

Korea Environmental Policy Bulletin

Conservation and Sustainable Use of Biological Resources

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Summary

After the recognition of national ownership of biological resources pursuant to the Convention on Biological Diversity (CBD), competition between nations has been intensifying to acquire biological resources. The Korean government has increasingly recognized the importance of biological resources, and has made efforts to improve biodiversity in Korea and increase national competitiveness. In particular, the Ministry of Environment established a mid- to long-term master plan for the systematic management of biological resources on the Korean Peninsula, and performed various activities and policies for the conservation and sustainable use of biological resources : “The Flora and Fauna of Korea” publication project, establishment of the National Institute of Biological Resources (NIBR), effective conservation of major eco-regions, restoration of endangered species, participation program for international cooperation and so on.

I. Background

After the approval of national ownership of biological resources pursuant to the Convention on Biological Diversity (CBD), competition between nations has been intensifying to acquire sovereignty over biological resources. Advanced countries are exerting efforts to preserve biological resources within their borders and to acquire foreign biological resources, as acquisition of proprietary biological resources is directly connected to national competitiveness in line with the creation of new species and new materials that arising from increased biotechnology development. The Korean government entered this convention on October 1994 with high interest in biological resources since the conclusion of the CBD in 1992. The government began partial support of biological resource projects through the Research Resource Center at the National Research Foundation of Korea, which established in 1995. The government has increasingly recognized the importance of biological resources, and has made efforts to improve biodiversity in Korea and increase national competitiveness by nurturing biological resources through species research and systematic conservation and management of national biodiversity. Securing sovereignty for biological resources has become a core part of the realization of “Bio Korea” in the future, and to take the next step from existing policies that are centered on preservation and securing of biological resources (including research, and

securing of specimens etc.). The government will be continuously pursuing a concrete strategy from 2010. The comprehensive conservation plan for biological resources, as part of its vision of co-existence for humanity and wildlife, includes the rearrangement of survey and excavation systems, establishment of conservation and management systems, and construction of a use and application system.

After the UN declared 2010 as the International Year of Biodiversity (IYB), the Ministry of Environment established a mid-to long-term master plan for the systematic management of biological resources on the Korean Peninsula. To this end, the Korean government convened an organizing committee composed of representatives of related government departments, organizations, academic associations, community groups, and international organizations etc. The committee performs various activities for the conservation of biological resources and biodiversity, including publicity, scholarship, and education. The committee also organizes various international events and related policies and projects both at home and abroad in commemoration of the UN’s International Year of Biodiversity, and these are expected to contribute to improvement of biodiversity conservation awareness and expansion of participation. The main aspects of the biological resource management policy being pursued in Korea are as follows.

II. Status and results of the biological resources management policy

The Korean government has engaged in various efforts to conserve and establish sovereignty over its indigenous biological resources as awareness of the importance of biological resources grows. In particular, the government has established a comprehensive national master plan and legal system for biological resources, which had been previously sporadically managed at the level of individual departments. To this end, the Baekdudaegan Protection Act (2003) and the Protection of Wild Fauna and Flora Act (2004) were introduced and a committee for integrated management of national biological genetic resources was convened in 2005. The government also established the National Biological Resources Information Center and drafted a Master Plan for the Expansion and Restoration of Endangered Species in 2006. In 2007, the Master Plan for the Acquisition, Management, and Utilization of Biological Resources was introduced, and is currently awaiting legislative approval as the Framework Act on Securing, Management, and Utilization of Living Research Resources.

In particular, the “Master plan for Biological Resource Conservation” established in 2005 was intended to maximize the value of biological resources under the vision of “Diverse and Abundant Biological Resources, and Co-existence of Humanity and Wildlife” by constructing an advanced biological resources management system. To this end, the plan is divided into 3 main parts: 1) survey and excavation of biological resources, 2) establishment of conservation and management systems for biological resources,

and 3) construction of systems for biological resources conservation. About 28 action plans for implementation have been established by uncovering research topics in each field to be performed over the next 10 years.

