

Tokyo Biodiversity Strategy for 2030

Digest Version

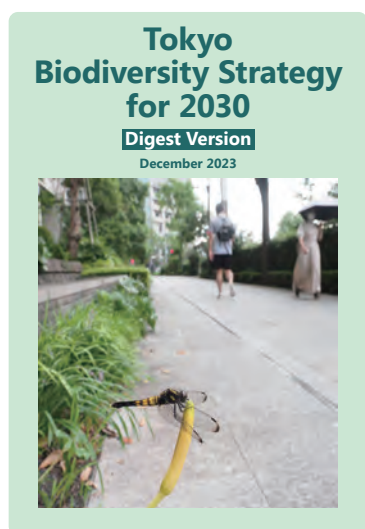
December 2023





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About the Cover



Orthetrum melania (Selys, 1883) (female)
resting on greening plant along the street in
Chiyoda Ward, Tokyo

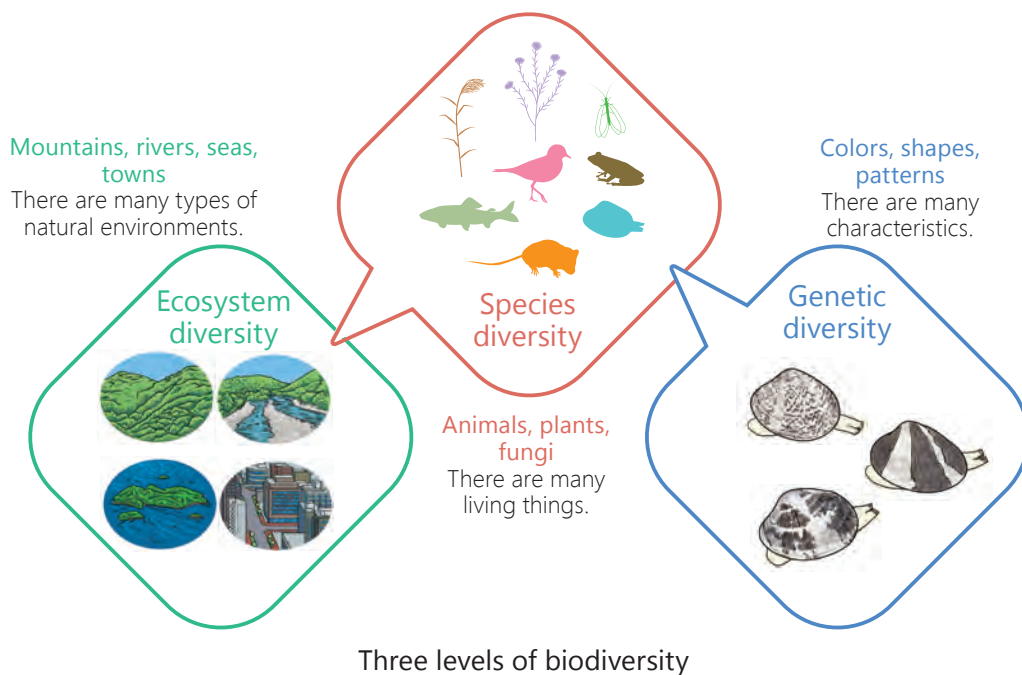
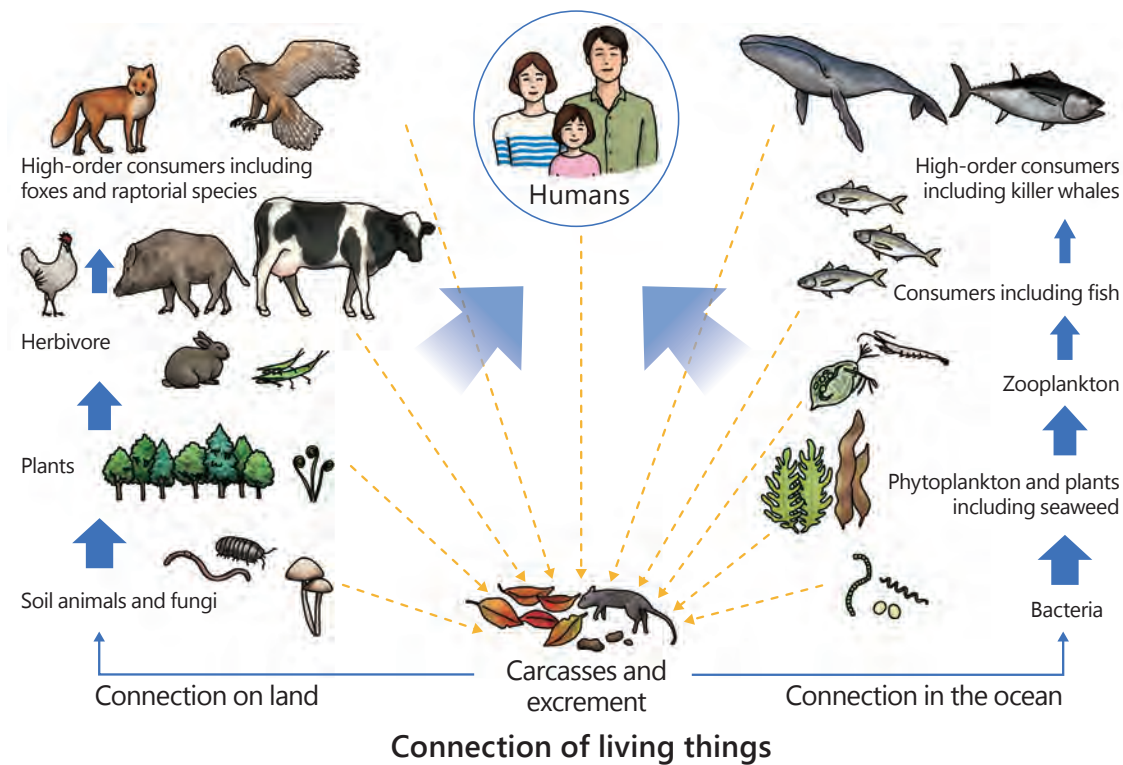
As of May 2021, Tokyo Metropolis recorded 108 species of dragonflies, which is the second most next to the 120 species of Kagoshima Prefecture. A dragonfly is featured on the cover as a symbol showing that Tokyo has an extremely high level of species diversity relative to its small area.

Although *Orthetrum melania* is not contained in Red List of Threatened Species Tokyo (Tokyo Red List), there are only a few wards where it thrives.

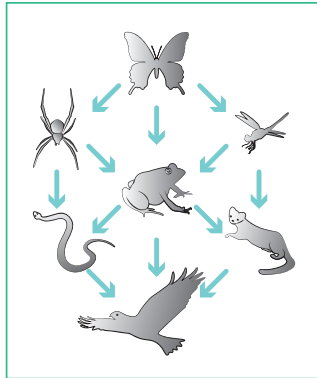
With this cover, we have encapsulated the spirit in which we, together with Tokyo residents, aim at conserving and restoring the environment where diverse creatures can be seen nearby throughout Tokyo, including its central parts, and realizing an environmentally symbiotic, affluent society.

1 What Is Biodiversity?

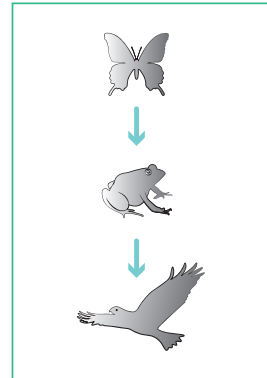
The term "biodiversity" refers to a situation where a variety of creatures with unique characteristics are able to coexist in harmony directly and indirectly, taking advantage of each other's characteristics in a variety of different environments. Biodiversity is said to cover three levels of diversity: Many types of living things, a variety of environments, and different genes even within the same type of a living thing.



If an ecosystem consists of a large number of creatures, the food web (mesh representing relationships in the food chain) would become more complex. For example, even if frogs became extinct, raptorial species as top-level predators would survive as other routes in the food chain would be maintained. On the other hand, in an ecosystem with a small number of creatures, the food chain would become more simple. If frogs were to become extinct, top-level predators would also become extinct, which would result in an upsurge of insects as primary consumers.



Ecosystem with diverse species



Ecosystem with fewer species

Advantages of diverse species*

Blessings of Biodiversity (Ecosystem Services)

Biodiversity is something irreplaceable created over long periods through a variety of lifeforms, including human beings, giving us blessings essential for our lives.

Blessings of biodiversity are called ecosystem services that are classified into the following four categories. Biodiversity helps provide these ecosystem services in a stable manner.

Provisioning services

Supply the resources needed for our daily lives, such as food, wood, water, and medicine.



Regulating services

Bring about a healthy and safe environment for us to live in by adjusting the climate, reducing heavy rain damage, and purifying water.



Cultural services

Enrich people's spirit by providing, for example, cultural inspiration and physical and mental peace through contact with nature.



Supporting services

Support the three ecosystem services above, providing the basis for the survival of all life including humans, such as oxygen generation by photosynthesis, soil formation, and nutrient cycling.



Why should we protect biodiversity?

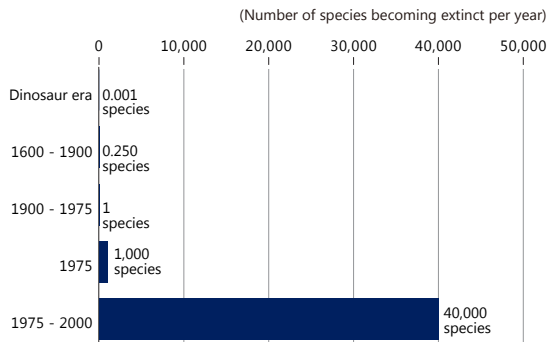
Ecosystem services are essential for us to live an affluent life. Biodiversity enables us to receive abundant blessings in a stable way.



* Prepared by the Tokyo Metropolitan Government (TMG) based on "Why biodiversity is necessary?" in imidas (innovative multi-information dictionary, annual series) (<https://imidas.jp/jijikaitai/k-40-045-09-07-g250> viewed on November 7, 2022).

