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Research on Wildlife Protection and Nature Reserve Management

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ABSTRACT

As an important part of modern environmental protection, wildlife protection and reserve management are of great significance to maintain the ecological balance and biodiversity of the earth. In today 's increasingly serious global environmental problems, especially climate change, habitat destruction, and species extinction, wildlife and its habitat protection have become a hot issue of concern to the international community. Governments, non-governmental organizations and the community to actively participate in, and actively promote the protection of the ecological environment for future generations to create a good ecological environment.

KEYWORDS

Wildlife Protection; Nature Reserve; Management.

1. IMPORTANCE OF WILDLIFE CONSERVATION AND NATURE RESERVE MANAGEMENT

1.1. Conducive to maintaining ecological balance

Ecosystem is a complex network formed by the interaction of various organisms and their environment. Wildlife plays a vital role in the ecosystem. For example, the relationship between predators and preys can regulate the population size and prevent the excessive reproduction of a species, so as to achieve the purpose of protecting the survival of animals and plants. Once the extinction or sharp decline in the number of a wild plant, it is likely to cause a chain effect, threatening the survival of other species, and ultimately undermine the stability of the entire ecosystem. Therefore, in order to maintain the ecological balance, wild animals and plants must be protected.

1.2. Conducive to the protection of biological diversity

Biodiversity refers to the diversity of organisms in genes, species and ecosystems. The higher the level of biodiversity, the more stable the ecosystem and the stronger the ability to adapt to environmental changes. As an important place for biodiversity maintenance, nature reserves can effectively protect endangered species and their habitats and avoid the destruction of human activities through strict protection and management. For example, many nature reserves prohibit hunting, logging and mining in order to maintain the original ecological environment.

2. PROBLEMS IN THE MANAGEMENT OF WILDLIFE AND NATURE RESERVES

At present, the management of wildlife reserves is facing many challenges and problems, which not only affects the balance of ecosystems, but also threatens the sustainable development of human beings. At present, illegal hunting and collection in various countries are still rampant. Driven by economic interests and weak law enforcement, many wild animals and plants are on the verge of extinction. Moreover, the management system and mechanism of nature reserves are not perfect. Some nature reserves lack scientific management planning and effective supervision mechanism, resulting in waste of resources, poor management and other problems. Such as over-exploitation of tourism resources, infrastructure construction to destroy the ecological environment and so on. This not only seriously affects the habitat of wild animals and plants, but also reduces the ecological function of protected areas. In addition, weak public awareness and lack of education are also urgent problems to be solved. Many people are not aware of the importance of protecting wildlife, and there are even some misunderstandings or prejudices. Only by strengthening environmental education and enhancing the awareness of environmental protection of the whole people can we create a good environmental protection atmosphere in the whole society. Therefore, there are complex and diverse problems in the management of wildlife and nature reserves. It is necessary for all parties to work together to improve the implementation of laws and regulations, improve the management system, and increase publicity and education to make wildlife and nature reserves. Effective protection and management.

3. WILDLIFE AND NATURE RESERVE MANAGEMENT STRATEGIES

3.1. Scientific monitoring and data collection

Scientific monitoring and data collection is an important part of the protection of wildlife and nature reserves. Through systematic monitoring and data collection, managers can better understand the dynamic changes of ecosystems and develop more effective protection measures. Taking Yellowstone National Park in the United States as an example, Yellowstone National Park is the first national park in the world to be established, with rich wildlife resources. In 1995, Yellowstone National Park reintroduced gray wolves and launched a long-term scientific monitoring program to assess the impact of gray wolves on ecosystems. In this process, management first determined the dynamic changes of the gray wolf population in the region, revealed its impact on other species (such as elk, bison, etc.), and explored its impact on the health of the entire ecosystem. In order to achieve the above objectives, the research group used a variety of monitoring methods, such as radio collars, camera capture and fecal DNA analysis. Radio collar tracking is a common method for monitoring wild animals. Managers put radio collars on gray wolves and use satellite signals to track their range of activities and migration routes in real time. From 1995 to 2020, the team tracked more than 100 gray wolves and recorded their range of activities. It was found that the activity range of the gray wolf group gradually expanded from 50 square kilometers at the beginning to 200 square kilometers, reflecting the process of gradual adaptation and expansion of the gray wolf group to new areas. The camera trap is a non-invasive monitoring tool that can record the habits and numbers of animals. Managers set up a large number of camera traps in the gray wolf area to regularly analyze the collected image data. These data not only help to confirm the number and individual identification of gray wolves, but also help to record their predation behavior and their relationship with other species. Managers found that grey wolves are increasingly preying on elk, which has reduced the number of elk from 19,000 in 1995 to about 12,000 in 2020. This change has a greater impact on vegetation restoration, as fewer elk reduce the pressure on plants. Fecal DNA detection technology is a new technology that has emerged in recent years. It can obtain genetic information and health status of species by analyzing DNA information in feces. Managers regularly collect fecal samples of gray