- ① Survey and excavation of biological resources (Total eleven action plans)
 - Survey and excavation of biological resources (five action plans): Establishment of a national natural environment survey system, performance of long term eco studies of the Korean peninsula, survey and exploration of native species, survey and exploration of indigenous species on the Korean peninsula, survey and exploration of overseas biological resources
 - Classification and acquisition of biological resources (six action plans): Classification and acquisition of specimens of native species, classification and acquisition of specimens of indigenous species on the Korean peninsula, research on ecological characteristics of native and endemic species, genetic analysis on main species and securing of biological genetic resources, drafting of a biological resource distribution map for the Korean peninsula, determination of Korean peninsula Biota and an illustrated guide to biological resources
- ② Conservation and management systems for biological resources (Total eleven action plans)
 - Reinforcement of conservation measures for biological resources (five action plans) :

Establishment of wildlife conservation and management systems, research on endangered species and designation and protection, conservation of habitat and breeding grounds for biological resources, implementation of restoration measures for endangered species, implementation of eradication plans for poaching and overhunting/overharvesting of wild species

- Securing of conservation facilities for biological resources (two action plans): Establishment of the National Institute of Biological Resources, establishment and operation of a National Institute of Biological Resources for each region
 - Establishment of a management and utilization base for biological resources (four action plans) : Strengthening of controls on the export of biological resources out of the country, scientific and systematic management on disturbing ecosystems, strengthening of wild animal disease control, establishment of a biological resource utilization base
- ③ Construction of a system for biological resources conservation (Total six Action plans)
- Establishment of conservation and management infrastructure (four action plans): Fostering and securing of specialized human resources for biological resource management, support and fostering of domestic biological resource research institutions, establishment of overseas biological resource acquisition systems, strengthening of private sector cooperation and public outreach and education
 - Establishment of scientific conservation and management systems (one action plan): Establishment of a biological resource database and information network

- Strengthening of sovereignty for biological resources (one action plan): Performance of national acquisition plans for national biological resource sovereignty

In June 2009, 11 government ministries including the Ministry for Food, Agriculture, Forestry and Fisheries; the Ministry of Knowledge and Economy; the Ministry of Land, Transportation and Marine Affairs; the Rural Development Administration; and the Korea Forest Service, along with the Ministry of Environment jointly drafted the “National Biodiversity Strategy and Implementation Plan.” It is intended to achieve three main goals, including biodiversity conservation, sustainable use of biodiversity, and fair distribution of benefits arising from genetic resources between nations. This will be particularly significant in preparing actively for the CBD COP10 to be held in Nagoya Japan in 2010, as well as for Post- 2010.

Furthermore, the “Mid to and Long Term Master Plan for Biological Resources” currently being drafted for the purposes of creating a management system for endangered species, prevention of export of certain species, and systematic protection of wild animals will be enforced from 2010 to 2020. The Master Plan establishes national sovereignty over national biological resources, including plans to expand the number of species whose export requires approval from the current 1,500 species (2010) to 3,000 species (2014). Moreover, the Korean government will make consistent efforts to attain targets for exploration and conservation of biological resources, including the commencement of construction of the National Institute of Nakdong River Biological Resources (Sangju, Opened on 2012).

III. Main policies

The following are the main policies to be performed by the Korean government to conserve and engage in sustainable use of biological resources.

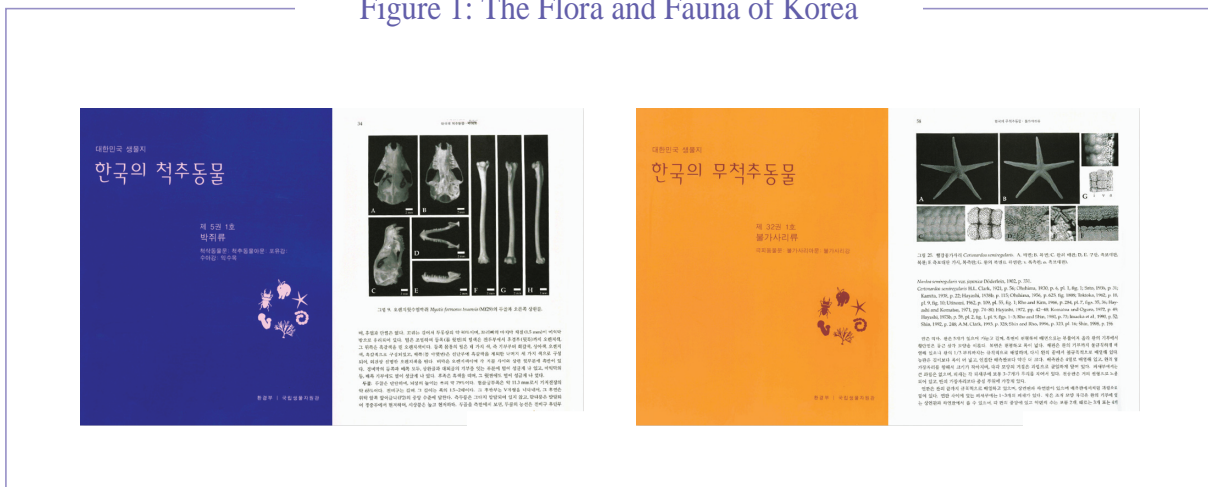
1. Performance of full-scale studies for biological resource acquisition