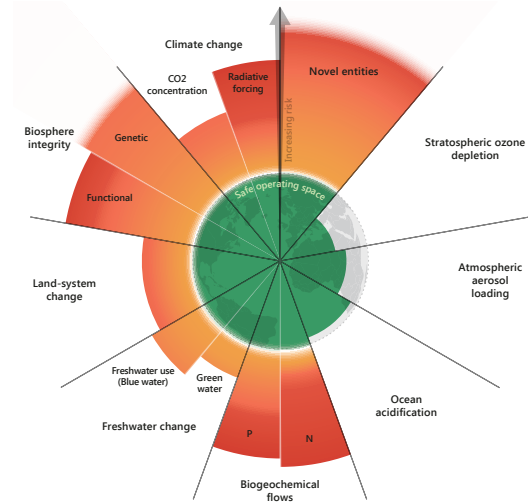
Rapid Loss of Biodiversity on Earth

The present age is called the era of the sixth mass extinction, in which living things are becoming extinct at the fastest rate since the beginning of life on earth primarily due to the impact of human activities. The speed of species' extinction on earth has greatly deviated from the natural state, causing numerous creatures to face crisis.



Graph created by the Ministry of the Environment based on "The Sinking Ark" (1981) by Norman Myers.

Speed of species extinction*



Source: Azote for Stockholm Resilience Centre, based on analysis in Richardson et al 2023.

The 2023 update to the Planetary boundaries

Trends in Biodiversity

Kunming-Montreal Global Biodiversity Framework

In response to the biodiversity crisis, efforts were made on an international level and augmented by the Convention on Biological Diversity which was adopted in 1992 as a comprehensive framework for the conservation and sustainable use of biodiversity.

The 15th Meeting of the Conference of the Parties to the Convention on Biological Diversity (COP15) was held from 2021 to 2022, where the Kunming-Montreal Global Biodiversity Framework was adopted as a set of global targets with the target year of 2030.

The new Framework declares so-called "Nature Positive" as a mission for 2030 "to take urgent action to halt and reverse biodiversity loss to put nature on a path to recovery" and sets 23 global targets to achieve it, which includes the 30 by 30 target to protect at least 30% of land and ocean areas by 2030.



View of COP15 from CBD website

National Biodiversity Strategy 2023-2030

In Japan, the Basic Act on Biodiversity came into force in 2008, based on which a cabinet decision was made for the National Biodiversity Strategy 2023-2030 corresponding to the new Framework in March 2023.

The Strategy sets a Society in Harmony with Nature as a 2050 vision, aims at achieving the 2030 target of "Nature Positive," and aspires to protect and utilize biodiversity and natural capital, the basis of global sustainability and an essential component of human security.

Both the global and national targets have been updated.



That's right. Let's take a look at biodiversity in Tokyo on the next page.

* Prepared by TMG based on the 2010 Illustrated Annual Reports on the Environment, Sound Material-Cycle Society, and Biodiversity in Japan of the Ministry of the Environment in June 2012.

2 Status Quo and Issues of Biodiversity of Tokyo

Diverse Ecosystem of Tokyo

Tokyo spreads out from the mainland to the Ogasawara Islands, or approximately 1,700 km from north to south, and has a variation in elevation of more than 2,000 m, with climate zones ranging from subarctic (Mt. Kumotori and its surrounding areas) through subtropical (Ogasawara Islands) and torrid (Okinotorishima Island). Tokyo consists not only of urban central areas with parks and other green spaces and residential areas partly covered with homestead woodland and fields, but also of different natural environments: satoyama (community-based forest area) and wooded areas full of biodiversity, mountain areas overrun by natural forests, and islands with a unique natural environment and ecosystem.

The relationship between people and nature after Edo Era has dramatically changed its land use. The ecosystem of Tokyo at present has been formed over a long period of history. While there are some issues, such as reduced greenery due to the development of land and a deteriorated quality of greenery due to insufficient care by humans, diverse and abundant ecosystems still remain in Tokyo.



Natural forest



Wooded area



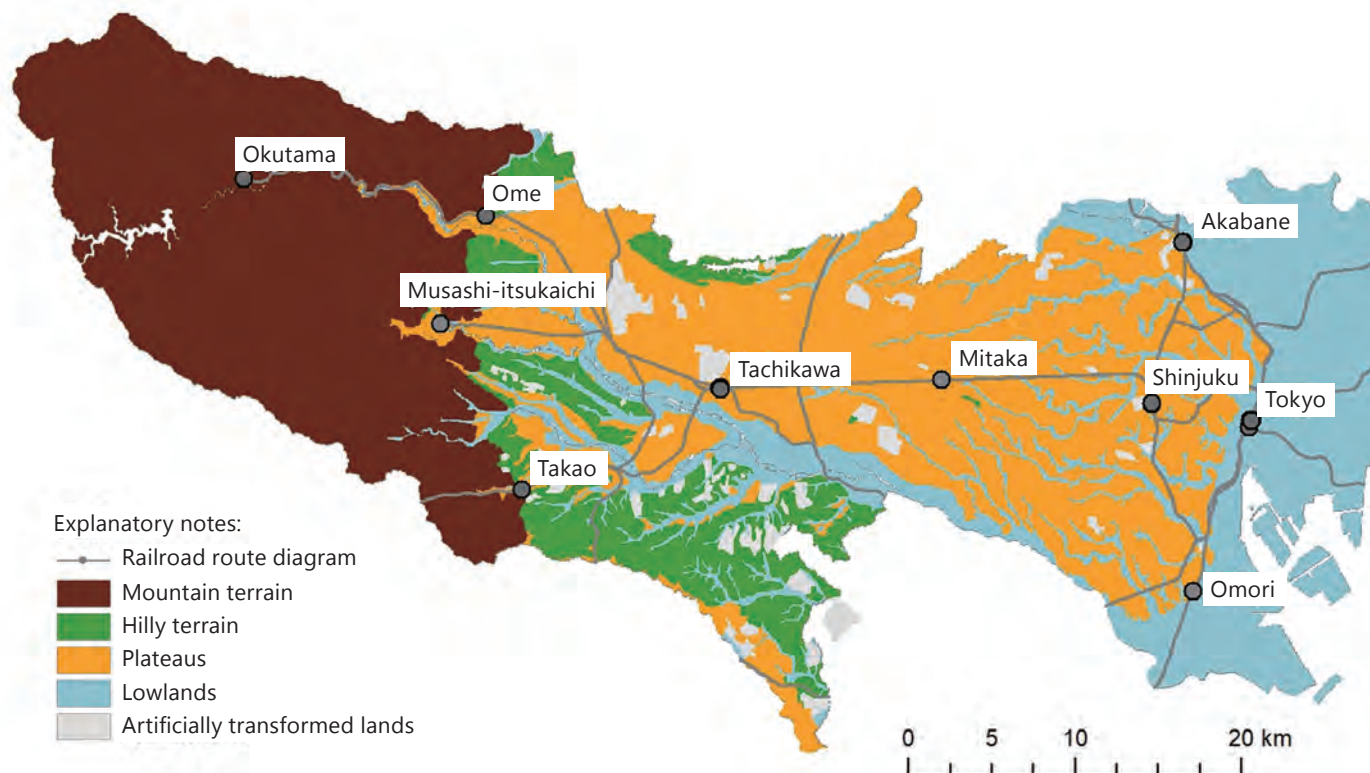
Homestead woodlands



Temple and shrine forest



Urban agricultural land



Artificial forest



Valley in hilly terrain



Cliff line

* Topographic map prepared by TMG based on the Standard Map and Shaded-Relief Map of the Geospatial Information Authority of Japan (<https://maps.gsi.go.jp/vector/#8/35.970227/139.730988/&ls=hillshade1%20C0.3%7Cvstd2&disp=11&d=l>).



Tokyo has a richly diverse geography and climate.

That's right.
That's why Tokyo has such a diverse ecosystem.



Mountain terrain

Natural or almost primeval forests spread around Mt. Kumotori and its ridges in mountain terrain, and artificial forests of cedar and Japanese cypress occupy a large area in the lower area. These areas are home to large mammals, such as black bears, and raptorial birds. Various areas in Okutama are dotted with masses of rocks and exposed limestone, where plants and land snails specific to limestone as well as bats live and grow.

Hilly terrain

While there has been a large decrease in greenery, forests mainly composed of wooded areas have spread in hilly terrain, including sawtooth oak and konara oak that used to be used and maintained as fuelwood. Valleys with classic landscape maintain valuable ecosystems where diverse living things live and grow thanks to spring water and paddy fields.

Plateaus

The residential areas have spread throughout the plateaus, where there are also parks and green spaces, along with scattered parcels of agricultural lands and woodlands, and greenery distributed along rivers, irrigation channels, cliff lines and roads. Some homestead woodlands, agricultural lands, wooded areas, and irrigation channels are integrated and historical greenery remains, including gardens of ex samurai residences as well as temple and shrine forests. Although there is a large concentration of advanced urban functions in the eastern plateaus, there are also large-scale green spaces, including the Imperial Palace and Meiji Shrine, as well as corporate and other private green spaces.

Lowlands

While urbanization is promoted in lowlands as seen in the plateaus, there are scattered agricultural lands, woodlands, and homestead woodlands in addition to large-scale green spaces, including Mizumoto Park and Hama-Rikyu Gardens. Lowlands have a lot of large rivers and canals as well as riverbeds and parks created by landfill. There are artificial tidal flats and beaches in coastal areas.

Islands

There are plenty of rare species on the islands as living things were accidentally carried onto oceanic islands and their descendants evolved into indigenous species given there were extended periods when the environment was completely isolated, resulting in each island forming its own characteristic ecosystem. While the distribution of plants in the Izu Islands has the common characteristics with the south part of the Fossa Magna area including Izu Peninsula, they have ecosystems specific to islands. The Ogasawara Islands have numerous indigenous species including land snails and are registered as a world natural heritage site in recognition of their rich ecosystems. They also include uninhabited islands with primeval nature.



Urban park



Roadside trees



River



Corporate green space



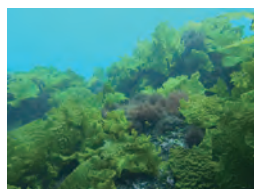
Spring water



Tidal flat



Irrigation channel



Seaweed bed



Marine park



Coral Reef

Wildlife Species in Serious Need of Conservation in Tokyo

In the revision of the Red List of Threatened Species Tokyo (Mainland) in 2020, 447 species were newly listed. The species in the latest list include some living things that until recent years could be found quite easily, such as *Misgurnus anguillicaudatus* and *Emberiza cioides*.

