shao Kei and bream, both with an area of 3 square kilometers, a general water depth of 1.5 to 3 meters, and rich aquatic resources.

2. METHOD

With the development of ecology, ecologists believed that organisms and the environment were inviolable wholes, and later EPO dum believed that organisms and the environment should be studied as a whole, and defined ecology as "the study of ecosystems". The science of structure and function", which studies the

species, quantity, biomass, life history and spatial distribution of organisms in a certain area; the effect of environmental factors on organisms and the reaction of organisms to the environment; the laws of energy flow and material circulation in ecosystems, etc. , his theory had a great impact on the teaching and research of ecology in universities, and he himself won the highest honor in American ecology - the Taylor Ecology Award, and he was also the first person to propose the concept of ecosystem.

In 1962, American marine biologist Rachel Carson published the ecological book "Silent Spring" that shocked the world, raised the issue of ecological pollution and environmental protection caused by pesticide DDT, and aroused the public's concern about environmental protection. business concerns. In 1964, when the pioneer Carson died, the chemical giant Monsanto Chemical Company published a targeted book, "Desolate Years," to attack environmentalists. These insects spread the disease, causing countless "tragedies" of mass casualties. On April 22, 1970, Dennis Hayes, a student of Harvard University in the United States, initiated and organized an activity to protect the environment, which received enthusiastic responses from environmental protection organizations. About 20 million people across the United States participated in this massive parade. It aims to arouse people's awareness of environmental protection, and has prompted the US government to take some measures to control environmental pollution. Later, the event was approved by the United Nations. So far, April 22 every year has been identified as "Earth Day". In 1972, Stockholm, Sweden held the "Human Environment Conference" and signed the "Stockholm Declaration on Human Environment" on May 5, which is an epoch-making historical document for environmental protection and the world's first program to maintain and improve the environment. In the declaration, the signatories reached seven basic consensuses; in addition, the meeting also adopted a proposal to make June 5th every year the "World Environment Day". The meeting listed the protection of the biosphere as an international law and became the basis for international negotiations. Moreover, the third world countries have become an important force in protecting the world's environment, making environmental protection a global concerted action, which has been recognized and supported by governments of all countries. Under the recommendation of the meeting, the United Nations Environment Programme was established, headquartered in Nairobi, the capital of Kenya. From May 10 to 18, 1982, in order to commemorate the 10th anniversary of the United Nations Conference on the Human Environment and promote the improvement of the world environment, member states of the international community held a special meeting on the human environment in Nairobi, the headquarters of the Programme, and adopted the

"Nairobi Declaration". On the basis of fully affirming the "Stockholm Declaration on Human Environment", some new principles that all countries should abide by are put forward in response to the new problems in the world environment. The Nairobi Declaration pointed out the need for environmental management and assessment, and the close and complex interrelationships between environment, development, population and resources. The declaration pointed out: "(Original) Only an integrated and regionally unified approach can lead to environmentally sound and sustainable socio-economic development." The United Nations Committee on Environment and Development (WCED), chaired by Mrs. Gro Harlem Brundtland, put forward the concept of "sustainable development" in the report "Our Common Future" to the United Nations.

The meeting also adopted the document "United Nations Agenda 21 for Sustainable Development", "Statement of Principles on Forests", "Framework Convention on Climate Change" and Convention on Biological Diversity. The United Nations Framework Convention on Climate Change plans to stabilize greenhouse gas concentrations in the atmosphere at levels that do not harm the climate system. Environmental NGOs have adopted the "Consumption and Lifestyle Convention", arguing that the increasing production of commodities has led to the rapid depletion of natural resources, the destruction of ecosystems, the extinction of species, water pollution, air pollution, and garbage accumulation. Therefore, the new economic model should vigorously develop production that meets the basic needs of residents, prohibit the production of luxury goods that serve a small number of people, reduce the level of world consumption, and reduce unnecessary waste.

Components of an ecosystem: non-living matter and energy, producers, consumers, decomposers. The producer is the main ingredient. Different ecosystems are: forest ecosystems, grassland ecosystems, marine ecosystems, freshwater ecosystems (divided into lake ecosystems, pond ecosystems, river ecosystems, etc.), farmland ecosystems, tundra ecosystems, wetland ecosystems, urban ecosystem. Among them, the inorganic environment is the foundation of an ecosystem, and the quality of its conditions directly determines the complexity of the ecosystem and the richness of the biological community in it; the biological community reacts to the inorganic environment, and the biological community in the ecosystem not only adapts to the environment, but also In changing the appearance of the surrounding environment, various basic substances closely link the biological community with the inorganic environment, and the primary succession of the biological community can even turn a desolate bare land into an oasis with lush aquatic plants. The close connection of the various components of the ecosystem

makes the ecosystem an organic whole with certain functions.

3. RESULTS

The structure and function of the ecosystem have been displaced, i.e. changed, under natural disturbance, man-made disturbance (or the combined action of the two), breaking the original equilibrium state of the ecosystem and causing changes or obstacles in the structure and function of the system. The normal process of the ecosystem, and reverse succession occurs. The main manifestations are the reduction of species diversity, the simplification of system structure, the rupture of food webs, the reduction of energy flow efficiency, and the decline of productivity.

Ecological environment refers to the general term for the quantity and quality of water resources, land resources, biological resources and climatic resources that affect human survival and development.