The Korean government has been examining the status of native species and has been continuously performing research to secure domestic and overseas biological resources. Various projects are being performed for the purposes of systematic research and the construction of a base for utilization of acquired specimens. The Survey and Excavation of Native Species performed in 2006 was devised to complete the list of native species on the Korean peninsula and to systematize biological resources information by establishing a

biological resource management network. In the first year, 102 new species and 449 previously unrecorded species were registered. In 2007, the government requested information sharing as part of the effort to fairly share benefits with nations with experience in using and providing genetic resources through research on overseas biological resources.

In particular, as a result of the Korea Biota Publication Project underway from 2006, the government released a series of 16 books in both Korean and English, on “The Flora and Fauna of Korea” in August 2010, which contained comprehensive information on domestic species, including their classification, ecology, distribution, and their relationship to humans. The research team consisted of more than 40 experts, including professors of biology, who contributed to the project over the last four years. The volumes in this series includes a total of 1037

Figure 1: The Flora and Fauna of Korea



Source: National Institute of Biological Resources(NIBR)

species, including 22 chiropteran vertebrates like the copper-winged bat (commonly known as the “golden bat”), as well as fungal species (“aphyllophorales”) that decompose wood and produce useful substances like biodegrading enzymes. The publication of this volume provided an opportunity to improve the level of Korea’s biological resources management, as well as an opportunity to upgrade the taxonomy of Korea’s species, while simultaneously allowing Korea to assert sovereignty over its biological resources. Furthermore, the “Flora and Fauna of Korea” is expected to be important evidence in attaining certification of exclusive ownership of Korea’s native species in preparation for international conflicts arising from the possession and use of biological resources in the 21st century. The “Flora and Fauna of Korea” is also expected to be valuable for research in practical applications of biological resources, including development of natural substances, and development of genetic resources and medicines etc.

2. Establishment of the National Institute of Biological Resources(NIBR)

After the ratification of the UN Convention on Biodiversity, the Korean government, in cooperation with the Ministry of Environment and the academic community, began to pursue the creation of a specialized organization at the national level to systematically conserve and manage biological resources and to prevent their unlawful export pursuant to the recognition of national ownership rights over biological resources. The National Institute of Biological Resources, which was planned from 2002 is expected to play a central role in the systematic collection, excavation, conservation, and management of national biological resources. After its establishment in 2007, the NIBR has continuously performed various activities, including the establishment of support systems for the biotech industry, operation of a species classification

Figure 2: National Institute of Biological Resources(Left) and exhibition hall(Right)



Source: National Institute of Biological Resources(NIBR)

service, activation of specimen collection both at home and overseas, and creation of an inventory of national biological resources.

Aside from the foregoing, diverse plans are underway to establish additional organizations to conserve and manage biological resources, and these are expected to widen opportunities for people to participate in efforts to conserve biodiversity. The National Institute of Nakdong River Biological Resources will be established in Sangju, Gyeongsangbuk-dom, and will open in 2013, and is aimed at strengthening sovereignty over biological resources, completing the construction of a conservation system, and providing opportunity for people to enjoy nature while providing a framework for regional development. The National “Ecoplex” to be established at Seocheon-gun in 2012 will perform a central role in research on Korea’s ecosystem and changes therein, and will perform future eco resource research, ecosystem change research, protection and restoration of rare and endangered

species, as well as supervision of wise use of ecological resources.

