

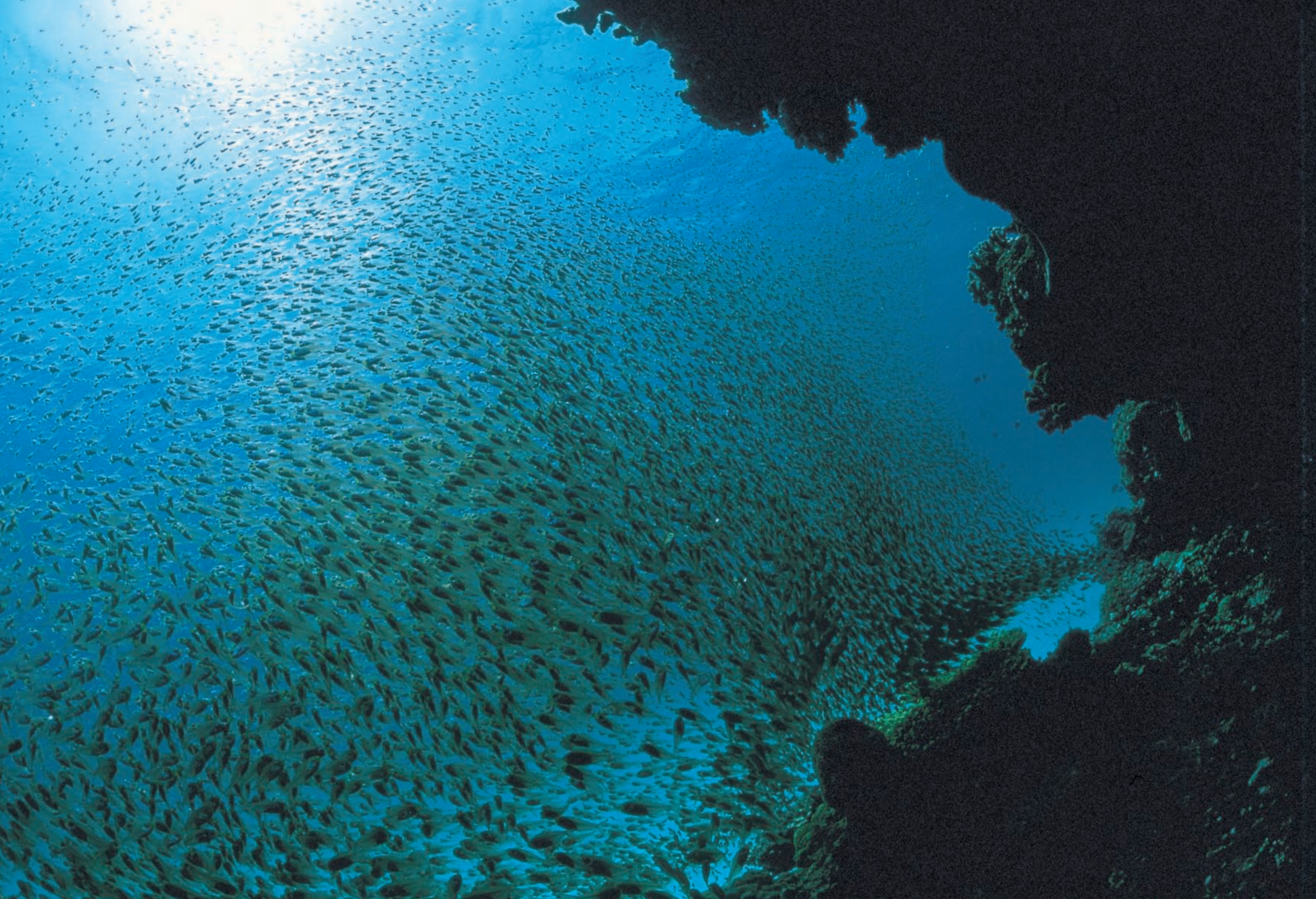
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Biodiversity is Life Biodiversity is our Life

The National Biodiversity Strategy of Japan 2010

信濃画



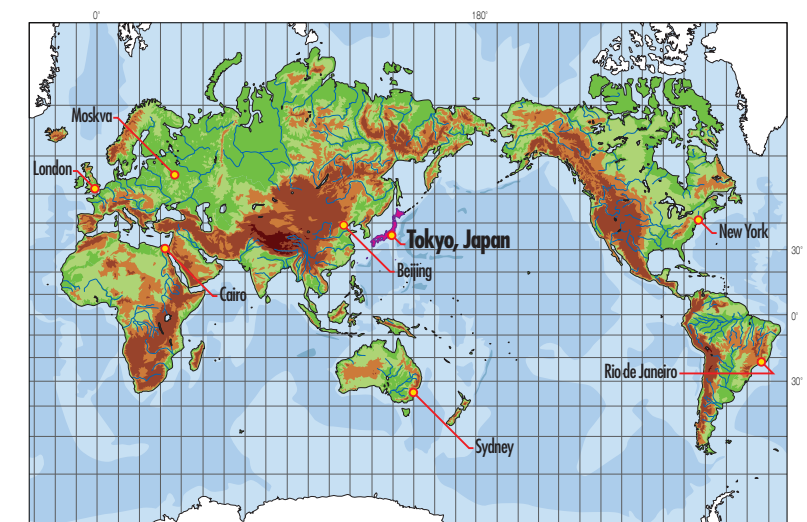
A school of pigmy sweepers (*Parapriacanthus ransonneti*) off Tokashiki Island, Okinawa Prefecture Photo: Ikuo Nakamura

Since the birth of the earliest forms, life on earth has adapted to diverse environments and evolved into myriad species. Estimates of the total number of current species, including those not yet discovered by science, range as high as 30 million. Each of these lives is interconnected with others and over the years these connections have created an intricate tapestry of life and today's global environments. We, humans are not only part of this global dynamic ecosystem, our lives and livelihoods depend on it. We humans, however, have spoiled our ecosystems across the globe, and driven numerous species to the brink of extinction. Today, species are disappearing at a rate much faster than that at which dinosaurs died out. Being aware that all lives on the earth, including humans, are mutually connected and supportive of one another, we should be moved to conduct ourselves in a humble and cautious manner.

Japanese Nature

The Japanese archipelago runs parallel to the eastern rim of the Eurasian continent, extending some 3000 kilometers from 45°33' N to 20°25' N, with climatic zones ranging widely from subarctic to subtropical. In general, however, Japanese climate is temperate and humid, with marked monsoons and spectacular seasonal changes.

With a geographical history of being alternately connected to and separated from the Eurasian continent, and composed of several thousand islands of various sizes, Japan hosts a unique and rich biota with many endemic and relict species. Nearly 40% of mammals and nearly 80% of amphibian species are endemic. The number of known species in Japan is around 90,000 and estimates place the total number at approximately 300,000. This rich biota is contained in a relatively small land area of about 378,000km².



