

Fourth National Report
to the United Nations Convention on Biological Diversity

Japan

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Chapter 1

Overview of Status, Trends, and Threat to Biodiversity

1. Biodiversity in Japan
 - 1.1 Features of biodiversity in Japan
 - 1.2 Status of threatened wildlife
 - 1.2 Review of the Red List
2. Structure of the biodiversity crisis in Japan
 - 2.1 First crisis (brought about by human activities and development)
 - 2.2 Second crisis (brought about by reduced human activities)
 - 2.3 Third crisis (brought about by artificially introduced factors)
 - 2.4 Crisis brought about by global warming
3. Biodiversity in each geographical area
 - 3.1 Natural mountain areas
 - 3.2 *Satochi-satoyama* areas/countryside
 - 3.3 Urban areas
 - 3.4 River/wetland areas
 - 3.5 Oceanic/coastal areas
 - 3.6 Island areas

Chapter 2

Status of National Biodiversity Strategy

1. National Biodiversity Strategy in Japan
 - 1.1 The background of the formulation of the Third National Biodiversity Strategy
 - 1.2 Structure and character of the Third National Biodiversity Strategy
 - 1.3 Targets and Basic Policies for National Strategy
 - (1) Three targets
 - (2) Grand design for the National Land and the Centennial Plan
 - (3) Five basic perspectives
 - (4) Four basic strategies
 - (5) 2010 Biodiversity Target and the National Biodiversity Strategy
 - 1.4 Check and Review of the National Strategy
 - 1.5 Basic Act on Biodiversity of Japan and the National Strategy
2. Implementation of the National Biodiversity Strategy
 - 2.1 Measures and policies for national land area
 - (1) Ecological Network
 - (2) Conservation of priority areas

- (3) Nature restoration
 - (4) Agriculture, Forestry and Fisheries
 - (5) Forests
 - (6) Countryside and *satochi-satoyama* areas
 - (7) Urban Areas
 - (8) Rivers and wetlands
 - (9) Coastal Areas and Oceanic Areas
- 2.2 Cross-sectional and fundamental measures
- (1) Protection and management of wildlife
 - (2) Sustainable Use of Genetic Resources
 - (3) Promotion and implementation
 - (4) International Cooperation
 - (5) Information management and technology development
 - (6) Measures against global warming
 - (7) Environmental Impact Assessment
3. The implementations of the National Strategy to cope with the articles and sectoral and cross-sectoral challenges in the Convention
- 3.1 Cope with the articles in the Convention
- 3.2 Cope with sectoral and cross-sectoral challenges

Chapter 3

Mainstreaming of Biodiversity in Society

- 1. Examples of governmental measures
- 2. Efforts by local governments
- 3. Efforts by private enterprises
- 4. Efforts by nongovernmental organizations (NGOs) and other bodies
- 5. Efforts by scientific bodies
- 6. Cooperation of diverse stakeholders

Chapter 4

Progress in the implementation of the 2010 Biodiversity Target and the Strategic Plan for the CBD

- 1. Progress towards the 2010 Biodiversity Target
- 2. Progress towards the goals and objectives of the Strategic Plan for the CBD
- 3. Conclusion

Appendix I - Information concerning reporting Party and preparation of national report

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Chapter 1

Overview of Status, Trends, and Threat to Biodiversity

1. Biodiversity in Japan

1.1 Features of biodiversity in Japan

The number of known species of living things in Japan is estimated to be over ninety thousand, and it exceeds three hundred thousand when unclassified species are included. Japan, with a small land area of about thirty-eight million hectares, has a rich biota. Japan also possesses a high rate of endemic species. Nearly 40% of land mammals and vascular plants, 60% of reptiles, and 80% of amphibians are endemic species. Japan has a rich natural environment; it is the only developed country in which wild monkeys live, along with many other medium and large wild animals, such as bears and deer.

These features of Japan's biota have been formed because diverse habitat environments have been created there throughout geological history. Japan's land mass is three thousand kilometers long from north to south; the country has four definite seasons due to monsoons, a vertical drop from coasts to mountains, thousands of islands, both connected to and separated from the continent, and experiences various natural disturbances, such as the eruption of volcanoes, the flooding of precipitous rivers, and the occurrence of typhoons. These disturbances have been reduced by the prevention of floods through improved riverbanks, while partly artificial environments have been created through agriculture and forestry, allowing the species that live in such environments (pasque flowers, *shijimiaeoides divinus*, certain types of butterflies, etc.) to exist.

Diverse environments have also been formed in the sea, coupled with the landform and the existence of the Kuroshio Current, the Oyashio Current, and the Tsushima Current extend from north to south along the Japanese archipelago. In coastal areas exist diverse ecosystems; these have long indented coastlines with a length equivalent to three-fourths of the earth's circumference, along with rich biotas such as tidal flats, underwater forests, and coral reefs. Japan also possesses more fish species in its nearby seas than either the Mediterranean Sea or the west coast of North America, both of which are located at the same latitude. The seas close to Japan have a rich diversity of species, including fifty of the world's one hundred twelve marine mammal species

(forty whales and dolphins, eight seals and sea lions, plus sea otters and dugongs) , about one hundred of the world's approximately three hundred sea bird species, about three thousand seven hundred species (25%) of the world's roughly fifteen thousand sea fish species. In addition, one hundred four species of seabirds have been identified, thirty-eight of which breed in Japan. Further, 19% of the world's bird species live in Japan and are categorized as seabirds. This ratio is more than 7% of the worldwide average.

According to the results of the National Survey on the Natural Environment, the one-to-fifty thousand scaled actual vegetation map that covers the entire land area of Japan is being produced. With respect to the percentage of each vegetation type in the total land area, forests (including natural forests, secondary forests close to natural forests, secondary forests, and plantations) account for 67%, which is as high as Northern European countries such as Sweden (70%) and which is overwhelmingly high among developed countries including the United Kingdom (12%) and the United States (33%). Natural forests account for 17.9%, while natural vegetation (natural forests plus natural grasslands) accounts for 19% of the total forest area—nearly two-thirds of the total land area of Japan. These natural vegetation areas are distributed mainly in regions that are hardly tampered with by humans, such as steep mountains, peninsulas, and islands. In flatlands and on gently contoured mountains, percentages of secondary vegetation—such as secondary forests and secondary grasslands, plantations, and cultivated lands—are high. Ecosystems at various levels exist in various latitudinal, altitudinal, and aqueous environments, providing a very rich diversity of ecosystems. In particular, in order to allow plants and insects that thrive in bright environments to live in Japan, with its large amount of precipitation and pronounced natural transitions, it is important that ecosystems such as grasslands—including wetlands, secondary grasslands, floodplains, and secondary forests—remain bright. It can be said that such ecosystems characteristically result from a life in harmony with the climate, geohistory, and nature, but we are losing them in many areas. .

* Figure 1. Vegetation status

1.2 Status of threatened wildlife

The Red List issued by the Ministry of the Environment, which formulates lists of threatened species of wildlife, classifies more than 30% of reptiles, amphibians, and

brackish/freshwater fishes; more than 20% of mammals and vascular plants; and more than 10% of birds living in Japan as threatened species. Many of these species live in the Nansei Islands and the Ogasawara Islands, and efforts are being made for the protection and proliferation of some species, including the Okinawa rail (*Gallirallus okinawae*) and Tsushima leopard cat (*Prionailurus bengalensis euptailurus*). In addition, as typified by killifish, many familiar species living in *satochi-satoyama* areas and those living in waterside areas are also designated as threatened species. Similar to Asiatic black bears (*Ursus thibetanus*) in Shimokita Peninsula and the Western Chugoku region, some wildlife species are being threatened by the regional fragmentation of habitats. As the causes of the decrease in wildlife species, the destruction and fragmentation of habitats, environmental changes due to decreased approach by humans toward nature, overexploitation, and alien species are indicated. On the other hand, there are also species that have become less threatened (primrose, water fringe, etc.) through conservation efforts; however, it is necessary to continuously conserve them.

1.3 Review of the Red List

The Ministry of the Environment began reviewing the Red List in 2002 and published the new Red List for four taxa (birds, reptiles, amphibians, and other invertebrates) out of ten taxa in total in December 2006 and for six taxa (mammals, brackish/freshwater fish, insects, shellfish, plant 1, and plant 2) in August 2007. As a result, the number of threatened species increased to 3,155 from 2,694 (before review).

With regard to mammals, the number of threatened species excluding genuine marine species (except dugongs, which depend on neritic areas) decreased to forty-two (minus six). This is because the ranking of thirteen of the forty-six bat species (majority of assessed mammals) lowered due to increased data accumulation. Iriomote cats (*Mayailuras iriomotensis*) were ranked higher because they are decreasing in number. As a result of adding dugongs to the assessment target, they were designated as threatened species. On the other hand, *Macaca fuscata yakui* (a subspecies of Japanese macaque [*Macaca fuscata*] living on Yaku Island) and the Shimokita populations of *Macaca fuscata fuscata* (subspecies of Japanese macaque, living in Honshu, Shikoku, and Kyushu [except Yaku Island]), which were listed as regional populations of species, were not included in the ranking because their populations are the increasing.

With regard to birds, the total number of threatened species increased to ninety-two (plus three). Further, there are eleven species that were ranked lower than before, but twenty-six species (including nine species that were newly designated as threatened species) were ranked higher than before. Thus, many species were ranked higher than before. Many of the higher ranked species live in grasslands, scrub forests, or island areas. These species may be affected by the deterioration of habitat environments in these areas, along with alien species in island areas. As for birds of prey, for example, grey-faced buzzard eagles (*Butastur indicus*) living mainly in *satochi-satoyama* areas were designated as threatened species, and *accipiter gentilis* was shifted from a threatened species to a near-threatened species.

With regard to reptiles, the number of threatened species increased to thirty-one (plus thirteen), and thirty of those species live in the Nansei Islands. Thus, it can be said that many reptiles in the Nansei Islands are on the point of extinction. Deterioration of habitat environments and effects of alien species have been indicated for many species, while some species may be affected by their capture for use as pets.

With regard to amphibians, the total number of threatened species increased to twenty-one (plus seven). Many of the higher ranked species may be affected by small-scale development or alien species, and some of them may be affected by capture for use as pets. In particular, eleven of the nineteen species of salamander living in Japan were designated as threatened. The deterioration of habitat environments is considered to be the cause.

In the case of brackish/freshwater fish, the total number of threatened species increased to one hundred forty-four (plus sixty-eight). This is because many species living in the Nansei Islands were assessed, and Japanese bitterlings (Pisces, Cyprinidae) living in the countryside were ranked higher than before. In addition, Nigorobuna (*Carassius auratus grandoculis*) and Gengoro buna (*Carassius cuvieri*) in Lake Biwa were newly designated. These species may be affected by the deterioration of their habitat environment and the introduction of alien species, including largemouth bass (*Micropterus salmoides*). Furthermore, musashi ninespine sticklebacks (*Pungitius pungitius*) and Venus fish (*Aphyocypris chinensis*) that live in limited habitats were once again designated as threatened species.

In the case of insects, the total number of threatened species increased to two hundred

thirty-nine (plus). In particular, insects living in the Ogasawara and Nansei Islands are facing a serious crisis due to of alien species, and many diving beetles have been ranked higher than before. This may be due to the deterioration of their habitat environments and the effects of their capture.

In the case of shellfish, the total number of threatened species increased to three hundred seventy-seven (plus one hundred twenty-six). This has occurred because many of the newly assessed species living in brackish areas, such as river mouths, were designated as threatened species, and the inhabitation status of terrestrial snails has deteriorated.

With regard to invertebrates, the total number of threatened species increased to fifty-six (plus twenty-three). This increase is mainly due to additional accumulated data and also due to the deterioration of habitat environments. For example, fiddler crabs (*uca arcuata*) living in tidal flats ranked higher than before. Horseshoe crabs (*Tachypleus tridentatus*), living in tidal flats in Western Japan, were once again designated as threatened species.

With regard to plant 1 (vascular plants), the total number of threatened species increased to one thousand six hundred and ninety (plus twenty-five). Specifically, many species were ranked higher or lower than before as a result of an increase in data accumulation. There are also species that were shifted from threatened to near-threatened status, such as primroses (*Primula sieboldii*), water fringes (*Nymphoides peltata*), and white egret flowers (*Habenaria radiata*), thanks to conservation efforts. In addition, the yellow waxbell (*Kirengeshoma palmata*) was newly designated as a threatened species due to feeding damage by deer, which has mainly occurred in Western Japan.

With regard to plant 2 (other than vascular plants), the total number of threatened species increased to four hundred sixty-three (plus one hundred thirty-four). This is because some species were added to the assessment target species, and many algal species living in lakes and ponds were designated as threatened species. This may be due to the deterioration of the habitat environments of these species.

* Figure 2. The number of endangered wildlife species in Japan

2. Structure of the biodiversity crisis in Japan

The crisis of biodiversity in Japan is classified as follows, based on the analysis of its causes and results.

2.1 First crisis (brought about by human activities and development)

The first crisis is the effect of negative factors generated by human activities and development on the biodiversity. Specifically, these negative factors are direct collections of living things, such as overexploitation of populations, illegal digging, and excessive collection for ornamental use and commercial use, as well as destruction of habitats and deterioration in habitat environments due to land reclamation/development in coastal areas and changes in land use, such as changeover of forests. Vast floodplains and the loss of grasslands and wetlands caused by the straightening/immobilization of rivers and the development of agricultural lands—are also negative factors.

It can be said that these effects are being stabilized because the total area of land converted from forest/agricultural use to urban use and the reclamation of coastal areas have both decreased recently compared to what happened during the high economic growth period and the bubble economy period. Yet, these effects still continue even though their level has been decreased.

For these problems, it is necessary to properly avoid or reduce the effects caused by human activities according to the characteristics and importance of the object. It is also important to strengthen the conservation of virgin nature and thoroughly consider whether the alteration of nature ecosystems is truly necessary. Furthermore, it is necessary to positively promote the restoration of lost or deteriorated ecosystems based on scientific knowledge.

*Figure 3. First Crisis: The area of land converted from forestry use to urban use

*Figure 4. First Crisis: The increased area of reclaimed land in coastal areas

*Figure 5. First Crises: Transition of the area of tidal flats

2.2 Second crisis (brought about by reduced human activities)

In contrast with the first crisis, the second crisis comprises the effects caused by reduced or discontinued human approaches to nature. Secondary forests (fuelwood forests, farm forests, etc.) and grasslands (meadows, etc.) have been maintained as necessities for economic activities. Such human-made areas had accumulated a variety of living things specific to each environment. With a decrease in areas that have suffered natural disturbances, including floodplains, it is considered that such areas are positioned as alternative habitats.

Yet, in *satochi-satoyama* areas, where forms of agriculture and lifestyles are rapidly changing with a decrease in population and the aging of residents, the crisis caused by reduced human activities is continuously expanding. Ecosystems that were as intricate as a mosaic pattern in accordance with levels of human disturbance have lost their diversity because they have been free from such disturbance. Thus, many animals and plants that have lived in *satochi-satoyama* areas are now being designated as threatened species.

With respect to artificial forests, deterioration in their functions—including water conservation and the prevention of soil spillage—and in their quality as a habitat for living things concerns us deeply because of insufficient thinning and care due to a decrease in profitability and stagnant forestry production activities.

On the other hand, the number of large and medium mammals (including deer, monkeys, and wild boars) has increased and their distribution has expanded; this is causing serious damage to agriculture and forestry and is affecting natural vegetation and ecosystems.

To address these problems, the structuring of a more effective conservation/management system must be promoted according to the natural and social characteristics of the current socioeconomic conditions. Approaches to these problems have already begun to be constructed in many parts of Japan, but they are still sporadic in local areas and have not developed into a nationwide extensive approach.

*Figure 6. Second Crisis: Increase of the area of abundant agricultural lands

*Figure 7. Changes of distribution of medium and large mammals

2.3 Third crisis (brought about by artificially introduced factors)

The third crisis is brought about by factors that have been introduced by humans in the modern age. The first factor is the disturbance of ecosystems caused by alien species. Beyond the travel capacity of wildlife such as small Javan mongooses, raccoons, and largemouth bass, alien species introduced intentionally or unintentionally by humans from foreign countries or other areas in Japan have become a great threat to regionally-specific biota and ecosystems. For example, it is estimated that approximately 8% of vertebrate animals currently identified in Japan (as for fishes, brackish and freshwater fishes only) were introduced from outside Japan and have become established there since the Meiji era (1868-1912). Especially in isolated islands in which many endemic species live, such alien species may significantly change the existing biota and ecosystems. With respect to the alien species problem, control of import and feeding based on the Invasive Alien Species Act has already begun, but it will take a good deal of time and effort to eliminate the alien species that have become established in Japan.

Living things introduced unintentionally to Japan via materials or other animals/plants, as well as those introduced to islands or environmentally important regions from other Japanese regions, are also a great threat, since it is difficult to control them with the Invasive Alien Species Act. Appropriate measures must be taken in each step of (1) prevention of invasion, (2) detection of invasion and action at an early stage, and (3) control of settled alien species.

There is another threat of impact on ecosystems caused by chemical substances whose effects are not well known. Chemical substances were developed and spread rapidly from the beginning of the twentieth century. Ecosystems are currently being exposed to many types of chemical substances for long periods. There are some chemical substances whose impacts on ecosystems have already been pointed out, but there remain other chemical substances whose impacts on ecosystems have not been clarified, which may have effects on ecosystems of which we are not aware. For this reason, it is necessary to make positive efforts to note the signs of change in wildlife and to promote risk management through proper risk assessments of the impact of chemical substances on ecosystems.

*Figure 8. Third Crisis: An example of distributional expansion of raccoons

Distribution of raccoons in Hokkaido

2.4 Crisis brought about by global warming

In addition to these three crises, the effects of global warming must be considered as a major problem.

The Fourth Assessment Report (2007) of the Intergovernmental Panel on Climate Change (IPCC)—which makes comprehensive assessments of scientific knowledge and observations of climate change in terms of artificially-generated climate change, its effects, and adaptive/mitigation measures, from the scientific, technical, and socioeconomic perspectives—concluded that global warming has occurred in the climate system. Further, it tenuously concluded that the increase of greenhouse gas emissions through human activities has caused global warming. The report says that the average temperature of the Northern Hemisphere in the second half of the twentieth century was probably the highest it has been in the past 1300 years. The global average temperature increased by 0.74°C on a long-term basis in the past hundred years, and the pace of increase in the average temperature in the last fifty years is about twice that of the past hundred years. The increase in the average temperature at the end of this century will be about 1.8°C (1.1 to 2.9°C) in a society where the global coexistence of environmental conservation and the development of economy is assumed. In contrast, the increase in average temperature is estimated to be about 4.0°C (2.4 to 6.4°C) in a society that is expected to attain high economic growth while depending on fossil fuels.

Biodiversity is particularly weak in the struggle against climate change. The report predicts that, when the increase in the global average temperature exceeds 1.5 to 2.5°C, 20 to 30% of animals and plants that have been assessed will be at an increased risk of extinction. If the increase exceeds 4.0°C, there will be a grave global extinction of 40% or more of all species.

When living things cannot adapt to environmental changes, they will become extinct, unless they can “adapt by progress at the place” or “move to an inhabitable place.” Scientific knowledge on the prediction of effects on what will happen to the ecosystems of Japan if global warming advances has not been sufficiently accumulated, but it is considered that there will be serious impacts on biodiversity in Japan, centering around

areas that are subject to environmental changes, such as islets, coasts, subalpine zones, and alpine zones.

Thus, it is necessary to grasp the impacts of global warming on biodiversity, reduce them, and pursue adaptive measures from the perspective of biodiversity.

3. Biodiversity in each geographical area

3.1 Natural mountain areas

A natural mountain area is an area with relatively high naturalness, which contains a mountainous backbone and experiences little impact from humans. This area functions as the backbone of biodiversity in the country, containing wild nature, core habitats of large mammals (bears, serows, etc.) and birds of prey with a large home range (golden eagles, spizaetus nipalensis etc.), and river sources. Natural vegetation comprising natural forests and natural grasslands, which account for nearly 20% of Japan's total land area, is distributed in the natural mountain area. This area is distributed widely in ridges in the central Honshu and Hokkaido. In areas where natural vegetation is intact only in limited high mountain areas such as Chugoku District, areas with relatively high naturalness such as secondary forests affected only by natural transitions are considered as natural mountain areas.

This area, wherein representative and typical natural vegetation exists according to climate conditions, is vital as a core area in which representative animals and plants of each area must survive in future years. Once vegetation is lost due to a terrain change in a steep area, it can rarely be restored.

In particular, since the ecosystem in mountainous or rocky soil areas is placed in a severe environment, it is susceptible even to small-scale human activities. The Plant Community RDB Survey states that major threats in those areas are illegal digging and trampling by human beings. As for the popular species such as lady's slipper and common Water Hyacinth, patrol activities have been conducted to prevent those illegal digging.

There is another prediction about grouse that live in high mountains, which are considered as one of the animals most susceptible to global warming: it is believed that they may become extinct with the reduction of alpine zones if the annual average

temperature increases by 3°C.

With regard to conflict with animals, serious damage to natural vegetation, tree trunks and ecosystems caused by deer have been indicated in fifteen national parks, including South Alps National Park and Nikko National Park,. Forty-seven accidents resulting in injury or death caused by Asian black bears (*Selenarctos thibetanus*) occurred in 2007, and about eight hundred forty Asian black bears were captured and killed to prevent accidents.

3.2 *Satochi-satoyama* areas/countryside

Satochi-satoyama area/countryside is an area positioned between a natural mountain area and an urban area; it has a medium nature quality and a medium level of interference by humans. The *satochi-satoyama* area/countryside is a vast area that contains parts in which artificial forests take precedence and in which there are sections of countryside with paddy fields, as well as rural areas. The total area of the *satochi-satoyama* area/countryside accounts for about 80% of the total national land.

A *satochi-satoyama* area is an area in which specific nature has been formed through various human approaches over a long period of history. It is a region that contains secondary forests surrounding communities, artificial forests, agricultural lands, reservoirs, and grasslands. At present, secondary forests as the core of *satochi-satoyama* area account for about 20% of the total national land, and about 40% when surrounding agricultural lands, etc. are included. It is predicted that human approaches to this area will decrease as a whole with a decrease in population and aging in the future.

A natural environment that contains secondary forests, paddy fields, channels, and reservoirs is a good habitat for various living things, including threatened species, and is becoming more valuable as a place for city residents in suburban areas to appreciate nature. At the same time, the *satochi-satoyama* area is also a place for living and production activities for humans. Thus, the *satochi-satoyama* area has intricate values and rights.

While adapting to traditional management methods unique to each region, including water management methods for paddy cultivation and secondary forest/grassland management methods, a diverse biota and a rich culture based on that biota have been

formed in this area. Along with natural mountain areas, *satochi-satoyama* areas and the countryside have played an important role in supporting the diverse biota in Japan.

Since the beginning of the modernization of lifestyle and agriculture around 1955, many secondary forests have been left unused or uncontrolled, and secondary grasslands have significantly decreased. Furthermore, the cultivation of abandoned lands has increased since about 1975. With these changes, the habitat distribution of medium to large mammals, including deer, monkeys, and wild boars, is on the increase, and damage to human life, environment, agriculture, and forestry is also on the increase. In addition, damage to farm produce and predation of native species have been reported in relation to the presence of raccoons (*Procyon*) that were introduced as pets and have since settled outdoors and expanded their presence. The amount of damage to farm produce caused by wild birds and animals was ¥19.6 billion in 2006. The capture rate by controlling harmful birds and animals such as deer and wild boars is on the increase, but damage caused by them has not decreased. The quality of a habitat environment for region-specific living things, such as grey-faced buzzard-eagles, killifish, luehdorfias, and dogtooth violets, is deteriorating. According to research by the Ministry of the Environment, more than half of the habitats of threatened species are distributed in *satochi-satoyama* areas. The development pressures of housing and road construction in urban neighborhood areas, illegal dumping at nature sites in satoyama areas and reclamation of valleys for the construction of waste disposal facilities have also causes adverse effects.

3.3 Urban areas

An urban area is an area in which human activities take precedence; it has relatively little natural space in which various forms of life can live, due to high-density land use and a concentrated high environmental impact. The distribution range of many familiar living things, such as skylarks and fireflies, has receded to suburban areas with the expansion of urban areas. As a result, only a limited number of living things apart from human beings can be seen in urban areas, including those that live in isolation in the remaining green spaces that are scattered in slope forests, shrine/temple forests, and premises forests, and a part of urban life (including crows and grey starlings); these living things have adapted themselves to the artificial environment. There are not many types of fish in the moats, rivers, and channels that are historical elements of urban environments; pet red-eared sliders and raccoons are released, and a lot of nonnative

afforestation plant species are used, which may cause alien species to spread. The desire for contact with nature is rapidly increasing in residential areas. On the other hand, the number of children who do not know how to contact nature and the number of adults who do not know how to explain it to their children are increasing against a backdrop of reducing green space and scarce biodiversity in urban living areas.

3.4 River/wetland areas

Water is vital to a large number of living things on earth. Rivers and other water systems, including lakes, wetlands, and springs, are a vital platform of biodiversity. A water system becomes a vital axis of the ecological network of the land when it interconnects forests, agricultural land, cities, coastal areas, etc. Earth, sand, and nutrients that are generated in the river-basin area—as well as contaminated substances generated through the use of land—are carried down the stream through this connection, while salmon and eels shoal up the stream through the connection from the sea.

Water systems are vital as habitats for aquatic life (fish, etc.), water birds, and many other forms of life. In particular, wetlands have a rich biodiversity, but are also susceptible ecosystems that are easily affected by humans.