In the revision of the Red List of Threatened Species Tokyo (Islands) in 2011, 278 species were newly listed for the Izu Islands and 286 for the Ogasawara Islands, which include those listed due to the impact of alien species and deterioration of habitats.



Erythronium japonicum (vulnerable species on the mainland)



Ogasawara Greenfinch (critically endangered species on the islands)

Important Areas for Biodiversity

Tokyo is home to a lot of important areas designated by laws and regulations from the perspective of biodiversity, such as the Ogasawara Islands registered as a World Natural Heritage Site, Kasai Marine Park registered as a wetland under the Ramsar Convention, and Minami-Ioto Island designated as a Wilderness Area.



Landscape of Ogasawara Islands



Kasai Marine Park as a wetland under the Ramsar Convention



Minami-Ioto Island as a Wilderness Area

Blessings of Biodiversity (Ecosystem Services) in Tokyo

People living in Tokyo enjoy the ecosystem services listed below. In addition to its own, Tokyo relies heavily on the ecosystem services of other regions in Japan and overseas for the supply of large amounts of food and other goods.

Provisioning services

- Agricultural, forestry, and fishery resources in Tokyo, such as Komatsuna (Japanese mustard spinach) and Asari clams, as well as food and wood from other regions
- Water resources, such as tap water, agricultural water, etc.



Komatsuna



Asari

Regulating services

- Absorption of carbon dioxide by plants
- Improvement of the quality of the urban environment, such as alleviating the heat through green spaces
- Disaster mitigation
- Water purification, pollination, etc.



Facility for storing/infiltrating rainwater during rainfall



Japanese honeybee

Cultural services

- Artistic and cultural inspiration
- Educational effects and peace of mind and body through nature observation etc.
- Tourism, recreation, etc.



Hands-on activities in immediate nature



Fire-Walking Festival of Mt. Takao

Supporting services

- Provision of habitats for fauna and flora
- Oxygen generation by photosynthesis
- Nutrient cycling etc.



Leguminous plant involved in nutrient (nitrogen) cycling



Mushrooms as decomposers

Issues Facing Biodiversity in Tokyo

First crisis

Impact of human activities

- Deforestation and decrease in agricultural lands, tidal flats, and shallow areas due to development
- Impact on global forest and fishery resources through consumption and procurement by Tokyo



Significant change in the landscape of Musashino (near Yahara Intersection of Nerima Ward in 1950 and 2021)

Second crisis

Impact of reduced care afforded to the natural environment

- Deterioration of ecological balance due to abandonment of forest and agricultural land management (Decrease in living things due to changes in habitats)
- Crop damage caused by an increase in deer and other wildlife due to a decrease in the number of hunters etc.



Abandoned paddy field in a valley



Feeding damage by sika deer (right side of central fence)

Third crisis

Impact of things brought in by humans

- Predation of native species and negative impacts on ecosystems by alien species
- Negative impacts of marine plastic waste and chemicals on wildlife and the environment



Red-eared slider turtle specified as designated invasive alien species in June 2023

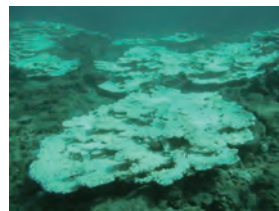


Marine plastic waste

Fourth crisis

Impact of changes in the global environment

- Redistributed species and increased risk of extinction due to rising temperatures



Coral bleaching



Blackish cicada, once only present south of the mainland of Tokyo, now found in the city

Indirect factors

- Social changes related to demographics, industrial structure, and institutions
- Changes in people's values and behaviors



Biodiversity is something irreplaceable created over long periods, but at the same time, nature may pose a threat to humans. For the sustainable development of Tokyo, it needs to be able to continue to benefit from biodiversity into the future. In Tokyo as a metropolis in particular, we need to consider biodiversity not only from the perspective of the city but also on a global scale.

3 Future Vision for Tokyo

In light of these challenges, we have established the following basic principle and visions for 2050 in the newly revised Tokyo Biodiversity Strategy for 2030.

Basic Principle

Aiming for an environmentally symbiotic, prosperous society that will respect nature, consider sustainability on a global scale, and continue to benefit from biodiversity.

Future Vision for Tokyo of 2050

The target year for the visions in the Tokyo Biodiversity Strategy has been specified as 2050, which is the goal year of the Kunming-Montreal Global Biodiversity Framework. Based on the basic principle that states that society should be able to continue to benefit from biodiversity, future visions for Tokyo are shown for each ecosystem service:

A city full of luxuriant nature and living in harmony with creatures

Supporting services

Ecologically friendly green spaces will fill the city where living things have been brought back. Living spaces and work environments will coexist with nature.



A city that uses natural resources inside and outside it in a sustainable manner

Provisioning services

The natural environment of Tokyo will be sustainably used as products made in Tokyo are consumed in a sustainable manner. Economic activities with a low environmental load will be ensured when purchasing products from other regions.



A city that enriches life with the blessings of nature

Cultural services

The natural environment of Tokyo will be used in a sustainable manner. The value of Tokyo's natural environment will be reassessed as it serves as a conduit of history and culture based on nature.



A resilient city with the functions of nature

Regulating services

Resilient urban development will be in progress by making full use of the functions of nature, such as mitigation of the heat island effect and alleviation of flood damage through rainwater infiltration.



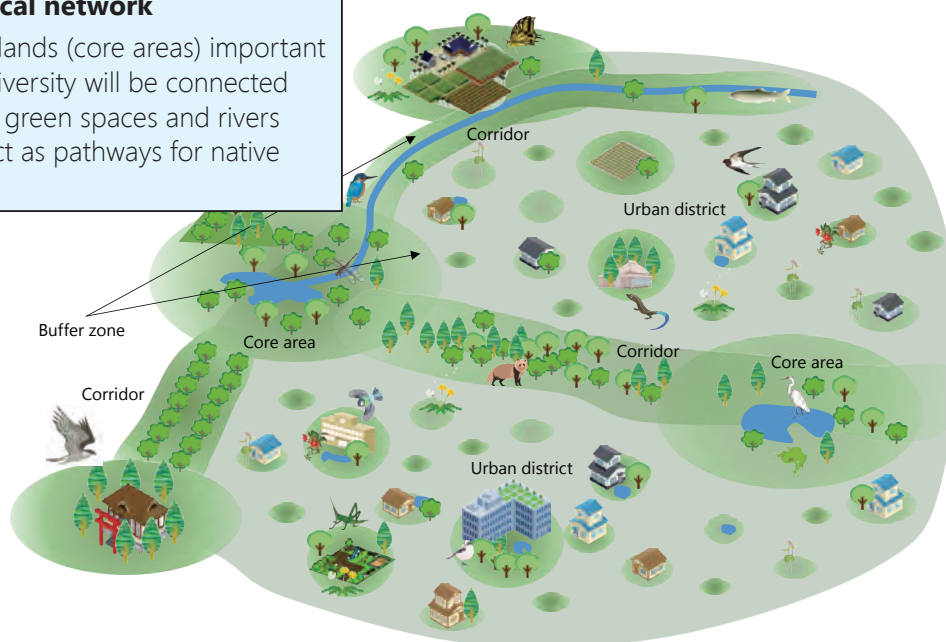
Future vision for Tokyo for each of the four ecosystem services

In addition to Tokyo's vision for each ecosystem service, visions for 2050 specific to Tokyo as a metropolis are shown below.

Conservation and sustainable use of biodiversity established throughout Tokyo

Ecological network

Natural lands (core areas) important for biodiversity will be connected through green spaces and rivers which act as pathways for native species.



Core area: Base for biodiversity

Corridor: An ecological corridor that connects core areas to enable wildlife to move and disperse

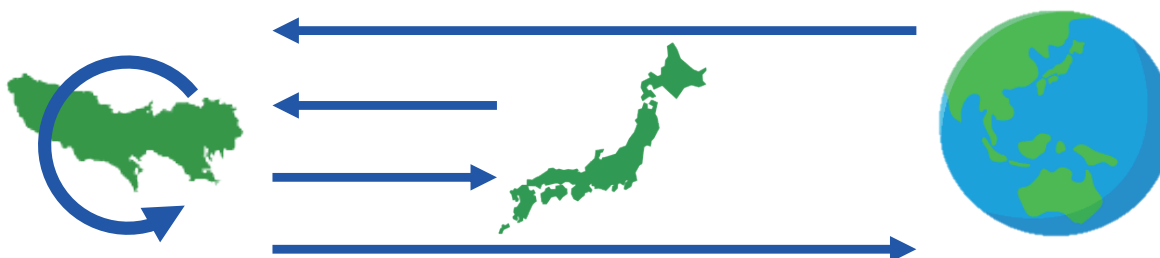
Buffer zone: Minimizing the impacts from outside

Improvement in the quality of greenery in urban districts

The quality of small greenery will be improved* in urban districts, for example at parks, homestead woodlands, agricultural lands, corporate green spaces, and home yards, enhancing biodiversity throughout the urban space.

* Along with the perspective of utilization by humans, greening has been performed with consideration for ecosystems with an eye on natural vegetation acting as original habitats for living things.

Behavior changes in place taking into account biodiversity not only in Tokyo but also across Japan and on a global scale



Behavior changes taking into account biodiversity not only in Tokyo but also across Japan and on a global scale will help promote the conservation and sustainable use of biodiversity through consumption behavior and other activities, resulting in a sustainable society in Tokyo.

From the next page, visions for 2050 are shown in an easy-to-understand manner for each topography, including mountain terrain, lowlands, and islands.