The Fourth National Biodiversity Strategy of Japan

The Cabinet adopted the "National Biodiversity Strategy of Japan 2010" on March 16, 2010, as the basic plan for achieving the objectives of the conservation and sustainable use of biodiversity.

After Japan joined the Convention on Biological Diversity in 1993, the National Biodiversity Strategy was formulated in 1995, which has been revised in 2002 and 2007. The Basic Act on Biodiversity, enacted in June of 2008, now legally mandates the National Biodiversity Strategy. The National Biodiversity Strategy of Japan 2010 is the first national strategy with a foundation in law.

Fountain of Life and Basis for Human Livelihood

Biodiversity Supports Life and Livelihood

Air and Water Nourished by Living Organisms

The very oxygen that we breathe has been produced over the course of several billion years by the process of photosynthesis engaged in by plants. Plant leaves also transpire water, and forests and wetlands serve as natural reservoirs. In this way living organisms help keep the water cycles running smoothly, and in doing so stabilize the earth's temperature and humidity. Fertile soil is produced by decomposition of dead animals and plants, and nutrients such as nitrogen and phosphorus are transported from forests through rivers to the sea, eventually nurturing rich marine life.

In this manner, biodiversity provides the “basis of existence for all life” —including we humans.

Basis for Human Livelihood

Agricultural crops are grown in environments characterized by complicated interactions among various organisms such as insect pests and the predators that feed on them, pollinators, and soil microbes. Seafood is also a blessing of marine ecosystems that include plankton, seaweeds, invertebrates, fishes and various other interrelated organisms.

Genetic information, as well as functions and shapes of living organisms are indispensable to our daily lives. The molecular structure of aspirin, for example, was synthesized from chemical components found in willow bark. In our agricultural crops, abundant genetic input from wild species is required to produce

superior genetic characteristics such as delicious taste and strong resistance to diseases. Even in the industrial sector, biomimicry provides the inspiration for innovative technology. New stain-resistant paints, for example, mimic the water-shedding surface structure of a lotus leaf. In the future, the shape and function of living organisms can offer up a treasure trove of new technologies.

In this manner, biodiversity offers a “useful value” to support humans.

Biological and Cultural Diversity

We Japanese people nurture a unique perspective regarding our nature. We maintain a sense of awe for the harsh power that we know nature is capable of, but at the same time we deeply appreciate the changing seasons, such as songs of birds and insects, as well as the myriad blessings of the land and sea. In the face of our rich but violent natural environment, we have cultivated a wealth of knowledge, skills and deep sensitivities towards the natural world. We have also developed varied food cultures unique to each region, with products such as “tsukemono” (traditional Japanese pickles), “miso” (fermented soybean paste), soy sauce, and “sake” (Japanese rice wine). These kinds of food are produced from complicated combinations of microorganisms and ingredients indigenous to each region, and thus represent unique integrations of nature and culture.

Having opportunities to make direct contact with our rich natural world, playing in it and learning from it, is indispensable for sound growth of the children who will lead our future generations.

In this manner, biodiversity is a “fountain of rich culture” that fills Japanese hearts and spirits.



Paddy cultivation on terraced hillsides, Hamanoura of Genkai-Cyo, Saga Prefecture
Photo: Toshitaka Morita



Drops of water on east indian lotus (*Nelumbo nucifera*) leaf,
Yamanashi Prefecture Photo: Hidekazu Kubo

Our Life Secured by Nature

Forests help prevent landslides and soil runoff on steep slopes. They also filter our water, keeping it safe to drink. It has also been reported that the damage from tsunamis is lessened along natural coastlines where the coral reef and mangrove are intact.

Reducing the use of pesticides and chemical fertilizers contributes help ensure safe food products, and at the same time keeps the ecosystems healthy. In these ecosystems microbes work to revitalize the soil, and a balance is maintained among insect pests and their natural predators.

In this manner, rich biodiversity “ensures safe human livelihood for many years to come.”

Mt. Fuji and sun-dried sakura shrimp in Shizuoka City, Shizuoka Prefecture Photo: Takaji Ochi



Biodiversity in Crisis

“Three Crises” in Progress

The Japanese archipelago extends a long way in the north-south direction, is surrounded by the sea, and blessed with abundant precipitation. These conditions have produced a rich biodiversity, which now faces several severe crises.

First Crisis Biodiversity is being negatively impacted by human activities such as excessive development, and overexploitation and illegal collection of rare species. Vital wetland habitats are destroyed or degraded by reclamation work, and forest habitats are lost to urbanization and suburban sprawl.

Second Crisis In contrast to the First Crisis, biodiversity in the countryside landscape, which the Japanese affectionately call ‘Satochi-Satoyama’ or ‘Satoyama’ for short, is impacted by abandonment or underutilization of secondary habitats such as coppice woodlands and grasslands. These habitats were traditionally managed in a unique sus-

tainable fashion, and supported a rich biota. Forests and grasslands that traditionally provided people with firewood, charcoal and thatch for roofing are no longer being utilized, and the resulting changes in habitat are threatening some species with extinction. Meanwhile, the distributions and population densities of sika deer and wild boars are currently expanding, causing damage to local agriculture and forestry, and also destroying ecosystems through overgrazing and tree barking.

Third Crisis Ecosystems are disrupted by artificial introduction of invasive alien species and chemicals. Alien species introduced from abroad, such as mongoose and black bass, as well as species introduced from other areas within Japan, prey on native species and deprive them of habitat and food. Introduced species can also hybridize with closely related native species, diluting their unique genetic diversity. In addition, ecosystems are adversely affected by the introduction of chemical substances that are toxic to plants and animals.