Wetlands and forests in riverside floodplains have been developed and used as agricultural land or building land for a long time. With a decrease in flow rate due to the repair of rivers, a change or fragmentation of a water cycling route, a reduced supply of sand gravel, a diminished disturbance, or water contamination, river ecosystems have been greatly affected. About one-third of waterweed species growing in Japan are designated as threatened species, and many other threatened species live in the waterside environment. On the other hand, the run of sweetfish has been restored through improvements in river environments such as water quality.

With respect to conflict with birds and animals, the population of great cormorants had at one time greatly decreased, but now their distribution and population have rapidly increased due to improved water quality; increased number of other species that they feed on, such as Japanese Trout, Japanese dace, Pale chub and so on and protection of colonies. At the same time, great cormorants are causing fishery damage to sweetfish, zacco platypus, etc. and are also damage trees with their dung.

In addition, Largemouth basses have been distributed all over the nation and their impact on ecosystems and fishery, including the predation of native species, is often indicated.

3.5 Oceanic/coastal areas

The oceanic areas extending offshore to the broad ocean are also essential environments that support the biodiversity of Japan. The entire oceanic area is about twelve times larger than Japan's total land area and has exclusive economic zones. There are various ecosystems in the abyssal sea. While scientific data on biota, etc. and that on target marine species are organized by using the previous data, data except those targeted species are not sufficient.

The oceanic area accounts for about 70% of the earth's surface; it is a huge source of the water cycle and is closely related to the formation of a global climate with its enormous heat energy. The oceanic area also functions as a huge sink of carbon dioxide through its function of carbon cycling to stabilize the air. Japan is an island nation surrounded by the sea; therefore, the terrestrial climate, the distribution of land animals and plants, and ecosystems are greatly affected by the ocean.

The area around the Japanese archipelago encompasses the Japan Sea, which was isolated throughout history, and various oceanic structures such as the Japan Trench, which is 10,000 meters deep and enriches the marine biodiversity of Japan with remote life brought by the cold water mass from the north and the warm water mass from the south. On the other hand, wastes from neighboring coastal countries, harmful chemical substances, and oil spilled out of ships and boats are affecting marine ecosystems in the oceanic area.

Coastal areas are places in which land areas and sea areas interact with each other; they comprise complicated coasts and front neritic sea areas, including tidal flats, underwater forests, and coral reefs. These areas serve important functions as a birth/growth place for diverse life, a place to produce abundant marine resources, a place to improve water quality, and a place in which to come in contact with nature. Above all, the areas that are closely related to the lives of people who engage in fishing activities such as digging shellfish and gathering kelps and have lived by the blessings of the sea since early times are called as "SATO-UMI" areas. It can be historically said that our life and culture

have developed with great dependence on coastal areas.

Coastal areas have animals and plants specific to landforms, such as sandy beaches, cliffs, and tidal flat. The natural environment of beachside vegetation zones and beaches is also an important axis of the country's ecological network. On the other hand, since populations and many industries have been concentrated in coastal areas, those areas have been greatly affected by land reclamation, water contamination, and the fragmentation/decrease of connection to rivers. Thus, the reduced areas of tidal flats, environmental deterioration, and the conversion of coastlines have isolated humans from the sea. These environmental deteriorations are considered causes of the endangerment of horseshoe crabs (*Tachypleus tridentatus*) and fiddler crabs (*Uca arcuata*) that live in tidal flats. Furthermore, a deteriorated coastal environment causes a reduction in the production of coast fishery and affects the inhabitation of a diverse benthic life. In addition, there are impacts due to changes in ecosystems, such as barren grounds (significant deterioration of underwater forests with thick seaweed) and coral bleaching, as well as waste that drift ashore.

3.6 Island areas

In addition to the its four main islands—Hokkaido, Honshu, Shikoku, and Kyushu—Japan has over three thousand large and small islands. Among those, some (including the Ogasawara Islands and the Nansei Islands) that have distinctive biota have been over a long period of history isolated by the sea. A unique ecosystem is formed with a fine balance in a small area of these islands; therefore, it can be said that the island area is a vulnerable area that is easily affected by the destruction of habitats and the invasion of alien species. Since there are many region-specific species with a limited distribution range in island areas that are vulnerable to anthropogenic effects, many of the species living in island areas are designated as threatened species. For example, in the Ryukyu Islands, twenty-one endemic species or subspecies of mammals have been identified. Nineteen of them are inscribed in the Red List that was published by the Ministry of the Environment of Japan.

Specifically, small Indian mongooses were introduced into Okinawa Island in 1910 in order to control lancehead snakes and rats that damaged farm products. They were then also introduced into Amami-Oshima Island around 1979, but they have since expanded their habitat and are now a great threat as a predator of endangered wildlife such as

Okinawa rail in the Yambaru region of Okinawa Island and Amami rabbits in Amami-Oshima Island. Damage to poultry farming and farm produce has also been reported. In addition, in the Yambaru area, in the northern part of Okinawa Prefecture, there exists an island where wild cats have become predators that threaten mongoose.

Figure 1
Vegetation status

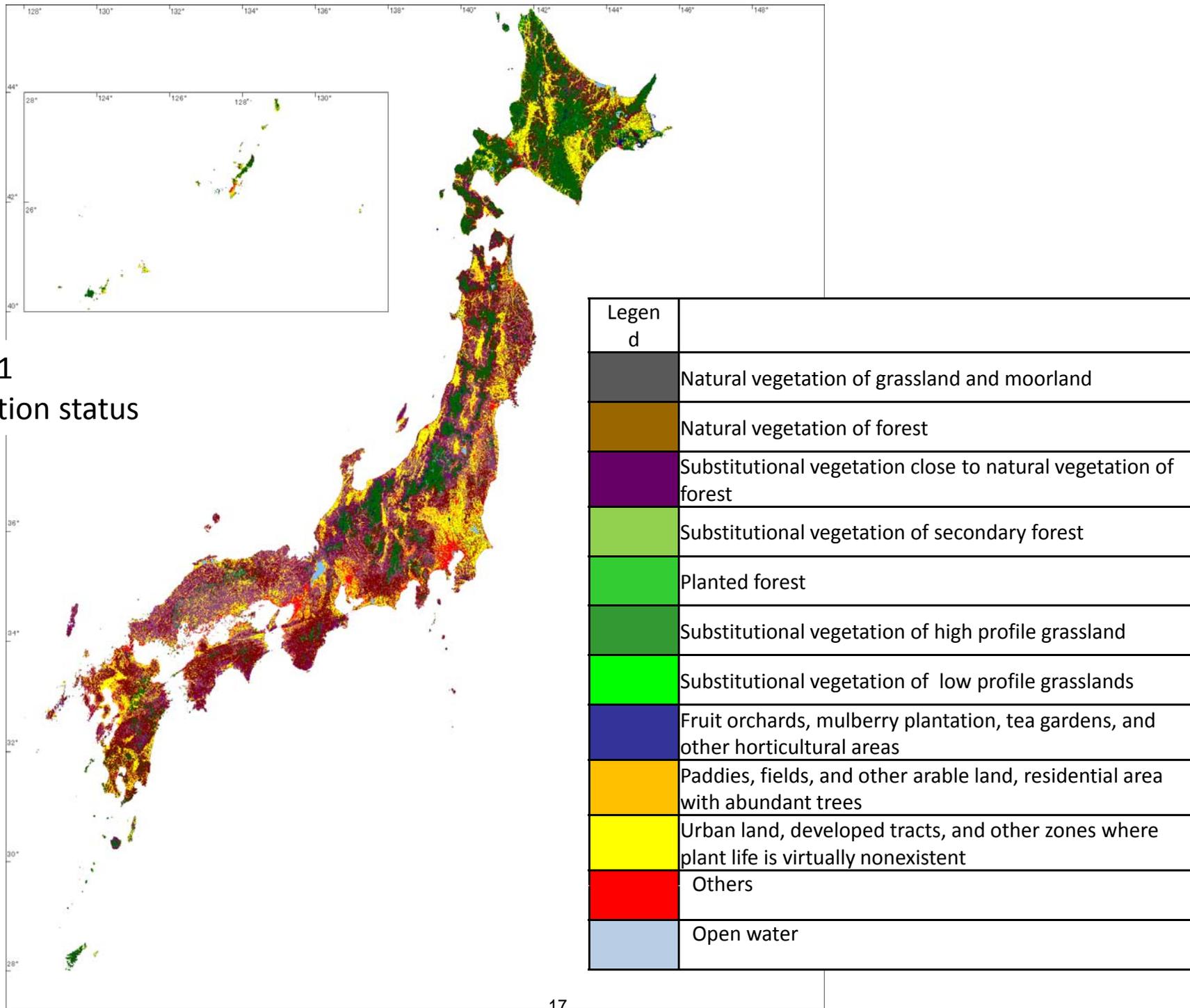


Figure 1. Vegetation status

Vegetation Naturalness	Classification	Criteria	Number of meshes	Ratio (%)
10	Natural vegetation of grassland and moorland	Area in which a single-storied forest is associated with alpine heathland, wind-exposed grasslands, natural grasslands, and natural vegetation	3,993	1.1
9	Natural vegetation of forest	Area in which communities are formed in multi-storied forest among the Yezomatsu (<i>Picea jazoensis</i>) and Todomatsu (<i>Abies sachalinensis</i>) forest associations, the Buna (Japanese beech, <i>Fagus crenata</i>) forest associations and other natural vegetation	65,824	17.9
8	Substitutional vegetation close to natural vegetation of forest	Area especially close to natural vegetation in spite of secondary vegetation of regenerated forest of Buna (Japanese beech, <i>Fagus crenata</i>) and Mizunara (deciduous oak, <i>Quercus crispula</i>), and of sprout forest of Shii (evergreen oak, <i>Castanopsis</i>) and Kashi (evergreen oak, <i>Quercus</i>)	19,598	5.3
7	Substitutional vegetation of secondary forest	Area of secondary vegetation where called secondary forest in general. Such as the Kuri(Japanese chestnut, <i>castanea crenata</i>) and Mizunara (deciduous oak, <i>Quercus crispula</i>) forest associations, and the Kunugi (sawtooth oak, <i>Quercus acutissima</i>) and Konara (deciduous oak, <i>Quercus serrata</i>) forest associations.	68,540	18.6
6	Planted forest	Planted forest with evergreen coniferous, deciduous coniferous and evergreen broad-leaved trees	91,414	24.8
5	Substitutional vegetation of high profile grassland	High-profile grasslands with the association of Sasa (bamboo grass) and the association of Susuki (Japanese silver grass, <i>Miscanthus sinensis</i>)	5,568	1.5
4	Substitutional vegetation of low profile grasslands	Low-profile grasslands formed by the association of Shiba (a collective name of miscellaneous low trees) and so on	7,591	2.1
3	Fruit orchards, mulberry plantation, tea gardens, and other horticultural areas	Agricultural lands such as fruit orchards, mulberry plantations, tea gardens, and nursery gardens	6,788	1.8
2	Paddies, fields, and other arable land, residential area with abundant trees	Agricultural lands such as arable lands and paddy fields, and residential areas with abundant trees	77,695	21.1
1	Urban land, developed tracts, and other zones where plant life is virtually nonexistent	Urban lands, developed lands, and other zones in which plant life is virtually nonexistent	15,999	4.3
Others	Natural bare land		1,420	0.4
	Open water	The number of meshes and ratio are based on the information of the 5 th National Survey on the Natural Environment (2001) (A 3-D mesh indicates an area of approximately 1km ²)	4,227	1.1
	Unclassified area		70	0.0
Total			368,727	100.0

Figure 2. The number of endangered wildlife species in Japan (the number of species listed in Red List)

	Targeted species		Extinct	Threatened	Near Threatened
Mammals		180	4	42	18
Birds	Approx.	700	13	92	18
Reptiles		98	0	31	17
Amphibians		65	0	21	14
Brackish/freshwater Fishes	Approx.	400	4	144	26
Insects	Approx.	30,000	3	239	200
Shellfishes	Approx.	1,100	22	377	275
Spiders/crustacea	Approx.	4,200	0	56	40

	Targeted species		Extinct	Threatened	Near Threatened
Vascular plants	Approx.	7,000	33	1690	255
Mosses	Approx.	1,800	1	229	22
Algae	Approx.	5,500	5	110	40
Lichens	Approx.	1,500	5	60	39
Fungi	Approx.	16,500	30	64	17

Figure 3. First crisis: The area converted from forests lands to urban areas

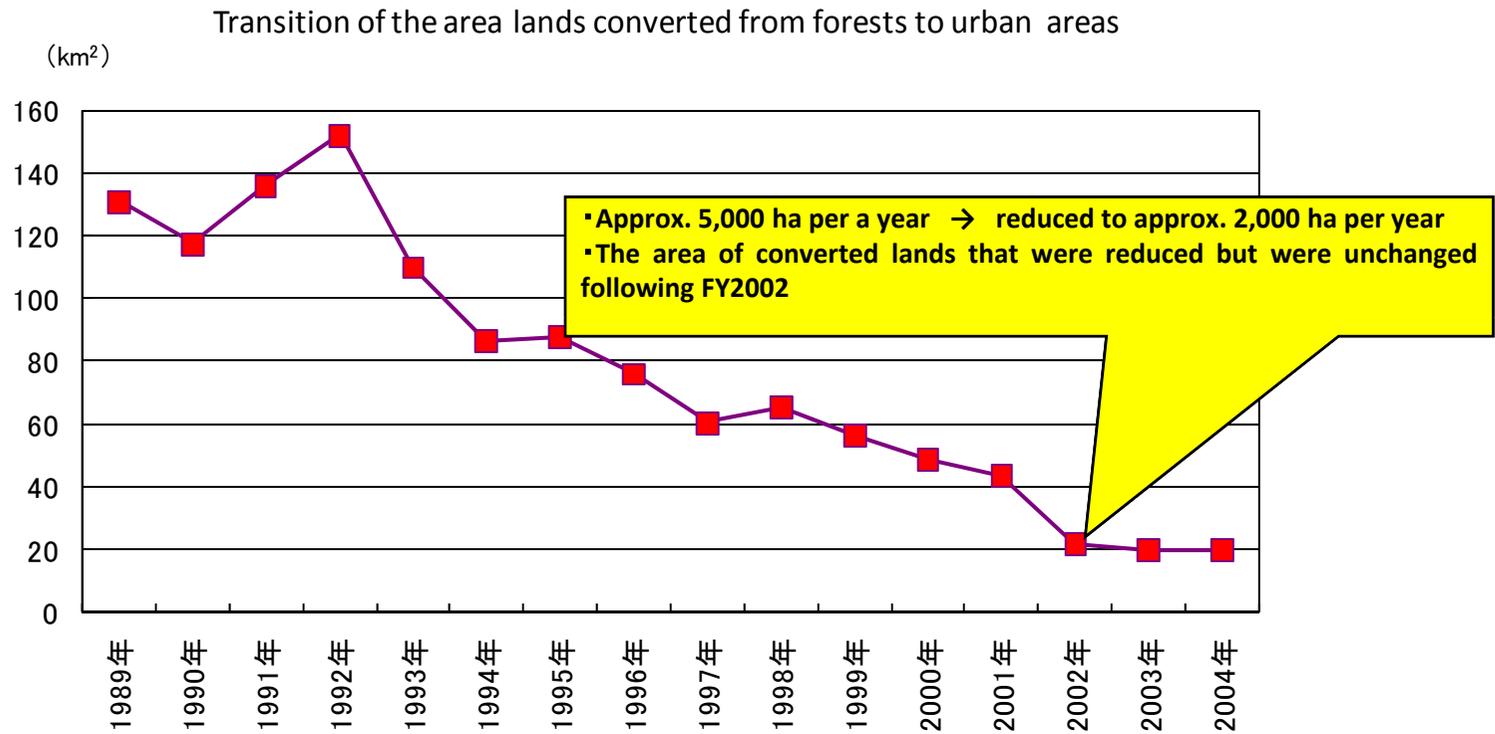


Figure 4. First Crisis: The increase in the area of converted lands in coastal areas

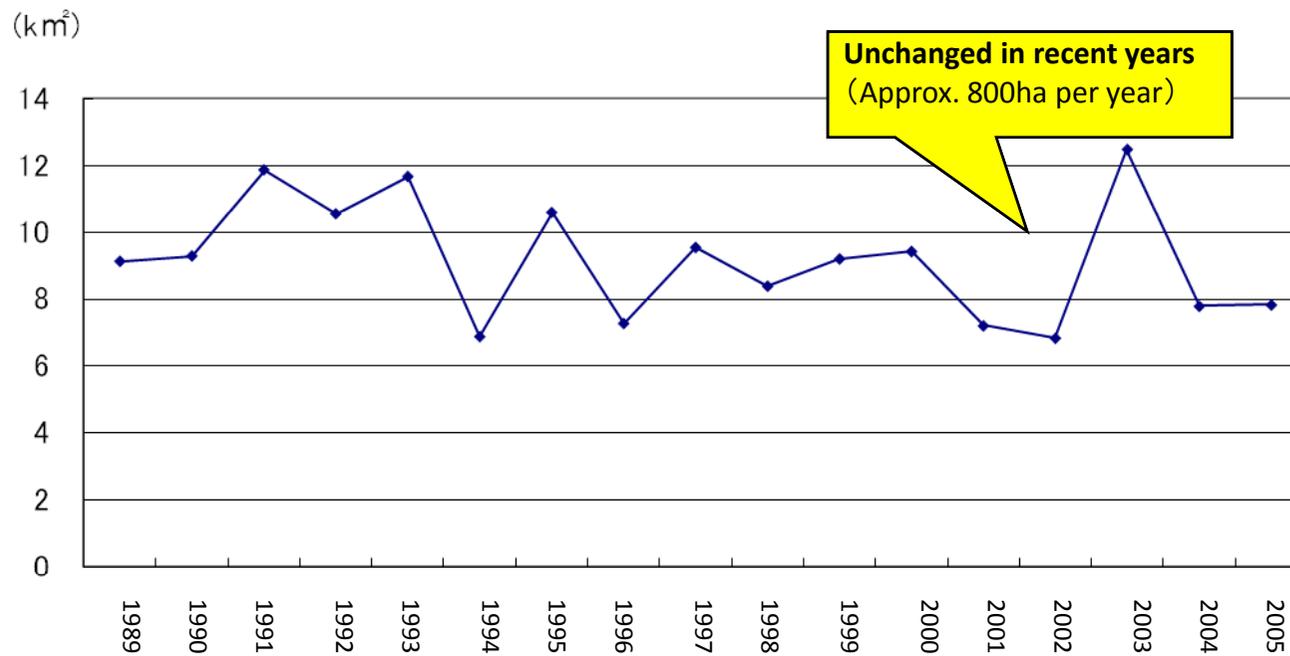
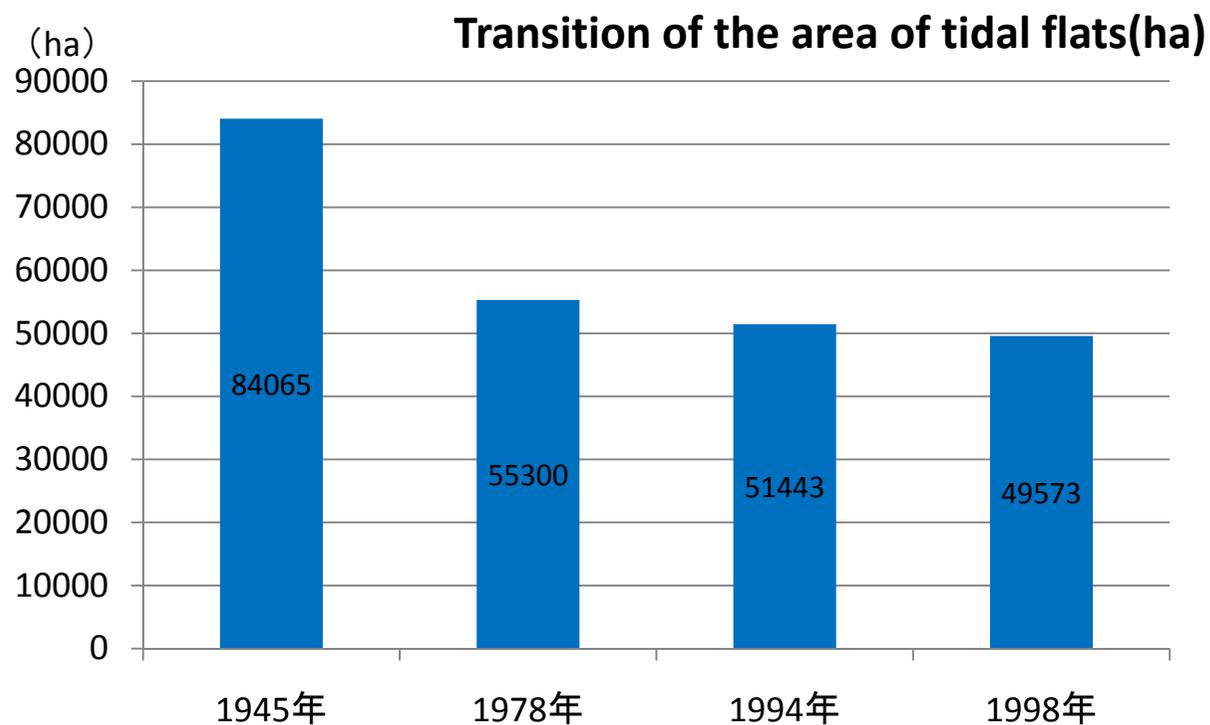


Figure 5. First Crisis: Transition of the area of tidal flats

In 1945, the total area of tidal flats was 84,065 ha. It was decreased by 55,300 ha in the course of approximately 30 years up to 1978. In 1998, this area was reduced by 49,573 ha, which is approximately 60% of the total area that was recorded in 1945.



Source: The 2nd and 5th National Survey on the Natural Environment, Ministry of the Environment

*The total area in 1978 equals to the sum total of 2 values: the total area of existing tidal flats in 1994, the total area of disappeared tidal flats which was reported in 1994. Likewise, the total area in 1945 is the sum total of the above-calculated total area for 1978 and the total area of disappeared tidal flats which was reported in 1978.