3. Effective conservation of major eco-regions

“Protected areas” are one effective policy method for conservation and effective management of eco-regions that contain significant biological resources. Protected areas have increased rapidly over the past 30-40 years, and as of 2003, 12% of the world’s landmass has been globally recognized as protected, including the three major designations of World Natural Heritage Sites, Biosphere Reserves, and Ramsar Wetlands. Korea also designates and controls various protected areas, and won recognition of its Biosphere Reserves, UNESCO World Heritage sites, Ramsar Wetlands, National Parks, Wetland Protected Areas, and the Demilitarized Zone (DMZ). A UNESCO Biosphere Reserve was designated at Seorak Mountain in

Figure 3: Seongsan Ilchulbong Tuff Cone(Left) and Dangcheomuldonggul Lava Tube(Right)



Source: Jeju Special Self-Governing Province

1982, at Jeju island in 2002, and at Shinan Dadohae in 2009, with the Gwangneung forest was additionally designated in June, 2010. In 1997, Korea became the 101st member of the Ramsar Convention when the Daeamsan Yong Wetlands were registered, and 14 locations have now been so far designated. The DMZ has become a major site for bio geography due to its diverse ecosystems, and has won international interest due to its function as a habitat for endangered and protected species and a site for important natural landmarks. This provided an opportunity to prove that Korea is a rich habitat for biodiversity. The Ministry of Environment is planning to expand protected areas in important eco-regions, including wetlands, coastal sand dunes, and uninhabited islands etc. Wetland Protected Areas will be expanded from 12 locations (2008) to 22 locations by 2011, and registered Ramsar wetlands will be expanded from 11 places (2008) to 16 places by 2011.

The government is actively pursuing harmonization of thorough conservation efforts with sustainable use of these areas. Policy is focused on conserving the core protected area while activating the local economy in other areas in accordance with their regional characteristics. The Ministry of Environment plans to nurture eco-tourism into a new growth engine for local economies. The government is pursuing promotion of biodiversity through expansion of biodiversity management agreements with local residents in migratory bird habitats, purchase of land in protected wetlands, and resident support projects for national parks. Ten model ecotourism projects are underway to protect biological resources and revitalize the local economy,

including the development of a DMZ-Four Major Rivers Tourism Course, and a national park voucher system. For the purpose of strengthening the foundation for eco-tourism, the ministry will sign a memorandum of understanding for the promotion of eco-tourism with the Ministry of Culture, Sports, and Tourism and the Business Committee for Sustainable Development and devise an Eco Tourism Charter and Eco-Tourism Rules. Furthermore, the ministry will designate and further develop 100 best eco-tourism programs. Notably, Jeju island achieved the world's first "Triple Crown" for UNESCO protected areas with a Biosphere Reserve (2002), World Natural Heritage Site (2007), and Global Geopark (2010). Jeju island has been trying to develop an international brand to increase awareness of its environmental assets to the international community. This is expected to expand Korean tourism awareness and increase the number of visitors to Korea.

4. Restoration of species to prevent extinction

Many biological resources have been endangered by actions that reduce biodiversity, including indiscriminate development and damage to the natural habitat. Plans for increasing the population and restoring the status of endangered species are of high priority, along with fundamental wildlife protection to secure biodiversity, conserve biological resources, and maintain a stable ecological balance. Accordingly, the Korean government established a "Master plan for Expansion and Restoration of Endangered Wild Flora and Fauna" as a long term master plan for improving domestic biodiversity in 2006. This

Figure 4: Moon bear (Left) and Houttuynia(Right)



Source: Report of Ministry of Environment

is a long term plan to be performed from 2006 to 2015, and its main details are;

- Precise surveys and monitoring of the distribution, habitat, ecological characteristics, relationship to humans, and risk factors for endangered species
- Designation of priorities and eligible species for expansion and restoration based on available technologies, urgency, and relationship to humans
- Staged expansion and restoration plans for each species in consideration of its ecological characteristics
- Development of restoration technology
- Provision of a restoration road map for habitat, level of restoration technology, restoration potential, and priority, and provision of enforcement plans