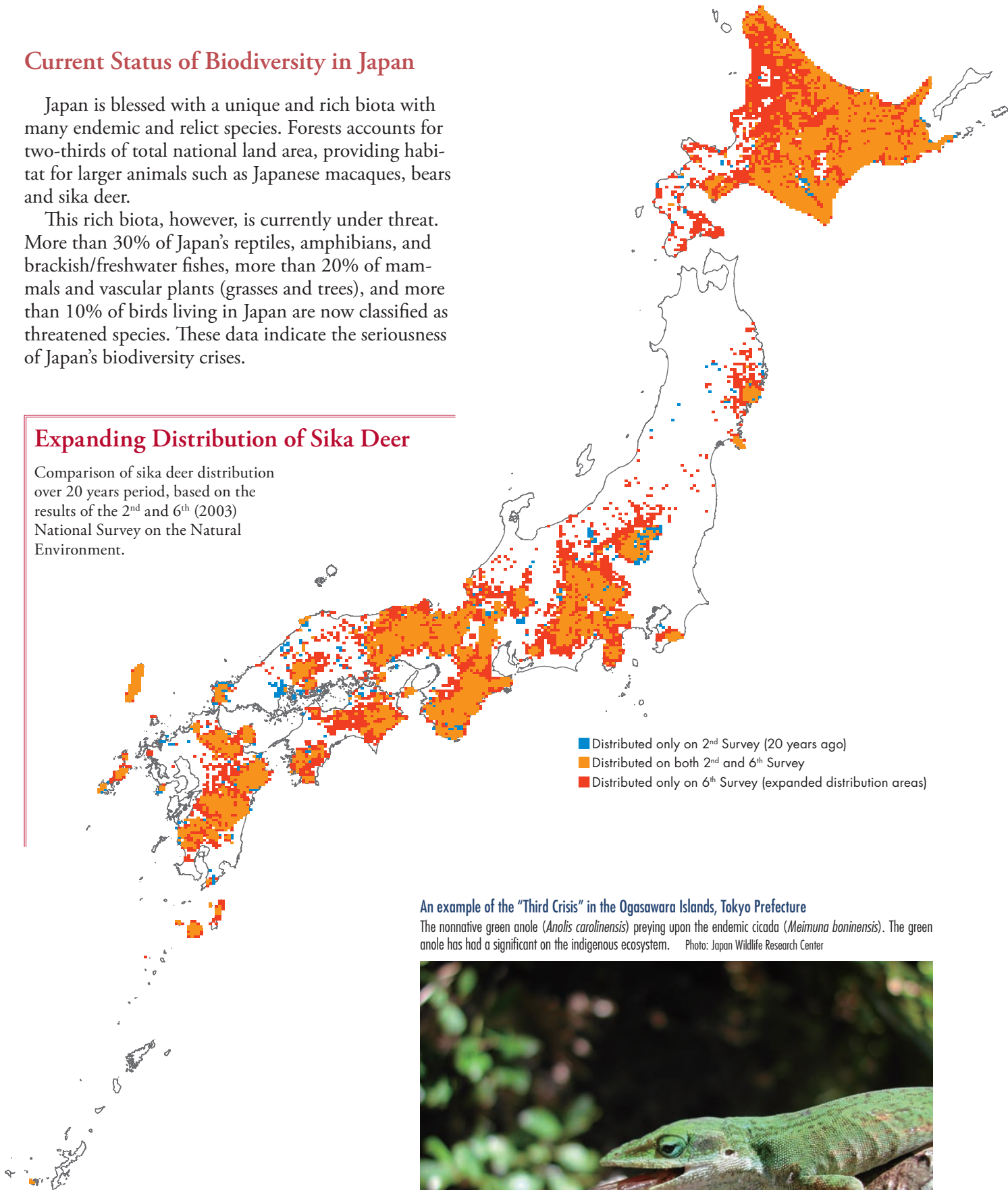
Current Status of Biodiversity in Japan

Japan is blessed with a unique and rich biota with many endemic and relict species. Forests accounts for two-thirds of total national land area, providing habitat for larger animals such as Japanese macaques, bears and sika deer.

This rich biota, however, is currently under threat. More than 30% of Japan’s reptiles, amphibians, and brackish/freshwater fishes, more than 20% of mammals and vascular plants (grasses and trees), and more than 10% of birds living in Japan are now classified as threatened species. These data indicate the seriousness of Japan’s biodiversity crises.

Expanding Distribution of Sika Deer

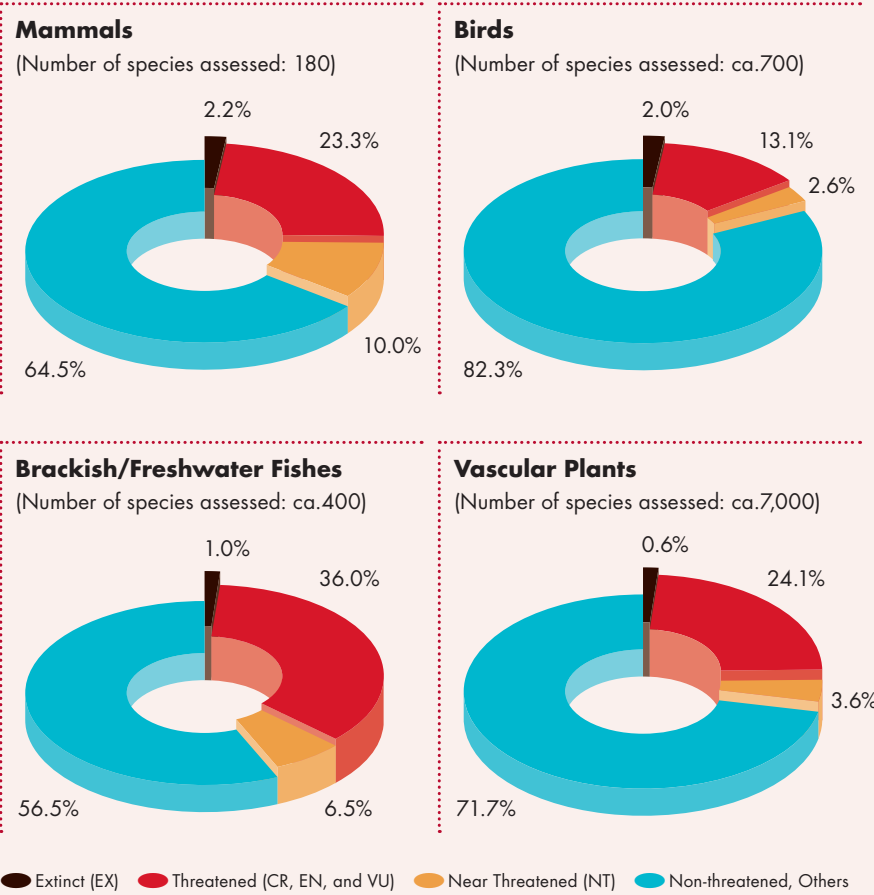
Comparison of sika deer distribution over 20 years period, based on the results of the 2nd and 6th (2003) National Survey on the Natural Environment.



An example of the “Third Crisis” in the Ogasawara Islands, Tokyo Prefecture
The nonnative green anole (*Anolis carolinensis*) preying upon the endemic cicada (*Meimuna boninensis*). The green anole has had a significant on the indigenous ecosystem. Photo: Japan Wildlife Research Center



Ratios of Threatened Species to Total Assessed Species in Japan (Source: Ministry of the Environment, the Red List)



Status and Problems of Biodiversity in Japan

Threatened Species
—Japan’s Red List, compiled by the Ministry of the Environment, was revised in 2006 and 2007, and the number of threatened species (CR, EN and VU) listed increased from 2,694 to 3,155.
—The status of some species, such as Okinawa rail (*Gallirallus okinawae*) and Iriomote cats (*Prionailurus bengalensis iriomotensis*), were upgraded due to habitat degradation and adverse impacts from alien species. On the other hand, other species such as white egret orchid (*Habenaria radiata*) were downgraded due to the success of conservation efforts. Still other species, including several species of bats were removed from the List when increased data became available.