Figure 6. Second Crisis: Increase in the area with abandoned agricultural lands

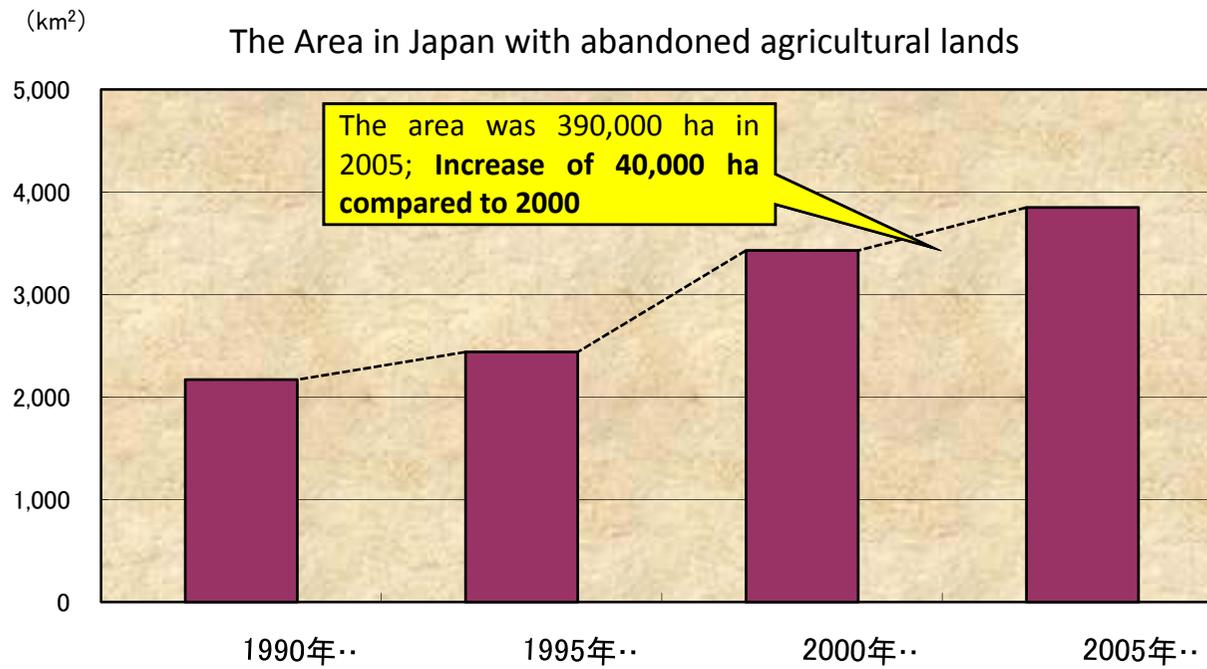
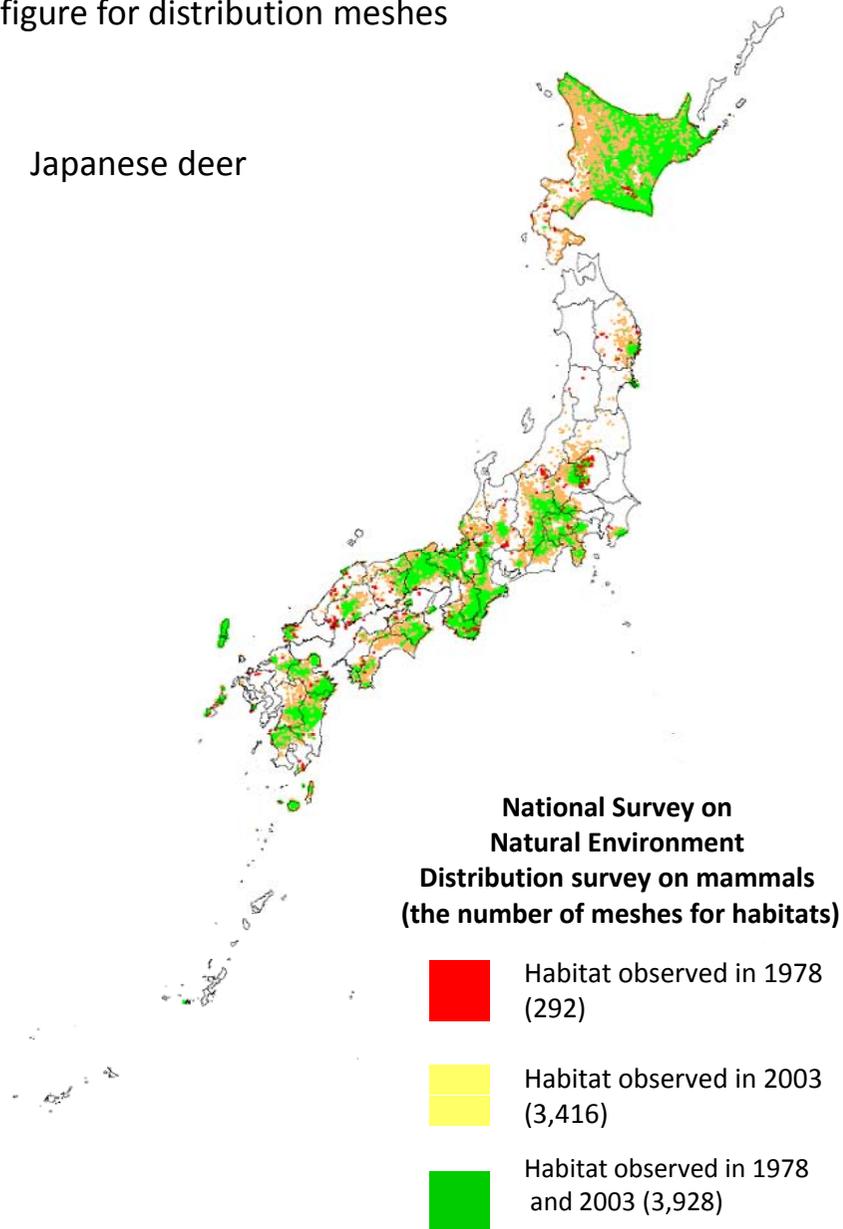


Figure 7. Changes of distribution of medium and large mammals

Nationwide comparison
figure for distribution meshes

Japanese deer



Nationwide comparison
figure for distribution meshes

Wild boar
(include a hybrids resulting
from wild boar X pig crosses)

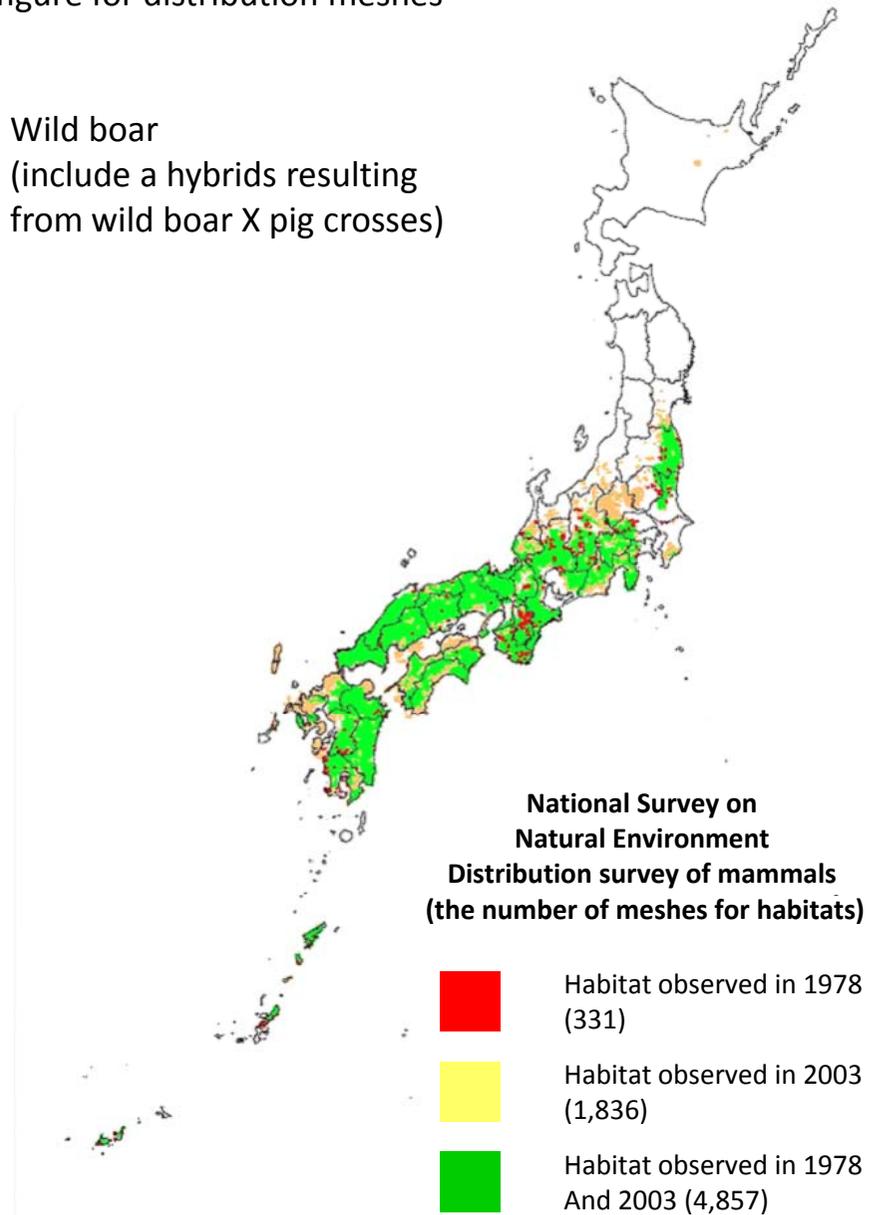
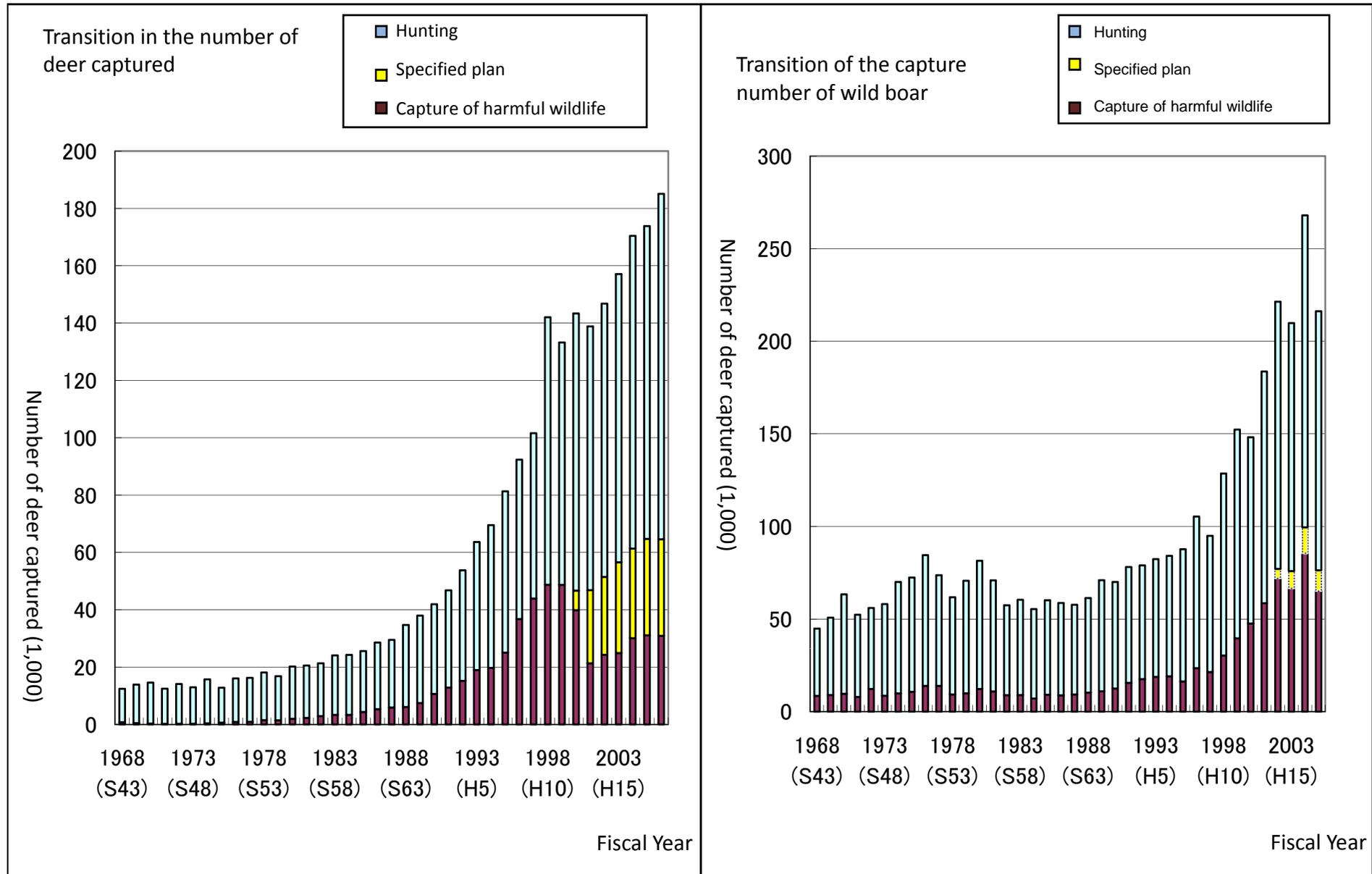
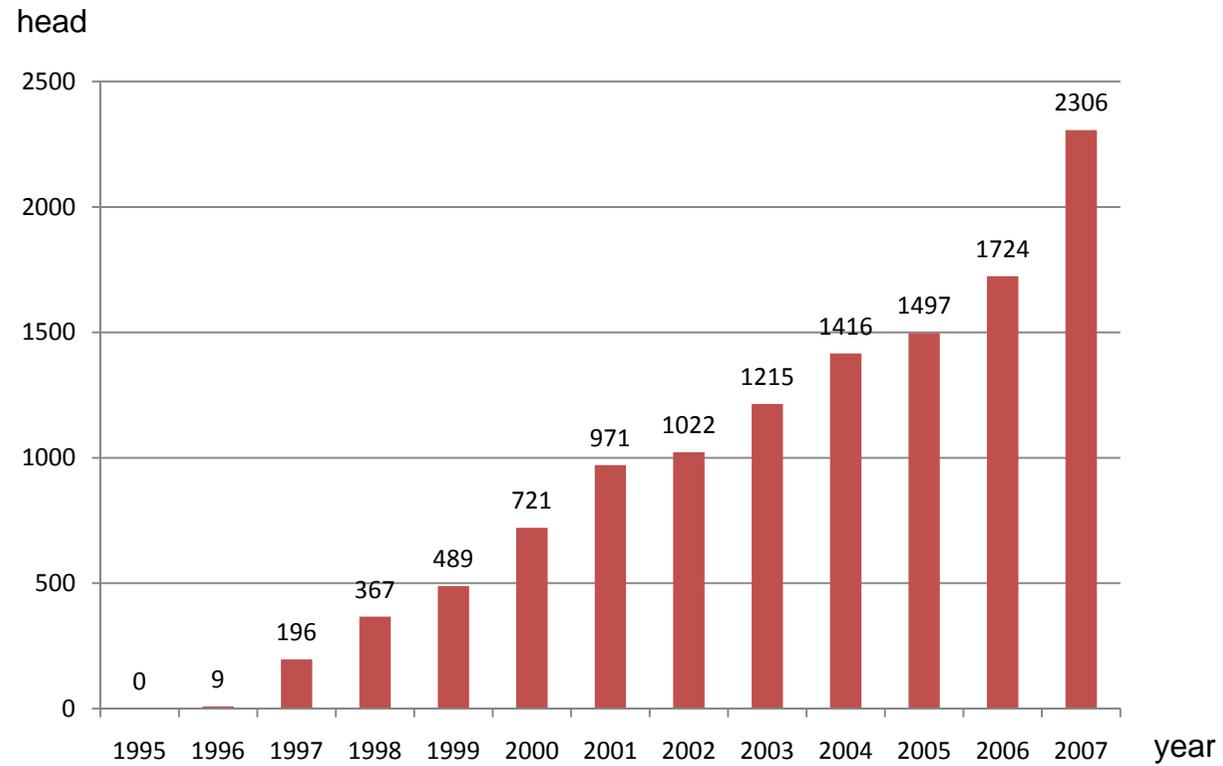


Figure 7. Changes of the capture number of medium and large mammals

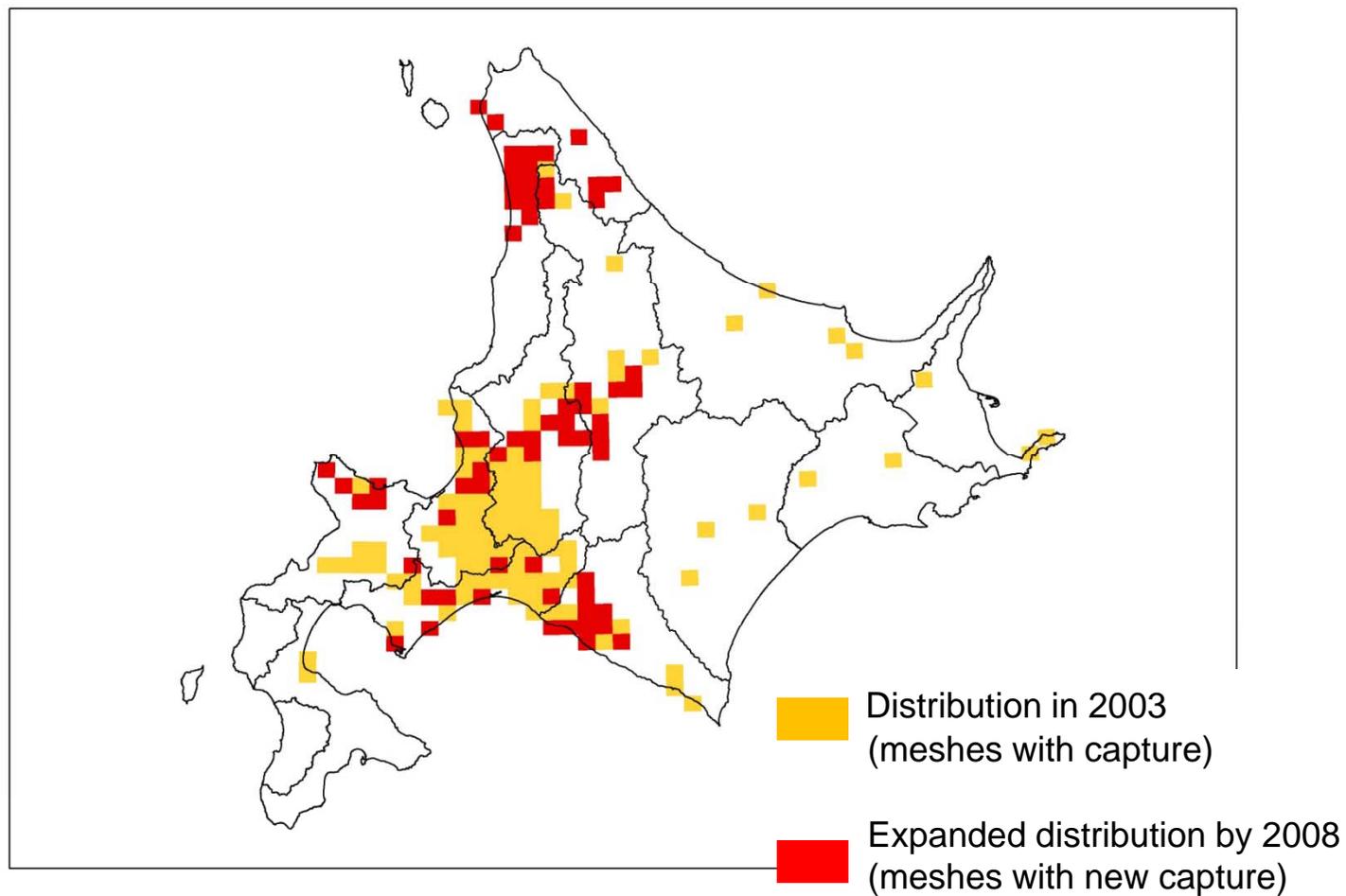


**Figure 8. Third Crisis:
An example of distributional expansion of raccoons**



Source: Modification of the material by Hokkaido Prefecture

Figure 8. Third Crisis : Distribution of raccoons in Hokkaido



Source : Material created by Hokkaido Prefecture

Chapter 2

Status of National Biodiversity Strategy

1. National Biodiversity Strategy in Japan

1.1 The background of the formulation of the Third National Biodiversity Strategy

Japan concluded the “Convention on Biological Diversity” as the 18th contracting state in May of 1993. Pursuant to Article 6 of the Convention, Japan established its first National Biodiversity Strategy in October 1995 and the Second National Biodiversity Strategy, a drastic revision of the first one, in March, 2002. The main body that provided the strategies was the Council of Ministers for Global Environment Conservation.

Since the provision of the Second National Biodiversity Strategy, Japan has checked the implementation of government measures to announce the results four times every year. While measures and policies have been steadily developing, the three crises are getting worse and the rate of biodiversity loss has not significantly reduced in our country.

Thus, when formulating the Third National Biodiversity Strategy of Japan, we employed the crises revealed and the rationales employed in the Second National Biodiversity Strategy and included therein our willingness to advance and enhance our efforts to cope with the changing situations at home and abroad.

The Ministry of the Environment of Japan summoned an informal committee for a review of the National Biodiversity Strategy during the period of August 2006 to March 2007 to organize the points for discussion. Regarding the points for discussion provided by the committee, opinions were solicited from the public and local meetings were held at eight locations around Japan.

In April of the same year, the Ministry of the Environment convened the Joint Committee on Natural Environment and Wildlife, which was established under the Central Environment Council, and requested a report from the Council on the review of the National Strategy. It also set up a Subcommittee on National Biodiversity Strategy to launch deliberations about the review of the National Strategy. The Subcommittee solicited public comments on its draft, compiled after six sets of deliberations conducted through hearings with ministries and agencies on their measures and policies, including

the Ministry of Agriculture, Forestry and Fisheries Biodiversity Strategy (established in July) as well as hearings with local governments, corporations, NGOs, and academic communities. Then, in accordance with the report submitted in November of that year by the Central Environmental Council, the Third National Biodiversity Strategy of Japan was decided.

With respect to the review, the Inter-Ministerial Committee on the National Biodiversity Strategy (consisting of nine ministries and agencies) proceeded with the work, while the Ministry of the Environment worked as a coordinator and other ministries and agencies shared in the writing, according to the tasks for which they were responsible. During the review period, the Ministry of the Environment solicited public comments, participated in symposiums or discussion sessions, held the aforementioned committee or deliberation sessions with open doors, and publicized the contents of the discussions or data on the Internet. The Ministry of the Environment proceeded with the review in such an open manner.

1.2 Structure and character of the Third National Biodiversity Strategy

The Third National Biodiversity Strategy of Japan consists of two parts. In Part One, “Strategy for Conservation and Sustainable Use of Biodiversity,” Chapter 1 clarifies the importance of biodiversity and its rationales. Chapter 2 then classifies the crisis of biodiversity in Japan as the “three crises” (refer to Chapter 1 of 3NBS) and provides a new description of the relationship of biodiversity and global warming. Chapter 3, namely, “Targets of the Conservation and Sustainable Use of Biodiversity” and Chapter 4, namely, “Basic Policies for Conservation of Biodiversity and its Sustainable Use,” explain (1) the three targets and performance of a comprehensive assessment of biodiversity, (2) a grand design for a future vision of the nation’s land from the angle of biodiversity, (3) five basic perspectives on and four basic strategies for our country, and (4) an orientation for the period of the coming five years of activities to promote conservation and sustainable use of biodiversity in light of the situation at home and abroad. Part 2 “Action Plan for the Conservation and Sustainable Use of Biodiversity,” systematically describes all of our measures and polices on biodiversity as practical action plans and itemizes about six hundred sixty specific measures and policies in order to show the path toward their implementation.

The Third National Biodiversity Strategy of Japan has the following features, based on

the results of the review of the Second National Biodiversity Strategy.

- 1) It was set up as an action plan that included as many targets and indicators of individual efforts as possible so as to represent a clear path toward the implementation of the strategy.
- 2) In order to list the tasks of individual ministries as clearly as possible, the strategy was to arrange them in groups within categories such as coastal areas and oceanic areas, according to the respective roles of ministries.
- 3) It described biodiversity in relation to human life to help the public easily understand the concept.
- 4) It provided the image of a long-term target for the ecological management of national land under the so-called “Centennial Plan,” specifically referring to its relation to global biodiversity.
- 5) It suggested that local governments, private enterprises, NGOs, and the public should be encouraged to participate in the activities.

1.3 Targets and Basic Policies for National Strategy

The targets and basic policies incorporated within the Third National Biodiversity Strategy are as follows.

- (1) Three targets

The Third National Biodiversity Strategy, as noted in Chapter 1, classifies the current situations and challenges confronted by biodiversity in Japan into four categories: “three crises” and “crisis brought about by global warming.”

In response to these crises, the following three targets are set up to build a “society in harmony with nature,” in which we will inherit rich biodiversity for years to come so that we can continuously enjoy the benefits that arise from that biodiversity.

- 1) Conservation, prevention of extinction and restoration of species and ecosystems
Conserve region-specific animals/plants and ecosystems in accordance with regional characteristics, and maintain and restore the country-level biodiversity by building an ecological network.

In particular, maintain and restore the populations and habitat environments of species currently threatened with extinction, as well as take proper measures to prevent the number of threatened species living in Japan from increasing.

2) Sustainable Use

Use the national land and natural resources in a sustainable manner for the benefits of future generations through a method that does not reduce biodiversity.

3) Incorporation into social economic activities

Incorporate the conservation and sustainable use of biodiversity into social economic activities on a global-to-civic-life basis.

(2) Grand design for the National Land and the Centennial Plan

The Third National Biodiversity Strategy of Japan presents a grand design for the national land from the perspective of biodiversity as a forward-looking (hundred-year level) common vision. It also shows the basic stance of the grand design as the “Centennial Plan,” aiming to restore ecosystems on the national land that have been damaged or destroyed over the past population-increased hundred years, for the next population-decreasing hundred years. In addition to the whole image, desirable images of the grand design after a hundred years later are given in accordance with seven types of national land characteristics: natural mountain areas, *satochi-satoyama* areas/countryside, urban areas, river/wetland areas, coastal areas, oceanic areas, and island areas.

(3) Five basic perspectives

In implementing the measures intended for the purpose of conservation and sustainable use of biodiversity, the following five basic perspectives should be maintained as the crucial and common bases for those measures.

1. Scientific recognition and preventive/adaptive attitude
2. Community-oriented attitude and wide-area view
3. Coordination and collaboration
4. Use of socioeconomic systems
5. Integrated and long-term viewpoint

In the first perspective, “scientific recognition and preventive/adaptive attitude,” it is especially necessary, in the implementation of policies described in the Action Plan, to place great importance on the viewpoints below, besides the concept of the Ecosystem Approach agreed upon in the Meeting of the Conference of the Parties to the Convention on Biological Diversity.

- 1) Human beings should recognize that they will never understand everything about the living organisms on the Earth and the ecosystems in which those organisms live. We should always be modest enough to act cautiously. On top of that, we should not defer the implementation of biodiversity conservation measures for the reason of incompleteness of scientific evidence; rather, we should assume a preventive attitude of always striving to enrich scientific findings so that measures can be taken in a timely manner.
- 2) As a principle of biodiversity conservation, we should recognize that the ecosystem of which human beings are a component has a complicated structure that is constantly changing, and that the management and use of the natural resources that it provides should be implemented in an adaptive manner, to the extent that the structure and function of the ecosystem can be well maintained. For that purpose, it is important to accurately monitor the changes in the ecosystem, and to review the methods of managing and using it as required.
- 3) It is necessary that all people concerned have in common a wide range of science-based information on nature and society, and that the policies for the management and use of natural resources should be determined as a choice of the society.

(4) Four basic strategies

The broad steps toward fulfilling the measures on which we should focus in the five years ahead are presented as the four basic strategies for achieving our long-term goals that look forward to one hundred years from now. Furthermore, Part 2, “Action Plan on Conservation and Sustainable Use of Biodiversity,” describes about six hundred sixty specific measures and policies based on the basic strategies in addition to thirty-four

numerical targets and clarifies the path toward their implementation.