wolves and perform DNA analysis to determine their individual characteristics, population structure and genetic diversity. Fecal DNA analysis showed that the gray wolf population in Huangshi National Park had abundant genetic diversity, which was crucial for its long-term survival and adaptation to environmental changes. Therefore, scientific monitoring and data collection are the basis for ensuring the scientific and effective management of nature reserves.

3.2. Habitat restoration and protection

Habitat restoration and protection is the focus and difficulty of nature reserve management. The destruction of the ecological environment is the main reason for the decline of biodiversity. Restoration and protection of the ecological environment can not only protect certain specific species, but also enhance ecosystem functions. The first step of ecological restoration is to evaluate and evaluate the ecological environment of the damaged area. People need to do detailed ecological surveys to collect data on soil, water quality, plants, animals, etc., which will be used to develop restoration plans. Taking a wetland restoration project in California as an example, after a large-scale ecological survey, it was found that the wetland area in this area was reduced by 90 %, and many animals and plants were seriously affected. After that, a detailed recovery plan should be formulated, which should include specific purposes, measures and time limits. The goal of the California Wetland Restoration Program is to restore at least 50 % of the wetland area, while improving water quality and biodiversity. These measures include the reintroduction of native plants, the control of invasive alien species, and the improvement of water quality. The implementation of the recovery plan requires multi-party cooperation and support. Government agencies, NGOs, scientists and local communities should be involved. In terms of wetland restoration projects in California, the state government and various environmental groups have jointly invested more than $ 100 million to restore wetlands. In addition, the local community also attaches great importance to making residents aware of the importance of wetlands through volunteer activities and educational activities, and actively engaged in reconstruction work. At the same time, monitoring and evaluation are very important in the recovery process. Through regular monitoring, the effect of governance measures can be evaluated and adjusted according to the actual situation. In the California Wetland Restoration Program, scientists perform ecological monitoring every six months to record changes in vegetation coverage, water quality, and the number of wildlife. The data show that in the past five years, the wetland area has increased by 40 %, the water quality has been significantly improved, and many endangered species have been restored. The long-term protection of the final habitat is also crucial. After the restoration project is completed, an effective protection mechanism should be established to prevent its re-destruction.These measures include formulating and implementing strict environmental regulations, establishing protected areas, strengthening patrols and management, and continuing community education. In California, wetland restoration is zoned as a permanent reserve, which is regularly inspected by the state government and environmental organizations to ensure that the wetlands are not contaminated or encroached upon.

3.3. Legal protection and law enforcement

Globally, protecting wildlife and establishing nature reserves is an important part of global environmental protection. With the intensification of human activities, many wild animals and plants are facing the threat of habitat loss, illegal hunting and climate change. In order to cope with this challenge, many countries have formulated corresponding laws and regulations, and increased law enforcement. In recent years, countries around the world have strengthened the protection of wildlife. Taking the Convention on International Trade in Endangered Species of Wild Fauna and Flora as an example, since its entry into force in 1975, 183 countries have joined the Convention, including major exporters and importers of wildlife. The CITES has protected about 37,000 species of plants and animals through strict international trade controls. In addition, the United States ' ' Endangered Species Act ', South Africa 's ' National Environmental Management: Biodiversity Act ' and other