Comparison of Wildlife Distributions at Present and 20 Years Ago
—The distribution areas of sika deer (*Cervus nippon*), Japanese macaques (*Macaca fuscata*), wild boars and bears are expanding, causing serious frictions between wildlife and humans.
—Distribution of some breeding birds, such as the great cormorants (*Phalacrocorax carbo*) increased, while that of others, species such as Japanese quails (*Coturnix japonica*) and brown shrikes (*Lanius cristatus*) decreased.

Loss of Ecosystems
—The land area covered with natural and secondary forests decreased rapidly from the mid-1950s to the mid-1970s, and each now accounts for approximately 18% of the national land area.
—More than 50% of natural coasts were lost in the main islands of Japan, and approximately 40% of tidal flats have disappeared since 1945 due to land reclamation.

The Satoyama

The Traditional Japanese Countryside Landscape

The Satoyama and Japanese Biodiversity

Japan's traditional rural landscape, called Satochi-Satoyama or Satoyama, consists of various biotopes, including secondary forests, paddy fields, irrigation ditches and ponds, dry vegetable farmlands and grasslands, mixed together in a complex mosaic pattern. This secondary landscape is found over a wide area between the cities and deep mountains, and accounts for approximately 40% of Japan's land area. The Satoyama landscape has been managed by cultivation of crops, periodic tree-cutting for firewood, charcoal and mushroom cultivation, collection of leaf litter for fertilizer, harvest of grasses for roof thatch, and other economic activities. Such continuous management created ecosystems similar to those created by natural disturbances, resulting in unique environments with rich biota that differ from those of untouched wilderness. The traditional lifestyle which created the Satoyama landscape can be thought as an ideal model of human coexistence with nature.

Changes in the Satoyama Landscape

The traditional Satoyama provides people with food and natural resources. Natural resources were constantly recycled and utilized in a sustainable manner. Recently, however, replacement of traditional products by manufactured substitutes and the shift from wood to fossil fuels in the post war era, as well as a decrease in rural population and aging of the agricultural work force, has resulted in abandonment or underutilization

of countryside biotopes. The species that depend on these managed countryside biotopes are thus now threatened with extinction. The delicate ecological balance maintained by careful management is also being lost, and this may be one factor in increase in populations of deer, boar and macaque, which in turn leads to more problems for farmers and foresters and further disruption of ecosystems through overgrazing and tree-barking.



Crossing National Boundaries

The Critical Global Issue

The Global Warming Crisis

In addition to the three Crisis, global warming is significantly impacting biodiversity. The Fourth Assessment Report (2007) of the Intergovernmental Panel on Climate Change (IPCC) estimates that approximately 20 to 30% of plant and animal species will face a higher risk of extinction if the rise in the global average temperature exceeds 1.5 to 2.5°C.

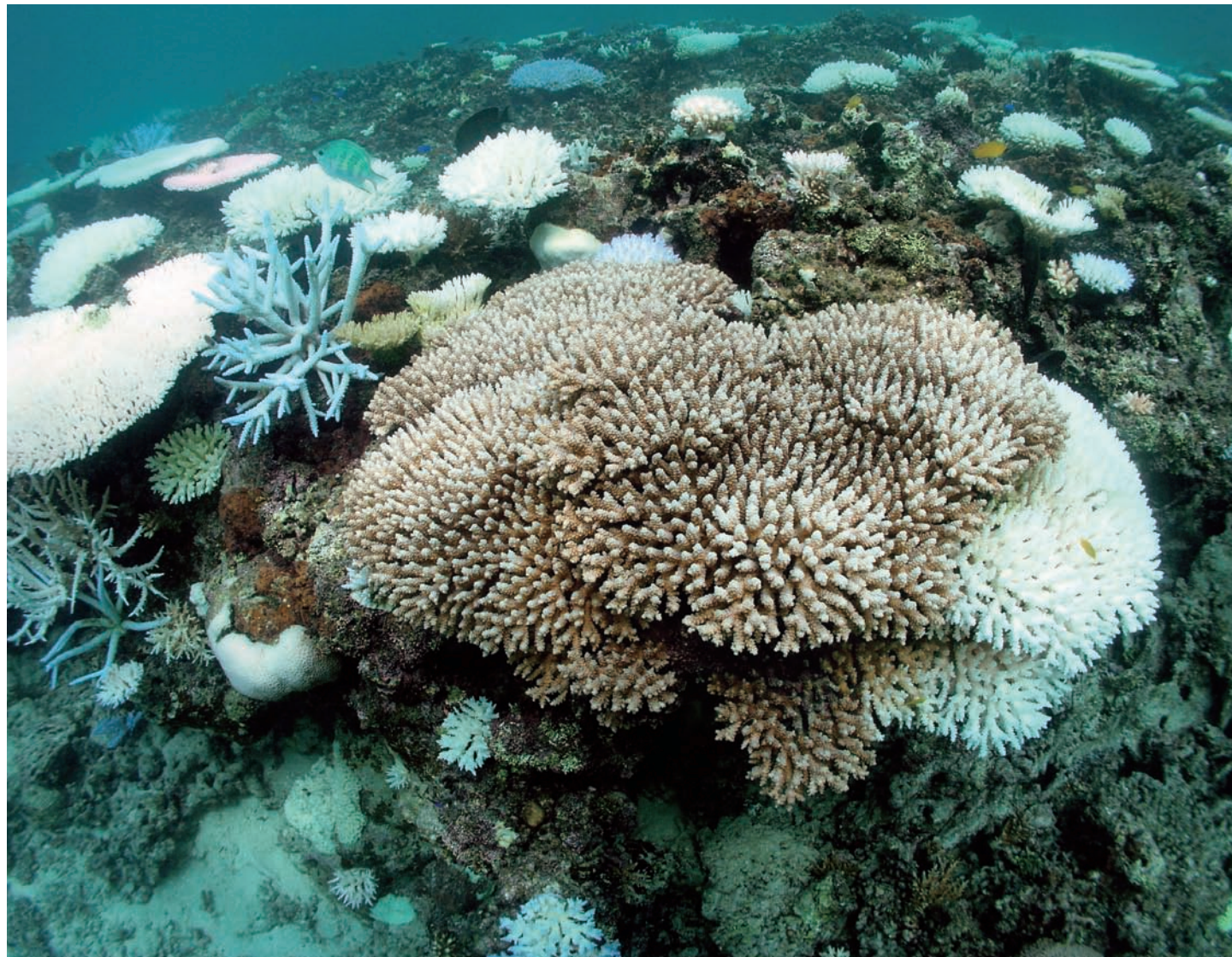
Various cases suggesting the serious effects of global warming can already be observed. For instance, the condition of adult polar bears has recently been reported to be declining significantly, and the reproduc-

tive rate of this species is seen to be dropping in western Hudson Bay, Canada. This is because the breakup of sea ice has been occurring earlier and the available period for catching seals on the ice has been reduced.