1) Mainstreaming biodiversity in our daily life

(Example)

- Promotion of “Our Life on Biodiversity Project,” which enhances the participation of local communities, private sectors, NGOs, and citizens (promotion of PR and development of guidelines for local strategies and for business activities)
- Proposal of considering changes in lifestyle, such as the purchase of biodiversity-friendly foods and timbers

2) Rebuilding a sound relationship between humans and nature in local communities

(Example)

- Development of a management model for the resources that are jointly owned by various entities, including urban citizens and private sectors
- Promotion of agriculture, forestry, and fishery activities that contribute to biodiversity conservation
- Creation of habitats for endangered species of wild Fauna and Flora such as a crested ibis, and measures against alien species

3) Securing linkages among forests, countryside, rivers, and the sea

(Example)

- Ecological network plan for various scales and visualized demonstration at a wide-area level
- Constructing a network of water areas and green spaces inside urban areas and a network linking rivers, lakes, reservoirs, and paddy fields
- Upgrading the data on marine biodiversity, and increasing the designation of protected areas in neritic regions

4) Taking action with a global perspective

(Example)

- Communicate the model of coexistence with nature (*Satoyama* Initiative)
- Implement a “comprehensive assessment of biodiversity” (development of indices to

measure the condition of biodiversity, the designation of hot spots, etc.) and provide technical support to the Asia-Pacific region

- Develop a comprehensive ecosystem monitoring system that covers the influence of global warming
- Promote measures to mitigate global warming and examine the way to adapt to its impact

(5) 2010 Biodiversity Target and the National Biodiversity Strategy

Japan will contribute to achieving the 2010 Biodiversity Target through steady developments toward the achievement of the three targets based on the four basic strategies.

1.4 Check and Review of the National Strategy

To ensure steady implementation of measures and policies under the National Strategy, the Inter-Ministerial Committee on the National Biodiversity Strategy of Japan annually checks the implementation of the Strategy and reports the result to the Central Environmental Council. When deemed necessary, the results are reflected in reports, such as national reports, according to the provisions of the Convention.

In checking the implementation, to most objectively follow up the progress in the implementation of measures and policies from the biodiversity aspect, each of the ministries concerned conducts a voluntary check based on the action plan described in Part 2 using indicators that show the progress of measures and policies of that action plan and indicators to be developed in a comprehensive assessment of biodiversity. After putting together the check results by the ministries, the Committee solicits the comments about them from a wide range of the public in order to submit the report to the Central Environmental Council. At that time, the Central Environmental Council checks the implementation of measures and policies of the ministries—based on the National Strategy from the biodiversity aspect—and expresses its views on the directions of the measures and policies, when necessary. In earlier checks on the second National biodiversity Strategy and Action Plan, the following opinions were pointed out and were reflected in the implementations of subsequent policies.

- Necessity for promotion of the National Strategy
- Necessity for the enhancement of government human resources, including local governments, support for NPO/voluntary activities, and improvement of the system for activities such as engagement of experts
- Utilization of experience-based education with nature for the purpose of promotion

In addition, check on the Third National Biodiversity Strategy will be implemented in the summer of 2009.

Furthermore, in order to flexibly and appropriately respond to the changing situations of biodiversity at home and abroad, the National Strategy will be reviewed in about five years.

1.5 Basic Act on Biodiversity of Japan and the National Strategy

The Basic Act on Biodiversity was put in place as of June 6, 2008. Japan had taken action to conserve biodiversity based on the legal structures such as Natural Parks Law, the Nature Conservation Law, and the Law for Conservation of Endangered Species of Wild Fauna and Flora. This Basic Act describes fundamental policies on conservation and on the sustainable use of biodiversity.

Article 11 of the Act, “Formulation, etc. of the National Biodiversity Strategy,” states that “the government shall set a basic plan for the conservation and sustainable use of biodiversity for the purpose of promoting policies for conservation and the sustainable use of biodiversity in a comprehensive and planned manner.” This phrase gives legal weight to the National Biodiversity Strategy. The Act also encourages prefectural and municipal governments to establish local biodiversity strategies. Furthermore, it prescribed promotion of biodiversity-friendly business activities; promotion of policies that contribute to the prevention of global warming; coordination and collaboration among various stakeholders; promotion, etc. of voluntary activities and basic policies for environmental impact assessment; as well as clarification of respective responsibilities of the national government, local governments, businesses, citizens, and private bodies.

2. Implementation of the National Biodiversity Strategy

In response to the biodiversity crises in Japan described in Chapter 1, principle measures were implemented after the establishment of the Second National Biodiversity Strategy in fiscal year 2002. Those measures will be described later. In addition, in the guideline of the 4th National Report, it is required to explain in Chapter 3 “other sectors besides the environment, such as agriculture, education, health, rural development, forestry, mining, tourism, finance, trade and industry.” However, In Japan’s Report, we describe governmental efforts pursuant to the 3rd National Biodiversity Strategy in Chapter 2 and actions taken by local governments and private sectors in Chapter 3.

2.1 Measures and policies for national land area

<Measures and policies based on wide-area coordination>

(1) Ecological Network

In order to secure and conserve zones as cores of sufficiently wide and well-balanced ecological networks, the government will expand protected zones and improve their management. As for forests, the government will designate “green corridors” (see also Chapter 2 section 2.1, (2) Conservation of Priority Areas, Protected Forests and Protection Forests) to link protected forests into networks. In addition to the Basic Act on Biodiversity formulated in 2008, ecological network formation and its significance were positioned to the National Special Planning, Green Basic Plan, and river development plans.

As for international cooperation, the government makes efforts, such as the “East Asian-Australasian Flyway Partnership” and the development of the regional strategy for a coral reef MPA networks strategy focused on East Asia under the framework of the International Coral Reef Initiative (ICRI). These efforts will be described later.

(2) Conservation of priority areas

Nature conservation areas

Conservation areas under the Nature Conservation Law include wilderness conservation areas and nature conservation areas designated by the central government, along with prefectural nature conservation areas designated by prefectural governments.

These nature conservation areas are designed to maintain their natural state. Those areas are combined with natural parks and other natural environment conservation areas to form the core of national ecological networks; they play key roles in conserving biodiversity.

As of March 2008, five wilderness conservation areas (totaling 5,631 ha) and ten nature conservation areas (totaling 21,593 ha) have been designated.

As of March 2008, five hundred thirty-six prefectural nature conservation areas (totaling 76,398 ha) had been designated. In the seven years between FY 2002 and 2008, ten new

prefectural nature conservation areas, including natural forests and wetlands, had been designated.

Natural parks

National parks are Japan's representative exceptional natural landscapes. Quasi-national parks are landscapes of natural beauty. Both are designated by the Ministry of the Environment. Prefectural natural parks represent exceptional prefectural natural landscapes and are designated by prefectural governors under relevant prefectural ordinances.

The Natural Parks Law was amended in 2002 to make the central and local governments responsible for securing biodiversity in natural parks. At the same time, the system for access control district and Particular Animal system were introduced in national and quasi-national parks. This led to the first designation of the use adjustment area and the designations of nine specified animals (regulation on capture, etc. in special areas) in 2006. Furthermore, conservation of natural parks was improved by the designation and expansion of natural parks, including new designations of the Oze National Park and Tango-Amanohashidate-Oeyama Quasi-national Park in 2007.

Table 1. Transition of the number and area of natural parks (as of March 31 2008)

		Number of sites 2008 (2002)	Area (ha) 2008 (2002)	Percentage of the national land (%) 2008 (2002)	Number of natural parks in marine park areas	Area of marine parks (ha)	Marine parks / natural parks (%)
Natural parks		394 (391)	5,409,212 (5,363,814)	14.3 (14.2)			
Detailed	National parks	29 (28)	2,086,945 (2,058,095)	5.5 (5.5)	11 (11)	2359 (1279)	0.1 (0.06)
	Quasi-national parks	56	1,361,448	3.6	14 (14)	1385	0.1

		(55)	(1,343,889)	(3.6)		(1385)	(0.1)
		309	1,960,819	5.2			
	Prefectural natural parks	(308)	(1,961,830)	(5.2)	-	-	-

Wildlife protection areas

In order to protect wildlife and their habitats, the government has designated some areas as wildlife protection areas, based on the Wildlife Protection and Appropriate Hunting Law. The government regulates wildlife hunting in these protected areas and designates particularly important portions of them as special protection areas with activity regulations, in order to conserve a variety of wildlife species and their habitats.

Wildlife protection areas are categorized into two types: national and prefectural designations. Japan has sixty-nine national wildlife protection areas, totaling 548,012 ha (as of November 2008), following an increase in the number of designated sites (such as wetlands) of international importance as migratory bird habitats. In addition, there are 3,815 prefectural wildlife protection areas, totaling 3,092,594 ha (as of December 2008).

The Wildlife Protection and Appropriate Hunting Law was amended in 2006 to launch conservation programs that improve the habitat environment, including lake water quality improvement and the installation of facilities to prevent the penetration of animals affecting wildlife habitats in wildlife protection areas. In FY 2007, conservation programs were begun at four sites of national wildlife protection areas, including Manko.

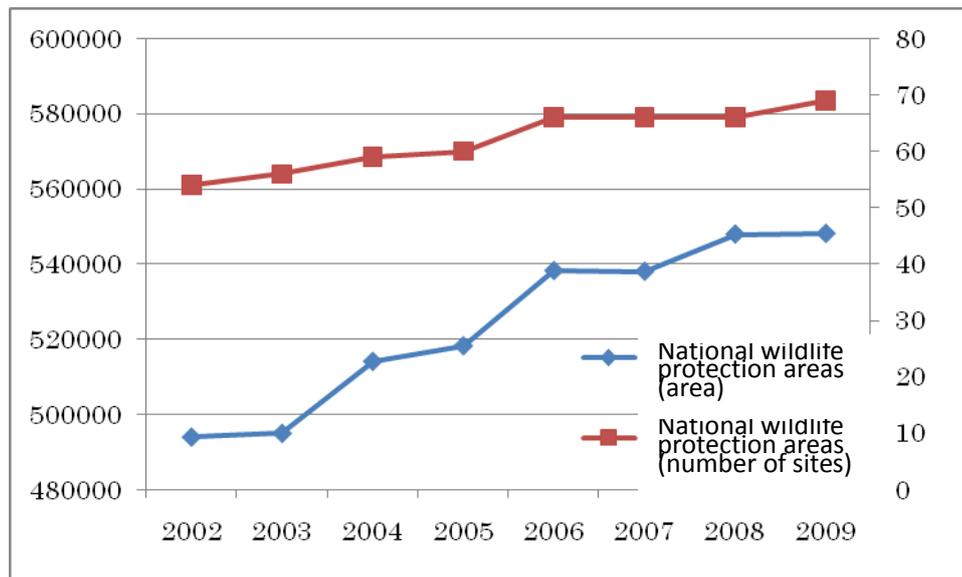


Figure 1. Transition of the number and area of national wildlife protection areas

Natural habitat conservation areas

Natural habitat conservation areas are designated for the conservation of specific national endangered species under the Law for the Conservation of Endangered Species of Wild Fauna and Flora. Within each natural habitat conservation area, particularly important areas are designated as management areas in which permission is required for various activities. Other areas are designated as surveillance areas in which reports are required on various activities. Habitat environments are conserved through such activity regulations.

Table 2. Transition of the number and area of natural habitat conservation areas

	2002	2009
Natural habitat conservation areas	6 species 7 areas 863ha	7 species 9 areas 885ha

Conservation of cultural landscapes

- Protection of places of scenic beauty, natural monuments and cultural landscapes

Under the Japanese Law for the Protection of Cultural Properties, gardens, bridges, gorges, seashores, mountains, and other places of scenic beauty which possess a high

artistic or scenic value, as well as animals, plants and geological and mineral formations, which possess a high scientific value, are protected. The government designates important items in categories such as Scenic Beauty and Natural Monuments and takes measures to restrict any action that affects cultural properties; it also provides financial assistance to cover part of the costs for the implementation of preservation, repair work, environmental improvement, growth promotion, etc. As of January 1, 2009, one hundred forty-seven Natural Scenic Beauties and nine hundred eighty Natural Monuments were designated as protected. In addition, local governments designate monuments under various ordinances, and it is important to protect these monuments as cultural properties for preserving the natural biodiversity of each community. Cultural landscapes are landscape areas that have developed in association with the modes of life or livelihoods of the people and the natural features of the region, which are indispensable for the understanding of our people's modes of life and livelihoods. The government, at the request of local governments, selects cultural landscapes of especially high value as Important Cultural Landscapes and provides financial assistance to local governments to cover part of the costs for their repairs and restoration. A person who intends to take any action that affects the preservation of these areas is required by the aforementioned law to notify to the government. As of January 1, 2009, nine Important Cultural Landscapes had been selected. The protection of cultural landscapes that are the combined work of nature and humankind—such as the Terraced Rice Paddy and *satochi-satoyama*—preserves natural biodiversity through a sustainable relationship between nature and humans.

Protected forests and protection forests

“Protected forests” are national parks in which virgin natural forests or habitats for precious wildlife species are protected through management using natural succession. The government has designated such protected forests and networked protected forests as “green corridors” for the conservation of biodiversity, while requesting cooperation from private forests and neighboring protected forests.

National or private forests that are required to have water recharging and other public functions have been systematically designated as “protection forests” under the Forest Law. In order to secure protection forests' functions according to their respective purposes, the government has appropriately managed and conserved them through regulations on logging and changes in their use.

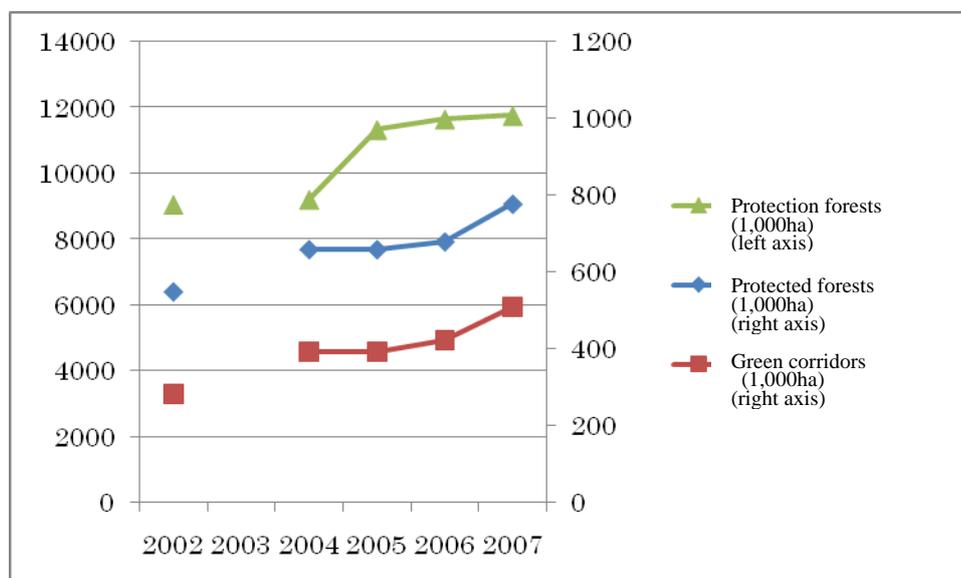


Figure 2. Transition of the area of protection forests, protected forests, and green corridors

Special Green Conservation Areas, etc.

In urban regions, the government has conserved green spaces that form important natural environments for conserving biodiversity by designating green conservation areas and special green conservation areas under the “Urban Green Space Conservation Law.” It has also designated suburban green conservation areas and special suburban green conservation areas under the “Law for the Conservation of Green Belts around the National Capital Region” and the “Law for the Development of Conservation Areas in the Kinki Region.” Through the revision of the Act for Urban Green Spaces in 2004, a system for the conservation of wide-area green spaces, such as *satochi-satoyama* in suburban areas, with comparatively mild control was established; this enhanced the appropriate conservation of natural environments.

At the end of March 2008, the designation covered three hundred seventy-two special green conservation areas, totaling 2,106 ha, twenty-five suburban green conservation areas, totaling 97,073 ha, and twenty-six special suburban green conservation areas, totaling 3,456 ha.

(3) Nature restoration

Measures based on the Law for the Promotion of Nature Restoration

The Second National Biodiversity Strategy of Japan positioned nature restoration as one of three directions for future measures and policies. The relevant central government ministries and agencies, along with various other parties, have started joint nature restoration projects. In order to comprehensively promote nature restoration measures and policies, the Law for the Promotion of Nature Restoration was enacted and took effect in January 2003.

Regional nature restoration committees were inaugurated at various points in Japan and had launched a total of twenty regional committees as of January 2009. Various ecosystems, including forests, grasslands, *satochi-satoyama* areas, rivers, lakes, wetlands, tidal flats, and coral reefs, have become subject to nature restoration projects. As of January 2009, eighteen regional committees have prepared comprehensive nature restoration schemes (hereafter referred to as “comprehensive schemes”), indicating overall nature restoration directions, including restoration objectives and target areas. Under these comprehensive schemes, the committees make nature restoration implementation plans (hereafter referred to as “implementation plans”) that provide the details of specific nature restoration projects. As of January 2009, nine regional committees had produced fifteen implementation plans.

After five years had passed since the enforcement of the Law for the Promotion of Nature Restoration, the government reviewed the implementation and measures of nature restoration projects. Based on the Third National Biodiversity Strategy and the Basic Act on Biodiversity, the Cabinet adopted a partial change in the Basic Policy for Nature Restoration in October 2008.

The relevant administrative organizations have been implementing nature restoration at one hundred forty-four sites (as of October 2006), including those for the aforementioned regional committees. Various entities, including relevant central government ministries and agencies, local governments, NGOs, experts, and local residents, have been coordinating and cooperating with these nature restoration projects. Since FY2007, the Ministry of the Environment has implemented wildlife habitat

improvement projects under its direct control in national wildlife protection areas. In 2007, it launched such projects at four sites, including Miyajima Marsh. (See also (2) Wildlife protection area)

(4) Agriculture, Forestry and Fisheries

The agriculture, forestry and fisheries sector is closely connected with biodiversity, as it contributes to provision of precious habitats for various wildlife species in nature, and formation and maintenance of unique regional ecosystems, making use of the natural circulation functions.

Therefore, conservation of biodiversity is indispensable as the basis for maintenance and development of sustainable agriculture, forestry and fisheries.

In developing agriculture, forestry and fisheries policies, based on the “Ministry of Agriculture, Forestry and Fisheries’ Strategy for Biodiversity Conservation” formulated in July 2007 and “The Third National Biodiversity Strategy”, Ministry of Agriculture, Forestry and Fisheries (“MAFF”) has been working on promotion of the biological diversity in agriculture, forestry and fisheries, and has developed the quantitative indicators to measure the relationship between agriculture, forestry and fisheries and biodiversity, for conservations of:

- 1) countryside and Satochi-Satoyama areas (natural resources and human activities coexist in the rural/mountain region);
- 2) forests;
- 3) “Sato-umi” (the sea, in the coastal area, where high productivity and rich biodiversity have been conserved by the modification implemented while keeping harmony with natural ecosystems) and other sea areas; and
- 4) Genetic resources and sustainable utilization.

Moreover, in accordance with the recommendations submitted in July 2008 by the MAFF Biodiversity Strategy Working Group comprising of outside learned experts, the government promotes public understanding for the agriculture, forestry and fisheries sector contributing to the conservation of the nature and familiar living things through the symbol mark project of “living creature mark”.

*Figure 3. Promotion of the biodiversity conservation-conscious agriculture, forestry and fisheries sector

(5) Forests

Japan is a country with rich green forests, which cover two-thirds of the total land area. The forests are important components of conservation of biodiversity in our country as various types of forests ranging from artificial forests planted to green the national land after World Wide War II to virgin natural ones designated as World Natural Heritage Site including Yakushima island, Shirakami mountain range and Shiretoko area serve as the habitats of a wide range of wildlife.

For this reason, MAFF has formulated “the Ministry of Agriculture, Forestry and Fisheries Biodiversity Strategy” as guidelines to strongly promote the biodiversity conservation-conscious agriculture, forestry and fisheries sector and will implement the measures and policies based on this strategy.

As efforts to conserve biodiversity in the filed of forests and forestry, conservation and management of the precious nature as well as promotion of maintenance and conservation in order to sustain forests’ multiple functions have been underway. Those efforts include the “National Initiative of Creating Beautiful Forests” activities as a collaborative undertaking of public and private sectors, in so as to comprehensively perform maintenance and preservation of forests, utilization of domestic lumbers, fostering of forestry workers, and community vitalization with the understanding and cooperation of a wide range of people. As for Satoyama forests (community-based forests), which require appropriate care for maintenance of the nature, the efforts to disseminate the importance of forests and forestry are also promoted as well as maintenance and preservation by various entities in conjunction with the activation of rural areas.

In the meanwhile, the sustainable forest management in foreign countries has been promoted through international cooperation and multicounty support on forest conservation and reforestation.

【Case】

Appropriate care and maintenance for an artificial forest forms a rich forest where invading broad-leaved tree and luxuriant understory vegetation can be found.

*Photo1. Care and maintenance for an artificial forest (Shitara-cho, Shitara-county, Aichi-prefecture)

【Case】

Extermination of nonnative trees is also required to conserve local endemic biota and ecosystems.

*Photo 2. Extermination of nonnative trees (Hahajima island, Ogasawara)

For fiscal year 2008, since assessment of current status and trend of biodiversity for forests and simple reporting of it is an issue to be solved, development of indicators for biodiversity of forests, such as surveys to select indicative species including insects and plants to be used for assessment of biodiversity, has been launched.

Moreover, “Working group for promoting biodiversity conservation in forests” chaired by Takanori Arima (chief of Miyazaki Prefectural Wood Utilization Research Center), was set up so as to follow up the Ministry of Agriculture, Forestry and Fisheries Biodiversity Strategy and to make appropriate adjustments for tenth meeting of the Conference of the Parties to the Convention on Biological Diversity (“COP10”) to be convened in Aichi-prefecture in 2010.

(6) Countryside and *satochi-satoyama* areas

Countryside and *Satochi-Satoyama* areas have paddy fields, water channels, reservoirs as well as coppice, groves, protective trees around residence, hedges, etc. and those diverse environments form a network and provide biologically rich spaces with the help of continuous agricultural or forestry operations, and diverse wild animals and plants inhabit those spaces.

In such countryside and *Satochi-Satoyama* areas where the environment is close to people due to human commitment and care, any inappropriate use of agricultural chemicals or fertilizers, as well as economy- and efficiency-oriented operation may have influence on biodiversity. In addition, while some native animals and plants that used to be regularly observed in those areas have been decreasing, certain other wild animals have tended to expand their habitat range in recent years as a consequence of the decreased use of community-based forests or the increase in abandoned farming lands due to shortage of manpower in agriculture and forestry. As a result, there is a tendency that damage caused by wild birds and animals on agricultural and forestry activities is getting serious.

In this light, the measures for improvement or conservation of countryside and *Satochi-Satoyama* areas should be implemented in a way that pays more attention to the promotion of biodiversity-conscious agricultural activities, so that biodiversity will be conserved and people can have safe and good-quality foods as well as a biologically rich environment. It is also necessary to promote measures to increase people’s interaction with wildlife and deepen public understanding of the potential influence of agriculture on biodiversity, from the viewpoint that agriculture plays the role of supporting the life of diverse living creatures in addition to the role of providing food, and it is important to vitalize agricultural or mountain villages.

Furthermore, in order to hand over countryside and *Satochi-Satoyama* areas to future generations in a way that maintains their ability to provide safe, good-quality foods as well as a biologically rich

environment, it is essential to address various issues, such as promotion of agriculture and forestry, regional vitalization, conservation of biodiversity and succession of culture, with the utilization of not only ancient wisdom fostered through a long history but also state-of-the-art biomass technology as well as collaborative efforts among all relevant organizations and citizens. In that process, it is also important to attain social consensus based on scientific grounds.

Promotion of Sustainable Agriculture

- Promotion of eco-Farmer

Eco-farmers are those who prepare plans to introduce techniques for improving the quality of soil and for reducing the application of synthetic chemicals and synthetic agricultural chemicals in a unified manner based on “Law for Promoting the Introduction of Sustainable Agricultural Production Practices” and are publicly approved by prefectural governors.

Recently, against the backdrop of the increased people’s interests in prevention of global-warming and conservation of biodiversity, the awareness of nature conservation is growing. The number of approved eco-farmers was nearly 168,000 as of the end of March, 2008.

【Case】 Efforts undertaken for a Ramsar site "Kabukuri-numa and the surrounding rice paddies".

The efforts of “Fuyumizu-Tanbo (paddy fields submerged in winter)”, which is intended to achieve coexistence of migratory birds and farming system, has been implemented for Shinpo-region (Tajiri, Osaki-city, Miyazaki-prefecture) since 2003, and “Shinpo Fuyumizu-Tanbo productive cooperation” was established.

*Photo 3. Ramsar site “Kabukuri-numa and the surrounding rice paddies”

The implemented “Fuyumizu-Tanbo (paddy fields submerged in winter)” covers 19.4 hectares.

Composting postharvest paddy fields or submerging them in winter, with the straws left on the soil, can create an environment, in which microorganisms can more likely to grow and multiply. This enables microorganisms and aquatic animals to decompose straws. Soil-making is performed by supplying the decomposed straws to the soil as a nutrient. Tackling cultivation without chemosynthetic pesticide and artificial manure can lead to a better habitat of living things. An effort to sustainable agricultural production brings up biodiversity and the value-added rice, which is harvested from paddies where migratory birds are coming, can lead to regional promotion and activation of regional economy.

In addition, in November, 2008, the "improvement (so-called “rice field resolution”) of the biological diversity in the rice field as the damp ground system" that paid attention to a role of rice fields against conservation of biodiversity was adopted at the 10th Meeting of the Conference of the

Contracting Parties (COP10).