Visions for Mountain Terrain

Enjoying abundant nature throughout the mountain terrain



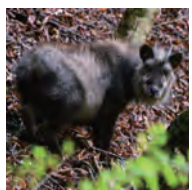
Working against a backdrop of nature to the sound of the tweeting of birds



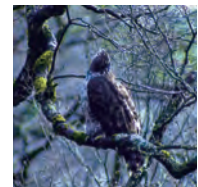
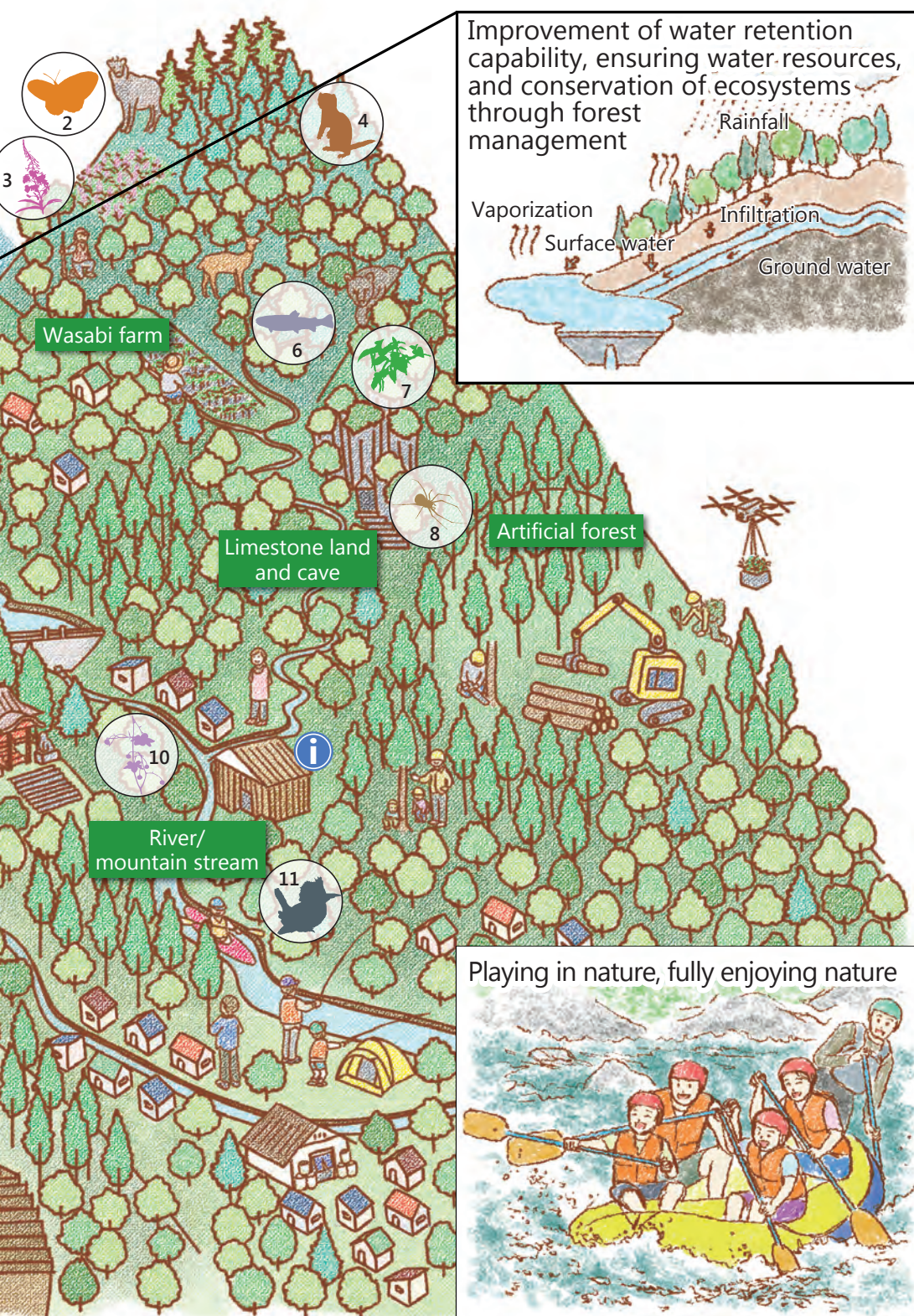
Passing a culture rooted in nature down to future generations



The illustrations for each topographical classification shown up to page 19 mainly indicate the endangered species listed on the latest Tokyo Red List. TMG considers them to be wildlife species in serious need of protection and aims to have them thriving in a stable manner by 2050. When selecting individual species, we made sure that selection was not significantly biased toward specific species, such as mammals and birds. We allocated living things on the illustrations, hoping that these locations will survive or revive as their habitats until or by 2050. Additionally, the selection was focused on not only the species of living things but also the possibility that their habitats will be maintained or recovered.



Reference:
Japanese serow (VU)



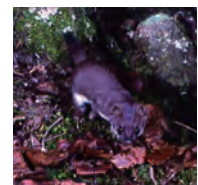
1. Mountain hawk-eagle (EN)



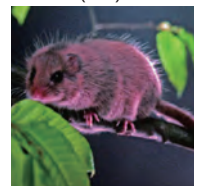
2. Dark green fritillary (EN)



3. Fireweed (EN)



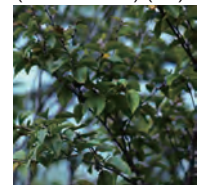
4. Short-tailed weasel (VU)



5. Japanese dormouse (O)



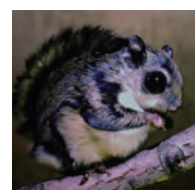
6. Japanese char (Nikkoiwana) (CR)



7. Betula chichibuensis (EN)



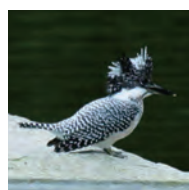
8. Nesticus shinkaii (VU)



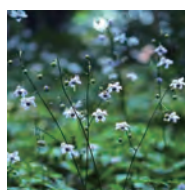
13. Japanese flying squirrel (O)



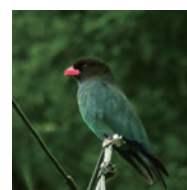
12. Mt. Takao viola (Takaosumire) (NT)



11. Crested kingfisher (EN)



10. False anemone (EN)

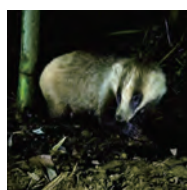
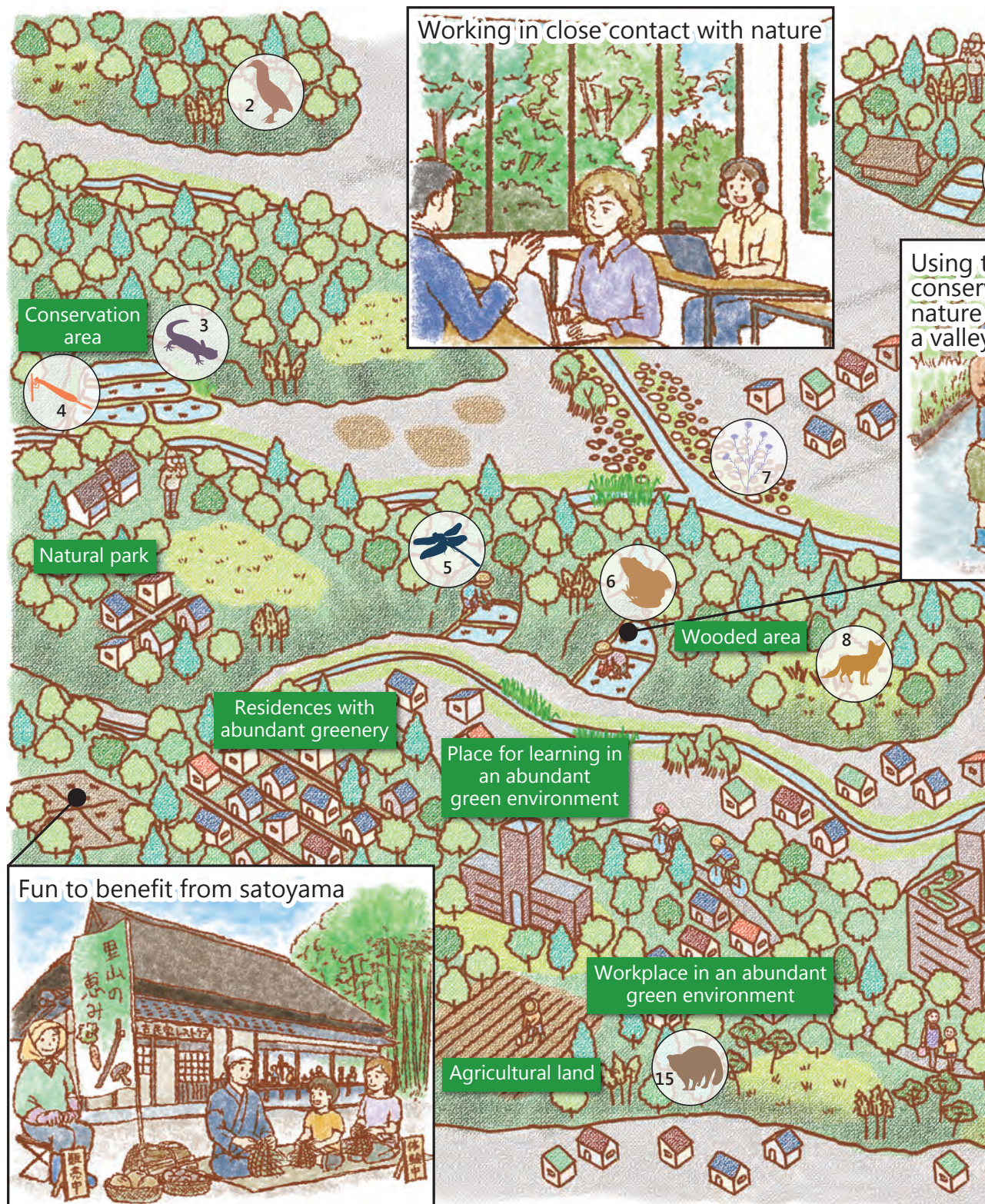


9. Oriental dollarbird (CR)

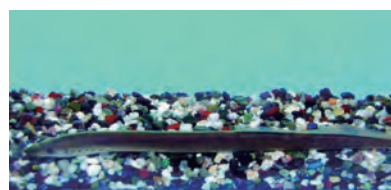
* The letters or symbols in parentheses below the photos are the categories that represent the possibility of extinction in the 2020 Red List of Threatened Species Tokyo (Mainland).