In central Japan, the blooming date of Yoshino cherry (*Prunus × yedoensis*) has been pushed forward from the early April to the mid-March.

Coral bleaching in Sekisei Lagoon, Okinawa Prefecture

Algae called zooxanthellae live symbiotically in the body of the coral. The coral provides zooxanthellae with shelter and CO₂, and receives nutrients in return. When water temperature rises, however, zooxanthellae leaves the host coral or die. Without zooxanthellae, the coral loses its color, and weakens. If the sea surface temperature rises by 1 to 3°C, coral bleaching and death will occur more frequently. Photo: Kazuyuki Shimoike



Ptarmigan (*Lagopus mutus japonicus*) with chick, Mount Tateyama, Toyama Prefecture

Ptarmigans inhabit high mountains of the Japan Alps, and are thought to be a relict of the glacial epoch. Species like this are considered to be most susceptible to global warming. Photo: Toshiaki Ida

Mitigation and Adaptation

The top priority is to slow down the speed of global warming by reducing the emissions of greenhouse gases, such as carbon dioxide. In addition, we need to implement measures that are effective for both the conservation of biodiversity and the mitigation of global warming. Forests and wetlands, for instance, store large amount of carbon, and are also vital for biodiversity. The biomass produced from the management of conifer plantations and Satoyama can be used as alternative energy sources to fossil fuels. The state of biodiversity must be monitored on a long-term basis. Furthermore, it is important to secure sufficient habitat amount and connectivity (ecological networks), as well as to maintain the health of ecosystems, so that species can adapt to the expected effects of global warming in the future.

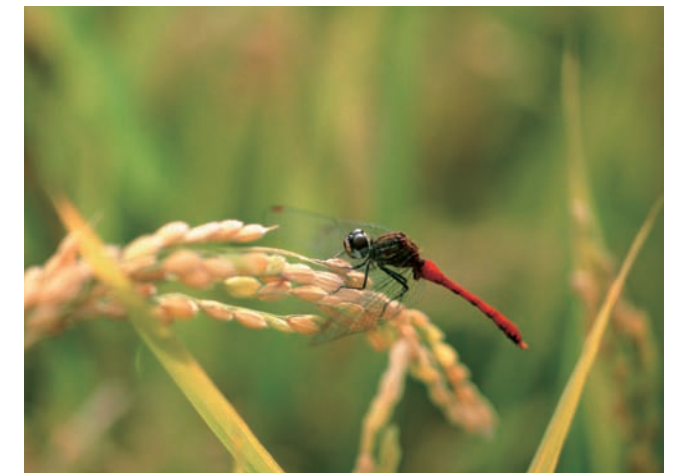
Biodiversity Connects the World

With the progress of globalization, our livelihoods become deeply connected to, and more and more dependent on world biodiversity. For example, the Japanese people depend on imports for about 60% of all food consumed, 80% of timber, and most energy and mineral resources used. We should recognize that such imports affect biodiversity in other countries, and not just Japan.

Such international biodiversity connections are not limited to trade. Animals such as whales, sea turtles

Ears of rice and dragonfly (*Sympetrum eraticum*)

If global warming continue, the yield and quality of rice will likely decrease in all parts of Japan, except for Hokkaido. Other serious impacts on crops, such as proliferation of insect pests, are also of concern. Photo: Kazuhiro Tamaru



and migratory birds travel over a vast range, constantly crossing national borders. It is recently revealed that eels, a popular seafood dish in Japan, spawn in the seas off the Mariana Islands in the North Pacific, and migrate from there to Japan. International cooperation measures are absolutely essential for the conservation of these migratory species.



Working Together

Widespread Participation in Biodiversity Conservation

Conservation and sustainable use of biodiversity cannot be achieved only through government measures, but requires active participation and partnership efforts among various groups and individuals.

Efforts by Local Governments

Nature varies widely from area to area, and biodiversity conservation thus needs strong local and regional components. Local governments are expected to bring the national strategy down to concrete action in local communities.

Examples

- Many local government have drafted regional biodiversity strategies based on the Basic Act on Biodiversity.
- In Toyooka City, Hyogo Prefecture, the local government, NGOs and local residents have cooperated in conducting a program for rehabilitating the oriental stork (*Ciconia boyciana*).

Efforts by Businesses

Businesses benefit financially from biodiversity not only by utilizing raw materials, but also through access to genetic information derived from living organisms. These business activities, however, have an impact on

biodiversity. Companies should thus begin incorporating efforts for conservation and sustainable use of biodiversity into their business activities.

Examples

- The participation of companies in global frameworks for the inclusion of biodiversity issues into management considerations and incorporating them into their business activities.
- Some private companies distribute and market aquatic products with the eco-label issued by the Marine Stewardship Council (MSC), showing consumers that these products are from sustainable fisheries.



Products with MSC eco-labels attached
Photo: Kamewa Shouten



Oriental storks (*Ciconia boyciana*) and children, Toyooka City, Hyogo Prefecture
Photo: The Kobe Shinbun



Efforts by Non-governmental Organizations (NGOs) and Citizens' Groups

NGOs and citizens' groups are expected to take an active role in strengthening community-based conservation activities. They are also expected to operate programs or devise systems that invite participation by a wide range of individuals, with various expertise and experience. These efforts should be conducted in cooperation with entities such as private enterprises and museums.

Examples

- A citizens' group is involved in a project aimed at the restoration of seagrass beds in the few remaining natural coasts of Tokyo Bay, in cooperation with local government, schools, colleges, research institutes and private enterprises.
- An organization involving agricultural cooperatives and individual farmers is engaged in a project for restoration of healthy rice paddies, where diverse living organisms such as diving beetles can live, by reducing amounts of agrochemicals.

Efforts by Academic Societies and Scientific Groups

Furthering research and surveys in both Japan and elsewhere into biodiversity, sharing findings on a global scale, cooperating with government authorities to ensure that strategies reflect findings, and conveying information to the people in a salient manner.

Efforts by Individuals

Conservation and sustainable use of biodiversity are closely connected with our daily lives, and it is important for each of us to recognize that even small actions can accumulate and eventually make a difference.

For instance, Japan imports a great amount of food, lumber, and live animals and plants; and individuals can selectively purchase products from a company which makes positive efforts for biodiversity conservation. We can also help out by never releasing pets or other animals into the wild. These are just some examples of the lifestyle adjustments necessary for the conservation of biodiversity.