- About future Sustainable Agriculture

“The Study panel on the future Sustainable Agriculture (chaired by Kikuo Kumazawa, professor emeritus at Tokyo University)”, which consists of academic experts concerning the soil and manure, consumers and farmers, has been established. Eight meetings have been held during the period from October, 2007 to March, 2008, and examined the public benefits of the farmland soil including a crop production function, a carbon pool function and a material circulation function.

In addition, in consideration of the evaluation for the past actions of Sustainable Agriculture, the government has promoted Sustainable Agriculture to clarify a viewpoint to "improve the function of public benefits of agriculture for the environment" and specifically positioned global warming prevention and biodiversity conservation as a purpose of Sustainable Agriculture.

- About the promotion of the organic farming

Organic farming is a farming approach to mitigate burdens on the environment based on the idea not to use artificial manure and pesticide chemicals. While this approach is in accordance with the consumers' needs, more approaches have to be developed for comprehensive promotion and "A law about the promotion of the organic farming" was promulgated in December, 2006.

Based on enactment of the “law about the promotion of the organic farming”, MAFF has devised the “Basic policy about the promotion of the organic farming” in April, 2007, and promoted the measures and policies with more attention to develop and maintain the conditions for more proactive organic farming by farmers, including development and dissemination of organic farming technology and promotion of the understanding interest from consumers.

Furthermore, the government has implemented the measures of comprehensive supports for organic farming since Fiscal Year 2008, in order to fulfill the promotion plans, and provided supports for organic farming approaches including building a model town as a core for the promotion of organic farming to forty-five national districts.

【Case】 A special exhibition at the Consumers' Room, “World aiming at the organic farming”

Continuing from the previous year, MAFF, in cooperation with organic farming organizations, introduced exhibitions on organic farming from 10th through 14th of November, 2008, receiving more than a thousand visitors. As well as exhibitions on organic farming and lectures by organic farmers, the special menus using organic farm products were served at the staff cafeteria in the ministry in order to please the visitors with organic farming products during this period.

*Photo 4. A special exhibition at the Consumers' Room, “World aiming at the organic farming”

The infrastructure maintenance considering biodiversity

- The infrastructure maintenance considering biodiversity

In the farm village of our country, various environments (secondary nature), such as drainages, reservoirs, and the grove of miscellaneous trees, which can be secondary forest, as well as farmlands including rice paddies, have been formed through human approaches including agriculture, become habitats for many animals, and formed good scenery.

In conserving the environment for such farm villages, efforts for the appropriate management and maintenance considering the harmony with the environment and approaches for sustainable agriculture, including conservations of the habitat and environment for animals and ensured migration channels, are required.

Case: Farmland maintenance for promotion of wildlife reintroduction of white storks

The city of Toyooka, Hyogo prefecture, has been engaged in conservation and proliferation of white storks, mainly around the Hyogo Prefectural Homeland for the oriental white stork. As for farmland maintenance, the maintenance of watercourses connecting paddy fields and drainages, in which oriental weather fish that can be a prey for oriental white storks can live, has been performed (11 locations, as of November, 2008).

*Photo 5. Farmland maintenance for promotion of wildlife reintroduction of white storks

- About the promotion of the actions

The government implements the maintenance of the infrastructure considering biological diversity on the basis of "the rural district environment maintenance master plans" established by municipalities as a basic plan for the environmental conservation of the farm village areas. Those plans have been established by 2,708 (as of March, 2008) out of 3,148 municipalities (total number of municipalities as of March 2004).

In addition, the government has implemented "Pilot project of agricultural infrastructure improvement considering biodiversity". In the project, so that adopting the biodiversity perspective with local understanding, "indicator species" are selected, which local farmers and local people have recognized the necessity of conservation.

*Figure 4. Pilot project of agricultural infrastructure improvement considering biodiversity

Promotion of damage control for harms to agriculture, forestry and marine products caused by wild birds and beasts

- Comprehensive and effective enforcement of damage control of harms caused by wild birds and beasts

Recently, with expanded habitat distribution of wild birds and beasts and increased cultivation abandoned places due to depopulation and aging in rural areas, damage on agriculture, forestry and fisheries caused by wild animals has been getting increasingly widening and serious.

In addition, alien species such as raccoons come to threaten the ecosystem of Satochi-Satoyama area as well as to cause damage to agriculture, forestry and marine products.

Basically, wild animals tend to be timid and easily frightened by human beings, and therefore hide themselves in a bush or other unseen places close to agricultural lands to attack crops. Therefore, it is important to promote habitat segregation between humans and wild animals, and efforts to prevent crop damage by wild birds or animals should be made in a comprehensive way that covers the management of their habitat environment and their population control as well.

The Act on Special Measures for the Prevention of Damage due to Wildlife has been implemented since February, 2008. The government is practicing the operations of comprehensive measures for preventing birds and beasts harm since fiscal year 2008, in order to provide comprehensive support to those efforts based on a damage prevention plan for a municipality.

Case: Regional control for wild birds and beasts damage by two municipalities' cooperation

Sanagochison and Kamiyamacho in Tokushima prefecture cooperate and are engaged in wild birds and beasts damage control, in order to achieve 30% reduction of the amount of damage, including;

- Population adjustment by setting the box trap
- Upbringing of dogs to send away monkeys
- The telemetry survey on monkeys
- Setting of the buffering zone by livestock pasturing and wiping-out of cultivation abandonment place to make further advances in habitat segregation of humans and wildlife (cows and goats)

*Utilization of operations of comprehensive measures for preventing wild birds and beasts harm for FY2008

*Photo 6. Trained dogs sending away monkeys

*Figure 5. Setting of the buffering zone by livestock pasturing

- About the promotion of the action

The number of cities, towns and villages, which establish a damage-prevention plan in accordance

with the law concerning special measures prevention of wild birds and beasts damage by the end of this year, counts up to 740. The government is going to continuously provide comprehensive support to a proactive action based on a damage prevention plan for a municipality.

Model project for the conservation and restoration of *satochi-satoyama* areas

The Ministry of the Environment has carried out a “model project for the conservation and restoration of *satochi-satoyama* areas” at four sites in Japan since FY 2004. This project is to establish a system for conservation and restoration through collaboration with government agencies such as the Ministry of the Environment, the Ministry of Agriculture, Forestry, and Fisheries, and the Ministry of Land, Infrastructure, Transport, along with local governments, experts, local residents, and NPOs. It will conduct the establishment of local strategies, the execution of conservation management, and the implementation of restoration, improvement, and promotion. In the areas in which it has conducted model projects, valuable measures have been implemented, such as the promotion of recruitment, the training of new volunteer workers by local governments, conservation and monitoring activities for endangered species and organic agriculture by local residents, and the promotion of biodiversity conservation through the maintenance and revival of local traditional works. Through the dissemination of model activities across the nation, the project also encourages various stakeholders to carry out activities for the conservation and restoration of *satochi-satoyama* areas in Japan.

Forest development based on the agreement on work practice by NPOs etc.

- In order to improve forest development with the participation of citizens, a system was established in FY 2004 to promote the conclusion of agreements on forest work practices between NPOs, by carrying out voluntary activities for forests and forest owners. Based on this system, eight agreements were concluded in FY 2005. Those contracting parties have been conducting conservation and development activities for *satoyama* forests.

Measures for abandoned agricultural land

- The Ministry of Agriculture, Forestry and Fisheries has created an action plan to enhance the measures to fix up abandoned agricultural land (totaling 386,000 ha according to a survey conducted in 2005), which causes quality deterioration of

ecosystems in *satochi-satoyama* areas. The measures have been implemented by the national government, prefectural governments, agricultural committees, and municipal governments. The specific measures are indicated as follows.

- 1) In order to deal with unused agricultural lands, locally-owned approaches are taken with the following steps: specification of a municipality's basic plans based on Kaisei Nougyo Keieikiban Kyoka Sokushinhou (the Revised Act on the Promotion of Improved Farm Management, put in place in September 2005), selection of unused lands for agriculture, and adoption of various support measures.
- 2) The Ministry of Agriculture, Forestry and Fisheries has created the Kousaku Houkichi Taisaku Suishin no Tebiki (Guide to Implementation of Measures Against Abandoned Agricultural Lands) in order to support local activities and distribute to relevant organizations for its wide-range promotion in April 2006. In addition, the Ministry conducts an investigation every fiscal year in order to quantify the area of abandoned agricultural lands in designated agricultural regions. This is for the purpose of recognizing the real situations of municipalities' implementation of the basic plan for unused agricultural lands. The Ministry then provides suggestions for municipal governments, as needed.

(7) Urban Areas

Conservation, restoration and creation of green spaces in urban areas

- Building of Ecological Networks

Urban areas essentially give priority to human activities. In those areas, land use is dense and many burdens to the environment are concentrated therein. Natural spaces, such as the habitats of various organisms, have decreased; therefore, based on the Master Plan for City Planning Areas and the Green Master Plan of the Urban Green Space Act, important natural environments in urban areas are deliberately and effectively conserved and networked. Urban parks, rivers, roads, and water spaces are developed and conserved synthetically and the building of ecological networks in urban areas is promoted.

Currently, the Green Master Plans are formulated in about seven hundred municipal governments in the country and cover eighty percent of the Japanese population.

- Development of urban parks

Urban parks serve various functions, such as forming habitats for wild organisms and

spaces for interacting with nature. Those are the core of their contribution to biodiversity in urban areas. In the five years of the Intensive Development Plan of Social Capital (2003-2007), the parks and green spaces that contribute to conservation and to the sustainable use of biological diversity would be increased by 2,100 ha. A record of 2,800 ha has been reported.

For example, “Biwako Chikyu Shimin-no-mori” in Shiga prefecture is a green restoration project in a disused river, in which tree planting has been supported by citizen participation. Moreover, Nagoya City, where COP10 will be held, has conducted restoration of Higashiyama Zoo and Botanical Gardens, and has revitalized the town.

- Conservation of green spaces

A Special Green Conservation Area contributes to the habitats of organisms; the government promotes the designation of such areas based on the Urban Green Spaces Act so as to conserve important green spaces in urban areas.

For example, Kawasaki City has actively designated those areas, which covered 28 ha in 2002 and had expanded about threefold to 78 ha in 2007.

- Promotion of greening

The promotion of greening is an important effort in urban areas that have few natural environments. Nagoya City is a pioneer in the designation of Greening Areas, which it first did in October of 2008 based on the Urban Green Spaces Act. That area equals all of the designated area for urbanization and covers 93% of the city. A Greening Area system is obliged to create a 10-20% green space based on building coverage ratio when new buildings or extensions to existing buildings are constructed in more than 300 square meter of land.. There is a test calculation that 35 ha in green spaces are created every year by the estimation of recent building statistics. Other cities are working on the designation of Greening Areas and more promotion is needed.

*Figure 6. Image of ecological networks

(8) Rivers and wetlands

Nature Restoration Project

Kushiro Wetland is the largest of its kind in Japan, accounting for approximately 60% of Japan’s total wetland area. It is the habitat of the red-crowned crane (a Special National

Monument), the Siberian salamander, and the Japanese huchen; it also serves a range of functions for humans, including water retention and purification, flood control, and regional climate mitigation. It is an invaluable asset that should be conserved in the future.

Nevertheless, the area of the wetland has decreased by about 30% over the past sixty years with the expansion of economic activities in the basin, and the area of alder forests has expanded fourfold due to the influx of sediment and nutrient salts. Qualitative and quantitative changes in Kushiro Wetland have progressed with significant speed.

The Kushiro Wetland Restoration Committee was established in November 2003 with members including local residents, stakeholders, NPOs, experts, municipalities, the prefectural government, and the national government. The Comprehensive Concept for Restoring Nature in Kushiro Wetland was established in March 2005, while the Implementation Plan for the Kayanuma District Old Channel Restoration Project and the Implementation Plan for the Kuchoro River Sediment Control Project were drawn up in August 2006.

In the Kayanuma District, efforts are underway to restore the meandering of the previously straightened part of Kushiro River, with the aim of restoring the habitats of native fish and other creatures as well as wetland vegetation.

*Figure7. Changes in Kushiro Wetland

*Figure8. Restoration of the river's meandering

(9)Coastal Areas and Oceanic Areas

Development and conservation of underwater plant beds and tidelands

Underwater plant bed and tideland play an important role to conserve and enhance fishery resources, through such as offering spawning grounds to marine living resources. Also, they have functions to purify water and maintain marine biodiversity. Therefore, they are considered as one of the social resources which support public welfares. Ministry of Agriculture, Forestry and Fisheries (MAFF) promotes conservation of underwater plant beds and tidelands with a view to conserving and enhancing fishery resources as well as to realizing their various functions for public welfares.

*Functions of underwater plant bed

Underwater plant bed offers spawning grounds to many living resources because of its calm environment. In addition, underwater plant bed is functioning as nursling ground, and many aquatic species inhabit underwater plant beds during their juvenile stages. Underwater plant bed is usually rich in food for juveniles and provides them many hiding places with which juveniles can reduce the risk being attacked by predators.

*Functions of tideland

Tideland serves as a nursling ground, and many aquatic species inhabit tidelands during their juvenile stages. There are several reasons for this such as (1) suitable water temperature, (2) ample dissolved oxygen, (3) less contact with predators in the sea and (4) efficient feeding of benthic organisms distributing abundantly in tidelands. In addition, many bivalves such as short-necked clams and common oriental clams inhabit tidelands, and hence tideland becomes highly effective area in purifying sea water.

• Renovation and development of underwater plant beds and tidelands. – Fisheries Infrastructures Improvement Projects -

The Long Term Plan on Improvement of Fisheries Infrastructures established in June 2007, is targeting renovation and development of underwater plant beds and tidelands at about 5,000 ha for five years from 2007 to 2011.

In order to achieve the target, MAFF, in collaboration with prefectural governments concerned, has promoted renovation and development of underwater plant beds and tidelands through Fisheries Infrastructures Improvement Projects. In 2007, the first year of the project, about 1,275 ha of underwater plant beds and tidelands were renovated and/or newly developed, that accounts for about 26% of the target.

* Figure 9. Conservation of underwater plant beds and tidelands

• Technical supports for fishermen to tackle with barren grounds – Program for Restoring Fishing Grounds from Large-Scale Barren Grounds–

Significant and long-term deterioration of underwater plant bed, that is called “Barren Ground”, is caused by several reasons including feeding on sea weeds by sea urchins and/or herbivorous fishes as well as atmospheric changes in the ocean. For the purpose

of preventing expansion of barren grounds, MAFF, in collaboration with prefectural governments concerned, has provided fishermen with trainings and technical supports for renovating and/or creating underwater plant beds and developed techniques to effectively prevent expansion of barren grounds.

Concretely, MAFF has been gathering, from various regions with different cause of barren grounds and countermeasures thereon, technical knowledge for developing implementation plan to renovate underwater plant beds and to evaluate the results, and eventually transferred and promoted those measures and know-how for their effective implementation to other regions.

*Photo 7. Training for fishermen to tackle with barren grounds

*Photo 8. Countermeasures against feeding damages by sea urchins

• Support to activities by fishermen and local societies in conserving the environment/ecosystem– the environment/ecosystem conservation actions-

Fishermen have maintained functions of underwater plant beds and tidelands in their spare time. However, decrease in the number and aging of fishermen have made them difficult to make those contributions. Consequently, continuous reduction and/or deterioration of functions of underwater plant beds and tidelands have become progressed since 1998. As a result, there have arisen several serious concerns such as declining catch reflecting decrease of fishery resources and pollution of seawater.

In order to cope with such situation, MAFF has decided to promote conservation activities by fishermen and local societies, contributing to maintenance and recovery of functions of underwater plant beds and tidelands. In this connection, MAFF conducted preliminary surveys from 2007 to 2008 with a view to commencing a related program from 2009.

*Photo 9. Distribution of mother algae of Sargasso weed

*Photo 10. Placement of artificial inverted-bamboo-grove-type reefs

【Case】 -Panel on Support Scheme for the Environment/Ecosystem Conservation Activities -

In order to establish a scheme to support activities for appropriate conservation of the environment and its associated ecosystems, MAFF has sponsored the Panel on Support

Scheme for the Environment/Ecosystem Conservation Activities. In the panel, experts discussed the matter from various perspectives and elaborated in July 2008 an interim report that should be a basis for the mentioned support scheme.

Conservation, Restoration, and Creation of Coastal Environment

The seacoast provides a variety of habitat environments for living organisms, and many kinds of unique living organisms exist there. The seacoast fulfills a valuable role by protecting the lives and property of the people who live inland from such disasters as tsunamis, high tides, and coastal erosion. It also plays an important part by providing a place for swimming and various other activities.

Recent years have seen the decline of the natural seacoast and natural environment due to such disturbances as the development of coastal areas, the disappearance of precious sandy beaches, which are important habitats of organisms, and coastal erosion and other forms of damage to the coastal environment as a consequence of vandalism of coasts and off-road driving on beaches, and other factors.

To respond to these issues, the basic concept of coastal conservation is “to hand down beautiful, safe and lively coasts to the next generation as public property”. With this concept in mind, comprehensive and harmonious measures for coastal conservation should be implemented to protect seacoasts from hazards, improve and conserve the coastal environment, and promote proper use of the coasts by the public

Various efforts are under way, such as the Eco-Coast Project to form coastal areas that are in harmony with the natural environment. Under the project, a great deal of thought and ingenuity are devoted to the placement and construction of facilities in coastal areas, and such activities as the preservation of sandy beaches are carried out. This has been implemented in, for example, coastal areas that are important habitats for sea turtles, horseshoe crabs, and other marine life, as well as for wild birds such as little terns and plovers, and in coastal areas where it is critically important to achieve a harmonious balance between the facilities and the natural scenic beauty.

*Photo11. Promoting efforts that take into consideration the natural environment and ecosystem

Preservation, reproduction, and creation of port and harbor environments

In Japan, where the land is surrounded by the sea, the population collects at the waterfront; ports and harbors are traffic bases that support distribution, serving as a junction of maritime transport and land transport, while waterfront spaces serve as the place where seaside areas combine with continental areas. Ports and harbors play a major role in the improvement of the national quality of life and the development of industrial activity. We must therefore actively work on the preservation, reproduction, and creation of port and harbor environments—considering biodiversity—and pass on the marine environment to future generations in good condition, so that ports and harbors can always comply with the varying requests of society.

As one such activity example, the Ports and Harbors Bureau promotes sand capping (Sea Blue Project), which covers the dirt piled up at the bottom of the sea by using good dredged sand; it also facilitates port and harbor improvement and attempts to improve water environments and recover biodiversity.

According to the monitoring study on the sand capping (Sea Blue Project) executed in FY2005-2006 in the Chidorioki area of Urayasu City in the Chiba Prefecture at the head of the Tokyo Bay, the number of individuals and kind of benthos are in the increasing tendency and the elution of nitrogen and phosphorus from the bottom sediment is controlled even now two years passed after the sand capping, and the effect of this project is confirmed.

*Figure 10. Sand capping project

*Figure 11. Monitoring the results of sand capping project

2.2 Cross-sectional and fundamental measures

(1) Protection and management of wildlife

Protection of threatened species

In order to conserve wildlife, it is important to accurately and specifically understand which species are endangered. That is why we have established the “Red List,” a list of the species that are threatened with extinction; we have released that List to the public in order to deepen people’s understanding of the threatened species.

Also, in accordance with the Law for the Conservation of Endangered Species of Wild Fauna and Flora (hereafter referred to as the “LCES”), the national endangered species of wild fauna and flora have been designated, in order to ensure that the capture or transfer of those designated species are restrained and that their habitats are appropriately protected. In addition, in order to target critically endangered species—for which extra measures seem to be necessary to promote breeding or improvement of habitats, etc.—programs for the rehabilitation of natural habitats and maintenance of viable populations are being planned and implemented.

Table 3. The number of national endangered species of wild fauna and flora and programs for the rehabilitation of natural habitats and maintenance of viable populations

	2002	2009
National endangered species of wild fauna and flora	56	81
Programs for the rehabilitation of natural habitats and maintenance of viable populations	21	47

• *Ex situ* conservation

Conservation measures with *ex situ* breeding have been promoted to target the sixteen critically threatened species (as of November 2007) whose survival is considered to be difficult, exclusively through *in situ* conservation measures. Those species include stork (for which efforts to reintroduce them to the wild are underway in Hyogo Prefecture), Japanese crested ibis, Tsushima cat, Okinawa rail, and others. In order to implement *ex*

situ conservation measures, wide-range participation of local public bodies, diverse research institutes, and private organizations is essential; moreover, zoological and botanical gardens play a particularly central role in these initiatives.

In January 2009, Japan compiled the proper type of *ex situ* conservation for endangered species and created the Basic Policy for *Ex situ* Conservation of Endangered Species of Wild Fauna and Flora. By considering ideal types of *ex situ* conservation, this Basic Policy encourages various stakeholders to cooperate and collaborate with each other and to systematically and effectively improve the conservation. For example, the Japanese Association of Zoos and Aquariums organized the Species Survival Committee to manage a studbook and control the removal of animals from their natural environment; it has attained significant achievements regarding the breeding of animals in captivity.

Also, the Japan Association of Botanical Gardens set a goal to “collect and conserve 50% of endangered plants by 2012” in response to the Global Strategy for Plant Conservation (GSPC). The Association also established a network to collect and conserve endangered plants by designating a National Network of Botanic Gardens for the Conservation of Plant Diversity nationwide, and develop its database. Each of those core gardens has been given a mission to collect and conserve endangered plants in its own region and to promote regional efforts in cooperation with local public bodies and educational institutions.

【Case】 Japanese Crested Ibises

Japanese crested ibises had become extinct in the wild by 1981; however, their population was restored with the success of artificial incubation in Sado Island and other areas, and had increased by one hundred twenty-two in captivity as of September 2008. Ten artificially raised and trained ibises were released into the wild in September 2008, for the first time in the twenty-seven years since all wild ibises in Japan had been captured for artificial breeding. Japan will improve the environment for the ibises' habitat, such as feeding grounds and roosts. Japan will continue to release ibises with the cooperation of local communities and aims to have sixty ibises settle in the wild around 2015.

【Case】 Seed preservation

In October of 2008, Japan began seed preservation activities for endangered plant species at the management office of the Shinjuku Gyoen National Garden.

Wildlife management

• Specified Wildlife Management Plan

In order to conduct a scientific and systematic wildlife management, Japan has been developing the Specified Wildlife Management Plan, which takes care of population control, habitat environment management, and damage prevention. As of January 2009, a total of ninety-nine plans had been developed, including thirty-five for Japanese deer, thirteen for Asiatic black bears, eighteen for Japanese monkeys, twenty-five for wild boars, seven for Japanese serows, and one for great cormorants.

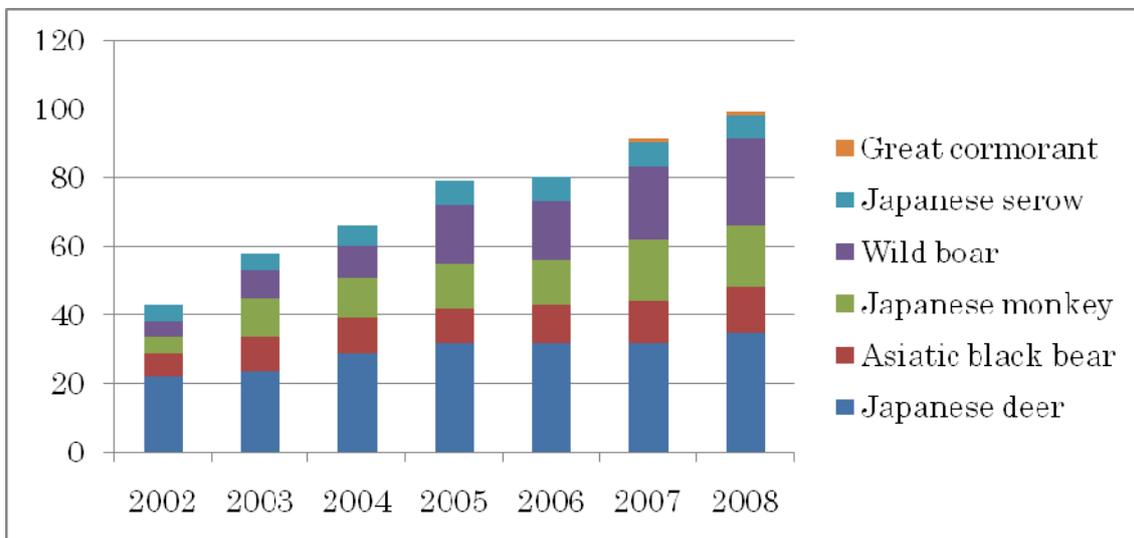


Figure 12. The number of developed Specified Wildlife Management Plans by species

• Wide-range wildlife management

Targeting those species that are distributed over multiple prefectures, the government will establish wide-area management guidelines in cooperation with relevant prefectures and those guidelines will be reflected in each prefecture's Specified Plan. The government will also introduce damage prevention measures based on its understanding of the inhabiting status of local populations. It is necessary to implement consistent wildlife management in every prefecture. As for great cormorants, a wide area council has been established and basic policies for wide area management have been formulated in order to coordinate wide area wildlife management among multiple prefectures.

- Avian influenza

An outbreak of highly pathogenic avian influenza (HPAI) has already occurred in Japan. Wild birds could play a part in the spread of the HPAI virus. It is desired that clarification of the infection route is in a hurry.