EX = Extinct species, EW = Extinct species in the Wild, CR+EN = Critically endangered species + Endangered species, CR = Critically endangered species, EN = Endangered species, VU = Vulnerable species, NT = Near threatened species, DD = Data deficient, * = Species requiring attention, O = Unranked

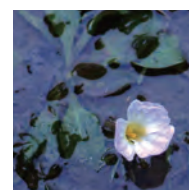
Visions for Hilly Terrain



15. Badger (O)

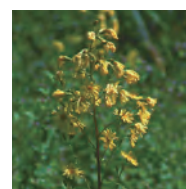


14. Far eastern brook lamprey (CR)

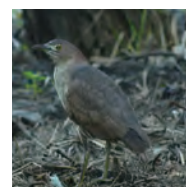


13. Duck-lettuce (CR)

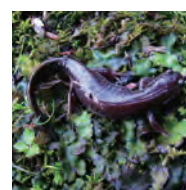
* While the vicinity of the Tama River is classified as lowland, its middle reach is shown in the illustration of hilly terrain.



1. Nabalus tanakae (CR)



2. Japanese night heron (EN)



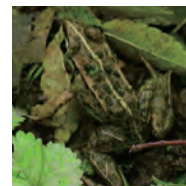
3. Tokyo salamander (EN)



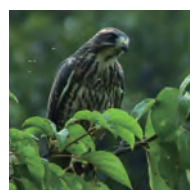
4. Mortonagrion selenion (CR)



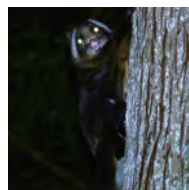
5. Tanypteryx pryeri (EN)



6. Tokyo daruma pond frog (EN)



12. Grey-faced buzzard (CR)



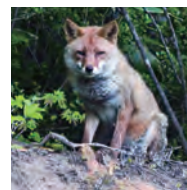
11. Japanese giant flying squirrel (O)



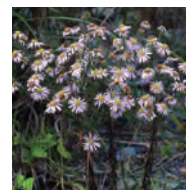
10. Gymnogobius sp. (DD)



9. Eusphingonotus japonicus (EN)



8. Red fox (O)

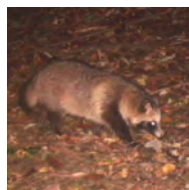
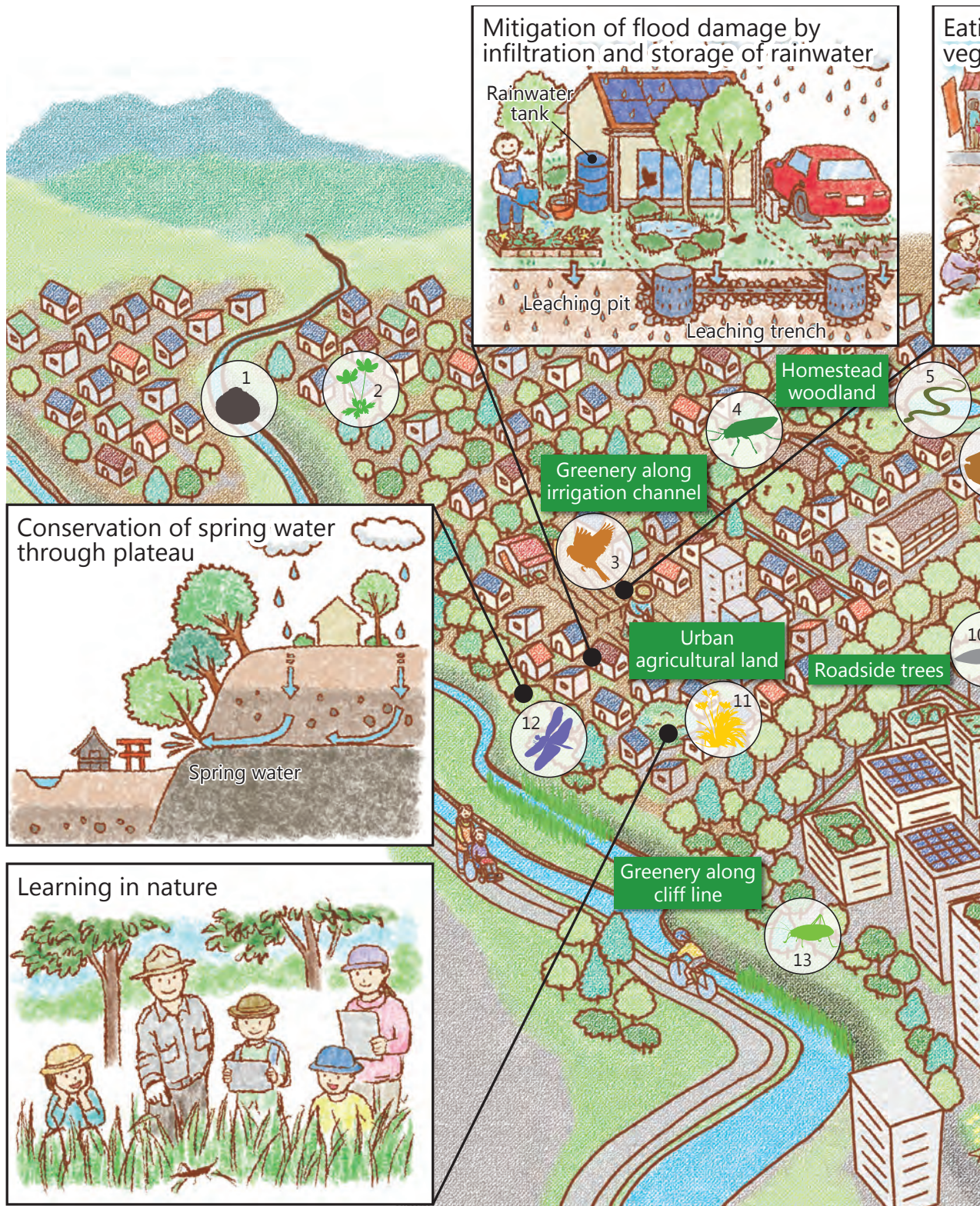


7. Aster kantoensis (EN)

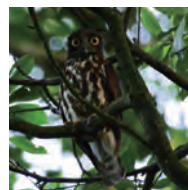
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Visions for Plateaus



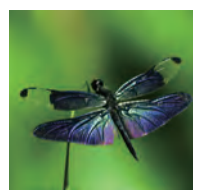
15. Japanese raccoon dog (O)



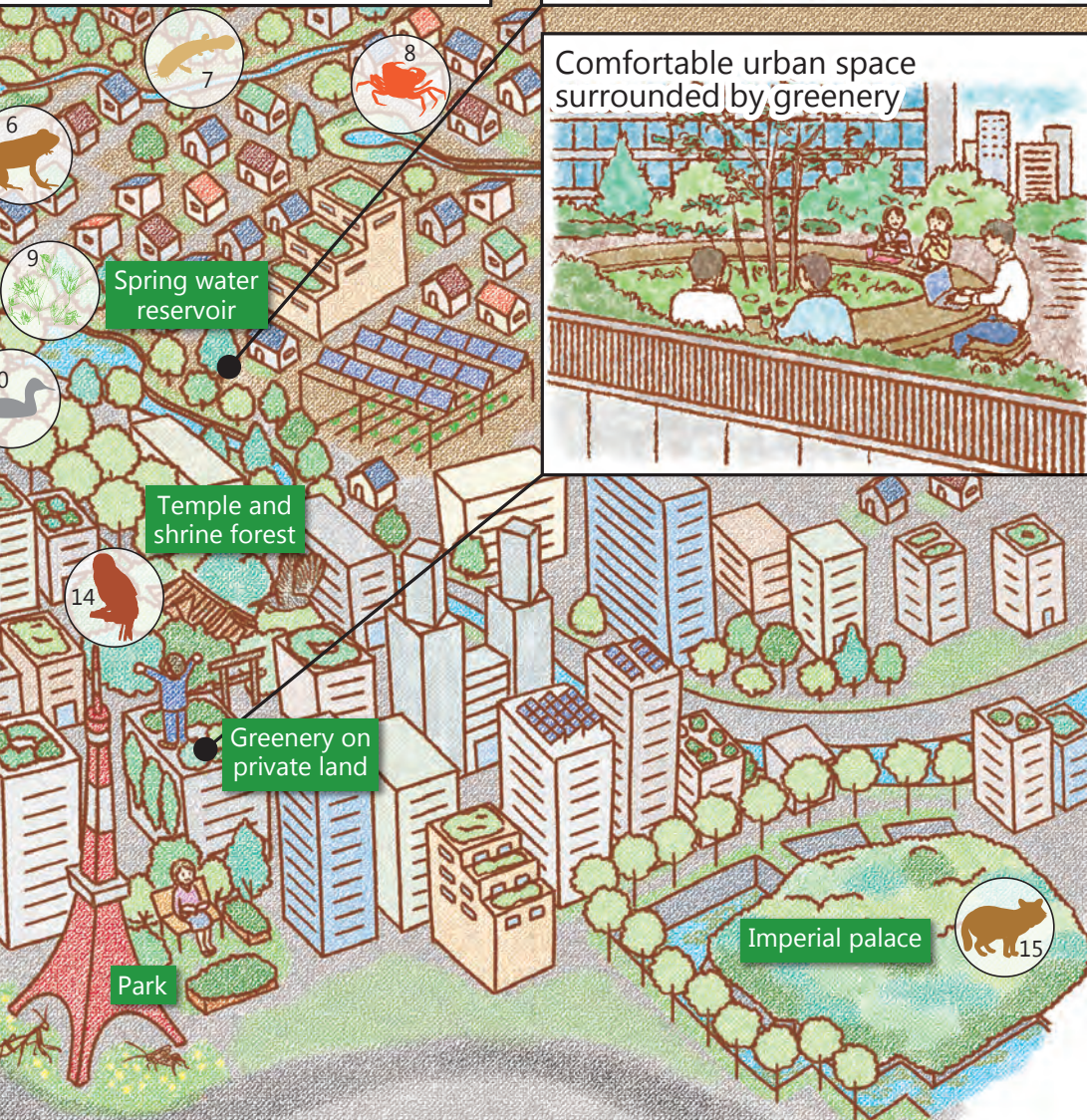
14. Brown hawk owl (CR)