Agriculture, Forestry and Fishery of Low-impact on Biodiversity

Agriculture, forestry and fishery are directly associated with our livelihoods, but are also significantly interconnected to biodiversity. Recently, the demand has been increasing for agricultural, forestry and fishery products that are biodiversity-friendly as well as safe for humans.

Typical examples are the "Ikimono-Brand Rice" - rice brands named after species of wildlife, such as oriental stork. This rice is produced in paddies where the 'brand' species is being conserved. These rice brands help out the local economies and support biodiversity, and are welcomed by consumers who recognize that rice grown in paddies where abundant fish and birds live is also safe and healthy for humans.

Fishermen are also engaged in activities to restore marine resources. For example, fishermen engage in upstream reforestation projects under the slogan, "The Forest and Sea are Lovers". These projects aim to revitalize regional fisheries by restoring the interconnections among living organisms and the recycling of nutrients between the land and the sea.

These efforts for conservation and sustainable use of biodiversity can be maintained by incorporating them into the regional socioeconomic systems.

Medaka ricefish (*Oryzias latipes*) in a rice paddy Photo: Yuzo Nakagawa



Perspectives for the Next 100 Years

Targets and Approach

The 2020 and 2050 Targets

In the “society in harmony with nature,” biodiversity is maintained and provide benefits to the society in a sustainable manner. To realize such society, Japan has established short-term and mid/long-term targets.



Released Japanese Crested Ibis (*Nipponia nippon*), Sado Island, Niigata Prefecture Photo: Fumie Oyama

2010: Formulation of the National Biodiversity Strategy of Japan 2010

2020: Short-term Targets

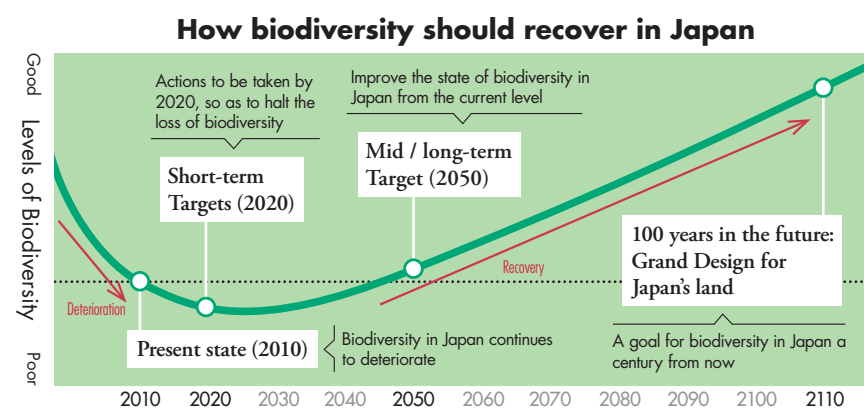
Actions to be taken by 2020, so as to halt the loss of biodiversity:

- 1) Conduct full observations and analyses of the state of biodiversity in Japan based on scientific evaluation. Expand activities for biodiversity conservation, conserve indigenous species of fauna and flora and ecosystems, and build ecological networks that can maintain and restore biodiversity at the national level. In particular, stabilize and restore populations of species currently threatened with extinction, and take measures to prevent new species from becoming endangered by proper measures.
- 2) Establish mechanisms for reducing adverse effects of human activities on biodiversity and promote practical methods for sustainable use of national land and natural resources across generations.
- 3) Make ecosystem services respected in every aspect of human society. Mainstream conservation of biodiversity and its sustainable use into socioeconomic activities of the general public, by ensuring new steps taken by various stakeholders.

2050: Mid / long-term Target

Enhance the harmony between human being and nature at national and local levels, improve the state of biodiversity in Japan from the current level, and sustainably increase the benefits of ecosystem services.

100 years into the future: Grand Design



Cherry blossoms and fresh green leaves, Shibata City, Niigata Prefecture Photo: Takashi Yamaguchi

Grand Design

Image of the National Land in the Next 100 Years

The Meiji Shrine forest in Tokyo was designed with a 100-year vision. Now, with the century nearly up, the forest has developed into the current rich ecosystem envisioned by the founders.

In the National Biodiversity Strategy of Japan 2010, the “Grand Design” illustrating the objectives of the “Centennial Plan” is presented. This is a plan to restore, over the next 100 years, the ecosystems in Japan which have been depleted over the past 100 years. The following is a vision of our country that we are striving to achieve in a 100 years.

I Natural Mountain Areas

Wilderness environments are conserved in broad swatches that are connected with one another. The adverse impact on ecosystems generated by human activities is minimized by nature-oriented management principles.

The Meiji Shrine Forest and adjacent high-rise buildings, Tokyo Prefecture
Photo: David Ball



II The Satoyama Countryside Areas

Rich biodiversity is found in countryside environments such as paddy fields and irrigation ponds, while sustainable agriculture has also been revitalized. In selected Satoyama areas the succeeding generations have developed new methods of using natural resources, such as eco-tours and biomass energy. These areas are maintained and managed through widespread cooperation among various sectors of society, including urban residents and private enterprises. Habitats and populations of larger animals, such as bears, sika deer and wild boars, are separated from human settlements by properly managed Satoyama buffer zones. Friction between humans and wildlife has been reduced.

III Urban Areas

Urban areas contain spacious green areas that include forests, and are dotted with smaller nature spots that allow children to play on the soil and touch living

things. Conscientious consumers actively purchase biodiversity-friendly products, while the concepts of sustainable lifestyles have taken firm root in society.

IV River/Wetland Areas

Rivers have been restored to their original dynamism, with plentiful flow volume fed by groundwater and natural springs. Migratory birds flock to tidal flats at the river mouths, while catfish and silver crucian carp can be seen moving between the streams and the paddy fields. The Japanese people have restored their traditional ways of living in harmony with water.

V Coastal Areas

Coastal regions nurture diverse marine life, and also serve as rich fishing grounds. Upstream reforestation has restored the nutrient cycle and enriched coastal habitats. Seals can be seen swimming in the northern seas and dugongs in the south. Fiddler crabs dance across expansive tidal flats, while people enjoy digging for clams.

VI Marine Areas

Migrating whales and sea turtles are enjoyed by happy visitors participating in eco-tours that have revitalized the regional communities. Sustainable fisheries have been established on the basis of scientific resource management. Efforts are going on with international cooperation to remove and prevent marine contamination that affects marine ecosystems.

VII Islands

Island residents now fully recognize the value of their unique ecosystems and biota. Eco-tourism based on this unique nature is now an important element in the local economy. A strictly enforced checking system prevents alien species from reaching the fragile ecosystems.



The leaves changing colors on Mt. Asahidake, Daisetsuzan National Park, Hokkaido Prefecture Photo: Toshitaka Morita

Great purple emperors (*Sasakia charonda*) and giant hornets (*Vespa mandarinia*) feed on tree sap, Komoro City, Nagano Prefecture Photo: Kazuo Unno



Four Basic Strategies

Directions and Measures

To move towards the 100-year vision in grand design, four basic strategies have been specified. These are the broad policy directions for measures through 2012.