The government will strengthen the monitoring of wild birds, through which system migratory birds will be caught at their stopover points and examined for the status of their possession of the HPAI virus. The monitoring results will be utilized for domestic measures of wildlife protection and for the clarification of the virus's infection route. In addition, in the event of an outbreak of HPAI, the government has been sending officials and experts to the affected site immediately to conduct an inspection of the status of virus possession, in order to determine whether or not the virus is spreading among wild birds. The government will also promote efforts to clarify the migration routes of migratory birds and to create a manual on the management of those infectious diseases that could infect both human and animals, such as West Nile virus and Q fever as well as avian influenza. The government will also strengthen surveillance efforts, including information collection from prefectural governments.

Coping with factors causing disturbance to ecosystems

- Measures for alien species

The Invasive Alien Species Act came into force in June 2005. Pursuant to the Act, a total of ninety-six species have so far been designated as Invasive Alien Species. The Act prohibits the rearing, cultivation, storage, delivery, import, and transfer without the permission of a minister responsible, and abandoning into the wild of such species. As a result, progress has been observed in the prevention of adverse effects of alien species.

- Implementation of measures to control invasive alien species

Japan controls invasive alien species in priority areas, including habitats for rare species, national parks, and protected forests. For example, Japan conducts control measures against small Javan mongooses in Amami-Oshima Island, in the northern region of Okinawa Main Island, and the green anoles in Ogasawara Islands. The government also carries out pilot projects such as the control of largemouth basses, snapping turtles, and Argentine ants, and will make use of these outcomes for other control activities in different locations. Local governments and civil organizations in

each region have also started their own control activities.

- Management of ballast water

It is thought that ecosystem disturbances by alien species are transported in the ballast water of ships. In 2004, the International Maritime Organization (IMO) adopted the International Convention for the Control and Management of Ships' Ballast Water and Sediments. At present, the work to turn the Convention into law is underway, and Japan will continue to contribute the necessary steps toward its completion.

- Measures for indigenous species artificially transferred inside Japan

Domestic species may have an adverse effect on a regional ecosystem in Japan when transferred to an area that is not their natural habitat. Since January 2006, Japan has been regulating the release of animals and plants in special protected areas of national and quasi-national parks and in the nature conservation areas, which have special significance for biodiversity conservation.

Some national parks in Japan carry out the control of alien species with the assistance of green worker (skilled park volunteers) projects.

- Living modified organisms (LMOs)

In 2003, Japan concluded the Cartagena Protocol on Biosafety to the Convention on Biological Diversity (Cartagena Protocol). When the Protocol entered into force in Japan, the domestic law for the implementation of the Protocol, entitled the Law Concerning the Conservation and Sustainable Use of Biological Diversity through Regulations on the Use of Living Modified Organisms (Cartagena Law), was enforced.

In accordance with this Law, the government has been promoted preliminary impact assessments of living modified organisms (LMOs) in order to avoid their potentially adverse effects on biodiversity to secure biodiversity.

- Chemical substances

Amendment of the Chemical Substances Control Law

The amendment in 2003 requires toxicity to flora and fauna from the point of view of influence to ecosystem to evaluate the safety of chemicals.

124 chemicals (on March 2009), including existing chemicals, are designated as Type-III Monitored Chemical Substances due to their ecotoxicity.

And on February 2009, a bill to amend the Chemical Substances Control Law has been submitted to the Diet to review the measures for risk assessment of chemical substances.

Environmental Quality Standards for Water Pollution

As part of the Environmental Quality Standards for Water Pollution pursuant to the Basic Environment Law, water quality standards for aquatic organisms were established in November of 2003.

Agricultural Chemicals Regulation Law

The Registration Withholding Standards on Damage to Aquatic Animals and Plants was revised (entered into force in April, 2005) based on the Agricultural Chemicals Regulation Law. In the revised Standards, algae and crustaceans, in addition to fish, are targeted for toxic assessment.

Welfare and proper management of animals

In June 2006, the revised Act on Welfare and Management of Animals was put in place. In accordance with this revision, the government strengthened the management of pets in order to cope with the adverse effects arising from pet animals by establishing various standards and guidelines. These included a standard for animal handling businesses, standards for specified (dangerous) animals, and measures to identify the owners of pets, plus formulations and revisions of other standards and guidelines. For the promotion of ownership identification, the government also introduced microchip technology to veterinarians and others by creating a technical manual and holding training sessions.

(2) Sustainable use of genetic resources

Use and conservation of genetic resources for agriculture, forestry and fishery

Genetic resources are presently facing increased danger of extinction, through human development activities such as reckless deforestation, agricultural modernization and so forth. So, it is getting more and more important that genetic resources are collected, conserved and then handed over to the next generation for ensuring their sustainable use.

The Ministry of Agriculture, Forestry and Fisheries, therefore, launched the Genebank Project in 1985. At present, the National Institute of Agrobiological Sciences (NIAS) is positioned as the center bank of the project (in the fields of agricultural plant, animal and microorganism genetic resources), under the sub banks, which consisting of five independent administrative institutions. They are engaged in the operations of search, collection, classification, identification, character assessment, multiplication and conservation of genetic resources inside and outside the country. In the forestry and fishery fields, operations are managed by the Forestry and Forest Products Research Institute (FFPRI) and the Fisheries Research Agency (FRA), respectively. Thus, Genebanks' operations in the fields of plant, animal, microorganism, forest tree and fishery genetic resources are underway. Their projects have grown to have a huge collection of genetic resources, including 240,000 accessions of plant genetic resources for food and agriculture, and the entire collection under their projects is now one of the largest in the world. Those genetic resources are distributed to researchers as research samples, and information which collected and conserved resources is made available too. Thereby the projects contribute greatly to development of new crop varieties. We are planning to further promote their projects, by collecting and receiving more genetic resources to improve our intellectual infrastructure to support research and development activities of biotechnology, etc.

*Photo 12, 13. Search for genetic resources.

*Photo 14, 15. Assessment of genetic resources.

*Photo 16. Seeds storage

Technology development for conservation of biodiversity

Genetic resources are utilized for research and development projects in the life science field. Those genetic resources include mice and genetic samples used in animal experiments, as well as human or animal genes and standardized test samples of cells used to analyze genetic or biological functions. The appropriate collection and conservation of genetic resources and their subsequent availability for research activities are essential to the promotion of research and development in the life science field.

After the successful completion of the project of sequencing the human genome in April 2003—and with the recent rapid progress of other sequencing projects on diverse organisms—international competitions in post-genome research have been intensifying, and the importance of genetic resources is growing more significant. For this reason, the government will improve the information systems at the Center for Genetic Resource Information, the National Institute of Genetics, the Research Organization of

Information and Systems, and the RIKEN BioResource Center, all of which are engaged in the comprehensive collection, accumulation, and release of information on genetic resources. Based on the Intellectual Infrastructure Improvement Plan (issued in August 2001 by the Council for Science and Technology), which aims to raise the level of our country's intellectual fundamentals to the world's top class in ten years, the government has been making efforts to enhance its role as the national information center of genetic resources through the networking of groups of specialists and core organizations. The government will further improve the domestic systems of collecting, accumulating, and providing information on genetic resources.

(3) Promotion and implementation

Promotion of environmental education and learning

At schools, it is important to deepen children's understanding of the environment (including biodiversity) and to nurture their willingness to take voluntary actions to protect the environment. Schools have been providing environmental education in their general curricula in a way that integrates with social studies, science, and moral education. According to the current official teaching guidelines, it is suggested that teaching about environmental issues should be promoted in each subject, including science, and that "classes of integrated study" should be utilized to enhance environmental education by giving students hands-on experiences or opportunities to make problem-solving efforts. The government continues to ensure that environmental education will be promoted at schools in accordance with the aims of the revised Fundamental Law of Education.

As out-of-school experience, Japan provides promote activities in a natural environment, provide opportunities to contact in nature, enhance promotion activities in various places including national parks. Furthermore, the Law for Promotion of Ecotourism evaluates those places as opportunities for environmental education. In response to the implementation of the Law, Japan will make efforts for educational promotion.

(4) International Cooperation

Ramsar Convention

The Convention on Wetlands of International Importance Especially as Waterfowl Habitats (Ramsar Convention) aims to promote the conservation and wise use of wetlands that are internationally important as habitats for wild fauna and flora. In order to implement the Convention, Japan works on the registration of internationally important wetlands as Ramsar sites and takes actions for the conservation, wise use, and promotion of wetlands.

In Japan, two wetlands were registered in 2002 after the Eighth Conference of the Parties to the Ramsar Convention (hereafter referred to as the “Ramsar COP”). As of 2005 (after Ramsar COP9 was held), a total of twenty wetlands in Japan had been registered. These included moorlands, paddy fields, lakes, karst landscapes, tidal flats, coral reefs, mangrove forests, algae, and neritic waters. In 2008 (after Ramsar COP10), four Ramsar sites in Japan were newly registered. The registered area of Lake Biwa was also expanded in 2008. As of November 2008, a total of thirty-seven Ramsar sites in Japan cover 131,027 ha, including Fujimae-Higata, Kabukuri-numa and the surrounding rice paddies, and Notsuke-hanto and Notsuke-wan.

In addition, at Ramsar COP10, the draft resolution “Enhancing biodiversity in rice paddies as wetland systems (so called “rice paddy resolution”)” was brought up by NGOs from Korea and Japan, presented together with Korean and Japanese governments, and adopted.

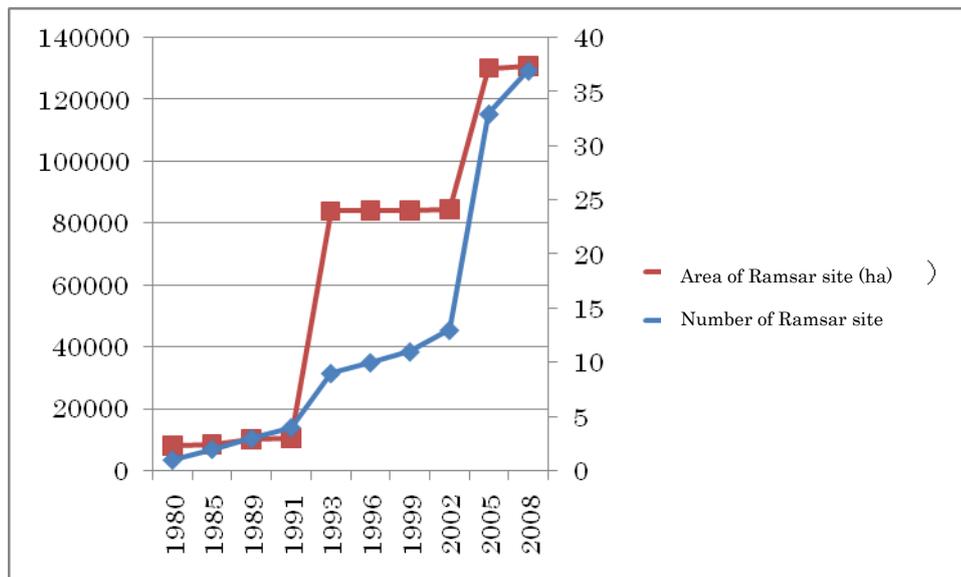


Figure 13. The transition of the number and area of Ramsar sites

CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora)

Japan became a party to the Convention of International Trade in Endangered Species of Wild Fauna and Flora in 1980. Based on the Convention, Japan controls the import and export of the species listed in Appendices I, II, and III, in accordance with the Export Trade Control Ordinance and the Import Trade Control Ordinance of the Foreign Exchange and Foreign Trade Control Law and with the Customs Law.

Furthermore, the species listed in Appendix I of the CITES are subject to the regulation of internal trade under the Law for the Conservation of Endangered Species of Wild Fauna and Flora. Thus, the implementation of the Convention is promoted by appropriate applications of related domestic legislation. In addition, Japan aids developing countries for their implementation of the Convention.

World Heritage Convention

Shiretoko (71,103 ha) was inscribed on the World Heritage List in 2005. This is the third world heritage site in Japan; to the other two are Yakushima (10,747 ha) and Shirakami-sanchi (16,971 ha).

Shiretoko was commended at the 32nd World Heritage Committee, when listed, for responding effectively to the recommendations made at the time of inscription.

【Case】 Shiretoko

For protection and management of Shiretoko World Heritage, local communities and local stakeholders get together and discuss basic policies. And the committee of scientists has been established for providing advice from scientific viewpoint.

Report of the reactive monitoring mission of IUCN applauds these ways of management for providing an excellent model for the management of natural World Heritage Sites elsewhere.

International Convention on Oil Pollution Preparedness, Response, and Cooperation, 1990 (OPRC Convention)

The International Convention on Oil Pollution Preparedness, Response, and Cooperation, 1990 (OPRC Convention, adopted in 1990) aims to establish an international cooperation system to cope with large-scale oil spill incidents. Japan became a party to the Convention in 1995, and in 2007 signed the Protocol on Preparedness, Response, and Cooperation for Pollution Incidents by Hazardous and Noxious Substances, 2000 (OPRC-HNS Protocol), which expanded the scope of pollutants to hazardous and noxious substances other than oil. In order deal with the OPRC Convention and the OPRC-HNS Protocol, Japan has formulated the Japanese National Contingency Plan for Oil Pollution Preparedness and Response (National Contingency Plan). With regard to the vulnerable costal area map, although a system to prepare for oil spill incidents has been established, the vulnerable costal environment needs to be enhanced and appropriately managed in the future, since hazardous liquid substances have become the object of a National Contingency Plan by the OPRC-HNS Protocol and the coastal terrain of various regions is changing due to projects such as reclamation. Furthermore, based on the National Contingency Plan, Japan will establish a system to appropriately perform wildlife relief and impact assessment.

Bilateral conventions and agreements for the protection of migratory birds

Based on the Convention between the Government of Japan and the Government of the United States of America for the Protection of Migratory Birds and Birds in Danger of Extinction and their Environment (entered into force in 1974), the Convention between

the Government of Japan and the Government of the Russian Federation for the Protection of Migratory Birds and Birds in Danger of Extinction and their Environment (entered into force in 1988), the Agreement between the Government of Japan and the Government of Australia for the Protection of Migratory Birds and Birds in Danger of Extinction and Their Environment (JAMBA, entered into force in 1981), and the Agreement between the Government of Japan and the Government of the People's Republic of China for the Protection of Migratory Birds and Their Environment (JCMBA, entered into force in 1981), Japan is implementing measures to protect migratory birds their habitat environments, including research on birds' migration between countries, information exchange, restrictions on capture, and establishment of protected areas. Furthermore, trade in species of birds that are in danger of extinction is controlled in Japan based on the Law for the Conservation of Endangered Species of Wild Fauna and Flora (enforced in April 1993).

Conservation of migratory waterbirds in the Asia-Pacific region

The Asia-Pacific Migratory Waterbird Conservation Strategy was adopted in 1996 under the leadership of Japan and Australia as an international framework to conserve migratory waterbirds and their habitats in the Asia-Pacific region. Based on this Strategy, Flyway Site Networks were established for shorebirds, cranes, and Anatidae in collaboration with the governments of related countries, international organizations, NGOs, and experts. International cooperation among Flyway Site Networks had been implemented, including information exchange, research, and surveys on the conservation of migratory birds and their habitats. In 2006, with the expiration of the Strategy, the Partnership for the Conservation of Migratory Waterbirds and the Sustainable Use of their Habitats in the East Asian-Australasian Flyway (Partnership for the East Asian-Australasian Flyway) was established. Japan has twenty-seven sites that participate in the Flyway Networks based on this Partnership.

International Coral Reef Initiative (ICRI)

As one of only a few developed countries that have coral reefs, Japan has been promoting, in cooperation with other countries, the International Coral Reef Initiative (ICRI): an international framework created in 1994 (Heisei 6) for the purpose of conserving coral reefs and related ecosystems, such as mangroves and seaweed beds. The government of Japan cooperated with the Secretariat of the ICRI and the

government of Palau for two years, from July 2005 to June 2007. In 2008 (Heisei 20), the International Year of the Reef, Japan held an International Coral Reef Marine Protected Area Network Meeting / 4th ICRI East Asia Regional Meeting and launched the development of the regional strategy for coral reef MPA Networks focused on East Asia.

Man and the Biosphere (MAB) Program

The Biosphere Reserves is the most important pillar of the Man and the Biosphere (MAB) Program, which is one of the international cooperation programs of the United Nations Educational, Scientific, and Cultural Organization (UNESCO). In Japan, four areas—Yakushima Island, Mount Odaigahara/Mount Omine, Mount Hakusan, and Shiga Highland—have been designated as Biosphere Reserves by UNESCO.

Official Development Assistance (ODA)

The Official Development Assistance (hereinafter referred to as “ODA”) Charter decided by the cabinet in August 2003 was set up so that “environmental conservation and development can be pursued in tandem.” This was one of four principles of ODA implementation, along with the priority of “addressing global issues.” Furthermore, in the Medium-Term Policy on ODA established in 2005, “conservation of the natural environment by means such as the management of nature reserves, conservation and management of forests, measures against desertification, and natural resources management” were positioned as priority fields in the approach to addressing environmental problems and specific actions.

Japan released its Environmental Conservation Initiative for Sustainable Development (EcoISD) in 2002. This was an initiative aiming at extending environmental cooperation, mainly through its ODA, in an efficient and effective manner. Its philosophy included Human Security, Ownership and Partnership, and Pursuit of Environmental Conservation and Development, and Conservation of Natural Environment was positioned as one of its priority areas.

Based on these initiatives, the Government of Japan has been actively contributing to the worldwide conservation of biodiversity through the conservation and sustainable use of biodiversity in developing countries. The following are positive manners of

assistance carried out through ODA.

- Palau: Palau International Coral Reef Center Strengthening Project (Grant Aid/Technical Cooperation)

The Palau International Coral Reef Center was opened with the support of a Japanese grant aid in January 2001 with the goal of conducting research activities for coral reefs and related marine life, and awareness activities for their conservation. In order to support the enhancement of the structure and its autonomous development, a four-year assistance plan was implemented from October 2002 to September 2006 in accordance with the Center's mid-term strategy, and the Center's functions for research as well as for raising public awareness and education were strengthened.

The Center assumes the role of focal point for the global coral reef monitoring network in the Micronesia region, and the contribution for worldwide conservation of coral reefs is expected.

- Malaysia: Technical Cooperation Program for Bornean Biodiversity and Ecosystem Conservation in Sabah (Technical Cooperation)

Technical Cooperation Program for Bornean Biodiversity and Ecosystem Conservation in Sabah was started as a five-year program in 2002. The purpose of this project is to establish comprehensive measures and systems for a more sustainable approach to the environment in and around Sabah by integrating education, research, administration, and public environmental awareness. After the launching of this cooperation, enhanced coordination among the institutions concerned and increased awareness of the people in Sabah towards natural environment were identified. New developments, such as the construction of people-friendly parks, the preparation of management strategy for protected areas and the establishment of new protected areas are found as concrete outcomes of this program.

Convention on Migratory Species

In addition to the steady implementation of bilateral agreements for migratory birds, the Ramsar Convention, and the CITES, which Japan has already ratified, the government seeks to conserve migratory species of wild animals by examining the necessity of dealing with the Convention, including Agreements and MoUs, based on the trend in international engagements with regard to this Convention.

(5) Information management and technology development

The government will continue to conduct the National Survey on the Natural Environment that has been conducted since FY1973; it will also promote monitoring of the current conditions of biodiversity in the land area and the status of changes, while trying to improve the promptness of data provision. Regarding the one-to-twenty-five thousand scaled vegetation map that is the basic information map of the land area's natural environment, about 44% of the land area was covered as of March 2009. The government will promote early formulation to cover all of Japan by targeting about 60% by March 2012.

The "Monitoring Sites 1000," started in FY2003, has been promoting long-term ecosystem monitoring on Japan's typical ecosystems (forests, Satoyama, inland water areas, coastal areas) by the participation of researchers, regional experts, NGOs and citizens. As of March 2009, 1023 monitoring sites have been established.

Concerning the Clearing-House Mechanism (mechanism to promote and facilitate information exchange on biodiversity) based on Article 17 (Exchange of Information) and Article 18 (Technical and Scientific Cooperation) of the Convention on Biological Diversity, Japan has steadily increased data volume after starting the operation of the system in July 2004, and about eight hundred metadata (information on information sources necessary to find and access to the data) had been registered as of March 2009.

(6) Measures against global warming

In the Third National Biodiversity Strategy, the government positioned the "crisis brought about by global warming" as an inevitable crisis, in addition to the three crises already recognized. It is necessary to understand the impacts of global warming on biodiversity and to examine the mitigation of and proper measures against those impacts from the perspective of biodiversity.

- Mitigation measures

Measures for prevention of green gas emissions have been implemented under the Kyoto Protocol Target Achievement Plan (established in April 2005 and revised in March 2008).

- **Monitoring and proper measures**

The government carries out the monitoring of the effects of global warming on ecosystems through a project called “Monitoring Site 1000,” and examines proper measures, such as the development of ecosystem networks.

The aforementioned measures were incorporated in the Third National Biodiversity Strategy. A review of those implementations will be conducted after 2009.

(7) Environmental Impact Assessment

Environmental Impact Assessment

The Environmental Impact Assessment Law (enforced in June 1999) prescribes that, for large-scale projects, among thirteen categories of projects for roads, dams, railways, airports, power plants, and waste final landfill sites, which could have a serious impact on the environment, a proponent that is undertaking a project needs to conduct an environmental impact assessment of the project in advance by surveying, predicting, and assessing the likely impact, and must reflect the results of such environmental impact assessments in determining the content of the project, thereby giving proper consideration to environmental conservation.

The Basic Guidelines—which prescribe the matters common to all types of projects related to the practical method of environmental impact assessment based on the Law—dictates that it is necessary to select the items and methods of environmental impact assessment in an appropriate manner based on the characteristics of the relevant project and of the related area. With regard to the “securing of biodiversity and systematic preservation of the natural environment” and the “rich and harmonious contact between people and nature” pointed out as parts of assessment categories, proponents are requested to form the content of the project with better consideration for environmental conservation; this includes not only valuable matters such as important fauna and flora from academic or scarcity-value viewpoints or outstanding landscapes but also contact with the nature close at hand and familiar living organisms that characterize the regional ecosystem. With regard to environmental preservation measures, it is prescribed that, rather than taking compensatory measures by creating a similar environment equal to the one that would be lost by the project, the avoidance or

reduction of the environmental impact itself should be given priority for consideration.

In addition, forty-seven prefectures (these are all prefectures in Japan) and seventeen ordinance-designated cities, fourteen ordinance designated cities (the number of ordinance designated cities in Japan are seventeen) have their own environmental impact assessment ordinance, and appropriate environmental consideration should be taken based on the conditions of the regions.

The number of projects for which proponents took the procedure of environmental impact assessment based on the Environmental Impact Assessment Law (projects for which the procedure either has finished or is underway) was one hundred seventy-seven as of March 2008. In implementing each project, opinions about the Environmental Impact Statement will be given by the Minister of the Environment as necessary. The Ministry of the Environment will strengthen the follow-up system for the projects (especially projects for which the Minister of the Environment stated his opinion) after the completion of procedures.

In addition, the Ministry of the Environment currently examines the situation of the enforcement of the Environmental Impact Assessment Law, and will enhance the assessment system by taking necessary measures, including a revision of the law and carry out a review of the Basic Guidelines.

Strategic environmental assessment

“The Guidelines for the Introduction of Strategic Environmental Assessment (SEA Guidelines)” were made in March 2007 by the Advisory Body of academics and experts to the Environmental Policy Bureau of the Ministry of Environment on Strategic Environmental Assessment, which was established by the Ministry of the Environment. The SEA Guidelines describe common procedures and assessment methods to avoid or reduce serious environmental impacts caused by the implementation of projects. These are completed by measuring significant environmental impacts, comparatively assessing the environmental aspects of alternatives, summarizing the items to consider for the environment, and reflecting them in the examination of the plan at an early stage planning location, size and so on in higher-level plans before starting the project, The SEA Guidelines point out the “protection of biodiversity and orderly conservation of the natural environment” and the “rich and harmonious contact between people and nature” as parts of categories for assessment items. The ministries concerned will examine the implementation and accumulate implementation samples based on the characteristics of

the project, the SEA Guidelines, etc. In addition, based on the condition of those implementations, the Ministry of the Environment will constantly revise the SEA Guidelines.

As for actual implementation, in response to the SEA Guidelines, “The draft of the Guidelines for the Introduction of Strategic Environmental Assessment about final landfill sites” was compiled in March 2009 based on the examination conducted by the Advisory Body of academics and experts established by the Ministry of the Environment.

In addition, the Ministry of Land, Infrastructure, and Transport has carried out advance implementations related to SEA about public works for roads, rivers, airports, ports, and harbors. Those measures include the disclosure of information in their planning process and the presentation of guidelines for public participation. The Ministry created “The guidelines for the planning process on the designing stages about public works (plan-making process guidelines). The plan-making process guidelines aim to introduce the standard concepts of planning process on the designing stages about public works from the experiences of earlier implementations and accumulated implementation examples in each project.

The plan-making process guidelines prescribes that the process should be examined thoroughly from various perspectives—including social, economic, and environmental—and must be developed rationally with resident participation. That means this plan-making process incorporates strategic environmental assessments.

3. The implementations of the National Strategy to cope with the articles and sectoral and cross-sectoral challenges in the Convention

Each measure in accordance with the four basic strategies which are indicated in the Third National Biodiversity Strategy will cope with the articles and the sectoral and cross-sectoral challenges in the Convention. The measures have already been described in the Third National Biodiversity Strategy. This section will briefly introduce those measures.