The human environment can generally be divided into the natural environment and the social environment. The natural environment is also known as the geographical environment, that is, the natural environment around human beings. Including the atmosphere, water, soil, organisms and rocks, etc. Geography divides the factors that make up the overall natural environment into five natural spheres: the atmosphere, the hydrosphere, the biosphere, the pedosphere and the lithosphere. Social environment refers to the artificial environment gradually formed by human beings on the basis of survival and development in order to continuously improve the level of material and spiritual civilization on the basis of the natural environment, such as cities, villages, industrial and mining areas, etc. The "Environmental Protection Law of the People's Republic of China" defines the environment from a legal perspective: The environment in this law refers to the totality of various natural and artificially modified natural factors that affect the survival and development of human beings, including the atmosphere, water, oceans, land, minerals, forests, grasslands, wildlife, natural relics, cultural relics, scenic spots, nature reserves, cities and villages, etc.

Eco-geographical environment is a functional system or called an ecosystem composed of biological communities and their related inorganic environments. In the process of a specific ecosystem change, when it develops to a certain stable stage, various opposing factors through the mutual restriction of the food chain make the material cycle and energy exchange reach a relatively stable equilibrium state, thus maintaining the ecological environment. Stable and balanced. If the environmental load exceeds the limit that the ecosystem can bear, it may lead to the weakening or failure of the ecosystem. Humans are the most active and active factor in the ecosystem, and human activities will have an

impact on the ecological environment at all stages of development of human society. Especially in the past half century, due to the rapid growth of population and the rapid development of science and technology, human beings have both unprecedentedly powerful construction and creation capabilities, as well as huge destruction and destruction forces. On the one hand, human activities have increased the speed and scale of obtaining resources from nature, aggravated the natural ecological imbalance, and brought about a series of disasters. On the other hand, human beings themselves have been "revenge" due to the feedback effect of natural laws. Therefore, environmental issues have become a focus of worldwide attention. According to public opinion polls, the threat of environmental pollution is equivalent to the third world war. Whether in developed countries or developing countries, ecological and environmental issues have become a constraint to economic crowding. and major issues of social development.

4. CONCLUSION

The ecological balance in the ecological environment is a dynamic balance. Once disturbed by natural and human factors, beyond the self-regulation ability of the ecosystem and unable to restore to the original relatively stable state, the structure and function of the ecosystem will be destroyed, and the output and input of matter and energy will not be balanced, resulting in system component defects (Such as the reduction of biodiversity, etc.), structural changes (such as sudden increase or decrease in animal populations, changes in the food chain, etc.), energy flow obstruction, material circulation interruption, generally known as ecological disorders, serious ecological disasters.

Land degradation and desertification refer to the process of land quality degradation and gradual desertification due to the combined action of human factors such as grazing, farming, and deforestation, as well as a series of natural factors. 15% of the world's land area has been degraded to varying degrees by human activities. In land degradation, water erosion accounted for 55.7%, wind erosion accounted for 28%, chemical phenomena (salinization, liquefaction, pollution) accounted for 12.1%, and physical phenomena (waterlogging, subsidence) accounted for 4.2%. The average annual rate of soil erosion is about 0.5 to 2 tons per hectare. The world loses 1.5 million square hectares of irrigated land every year. 70% of agricultural arid and semi-arid lands have been desertified, most severely in North America, Africa, South America and Asia. In the past 20 years, the number of hungry refugees worldwide has increased from 460 million to 550 million due to land degradation and desertification.

Among the lakes in my country, Poyang Lake has the largest freshwater aquaculture waters, and is the place where some precious fishes roam, spawn and fatten in the

Yangtze River. There are 122 species of fish and 50 species of phytoplankton in the waters. There are still 2 million acres of grass land in Poyang Lake. From October to March of the next year, hundreds of thousands of rare and migratory birds come to spend the winter here. In June 1983, the Jiangxi Provincial Government established the Poyang Lake Migratory Bird Nature Reserve in Wucheng Town, Yongxiu County; in May 1988, it was approved by the State Council as a national nature reserve. This reserve is currently the location of the world's largest wintering white crane population, which accounts for more than 98% of the world's population. There are 54 species of nationally protected animals in the reserve, and 13 species of birds are listed as endangered birds in the world by the International Bird Protection Organization. The rich and precious bird resources have won a reputation for our country. The President of the World Wildlife Fund - Prince Philip of the United Kingdom, Prince Henrik of Denmark, and experts and scholars at home and abroad have all come here to inspect. The Second Great Wall of China". Every year, many tourists and foreigners come to the reserve to watch birds in winter. The bird watching season is from November to March of the following year.

Land cover changes caused by human activities have significantly added greenhouse gases to the atmosphere. Carbon is primarily stored in forests, and is released into the atmosphere during forest fires or deforestation. Scientists estimate that one-third of the carbon dioxide released into the atmosphere between 1850 and 1998 came from land, the vast majority due to deforestation. In addition, nearly one-third of the carbon in the world's soils is stored in swamps and peatlands. Greenhouse gases are released into the atmosphere whenever swamps or peatlands are degraded or burned and drained for agricultural use. Transpiration and heat reflectivity from forests affect the water cycle in the region, so a reduction in vegetation cover can lead to an increase in the frequency and duration of droughts in the region. 50% of the precipitation in the Amazon basin comes from transpiration of plants in the basin, and the deforestation of the local forest has reduced the precipitation by 20%, and caused seasonal droughts, which increased the temperature by 2° C, led to further decline of the tropical rainforest and prompted its succession to drier deciduous forests.

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