I Mainstreaming Biodiversity In Our Daily Life

- Increase the awareness of the importance of biodiversity throughout the society, and encourage action by diverse actors.
- Conduct a nationwide campaign on public-private partnership on biodiversity conservation.
 - Encourage local governments to develop their own regional biodiversity strategies, promote the “Guidelines for Private Sector Engagement in Biodiversity” and promote activities by various local entities.
 - Promote education/learning on biodiversity and one-week stay programs in agricultural, mountain and fishing villages; and encourage biodiversity-friendly consumption.



Iriomote cat (*Prionailurus bengalensis iriomotensis*), Iriomote Island, Okinawa Prefecture Photo: Makoto Yokotsuka

II Rebuilding Sound Relationships between Man and Nature in Local Communities

- Explore new paradigms for the relationship between modern lifestyles and natural environments, with particular attention to the aging society and increased urbanization as our population declines.
- Preserve, rehabilitate and find new ways of utilizing Satoyama areas. Develop Satoyama buffer zones that allow coexistence between wildlife habitat and local human settlements.
 - Promote sustainable agriculture, forestry and fisheries that revitalize rural villages while at the same time upgrading the quality of wildlife habitat.
 - Enhance conservation measures for threatened flora and fauna, facilitate the reintroduction of endangered species such as the Japanese crested ibis (*Nipponia nippon*) and Tsushima leopard cat (*Prionailurus bengalensis euptilura*), select “hot spots” and bolster measures against alien species such as black bass.
 - Promote integrative measures for the society in harmony with nature, sound material-cycle society, and low-carbon society.

III Securing Linkages Among Forests, Countrysides, Rivers and the Sea

- Promote conservation and restoration of forests, countrysides, rivers and marine habitats, not only individually but as organically integrated ecosystem networks.
- Construct ecological networks with protected areas such as national and quasi-national parks serving as cores, with surrounding buffer zones. Promote nature restoration.
 - Promote various types of forestation. Form networks of water and green spaces in urban areas; and construct integrated watershed networks that include rivers, wetlands, paddy fields, etc.
 - Promote conservation and restoration of coastal areas; Consider effective systems of self-imposed resource management, and protected areas that support both marine diversity and sustainable fisheries.

IV Taking Action with Global Perspective

Recognize that Japan is having an impact on global biodiversity, and take action with a global perspective. Promote international cooperation, and assume a leadership role in conserving world biodiversity, and



Salmonids (*Oncorhynchus keta*) swim upstream on the Shiretoko Peninsula (World Natural Heritage Site), Hokkaido Prefecture Photo: Asou Fujita

- its sustainable use in the Asia-Pacific and other critical biodiversity regions, in cooperation with other countries.
- Exercising international leadership for the success of the 10th meeting of the Conference of the Parties (COP10) to the Convention on Biological Diversity in 2010 a success and reaffirming international ties with Asian and other countries.
 - Communicating the “SATOYAMA Initiative” as an

- international model for harmonious coexistence with nature and establishing a framework for its international implementation.
- Study measures from the perspective of biodiversity, including enhancement of monitoring systems, to mitigate global warming and adapt to its effects.
 - Expand global monitoring networks for biodiversity and strengthen the interface between science and policy.

Convention on the Biological Diversity COP10 in Japan

The Japanese government will host the 10th Conference of the Parties (COP10) in Nagoya, City, Aichi Prefecture, in 2010, which the United Nations declared to be the “International Year of Biodiversity”. COP10 will be an important conference that will have repercussions for the future of global biodiversity. At it, the next global target to follow after the COP6 2010 target, which was “to achieve by 2010 a significant reduction of the current rate of biodiversity loss,” will be discussed, as will issues of international efforts such as Access and Benefit-Sharing (ABS). Japan will exert leadership, serving as the host nation up until COP11.

Japan Biodiversity Outlook

In order to take the proper action to achieve these targets, Japan will need to present clear and unambiguous scientific data on the current state of biodiversity in our country, how this biodiversity has changed, and what effects have been produced by various conservation measures to date. For this purpose, indicators will be developed for measuring the condition of biodiversity and comprehensively assessing the current status. Furthermore, areas especially important for biodiversity conservation, known as “Hot Spots”, will be selected.

Events Leading up to the Formulation of the National Biodiversity Strategy of Japan 2010

May, 1992 Convention on Biological Diversity adopted

October, 1995 National Biodiversity Strategy of Japan adopted

March, 2002 Second National Biodiversity Strategy of Japan adopted

● Enactment and revision of relevant laws

- Enactment of the Law for the Promotion of Nature Restoration
- Revision of the Natural Parks Law
- Revision of the Wildlife Protection and Hunting Law

- Enactment of the Cartagena Law (the Law Concerning the Conservation and Sustainable Use of Biological Diversity through Regulations on the Use of Living Modified Organisms)

- Enactment of the Invasive Alien Species Act

- Revision of the Wildlife Protection and Hunting Law

- Enactment of the Law for the Promotion of Ecotourism
- Enactment of the Basic Act on Ocean Policy

● International Developments

2002 2010 Biodiversity Target

...The target was adopted at COP6 of the Convention on Biological Diversity that the Parties to the Convention commit themselves to achieving by 2010 a significant reduction of the current rate of biodiversity loss

2005 Millennium Ecosystem Assessment (MA)

2006 Global Biodiversity Outlook 2 (GBO2)

2007 The Fourth Assessment Report by IPCC

May, 2008 COP9 to the Convention on Biological Diversity (Bonn, Germany)

...Nagoya City, Aichi Prefecture, was selected as the site of the 10th Conference of the Parties (2010).

May, 2008 G8 Environment Ministers Meeting (Kobe, Japan)

...Kobe Call for Action for Biodiversity agreed upon.

June, 2008 Basic Act on Biodiversity enacted

Article 11 of the Act requires the national government to formulate a National Biodiversity Strategy.

- Revision of the Natural Parks Law
- Revision of the Nature Conservation Law

● Review Process

Request for a report submitted to the Central Environmental Council

Joint Committee on Natural Environment and Wildlife (1st meeting)

- Subcommittee on National Biodiversity Strategy (1st meeting to 4th meeting)
- Hearings with ministries and local governments, NGOs, economic organizations.
- Examining the major new issue
- Examining the draft of the national strategy

Local meetings held (7 locations)

Opinions solicited from the public

Joint Committee on Natural Environment and Wildlife (2nd and 3rd meeting)

Report on the review was submitted by the Central Environmental Council

March 16, 2010 National Biodiversity Strategy of Japan 2010 approved by Cabinet resolution

October, 2010 10th Conference of the Parties to the Convention on Biological Diversity (COP 10) to be held (Nagoya City, Aichi Prefecture)

(Article 6) The signatory nations shall formulate their national strategies aimed at conservation and sustainable use of biodiversity.