The government has established a plan for expansion and restoration of endangered species for each national park designated as a repository

of biological resources, which function as a focal point for species preservation. Restoration projects have been performed by selection of one animal endangered species (a “representative species”) in each park, such as the moon bear at Mt. Jiri national park, the musk deer at Mt. Odae National Park, and the mountain goat at Mt. Wolak National Park. Various plant species have also been chosen, such as *Leontopodium Coreanum*, *Arctous Ruber*, and *Rhododendron Aureum Georgi Europaea* at Mt. Seorak National Park, *Lilium cernum* and *Berchemia berchemiaefolia* at Mt. Sokri National Park, and *Smilacina Bicolor Naka Europaea* at Mt. Jiri National Park. In addition to this, joint studies and new technology development have been performed jointly by industry, academy, and research centers to preserve and restore endangered species, while a base for biological resources management is being built through cooperative projects such as gene exchange between the International Union for Conservation of Nature and advanced countries, introduction of

new technologies, and joint research. Organizations for restoration of species have expanded from five in 2003 to thirteen in 2007. Wild animal rescue centers which perform a key role for disease research and treatment of wild animals have been established, and the current three centers opened in 2007 (Gangwon, Jeonnam, Gyeongbuk) will be expanded to 16 in cities and provinces by 2011.

5. Inducement of international cooperation and civil participation

Korea has entered into the Convention on Biological Diversity (CBD), the Convention on International Trade in Endangered Species (CITES) and the Ramsar Convention on Wetlands. The government has made strong efforts to improve international cooperation to conserve biological resources and has strengthened cooperation systems among countries, particularly with respect to migrating bird protection agreements. After entering an agreement for migrating bird protection with Russia (337 species) in 1994, Korea concluded agreements with Australia (2006), and China (2007). Joint research projects for updating of the migrating bird list and for the Red-Crowned Crane have been held seven 7 times from 1996 to 2004 as a result of cooperative meetings for Korea-Japan bird protection. International symposia for migrating bird protection have been held steadily by local governments and NGOs, including the International Symposium on Conservation of the Mouth of the Nakdong River (2004, Busan), the International Duck Symposium for East Asia-Siberia (2010, Seosan), and the International Symposium for Platalea Minor (2005, Foundation

for Environmental Movement). In addition to this, the 10th Meeting of the Conference of Parties to the Ramsar Convention in Changwon in 2008 proved to be an opportunity to increase awareness of Korea's biological resource conservation efforts. The next step for COP10 is currently underway, including operation of an East Asia Ramsar Regional Center and establishment of a performance network for the Changwon Declaration. Furthermore, the Korea government has exerted its best efforts to host the WCC (World Conservation Congress) successfully, including the establishment of special laws for WCC support. The WCC is held every fourth year to discuss nature conservation, biodiversity, and climate change under the International Union for Conservation of Nature (IUCN), the largest organization for nature conservation, and will be held in Jeju, Korea 2012. The 2012 WCC, a kind of environmental Olympics, will furnish a foothold to spread the achievement and experience of green growth while supporting development and promoting Korea's environmental policy.

Policies to expand and induce participation in conservation of biological resources have been strengthened. Bases for regional study, education, and promotion have been acquired by establishing the Ecoplex, the National Institute of Nakdong River Biological Resources, and the ecology research centers at Uleungdo and Dokdo. The government is also making efforts for outreach, including fostering biological resource conservation leaders, holding biological resource festivals, and establishing biological resource promotion networks. Such policies are expected to improve awareness of the importance of biological resource conservation and to develop leadership in the establishment of domestic and foreign cooperation systems.

Figure 5: International Symposium Poster(Left) and Teenager Leader Commissioner Ceremony for Biological Resources Conservation (Right)



Data: Report of Ministry of Environment

IV. Future Plan

In order to systematically manage and protect the biological resources, the Ministry of Environment is planning to establish the master plan including action plan by 2020. And the government is planning to establish the gene bank for wildlife, also, five or more nature reserves will be designated every year and the environmental conditions of 20 national parks will be thoroughly investigated to identify areas which require restoration and then restoration will begin in the mid- to long-term. On the other hand, for the

wellbeing of Korean people, the Ministry of Environment will provide more opportunities to experience beautiful nature such as DMZ and wetland in the form of ecological tour programs.

The conservation and sustainable use of biological resources is acting as a foundation for sustainable development. Taking this into consideration, Korea's biological resources policies will contribute to addressing the environmental crises and leading green growth for the future.

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