13. Giant katydid (EN)



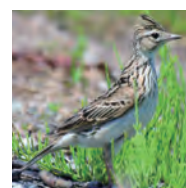
12. Rhythemis fuliginosa (NT)



1. Asian clam (CR+EN)



2. Soft windflower (NT)



3. Skylark (VU)



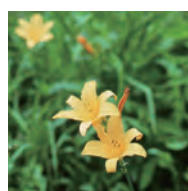
4. Jewel beetle (NT)



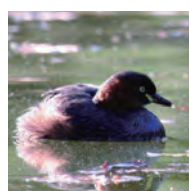
5. Tiger keelback (VU)



6. Japanese brown frog (EN)



11. *Hemerocallis dumortieri* var. *musashiensis* (VU)



10. Dabchick (NT)



9. *Nitella mirabilis* var. *inokasiraensis* (CR+EN)



8. Japanese freshwater crab (*)



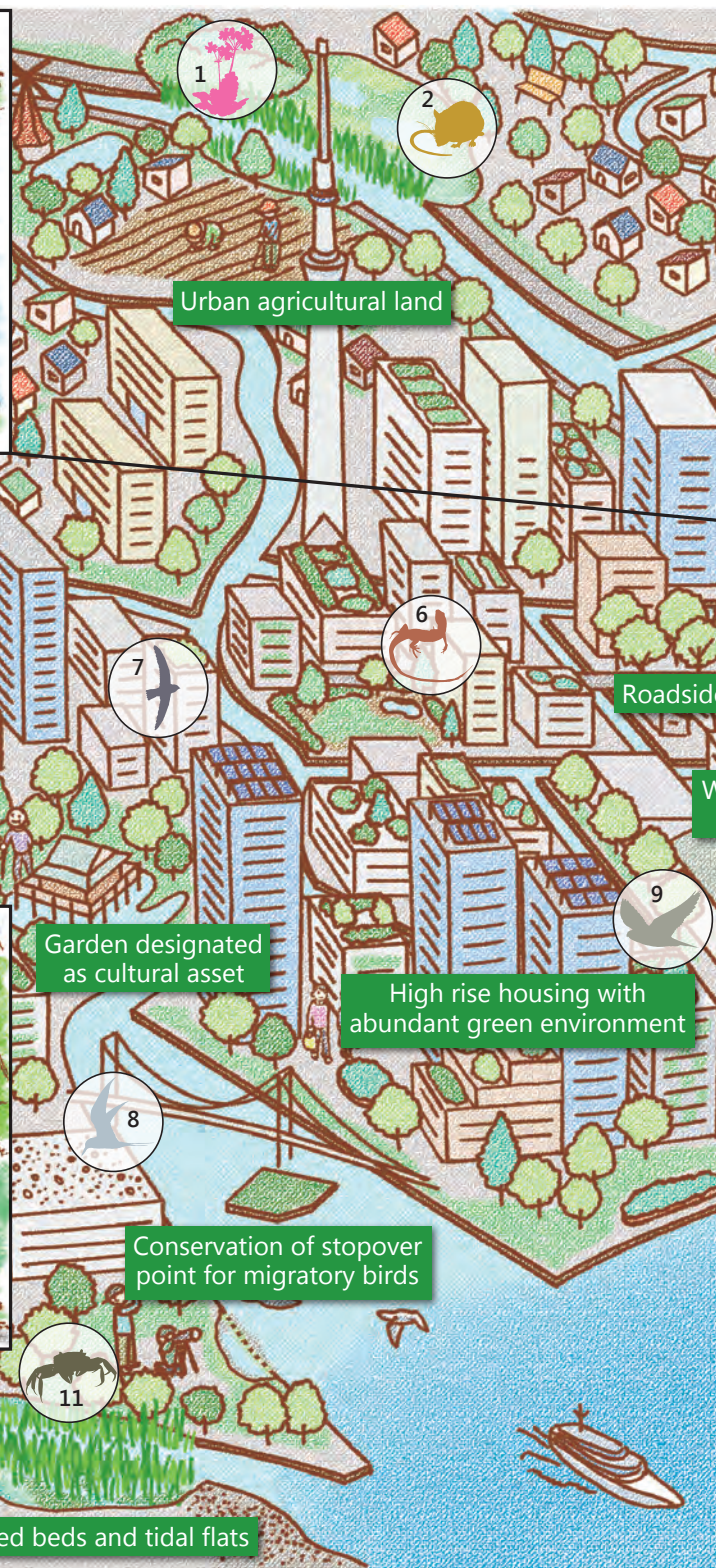
7. Hotoke loach (EN)

* The letters or symbols in parentheses below the photos are the categories that represent the possibility of extinction in the 2020 Red List of Threatened Species Tokyo (Mainland).

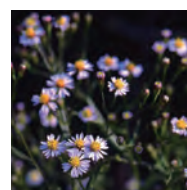
EX = Extinct species, EW = Extinct species in the Wild, CR+EN = Critically endangered species + Endangered species, CR = Critically endangered species, EN = Endangered species, VU = Vulnerable species, NT = Near threatened species, DD = Data deficient, * = Species requiring attention, O = Unranked

Visions for Lowlands

Spending time at a nearby waterfront



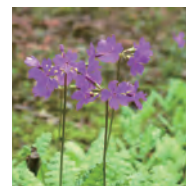
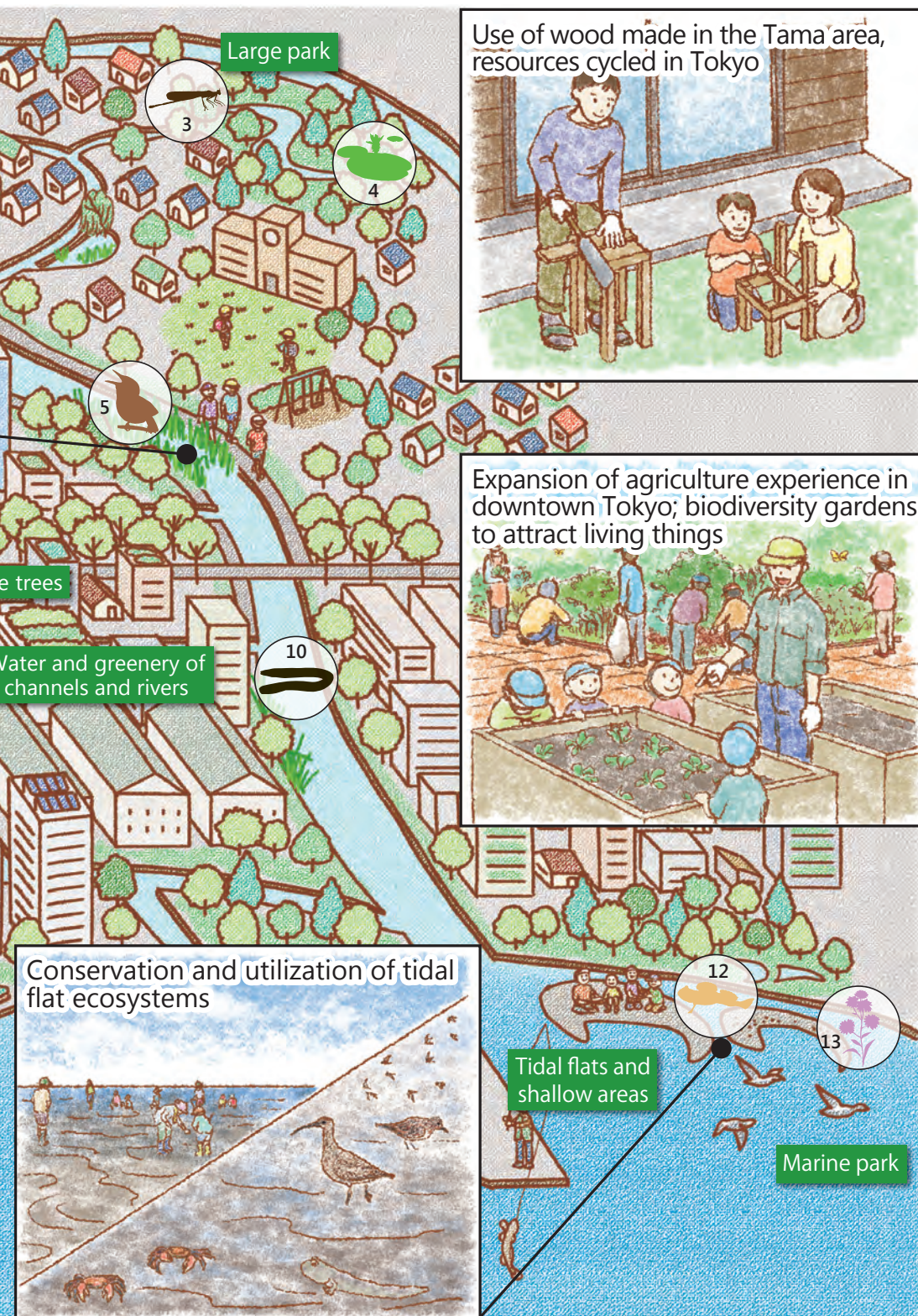
Green infrastructure and forests for native species created around offices downtown Tokyo



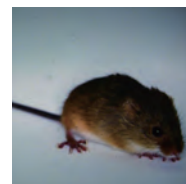
13. Sea aster (EN)



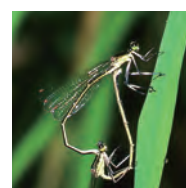
12. Mudskipper (CR)



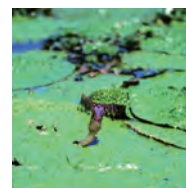
1. Japanese primrose (EX)



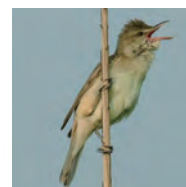
2. Harvest mouse (DD)



3. Coperia tokyoensis (CR)



4. Prickly water lily (CR)



5. Great reed warbler (CR)



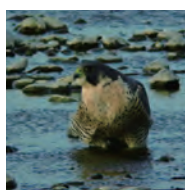
6. Japanese grass lizard (CR+EN)



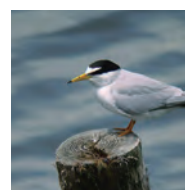
11. Helice tridens (*)