OUTLINE of the National Biodiversity Strategy of Japan 2010

Preamble

- Convention on Biological Diversity and National Strategy
- Review of Previous National Strategies
- Background to Formulation
- Character and Role of the National Biodiversity Strategy of Japan 2010
- Roles of Entities
- Checks and Reviews of the Implementation

Part 1 Strategy

Chapter 1 Importance of Biodiversity and its Rationales

1.1 Diversity of Life on the Earth

- Origin of the Earth and the Birth of Life
- Mass Extinction and Human Activities
- What is Biodiversity?

1.2 Biodiversity that Supports Life and Livelihoods

- ① Air and water nourished by living organisms: Supply of oxygen, recycling of water and nutrients, soil richness, adjustments to temperature and humidity
- ② Basis for human livelihoods: Food, lumber, clothing, medicine, breed improvement, biomimicry
- ③ Biological and cultural diversity: Knowledge and culture in harmony with nature, rich local cultures
- ④ How our lives are protected by nature: Mitigating the effects of disasters, ensuring efficient safety, safe foods

1.3 Rationales for Conservation and Sustainable Use of Biodiversity

- Biodiversity, ① Provides the basis of all life's existence: Essentials for life at present and in the future
- ② Offers value that supports human life: Value that enriches lives at present and in the future
- ③ Becomes a fountain of rich culture: Spiritual foundation and fountain of rich local cultures
- ④ Ensures safe human livelihoods for many years to come: Efficiency and safety for generations present and future

Chapter 2 Status and Problems

2.1 Biodiversity Crises

- Three Crises
- First Crisis: Crisis brought about by human activities and development
- Second Crisis: Crisis brought about by underutilization of Satoyama biotopes
- Third Crisis: Crisis brought about by artificially-introduced factors
- Crisis Brought about by Global Warming
- A serious problem that can no longer be avoided

2.2 Global Warming and Biodiversity

2.3 Background of Three Crises

2.4 Status of Biodiversity

2.5 Status of Conservation and Sustainable use of Biodiversity

Chapter 3 Targets

3.1 Targets and Assessment

- 2010 Targets and the Next Global Targets
- Japan's Targets:
- 2050: Mid / long-term Target
- Improve the state of biodiversity in Japan from the current level
- 2020: Short-term Targets
- Actions to be taken by 2020, so as to halt the loss of biodiversity:
- ① Conservation of species and ecosystems, prevention of extinction and restoration of threatened population
- ② Sustainable use of the components of biodiversity
- ③ Mainstreaming the conservation and sustainable use of biodiversity into socioeconomic activities
- Comprehensive Assessment of Biodiversity of Japan

3.2 Grand Design of the National Land from the Perspective of Biodiversity

- National Land from the Perspective of Biodiversity
- Basic Stance: "Centennial Plan"
- ① Restore ecosystems over a 100-year period
- ② Develop unique and attractive regions
- ③ Make investments into land management more important and more efficient, and perform ecological land management
- ④ Improve the quality of nature throughout the country in an adaptive manner
- ⑤ Accumulate scientific data, change people's awareness and behavior patterns
- Grand Design in Accordance with National Land Characteristics
- Mountainous regions, Satoyama, paddy and farm regions, urban regions, river and marsh regions, coastal regions, marine regions, and island regions

Chapter 4 Basic Policies

4.1 Basic Perspective

- ① Scientific recognition and preventive/adaptive attitudes
- ② Community-oriented attitude and broad geographical perspectives
- ③ Coordination and collaboration
- ④ Use of socioeconomic systems
- ⑤ Integrated and long-term viewpoint

4.2 Basic Strategies

- ① Mainstreaming biodiversity in society
- ② Rebuilding sound relationships between man and nature in local communities
- ③ Securing linkages among forests, countrysides, rivers and the sea
- ④ Taking action with global perspective

Part 2 Action Plan

Chapter 1 Measures and Policies for National Land Area

Measures and Policies Based on Wide-Area Coordination

- 1.1 Ecological Networks
- 1.2 Conservation of Priority Areas
- 1.3 Nature Restoration
- 1.4 Agriculture, Forestry and Fisheries

Regional Space Measures

- 1.5 Forests
- 1.6 Countryside and Satoyama Areas
- 1.7 Urban Areas
- 1.8 Rivers and Wetlands
- 1.9 Coastal and Marine Areas

Chapter 2 Cross-sectional and Foundational Measures and Policies

- 2.1 Conservation and management of wildlife
- 2.2 Sustainable use of genetic resources
- 2.3 Communication and implementation
- 2.4 International cooperation
- 2.5 Information management and technology development
- 2.6 Efforts against global warming
- 2.7 Efforts to build a sound material-cycle society and low-carbon society
- 2.8 Environmental Impact Assessments

Examples of numerical targets

- Wetlands designated as Ramsar Convention sites
- ...Add 6 new sites (current 37 sites)
- Rare species of domestic fauna and flora designated under the Species Preservation Law
- ...Designate approximately 5 additional species (current 82 species)
- Specified Wildlife Conservation and Management Plans
- ...Increase total number of plans to 170 (current 107 plans)
- Public recognition of the word "biodiversity"
- ...Increase to more than 50% (36% in 2009)
- Formulate Regional Biodiversity Strategies
- ...Have all 47 prefectures start to develop strategies

Information about National Biodiversity Strategy of Japan 2010 adopted on March 16, 2010 is available at: <http://www.biobic.go.jp/biodiversity/>
Any inquiries or opinions concerning this brochure may be sent to NBSAP@env.go.jp

FOR ALL THE LIFE ON EARTH

Biodiversity

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Front cover: **Minowa, Kanasugi, Mikawashima** by Utagawa Hiroshige 1850's

Utagawa Hiroshige (1797-1858) was an ukiyo-e artist who lived in the late Edo period. He created many prints of scenery depicting the nature and how it changes from season to season, famous landscapes, and ordinary people going about their lives. Hiroshige's works were brought to the Western world, where his bold compositions and use of indigo ("Hiroshige blue") is thought to have influenced Western artists. Minowa, Kanasugi, Mikawashima is a print from his well-known One Hundred Famous Views of Edo series. It features two cranes visiting the paddies and marshes around a flood plain near modern-day Tokyo's Nippori district, a farmer working the paddies, and rows of houses in the distance. Edo (modern-day Tokyo) was already one of the largest cities in the world by Hiroshige's time, yet people still depended on and lived in harmony with many organisms for their livelihoods. This awareness helped give rise to forms of arts and culture popular among common people, such as ukiyo-e, that depicted such scene (Ota Memorial Museum of Art)



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E-mail NBSAP@env.go.jp

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