3.1 Cope with the articles in the Convention

Article		Corresponding parts in the National Strategy
Article 5: Cooperation	<p>As for the conventions relevant to biodiversity, Japan has concluded:</p> <ul style="list-style-type: none"> - Cartagena Protocol on Biosafety to the Convention on Biological Diversity (Cartagena Protocol) - Ramsar Convention - Convention on International Trade in Endangered Species of Wild Fauna and Flora - World Heritage Convention - Antarctic Treaty (Protocol on Environmental Protection to the Antarctic Treaty) - United Nations Convention to Combat Desertification in Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa - Bilateral Conventions and Agreements for the Protection of Migratory Birds <p>Japan also cooperates with other countries and actively contributes to biodiversity conservation through various challenges, including:</p> <ul style="list-style-type: none"> - the East Asian-Australasian Flyway Partnership - International Coral Reef Initiative (ICRI) - Man and Biosphere (MAB) Program - United Nations Forum on Forests (UNFF) - International Tropical Timber Organizations (ITTO) - Montreal Process - Asia Forest Partnership (AFP) - Critical Ecosystem Partnership Fund - Global Biodiversity Information Facility (GBIF) - Group on Earth Observations (GEO) <p>(See also Chapter 2, Section 2.2(4), International Cooperation)</p>	Part 2 Chapter 2 Section 4 International Cooperation
Article 7 Identification and monitoring	<p>Japan conducts the following measures:</p> <ul style="list-style-type: none"> - “Monitoring Site 1000” to monitor ecosystems at fixed observation sites on a long-term basis and “National Survey on the Natural Environment” to monitor the current conditions and status of changes in biodiversity 	Part 2 Chapter 2 Section 5

	<p>nationwide.</p> <ul style="list-style-type: none"> - “Census of Rivers and Riparian Areas” to recognize the situations of habitation of organisms living in rivers. - “Forest Resources Monitoring Survey” at 15,700 forest sites. 	
Article 8 In-Situ Conservation (protected areas)	<p>Conservation of priority areas has been conducted, including the designation of protected areas. (See also Chapter 2, Section 2.1(2))</p>	<p>Part 2 Chapter 1 Section 1 3.1</p>
Article 8 In-Situ Conservation (g) biotechnology	<p>The control of the use of living modified organisms has been implemented in accordance with the Cartagena Protocol. (See also Chapter 2, Section 2.2(1), Protection and management of wildlife)</p>	<p>Part 2 Chapter 2 Section 1</p>
Article 8 In-Situ Conservation (h) alien species	<p>The restriction on imports and the control of invasive alien species have been implemented in accordance with the Invasive Alien Species Act. (See also Chapter 2, Section 2.2(1), Protection and management of wildlife)</p>	<p>Part 2 Chapter 1 Section 1 3.1</p>
Article 8 In-Situ Conservation (j) and related provisions (traditional knowledge)	<p>The government conducts promotion measures in Japan.</p>	
Article 8 (excluding parts (a)-(e),(h)and (j))	<p>Various measures under the Nature Conservation Law, Natural Parks Law, Wildlife Protection and Appropriate Hunting Law, Law for the Conservation of Endangered Species of Wild Fauna and Flora, and Law for the Promotion of Nature Restoration, etc. have been implemented. (See also Chapter 2, Section 2.1(2), Conservation of priority areas, 2.1(3), Nature restoration, and 2.2(1), Protection and management of wildlife)</p>	<p>Part 2 Chapter 1 Section 3</p>
Article 9 (ex-situ Conservation)	<p>The government pursues the preservation of gene resources by the Genebank Project in addition to the Programs for the Rehabilitation of Natural Habitats and Maintenance of Viable Populations, which was introduced in Chapter 2, Section 2.2 (1), Protection and management of wildlife.</p>	<p>Part 2 Chapter 2 Section 1</p>
Article 10 (sustainable use)	<p>The government takes actions for sustainable use in accordance with the Third National Biodiversity Strategy and with its various measures.</p>	
Article 11 (incentive measures)	<p>Economic measures to promote voluntary efforts of diverse parties in the field of biodiversity include subsidies and grants-in-aid provided by the national government, tax incentives, fund raising via various foundations, goodwill fundraising or financial contributions by civic groups or businesses, and forest environment taxes to be collected by local governments.</p>	<p>Part 2 Chapter 2 Section 3</p>

Article 12 (research and training)	For promotion of research and technology development, in the Field-specific Promotional Strategy based on the Third Science and Technology Basic Plan, “to realize sustainable conservation and use of ecosystem” and “to realize effective use of biological resources by the technology to use biomass originated in Japan” are described as individual policy targets to be realized. In addition, competitive research funds such as the Global Environment Conservation Research Fund and the Global Environmental Research Fund are available. Various research institutes conduct research studies.	Part 2 Chapter 2 Section 5
Article 13 (Education and Awareness)	Japan conducts the following activities: - Promoting communication and publicity through various activities including commemorative events on the International Day for Biological Diversity (May 22), an exhibition at the Biodiversity Center of Japan, campaigns, distribution of brochures, and the utilization of internet resources. - Implementing measures such as “Our Life on Biodiversity Project” including the development of the Guideline for the Formulation of Local Biodiversity Strategy, the Guideline for Business and Biodiversity” and the creation of the communication words “For All the Life on Earth” (tentative translation).	Part 2 Chapter 2 Section 3 1.1
Article 14 Impact Assessment and Minimizing Adverse Impacts	As for Environmental Impact Assessment, see also Chapter 2, Section 2.2(7), Environmental Impact Assessment.	Part 2 Chapter 2 Section 7
Article 15 Access to Gene Resources	- Conclude Prior Informed Consent (PIC) and Material Transfer Agreement (MTA) with gene resource-possessing countries through the Genebank Project. - Conclude MOU in research cooperation under the Bon Guideline. - Implement measures to inform business communities through the development of the Guideline on Access to Genetic Resources For Users in Japan and the holding of workshops.	
Article 16 Access to and Transferring of Technology	- The international project for gene resource through JICA, measures to promote transferring of technology to resource-possessing countries through NITE and the “Asian consortium” which consists of 12 countries, including Japan, South Korea, China, Indonesia, and established for the development of a network and the promotion of human resources.	Part 2 Chapter 2 Section 2
Article 17 Exchange of Information	- Japan has started the operation of the Biodiversity Clearing-House Mechanism in 2004. - Development and provision of data using WebGIS, and the provision of data through the Japan Integrated Biodiversity Information System (J-IBIS). - Provision of data to the Global Biodiversity Information Facility (GBIF).	Part 2 Chapter 2 Section 5 2.4

Article 18 Technical and Scientific Cooperation	- Japan implements cooperation with developing countries through various ODA projects. (See also Chapter 2, 2.2(4), International Cooperation)	Part 2 Chapter 2 Section 4
Article Financial Resources	Japan has been a major donor to the CBD since it was established, and also contributes funds to the World Bank (2 nd), GEF (2 nd), GBIF (2 nd), FAO (2 nd), ITTO (1 st) and Southeast Asian Fisheries Development Center.	Part 2 Chapter 2 Section 4 3.6

3.2 Cope with sectoral and cross-sectoral challenges

Taxonomy	The government promotes the improvement of wildlife inventory and specimens information in Japan and implements measures for cooperation in international projects such as GTI, Species2000, and GBIF.	Part 2 Chapter 2 Section 4
Ecosystem approach	One of the five basic perspectives in the Third National Biodiversity Strategy. (See also Chapter 2, 1.3) For example, adaptive management, one of the ecosystem approaches, is introduced in various legal systems, plans, and measures, such as the Nature Restoration Law.	
Climate change and biodiversity	Various measures for the mitigation of global warming have been implemented. In the Third National Biodiversity Strategy, a new description of the “impacts of global warming on biodiversity” was added. The government will improve a monitoring system in order to detect the impacts of global warming on biodiversity and examine an ecological network that enables wildlife affected by climate change to migrate and adapt to environmental changes. (See also Chapter 2, 2.2(6), Efforts against global warming])	Part 2 Chapter 2 Section 5
Tourism and biodiversity	The Promotion Committee on Ecotourism, chaired by the Minister of the Environment in 2003, summarized promotion measures. Based on those measures, the government carried out information dissemination, the Ecotourism Award, and model projects. After the Ecotourism Promotion Law was established in June 2007 and adopted in April 2008, the government conducted promotion, support for local communities that take actions pursuant to the Law, establishment of know-how, and development of human resources in a comprehensive manner. Various measures were also implemented for the promotion of green tourism.	Part 2 Chapter 2 Section 3
PoW on agricultural biodiversity	Development of “Ministry of Agriculture, Forestry and Fisheries’ Strategy for Biodiversity Conservation”e.t.c (See also Chapter2,2.1(4)Agriculture, forestry and fisheries)	
PoW on Inland water ecosystem	The government ratified the Ramsar Convention and promotes comprehensive wetland conservation including the increase of registration for Ramsar sites. The biodiversity of inland water is monitored by measures such as “Monitoring Site 1000,” and “Census of Rivers and Riparian Areas.”	Part 2 Chapter 2 Section 8 River and Wetland Areas
PoW on Forest biodiversity	Forest areas cover two-thirds of the land in Japan. Forests are an essential factor for the conservation of biodiversity. The government implements a conservation system, the development of diverse forests, and various measures for rational conservation and management. (See also Chapter 2, 2.2(1), Conservation of Priority Areas, and 2.2(5), Forests.)	Part 2 Chapter 1 Section 5
PoW on marine and coastal biodiversity	In the Basic Act on Ocean Policy established in April 2007, the importance of the conservation of marine biodiversity described in the first basic	Part 2 Chapter 1

	principle of its six marine policies was incorporated in the Harmonization of the Development and Use of the Sea with the Preservation of the Marine Environment. In response, the government implements various measures, such as clarification of establishment of marine protected areas, promotion of designation and management of National and Quasi-National Parks, and conservation and restoration of seaweed beds, tidal flats and coral reef. (See also Chapter 2, 2.1(9), Coastal Areas and Oceanic Areas】)	Section 9
PoW on mountain ecosystem	No measures are implemented only for mountainous areas; however, many mountainous areas are designated as protected areas under the Nature Conservation Law and Nature Parks Law. 77 % of mountains with elevations over 2000 meters are designated as National or Quasi-National Parks. The biodiversity of mountainous areas is protected by various protection systems.	
PoW on island biodiversity	The island's biodiversity is characterized by the presence of a vast amount of indigenous species. In accordance with the Law for the Conservation of Endangered Species of Wild Fauna and Flora, forty-seven species are designated as target species for the Programs for the Rehabilitation of Natural Habitats and Maintenance of Viable Populations. More than half of the targeted species make their habitats in island areas. Many species in island areas are designated as endangered species. The government implements measures for protection and proliferation and for control of alien species.	Part 2 Chapter 1 Section 9 1.5

Steady Promotion of “Ministry of Agriculture, Forestry and Fisheries’ Strategy for Biodiversity Conservation”

Conservation of countryside and Satochi-Satoyama areas



Promotion of Sustainable Agriculture, such as organic farming



Promotion of farm land consolidation for biodiversity

Conservation of forests



Proper management and conservation of the forests

Conservation of underwater plant beds and tidelands



Support to fishermen-led activities to conserve underwater plant beds and tidelands

Development of quantitative indicators to measure the relationship between agriculture, forestry and fisheries and biodiversity

effective promotion of related policies and measures

Promotion of public understanding for agriculture, forestry and fisheries in Japan that contribute to biodiversity conservation through making use of the symbol mark “living creature mark”.

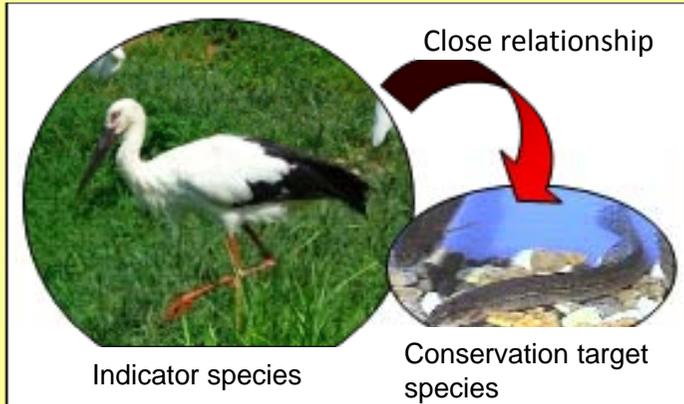


Examples of local activities

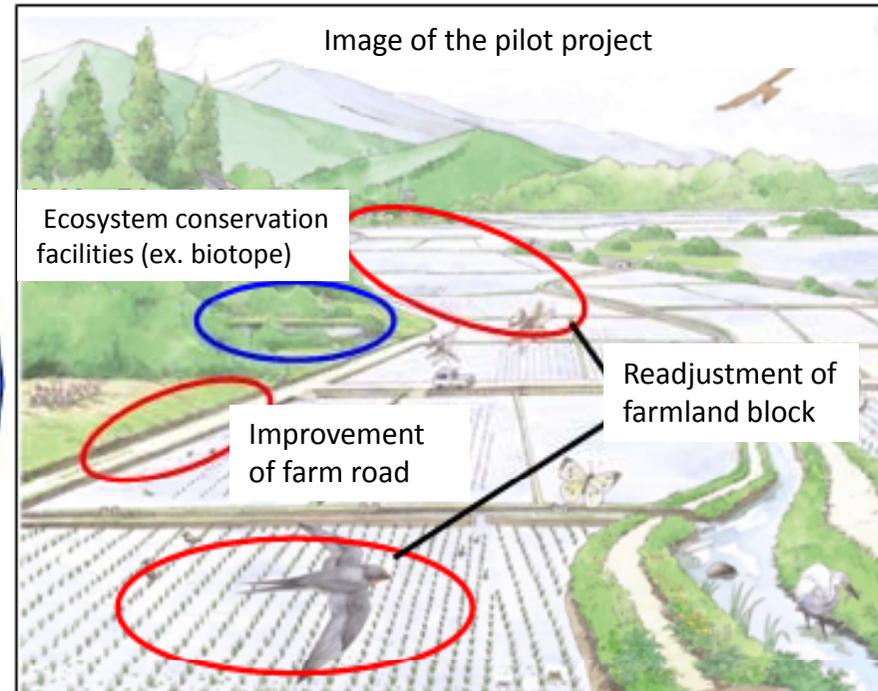
- Promotion of the biodiversity conservation-conscious agriculture, forestry and fisheries sector
- Announcing the measures at CBD COP10 (2010, Nagoya)

Figure 3: Promotion of the biodiversity conservation-conscious agriculture, forestry and fisheries sector

1. Plan on biodiversity ensuring infrastructure .
Specification of “Indicator species”
and conservation target species.



Specifying “Indicator species” encourages people and farmers’ interest and understanding of biodiversity conservation.



2. Improvement of infrastructure and facility for ecosystem conservation corresponding to biodiversity.

3. Support the extra cost required to infrastructure improvement corresponding to biodiversity.

4. Implement of the Research and Monitoring

While implementing the Pilot project, research and monitor the conditions of conservation targets species.

Figure 4: Pilot project of agricultural infrastructure improvement considering biodiversity

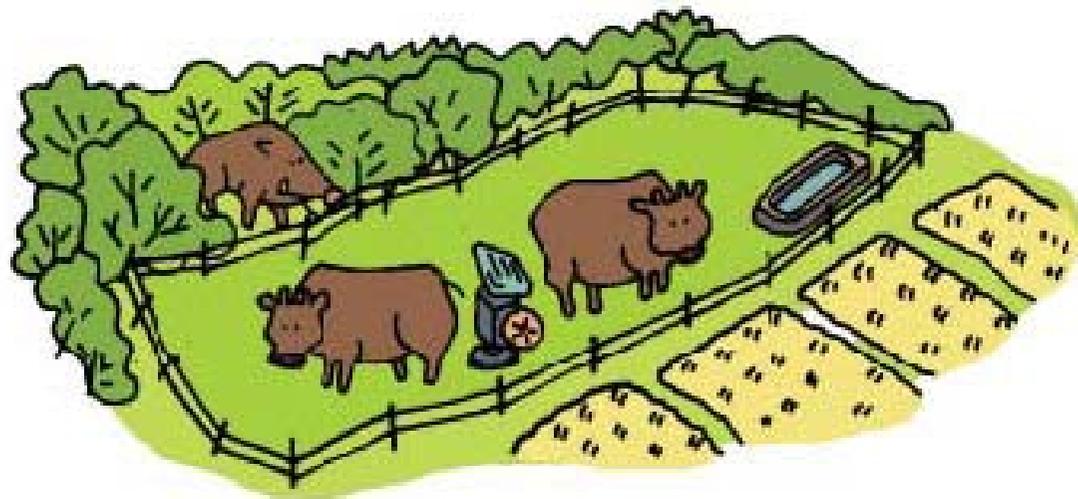


Figure 5: Setting of the buffering zone by livestock pasturing

Examples of measures adopted for biodiversity conservation in urban areas

Promotion of conservation and restoration of green spaces, which contribute to the establishment of an ecological network based on the Green Master Plan

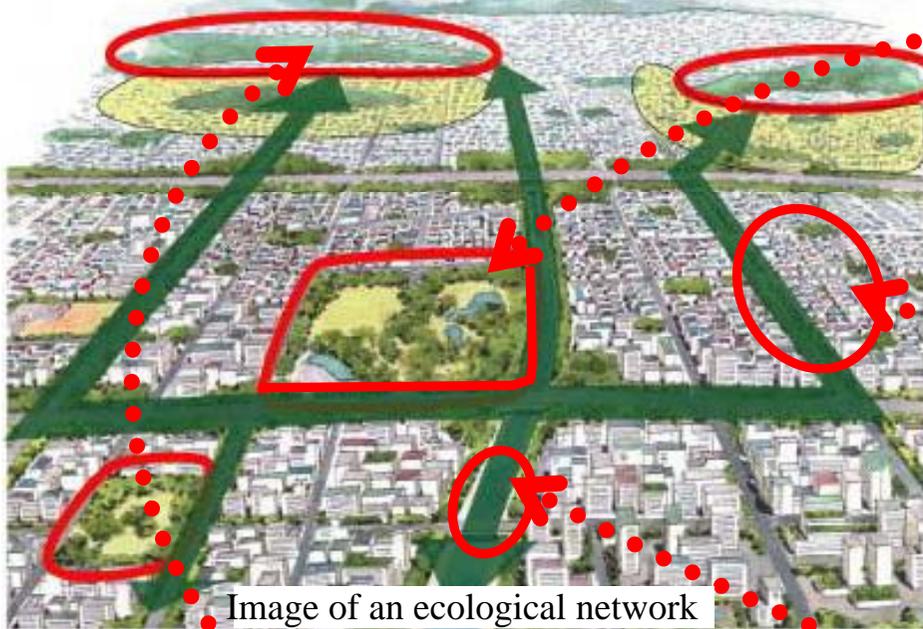
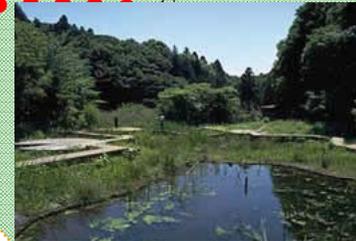


Image of an ecological network

Restoration and creation of green spaces by the development of city parks; these spaces comprise the core habitat of organisms



Yatoyama park (Zama-city)



Yatsu Higata (Narashino)

Promotion of greenery in sites and buildings



Conservation of green spaces, which comprise the core habitat of organisms



Ozawa Joshi Special Area (Kawasaki-city)



Atsuta Jingu Special Area (Nagoya-city)

Improvement in water quality using sewage system and creation of a waterfront with sewage facility



Figure 6. Image of ecological networks

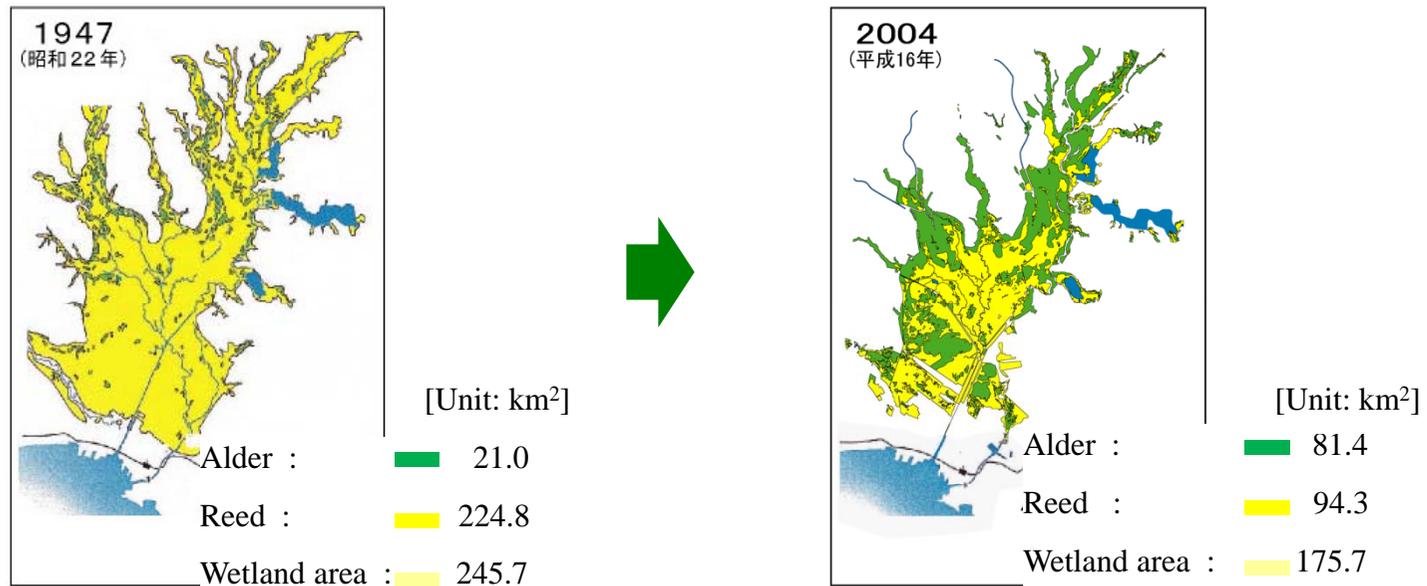


Figure 7. Changes in Kushiro Wetland

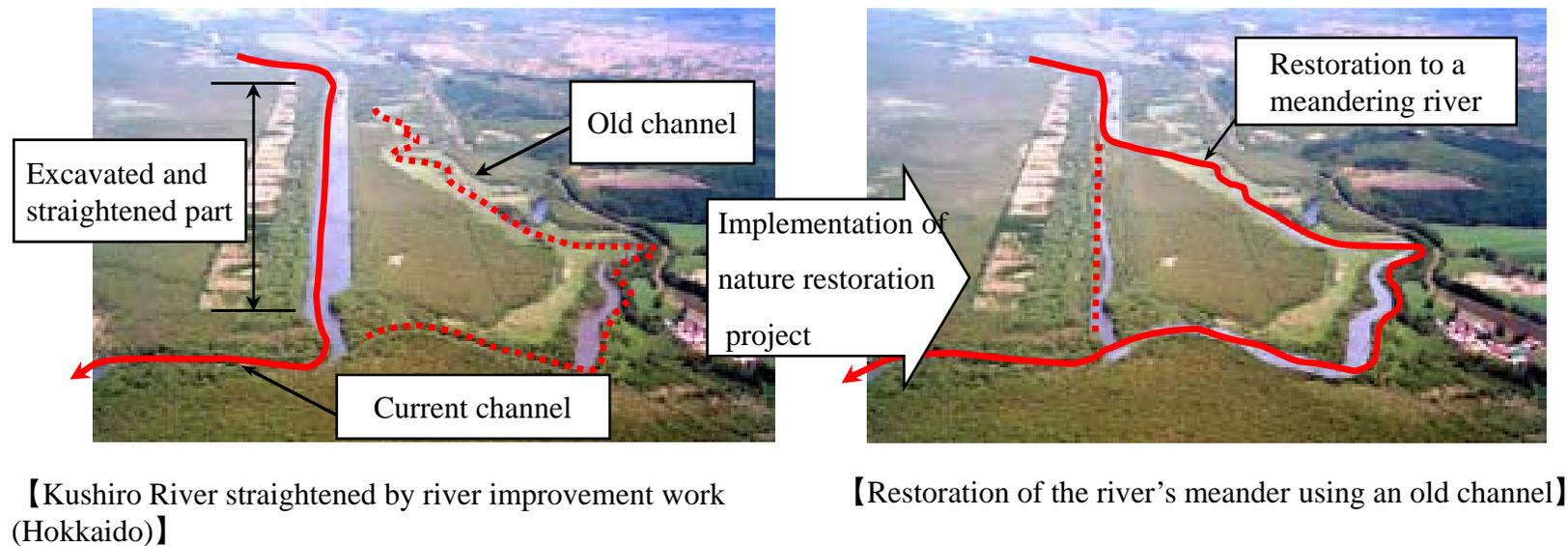


Figure 8. Restoration of the river's meandering

Development of underwater plant beds

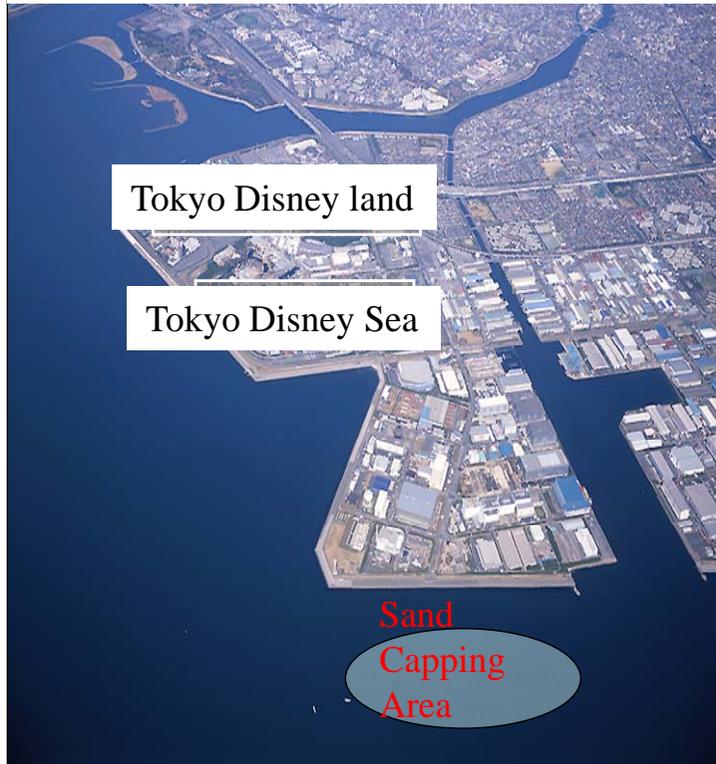


Development of tidelands

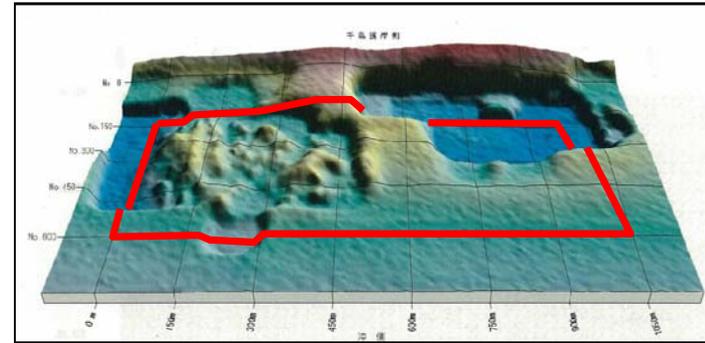


Figure 9. Conservation of underwater plant beds and tidelands

Sand Capping Area :470,000m² (about 1m thick)