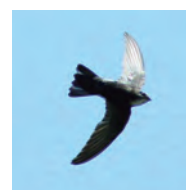
10. Japanese eel (EN)



9. Peregrine falcon (EN)



8. Little tern (EN)



7. House swift (VU)

* The letters or symbols in parentheses below the photos are the categories that represent the possibility of extinction in the 2020 Red List of Threatened Species Tokyo (Mainland).
EX = Extinct species, EW = Extinct species in the Wild, CR+EN = Critically endangered species + Endangered species, CR = Critically endangered species, EN = Endangered species, VU = Vulnerable species, NT = Near threatened species, DD = Data deficient, * = Species requiring attention, O = Unranked

Visions for Islands

Implementation of measures against alien species and the conservation of ecosystems in cooperation with volunteers in and outside the islands



Shikinejima Island

Japanese black pine

Nijijima Island

White sand

Sustainable a

Kozushima Island

Spring water

Giant tree forest

Mt. Oyama

Miyakejima Island

Mikurajima Island

Mt. Hachijofuj

Conservation of ecosystems specific to the islands

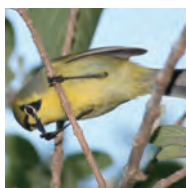


Mandarina tridentis, a World Natural Heritage recognized native species

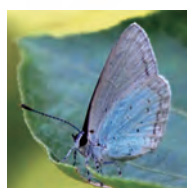
Conservation of primeval nature of uninhabited islands

Sekimon

Hahajima Island



20. Bonin white-eye (VU)



19. Celandra ogasawaraensis (CR)



18. Calanthe hoshii (CR)



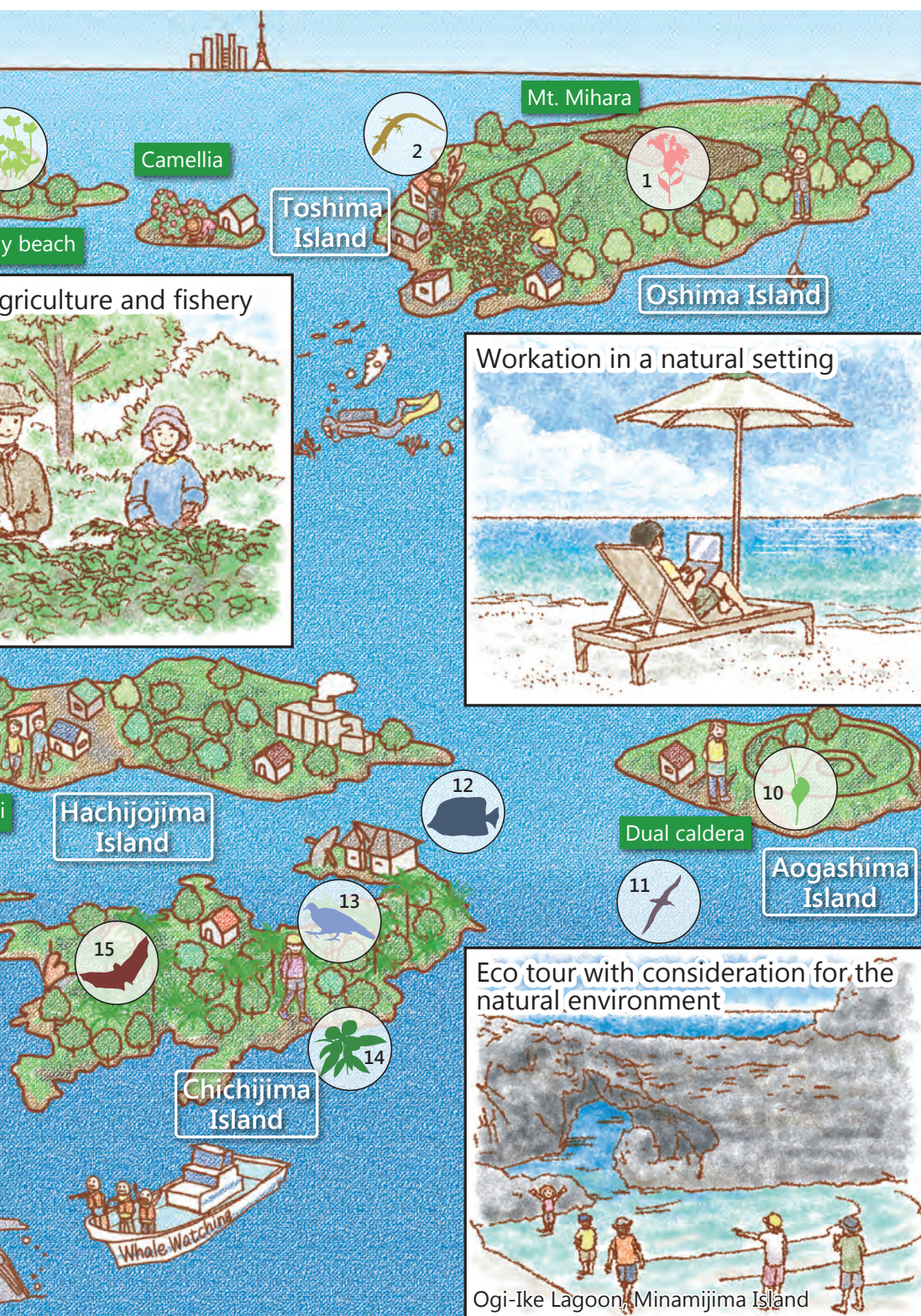
17. Ogasawara Greenfinch (CR)



16. Boninosuccinea ogasawarae (CR+EN)



15. Bonin flying fox (EN)



1. *Lilium auratum* var. *platyphyllum* (VU)



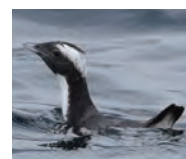
2. Okada's five-lined skink (EN)



3. *Parnassia palustris* var. *izuinsularis* (VU)



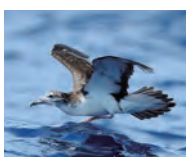
4. *Calanthe izuinsularis* x *C. discolor* (CR)



5. Japanese murrelet (VU)



6. Izu thrush (EN)



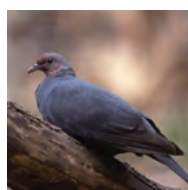
7. Streaked shearwater (NT)



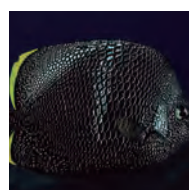
8. *Lucanus gamunus* (*)



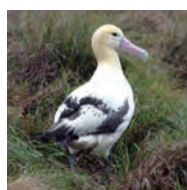
14. *Melastoma tetramerum* var. *tetramerum* (CR)



13. Red-headed wood pigeon (CR)



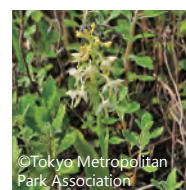
12. Wrought iron butterflyfish (*)



11. Albatross (CR)



10. *Ophioglossum kawamurae* (EN)



9. *Platanthera okuboi* Makino (CR)

* The letters or symbols in parentheses below the photos are the categories that represent the possibility of extinction in the 2011 Red List of Threatened Species Tokyo (Islands).

EX = Extinct species, EW = Extinct species in the Wild, CR+EN = Critically endangered species + Endangered species, CR = Critically endangered species, EN = Endangered species, VU = Vulnerable species, NT = Near threatened species, DD = Data deficient, * = Species requiring attention, O = Unranked

4 Targets and Basic Strategies toward the Achievement of Visions

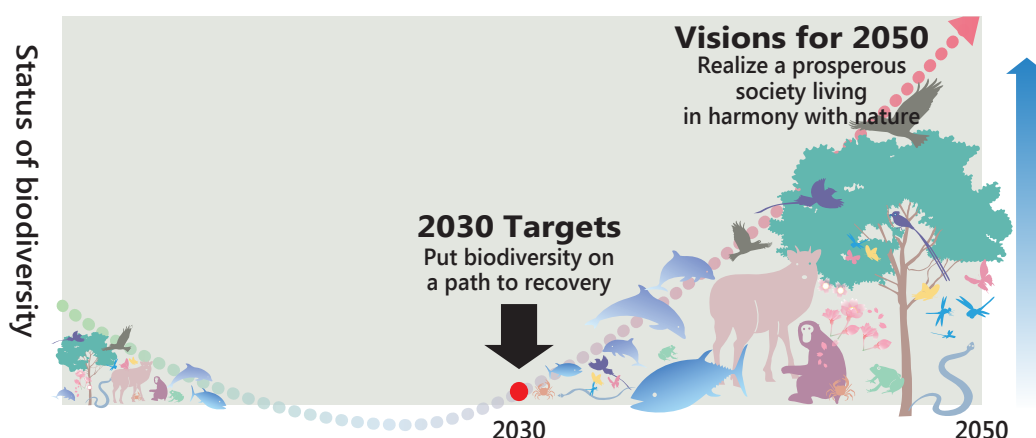
Based on the Kunming-Montreal Global Biodiversity Framework and National Biodiversity Strategy 2023-2030, TMG has set 2030 Targets to achieve the Future Vision for Tokyo of 2050 and determined three basic strategies as guidelines for various actors to promote their efforts.

2030 Targets

Achieving a nature-positive* framework

Biodiversity will be put on a path to recovery by all entities that aim for an environmentally symbiotic, prosperous society, working together to promote the conservation and suitable use of biodiversity.

Image of achieving a nature-positive framework



* Nature positive refers to "a goal and a movement to halting and reversing biodiversity loss in order to halt loss of nature by 2030 and put it on a path to recovery setting 2020 as a baseline."

Three Basic Strategies toward the Achievement of 2030 Targets

I Promoting the conservation and recovery of biodiversity, handing down the luxuriant nature of Tokyo to future generations

By focusing on the fundamental information on the nature of Tokyo, a luxuriant nature will be handed down to future generations by conserving good biodiversity that is present today and restoring biodiversity that has become somewhat deteriorated.

II Using the blessings of biodiversity in a sustainable manner, utilizing the functions of nature to improve the lives of Tokyo residents

The blessings of biodiversity in and outside Tokyo will be used in a sustainable manner to improve the lives of Tokyo residents from the perspective of healing and enrichment opportunities, the revitalization of local communities, disaster preparedness and mitigation, and the adjustment of the climate.