countries have also formulated corresponding laws and regulations. These two laws set out the legal basis for the protection of wildlife, and also set out severe penalties to combat illegal hunting and trading. However, legislation is only the first step, and it is equally important to strengthen law enforcement. According to the data released by the World Wildlife Fund, the illegal wildlife trading market in the world is as high as $ 20 billion per year. To this end, all countries have increased law enforcement. Kenya 's government seized a shipment of 2.5 tons of ivory at the capital 's Nairobi International Airport in 2019, arresting several criminals suspected of smuggling. This case not only shows Kenya 's determination to crack down on illegal trade in wildlife, but also shows that international cooperation in combating illegal trade is very important. In Australia, a striking example is the management of the Great Barrier Reef. The Great Barrier Reef is one of the world 's largest and most biodiverse coral reef ecosystems and the world 's largest coral reef. In recent years, the Great Barrier Reef ecosystem is facing severe challenges due to factors such as climate change and human activities. The Australian government has enacted the Great Barrier Reef Marine Park Act to establish the Great Barrier Reef Marine Park Authority to protect this precious natural resource. The agency is responsible for the conservation and management of the Great Barrier Reef, including monitoring the health of coral reefs, implementing environmental protection measures, and combating illegal fishing and sabotage. In 2016, the Australian Customs Service, in conjunction with the Australian Federal Police and Customs Department, uncovered an illegal fishing case. The authorities found a foreign fishing boat fishing illegally near the Great Barrier Reef and seized it. Afterwards, the captain and crew were prosecuted and punished according to law. This case not only shows Australia 's determination to maintain the Great Barrier Reef, but also shows the importance of multi-sectoral cooperation in combating environmental crime. Therefore, the protection of wildlife and nature reserves should not only have legal protection, but also strengthen law enforcement. In order to effectively curb illegal hunting and trade and protect valuable natural resources and biodiversity, countries should strengthen relevant laws and regulations and strengthen law enforcement. However, in order to achieve success, it is necessary to carry out extensive international cooperation to jointly cope with global environmental challenges.

3.4. Community participation and education

In recent years, the protection of wild animals and plants and the management of nature reserves in the world have attracted more and more attention. Scientific research shows that community participation and education are of great significance to biodiversity conservation and ecological balance. Improving the awareness and participation of community residents in environmental protection can effectively reduce the adverse effects of human activities on the natural environment and achieve the goal of sustainable protection of wildlife. Community participation refers to the active participation of local residents in the management and protection of nature reserves to promote the sustainable development of nature reserves. The results show that community participation can effectively improve the effectiveness of protected area management. Taking the Masai Mara National Reserve in Kenya as an example, the participation of local Masai people in the patrolling and management activities of the reserve not only effectively reduces poaching, but also facilitates the reproduction of wildlife. In protected areas with community involvement, poaching has fallen by about 60 %, according to a 2019 survey. This significant reduction not only protects endangered species, but also improves the eco-tourism value of the reserve. This ' win-win ' situation shows that community participation is of great significance to nature conservation. And in the community to strengthen the awareness of environmental protection and participation, education is an important way. Through various forms of environmental education activities, people can realize the importance of protecting wildlife and stimulate people 's enthusiasm for protecting wildlife. Taking Kruger National Park in South Africa as an example, local governments have cooperated with non-governmental organizations to organize various environmental education activities, including school courses, community lectures, and ecological sightseeing tours. According to statistics, after three years of publicity and promotion, the local people 's awareness rate of environmental protection

knowledge has exceeded 40 %, and they have actively participated in the management of protected areas. At the same time, more and more tourists have a strong interest in ecotourism, and the annual tourist volume has increased by about 20 %. Therefore, through educational activities, it can not only enhance the environmental awareness of community residents, but also promote the development of eco-tourism, so that the protected area can obtain more economic benefits.

4. CONCLUSION

To sum up, the protection and management of wildlife and nature reserves is a complex and urgent work, which needs the joint efforts of the government, research institutes, non-governmental organizations and all sectors of society. In-depth understanding of the dynamic changes of the ecosystem, and accordingly formulate corresponding protection measures. At the same time, pay attention to the participation of the whole people, and truly achieve the goal of sustainable development. In the future, people should continue to strengthen international cooperation to jointly deal with various environmental problems and ensure that every creature can have a safe habitat. Let everyone join hands to leave a colorful, harmonious and beautiful nature for future generations.

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