Before



After

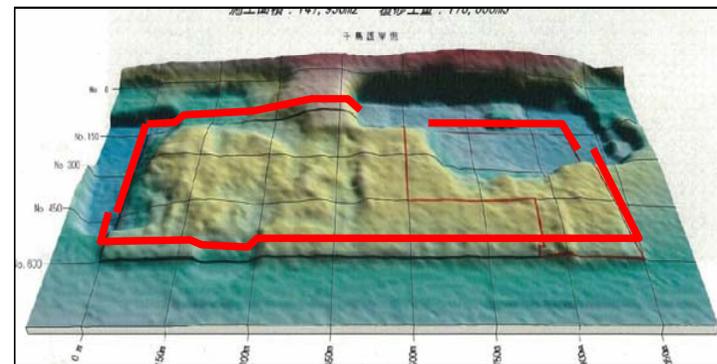
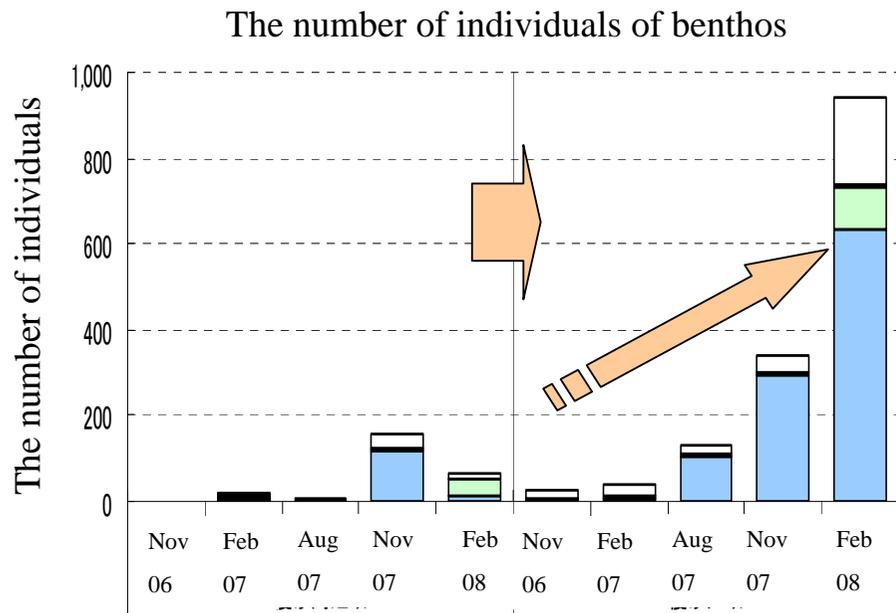
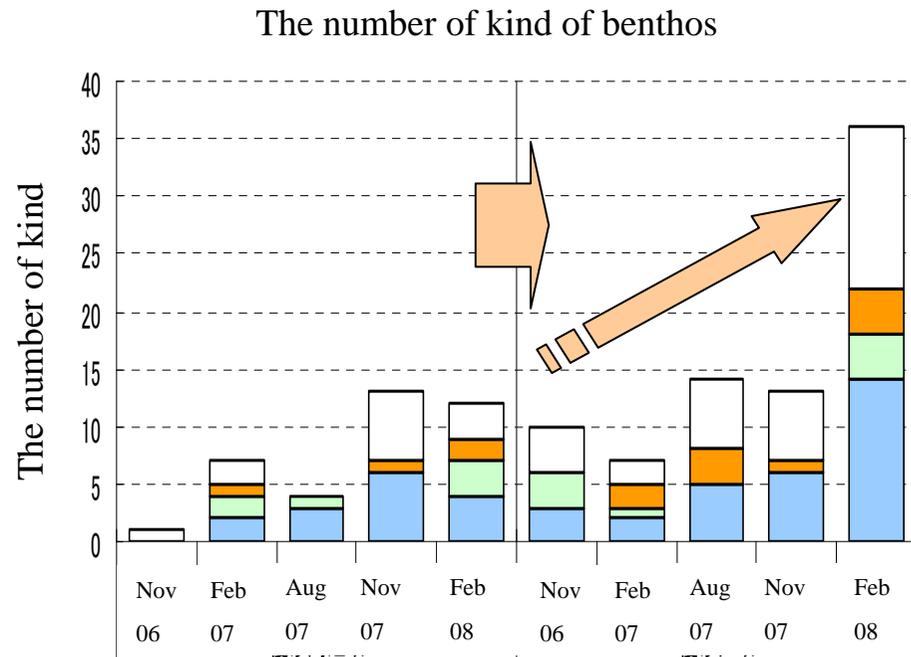


Figure10. Sand capping project



Area around the sand capping Area Sand capping Area

□ Others (Anemone)
 □ arthropod (kind of shrimpe)



Area around the sand capping Area Sand capping Area

■ vertebrate(Sting ray, goby)
 ■ Mollusk (Shellfish e.t.c)

Figure 11. Monitoring result of sand capping project



Photo 1: Care and maintenance for an artificial forest (Shitara-cho, Shitara-county, Aichi-prefecture)



Photo 2: Extermination of nonnative trees (Hahajima island, Ogasawara)



Photo 3: Ramsar site “Kabukuri-numa and the surrounding rice paddies”



Photo 4: A special exhibition at the Consumers’ Room, “World aiming at the organic farming”



**Photo 5: Farmland maintenance for promotion of wildlife reintroduction of white storks
(Photo by Toyooka Land Improvement Office, Hyogo prefecture,)**



Photo 6: Trained dogs sending away monkeys



Photo 7. Training for fishermen to tackle with barren grounds



Photo 8. Countermeasures against feeding damages by sea urchins



Photo 9. Distribution of mother algae of Sargasso weed



Photo 10. Placement of artificial inverted-bamboo-grove-type reefs

Promoting efforts that take into consideration
the natural environment and ecosystem

<Southwest seacoast of Ise Bay>



Restoration of sandy beach
(Sand from nearby areas was used
in consideration of the ecosystem)



Sea turtle coming ashore

<Coast of Takehara Port >



Carrying out efforts to create a beach that
takes the habitat of living things into
consideration



Securing and expanding the living
environment for rare creatures
(horseshoe crabs, etc.)

Photo 11. Promoting efforts that take into consideration the natural environment and ecosystem



The researcher searches for rare local species all over the country

Photo 12, 13. Search for genetic resources.



Blast on rice (*Oryza sativa*) (upper)
fungus of blast (lower) as source of infection.



**Photo 14, 15.
Assessment of genetic resources.**

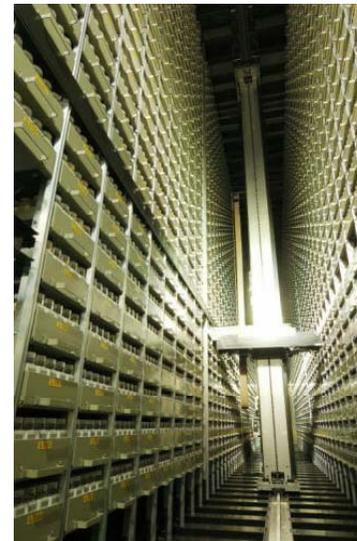


Photo 16. Seeds storage

The storage is kept at -1° C degree and 30% humidity.

Chapter 3

Mainstreaming of Biodiversity in Society

As stated in Chapter 2, Japan has established the Inter-Ministerial Committee on the National Biodiversity Strategy. The Committee comprises thirteen ministries and agencies and performs necessary tasks for the implementation of the CBD, such as development and review of the National Biodiversity Strategy, in collaboration with other ministries and agencies. The National Biodiversity Strategy incorporates many examples of sectoral and cross-sectoral plans, strategies, measures, and individual projects. Chapter 2 describes the cases related to biodiversity in the fields of agriculture, education, forestry, fisheries, tourism, landscape protection, and international cooperation. This chapter introduces the sections in which those representative cases are provided, along with the Articles and fields of the Convention.

It also introduces, in addition to governmental measures, the development of biodiversity strategies in local governments, the actions taken by the private sector, NGOs, scientific bodies and cooperation of diverse stakeholders to enhance biodiversity.

1. Examples of governmental measures

Measures	Referral Section in Chapter 2	Corresponding Articles and sectoral and cross-sectoral challenges to the Convention
Conservation of places of scenic beauty, natural monuments, cultural landscapes	2. 1 (2) Conservation of priority areas	Article 8. In-situ Conservation
Production infrastructure giving consideration to biodiversity	2. 1 (4) Agriculture, forestry, and fisheries	Agricultural biodiversity
Promotion of measures against wildlife damage to forests	2. 1 (4) Agriculture, forestry, and fisheries	Agricultural biodiversity
Conservation of forest biodiversity	2. 1 (5) Forests	Forest biodiversity
Conservation, restoration, and creation of green spaces in cities	2. 1 (7) Urban areas	Article 8. In-Situ Conservation
Nature restoration (measured in the Kushiro Wetlands)	2. 1 (8) River and wetland areas	Inland water biodiversity
Conservation, restoration, and creation of coastal environments	2. 1 (9) Coastal areas and oceanic areas	Marine/coastal biodiversity
Conservation, restoration, and creation of port environments	2. 1 (9) Coastal areas and oceanic areas	Marine /coastal biodiversity

Restoration of tidal flats and seaweed beds	2. 1 (9) Coastal areas and oceanic areas	Marine /coastal biodiversity
Conservation and use of genetic resources in the fields of agriculture, forestry, and fishery	2. 2 (2) Sustainable use of genetic resources	Article 15.
Contribution to conservation of biodiversity with research and development	2. 2 (2) Sustainable use of genetic resources	Article 12.
Promotion of education and learning	2. 2 (3) Communication and implementation	Article 13. Education and awareness (CEPA)
Cooperation for developing countries through the Official Development Assistance (ODA) projects	2. 2 (4) International cooperation	Article 18.
Environmental Impact Assessment	2. 2 (7) Environmental impact assessments	Article 14.
Strategic environmental assessment	2. 2 (7) Environmental impact assessments	Article 14.

2. Efforts by local governments

Local biodiversity strategy

It is not possible to conserve biodiversity based on only the national strategy established by the central government; instead, it is important to link biodiversity conservation with local activities. Local governments, including prefectural governments, are required to develop biodiversity strategies according to their regional traits, in order to concatenate and mainstream the importance of biodiversity conservation in their communities. Local governments also need to promote various actions taken by public administrations, businesses, NGOs, and residents of the region in order to realize a society that coexists with nature through the conservation of biodiversity. These local biodiversity strategies are necessary to enhance collaboration among agencies related to local biodiversity. In Japan, the red databook and the Red List had already been created by every prefectural government as basic materials for biodiversity conservation. Similarly, it is expected that all prefectural governments create local biodiversity strategies.

The “Basic Act on Biodiversity” was established and put into practice in June 2008. In Article 13, the Act prescribes that prefectural and municipal governments are obligated to endeavor to establish local biodiversity strategies. Such local strategies or plans have been already developed in Shiga, Chiba, and Nagasaki.

Furthermore, the Ministry of the Environment has been creating guidelines for the establishment of local biodiversity strategies and will promote the effective formation of those strategies.

3. Efforts by private enterprises

As an example of efforts by economic organizations focused on the conservation of nature and biodiversity, Nippon Keidanren (Japan Economic Federation) established the Nature Conservation Fund Steering Committee in 1992 (which changed to the “Nippon Keidanren Committee on Nature Conservation” in 2000), through which Nippon Keidanren has supported nature conservation projects mainly for the Asia-Pacific region. In 2003, they announced a declaration on nature conservation. In order to facilitate the realization of an economic society in harmony with nature, they declared their mission and advocated the significance of nature conservation efforts, stating that the business world must work on nature conservation with confidence and asserting that a great contribution to nature conservation can be made through proactive activities at enterprises and cooperative efforts by the business world. As examples of efforts at private enterprises, descriptions of attempts to conserve nature and biodiversity appear in the environmental reports of three hundred sixty-five companies (nearly 80%) of the four hundred eight-one companies reviewed in the 2005 environmental reports.

Among these efforts, cleaning and beautification activities are prominent, but there are many other activities in place for greening, creation/conservation of biotopes, maintenance/conservation/restoration of *satoyama* and national forests, awakening of environmental awareness, contribution to/support for other entities, etc. For example, a fishery company attaches MSC ecolabels on the aquatic products that it distributes in order to show that they originate from sustainable fisheries. A livelihood cooperative association has been conducting research on organisms living in paddy fields in order to promote the use of organic farming, which enriches biodiversity.

There is a company that is lending cooperation to the conservation of overseas tropical forests, from which it procures its raw materials. Another company is restoring paddy fields along the valley streams in cooperation with an NGO as a recreational program in which employees can raise their awareness of environmental problems and participate in the biodiversity conservation activities.

Major impacts on ecosystems and wildlife in the raw material procurement process and assessment of those impacts are described in the guidelines as an example of appropriate information. The document points out that the major causes of impacts on biodiversity are in the supply chain, ranging from the procurement of raw materials and manufacturing to distribution and sales; it also suggests the need for wide-range consideration of the supply chain.

The Ministry of the Environment will also establish a Guideline for Business and Biodiversity (tentative title) to promote actions taken by the private sector.

4. Efforts by nongovernmental organizations (NGOs) and other bodies

NGOs and other citizens' groups also perform a wide range of activities for biodiversity conservation. One NGO is conducting biodiversity conservation activities in important areas concerning biodiversity, another NGO is performing citizen participation monitoring, and another is providing children with nature education. They are also engaged in efforts to import and sell farm products that are produced with a foreign sustainable method, operate systems that authenticate sustainable forest management and forestry products, promote organic agriculture that does not use chemical fertilizers and agricultural chemicals, and conduct eco-tours with a guide to experience the region's rich biodiversity. Many of these are community-based activities that reflect citizens' needs, which cannot be fully conducted by the government. Such community-based activities are important in promoting the conservation of biodiversity in accordance with regional characteristics. The conservation of biodiversity can be developed through extensive activities by promoting these activities and exchanging information by developing close relationships.

Furthermore, community-based activities are also being conducted. One NGO working for communities is investing efforts for the forestation and conservation of fields in valleys in collaboration with companies, and an international NGO is developing a project to conserve foreign forests and neritic areas with the cooperation of local NGOs and overseas companies. Although biodiversity conservation activities, including philanthropy, are drawing increasing attention from companies, there are few experts in these companies; therefore, some companies are in partnership with NGOs for the betterment of their activities. This is also beneficial for NGOs because they can develop

their activities with financial aid from companies. It is essential for both NGOs and companies to experience benefits for continuous activities. The expansion of biodiversity conservation activities is expected to provide more opportunities for information exchange between companies interested in biodiversity conservation and NGOs working at home and overseas.

5. Efforts by scientific bodies

In advance of the CBD COP9, a preliminary conference was held by scientists in Bonn, Germany. At this conference, issues such as the means to monitor the trend of global biodiversity were discussed. In December 2008, in response to the demands of the Ecological Society of Japan, relevant scientific bodies and organizations in Japan gathered together to establish a promotion committee for the CBD COP9 preliminary conference.

6. Cooperation of diverse stakeholders

For the Tenth Conference of the Parties to the Convention of Biological Diversity (CBD COP10) and the 5th Meeting of the Conference of the Parties serving as the Meeting of the Parties to the Cartagena Protocol (COP-MOP5), the sharing and exchanging of information and the promotion of cooperation among various stakeholders are required. Japan will prepare for the conference through a meeting such as a “round table meeting for CBD COP10 and COP-MOP5” established in February 2009.

Chapter 4

Progress in the implementation of the 2010 Biodiversity Target and the Strategic Plan for the CBD

Japan has established three targets for the 3rd National Biodiversity Strategy and will contribute to the achievement of the 2010 Biodiversity Target through the steady accomplishment of those three targets (see Chapter 2).

Japan has also been conducting a comprehensive assessment of biodiversity in order to estimate the status and trends in changes of biodiversity since 2008. Japan will evaluate the implementation of the 2010 Biodiversity Target in the assessment and will present those results in spring 2010.

In this chapter, the progress in the implementation of the 2010 Biodiversity Target and the Strategic Plan for the CBD is introduced, along with some examples.

1. Progress towards the 2010 Biodiversity Target

Goal 1: Promote the conservation of the biological diversity of ecosystems, habitats and biomes

Target 1.1: At least 10% of each of the world's ecological regions effectively conserved

Example: Changes in the area of natural parks

Various types of protected areas exist in Japan. In particular, the natural parks designated under the Nature Parks Laws are representative of those protected areas. Those natural parks cover 14.3 % of the national land (see Chapter 2).

Name of protected area and others	Type of sites	Number of sites	Area (ha)	Ratio	Date
Nature conservation area	Wild nature conservation area	5 areas			March 2008
	Nature conservation area	10 areas			
National park	Total	29 parks	2087000	100%	March 2008
	Special zone		1226000	58.8%	
	Special protected zone		276000	13.2%	
	Marine park zone	38 areas	2359	0.1%	

Quasi-national park	Total	56 parks	1361000	100%	March 2008
	Special zone		1201000	88.2%	
	Special protected zone		67000	4.9%	
	Marine park zone	31 areas	1385	0.1%	
National wildlife protection area	Total	69 areas	548012		November 2008
	Special protected zone	53 areas	145000		March 2008
Protection forest			11763000		March 2007
Protected forest		833 areas	780000		April 2007
Cultural property	Number of designated scenic beauties (natural) (exceptional scenic beauties)	1 4 7 (1 2)			March 2008
	Number of designation of natural monuments (exceptional natural monuments)	9 8 2 (7 5)			
	Important cultural landscapes	7 areas			

Goal 2: Promote the conservation of species diversity

Target 2.1: Restore, maintain, or reduce the decline of populations of species of selected taxonomic groups

Target 2.2: Status of threatened species improved

Example: Change of the rank of endangered species

As a result of the review of the Red List conducted from 2003 to 2007, most of the species on the list rose to a high rank; however, some species moved down on the list (see also Chapter 1). As noted in Chapter 2 there exist some cases that show considerable improvement due to implementation of the measures for protection and proliferation. For example, as the result of the population of albatross increased, and the Japanese crested ibises were released experimentally,

Goal 6: Control threats from invasive alien species

Target 6.1: Pathways for major potential alien invasive species controlled

Target 6.2: Management plans in place for major alien species that threaten ecosystems, habitats, or species

Example: Implementation of the measures for alien species

The Invasive Alien Species Act was implemented in June 2005 to control the import and rearing of alien species that damage ecosystems (see Chapter 2).

Goal 7: Address challenges to biodiversity from climate change, and pollution

Target 7.1: Maintain and enhance resilience of the components of biodiversity to adapt to climate change

Example: Actions against the “crisis brought about by global warming”

In the Third National Biodiversity Strategy, the “crisis brought about by global warming” is positioned as an inevitable crisis, in addition to the three crises of biodiversity in Japan that have been previously recognized.

In order to understand the impacts of global warming on biodiversity, Japan has carried out the improvement and development of a more comprehensive monitoring system from the perspective of global biodiversity. Japan also recognizes the need to consider adoptive measures. As one such measure, an ecological network will be established to ensure paths for the movement and dispersal of living things and to increase the probability of their survival, by organically linking the communities residing with the natural environments that need to be conserved or with excellent natural conditions (see also Chapter 2).

Goal 11: Parties have improved financial, human, scientific, technical, and technological capacity to implement the Convention.

Target 11.1: New and additional financial resources are transferred to developing country Parties, to allow for the effective implementation of their commitments under the Convention, in accordance with Article 20.

Target 11.2: Technology is transferred to developing country Parties, to allow for the effective implementation of their commitments under the Convention, in accordance with its Article 20, paragraph 4.

Example: International Technology Cooperation

The Official Development Assistance (hereafter referred to as “ODA”) Charter, decided upon by the cabinet in August 2003, was set up so that “environmental conservation and development should be pursued in tandem” as one of its four principles of ODA implementation, while positioning “addressing global issues” as one of its priorities. Furthermore, in the Medium-Term Policy on ODA established in 2005 for the “conservation of the natural environment by means such as the management of nature

reserves, conservation and management of forests, measures against desertification, and natural resources management” is positioned as one of the priority fields in the approach to addressing environmental problems and specific actions.

Pursuant to “Environmental Conservation Initiative for Sustainable Development (EcoISD)” announced in 2002, Japan also contributes actively to global biodiversity conservation through conservation and sustainable use of biodiversity in developing countries.

2. Progress towards the goals and objectives of the Strategic Plan for the CBD (For the targets for Cartagena Protocol, see also its National Reports)

Goal 1: The Convention is fulfilling its leadership role in international biodiversity issues.

Target 1.6: Parties are collaborating at the regional and subregional levels to implement the Convention.

Japan contributes to the implementation of the Convention of Biological Diversity (CBD) through various conventions related to the CBD, such as the World Heritage Convention and the Ramsar Convention, and international processes or regional frameworks including ICRI, the East Asian-Australasian Flyway Partnership (see Chapter 2).

Goal 2: Parties have improved financial, human, scientific, technical, and technological capacity to implement the Convention.

Japan has the necessary capability of finance, human resources, science, technique, and technology to implement the Convention; however, Japan requires further improvement in its capability for overall and sufficient achievement.

Goal 3: National biodiversity strategies and action plans and the integration of biodiversity concerns into relevant sectors serve as an effective framework for the implementation of the objectives of the Convention.

As stated in Chapter 2, in Japan, the 3rd National Biodiversity Strategy was decided upon by the cabinet in November 2007. In addition, in June 2008, the Basic Act on Biodiversity was introduced and established a legal basis for the National Biodiversity Strategy.

As described in Chapter 3, Japan steadily brought biodiversity into the mainstream in relevant fields.

Goal 4: There is a better understanding of the importance of biodiversity and of the Convention, and this has led to broader engagement across society in implementation.

Japan will hold the CBD COP10 in 2010. For its success, Japan will have diverse stakeholders engage in its preparation and will take action to gain more public understanding of biodiversity through projects including “Our Life on Biodiversity Project.” There have already been some positive results achieved through various projects under the 2nd National Biodiversity Strategy.

3. Conclusion

As stated throughout the 4th National Report, Japan has been taking actions toward the achievement of the Strategic Plan and the 2010 Biodiversity Target for the Convention by establishing and implementing the National Biodiversity Strategy.

Some of the actions have already achieved their target to a certain extent; however, most of them are still in the process of implementing the measures toward such achievement. As described in Chapter 1 of the 3rd National Biodiversity Strategy, it is clear that the 1st to 3rd crises of biodiversity are still progressing; although, Japan has carried out various measures to cope with these crises, pursuant to the 2nd National Biodiversity Strategy. In addition, a new concern has been raised due to the significant impacts on biodiversity brought about by the progression of global warming.

The challenges in dealing with these serious crises affecting biodiversity in Japan are as follows.

- 1) The public understanding of the meaning and value of biodiversity is not sufficient. Most people do not consider the crises to be their problem. The momentum for people to engage in various activities is not sufficiently fostered.
- 2) The status of biodiversity, formed by a vast amount of linkages and characteristics of nature, is not fully recognized. There is a lack of basic knowledge for the assessment and measures based on scientific knowledge.
- 3) The movement for biodiversity conservation, including nature restoration and the conservation of *satochi-satoyama*, has improved; however, only limited areas have taken actions for biodiversity conservation. Cross-sectoral measures are required to cope with the crises. The implementations of those measures have not yet improved to a satisfactory extent.

In order to cope with such situations and challenges, Japan, along with relevant ministries, agencies, and local branches, will further improve the measures pursuant to the three objectives, basic policies, and action plans of the 3rd National Biodiversity Strategy.