III Recognizing the value of biodiversity, changing that idea into actions that address global issues as well as those in Tokyo

Our ideas will be turned into actions that address issues across Japan and throughout the world as well as in Tokyo by recognizing the value of biodiversity and treating it as vital.

Action Targets for Each Basic Strategy

In order to achieve the 2030 Targets throughout Tokyo, a variety of actors need to steadily promote the three basic strategies in collaboration with each other. Therefore, we have set action targets for each basic strategy, which are smoothly communicated to Tokyo residents and businesses so that they can work on the targets together.

Action Targets for Basic Strategy I

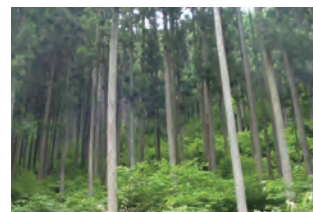
Biodiversity Upgrade Areas: 10,000+

As the administration, we aim to realize **10,000 ha** of land as **Biodiversity Upgrade Areas** where habitats for fauna and flora and ecosystem services will be maintained and improved by conserving and managing natural land, ensuring new greenery, and opening new parks and green spaces.

We express **efforts made by the private sector as “+” (plus)** and will work with a variety of actors.

ZERO Wild Extinction Action

We will make effective efforts in collaboration with a variety of actors so that **no species will become extinct in the wild** by 2030.



Forest properly managed by thinning



Extermination of water speedwell (plant) designated invasive alien species

Action Targets for Basic Strategy II

Promotion of Tokyo-NbS Action - Tokyo as a City Supported by Nature

A variety of actors, such as the public administration, businesses, and private organizations, will promote efforts that will lead to **nature-based solutions (NbS)**. By treating the period up to 2030 as that for establishing NbS, these actors will aim to implement the NbS initiatives.



Corporate green space downtown Tokyo (roof garden of Mitsui Sumitomo Insurance Company, Limited Surugadai Building)

Action Targets for Basic Strategy III

Biodiversity Actions Taken by All Tokyo Residents - Individual's Actions Change Society

All Tokyo residents will aim to **consider and contribute to biodiversity** by participating in conservation activities and modifying their consumption behavior. Businesses, private organizations, and all other actors will also promote initiatives that consider and contribute to biodiversity.



Participation in conservation activities



Is there anything I can do?

Actually there is a lot. Let's take a look at the next page!













10 Action Policies Linked with Basic Strategies

In order to achieve the 2030 Targets, we need to develop a society where the luxuriant nature of Tokyo will be handed down to future generations.

To that end, a variety of actors, including Tokyo residents, businesses, private bodies, such as NPOs and NGOs, and education and research institutes as well as the administration, are required to cooperate to advance their efforts with consideration for different values.

The following 10 action policies have been established to be linked with the three basic strategies. On the pages that follow, main efforts to be made by each actor are listed for each action policy. For actors other than TMG, we have listed the main efforts we expect from such actors. Among the efforts to be made by the administration, those made by TMG only have [TMG] added at the end of their descriptions.

-  Action Policy **1** **Conservation of Local Ecosystems and Habitats for a Variety of Fauna**
-  Action Policy **2** **Conservation of Rare Wild Fauna and Flora, and Measures for Alien Species**
-  Action Policy **3** **Building Appropriate Relationships between Humans and Wild Animals**
-  Action Policy **4** **Collection, Storage, Analysis, and Dissemination of Information on the Natural Environment**
-  Action Policy **5** **Use of Tokyo's Natural Bounty (Provisioning Services)**
-  Action Policy **6** **Use of Functions of Nature to Encourage Disaster Preparedness and Mitigation (Regulating Services)**
-  Action Policy **7** **Use of Nature to Ensure a Comfortable and Enjoyable Life (Cultural Services)**
-  Action Policy **8** **Promotion of Understanding of Biodiversity**
-  Action Policy **9** **Development of Human Resources to Support Biodiversity**
-  Action Policy **10** **Behavior Change Which Will Consider and Contribute to Not Only the Environment of Tokyo But Also the Global Environment**



What the administration will do:

- Designate additional conservation areas or make them publicly owned, and work with rangers and volunteer groups to appropriately conserve the natural environment in Tokyo. [TMG]
- Enhance the linkage between habitats for fauna and flora by developing and conserving parks, green spaces, agricultural lands, rivers, waterways, roadside trees, canals, and greenery along cliff lines.
- Support the efforts for conservation through Other Effective area-based Conservation Measures (OECM) and contribute to the conservation and creation of familiar greenery in the urban districts.
- Appropriately examine development projects based on ordinances, avoid or reduce their impacts on biodiversity, and create greenery. Promote ecologically-friendly greening by for example planting native species suitable for each region. [TMG]



Mosaic topography of valleys in hilly terrain



Tamagawa Josui (Photo by Bureau of Waterworks, TMG)



What businesses can do:

- Encourage their employees to implement conservation activities in conservation areas in collaboration with the administration, NPOs, etc.
- When designing developments, avoid fragmenting green spaces and waterways as much as possible, and ensure migratory paths for living things in case of fragmentation.
- Promote greening in facility or factory sites with consideration for ecosystems by for example planting native species suitable for the district.
- In the case of development etc., understand what the impact would be on the habitats of living things, landscapes, and the importance of conservation values to consider conservation measures in this priority: the avoidance of development or land use change, reduction of areas for development or change, and taking of alternative measures.



Ichigaya Forest



Takeshiba Tidal Flat adjacent to Hama-Rikyu Gardens



What you can do:

- Actively participate in conservation activities carried out through public cooperation in important areas for biodiversity, including conservation areas, parks, green spaces, and waterfront areas as well as green spaces created by businesses.
- Avoid straying from mountain trails and hiking trails when visiting natural parks and conservation areas as vegetation may be damaged by trampling.
- Create habitats for birds and insects while enjoying gardening, for example planting native species suitable for the district using your yards and balconies.



Creating greenery in your yard

You can use the balcony of your condominium.





What the administration will do:

- Collect the latest information on wild fauna and flora in Tokyo, and conduct basic surveys as required to update the Red List (a list of endangered wildlife species) on a regular basis. [TMG]
- Designate important natural lands for biodiversity where rare wild fauna and flora live and grow as protected areas, and promote the efforts toward the conservation and restoration of biodiversity. [TMG]
- Understand the latest trends and apply them to effective measures against alien species by identifying damage caused by them and monitoring their habitat conditions.



Red Data Book Tokyo 2023 (Mainland)



Sea aster (endangered species (EN) on the mainland)



What businesses can do:

- Work on the conservation of biodiversity in natural land in Tokyo where rare species live and grow in collaboration with NPOs etc.
- Conserve habitats of rare species and take the initiative in measures against alien species in facility or factory sites.
- Be careful not to accidentally release living things brought from other regions in Japan or other alien species originating from abroad to avoid disturbing the genetic pool.



Red swamp crayfish specified as designated invasive alien species in June 2023



What you can do:

- Register rare species and other living things found in Tokyo to the database of the administration etc.
- Avoid bringing rare species found in natural land back home and spreading its position information on SNS.
- Provide care for your pets throughout their lives, and if it becomes difficult, strive to find new owners rather than abandoning them.
- Be careful not to accidentally release living things brought from other regions in Japan as well as alien species originating from abroad. Avoid using alien plants that cause damage to ecosystems when gardening and on other planting occasions.



Public awareness poster by the Ministry of the Environment



Native species in Japan will be treated as alien species when brought to an area where they have not existed and called alien species originating in Japan.



What the administration will do:

- Capture wild animals to prevent damage to agricultural, forestry, and fishery products and the living environment, capture those having a significant impact on ecosystems for population control, or protect such animals by segregating them from humans.
- Identify the latest trends in wild animals and conduct monitoring surveys to apply the results to relevant measures.
- Rescue injured or diseased birds and animals to return them to the wild except for those that cause damage to Tokyo residents. [TMG]



Sika deer

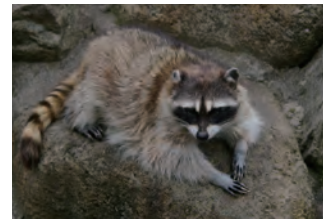


Group of wild boars roaming through residential areas



What businesses can do:

- Avoid leaving scraps of food outside, which would attract wild animals, including fruits, vegetables, and food waste.
- Avoid allowing wild animals to build nests by appropriately managing facility sites and buildings.



Common raccoon designated invasive alien species (photo by the Ministry of the Environment)



What you can do:

- Deepen your understanding of the importance of maintaining appropriate relationships with wild animals from the perspective of One Health^{*1}.
- Keep an appropriate distance between humans and wild animals and especially never feed wild creatures. Avoid leaving fruits, food waste, or other items that might attract animals.
- When you find a suspicious corpse of a wild animal, contact an administrator without touching it to prevent the spread of infectious diseases.



Conceptual diagram of the One Health approach^{*2}

To allow humans to coexist with wild animals, we need to build appropriate relationships with them!



^{*1} One Health is a concept that considers human health, animal health, and a sound natural environment as one entity.

^{*2} Prepared by TMG based on PREVENTING THE NEXT PANDEMIC: Zoonotic diseases and how to break the chain of transmission (July 2020, United Nations Environment Programme (UNEP) and International Livestock Research Institute (ILRI)).



What the administration will do:

- Enhance the collection, storage, analysis, and dissemination of information on the natural environment and strive to promote conservation measures by conducting basic surveys of living things and the natural environment in Tokyo in cooperation with a variety of actors.
- Continue periodic monitoring, study changes in the natural environment over the long term, and share relevant information widely based on the results of the basic surveys of the natural environment.
- Strive to centralize the natural environment information of Tokyo, and use such information to explore and realize the development of hubs capable of promoting the attractiveness of Tokyo's nature through digital content. [TMG]



Okutama Visitor Center



Distribution of digital content



What businesses can do:

- Focus on living things and the natural environment in facility or factory sites to conduct regular surveys and hold natural observation meetings.
- Provide the administration etc. with information on the living conditions of wild fauna and flora obtained by the surveys and meetings.



Regular monitoring at corporate green space (Mitsui Sumitomo Insurance Company, Limited Surugadai Building and Surugadai Annex)



What you can do:

- Become interested in familiar creatures and the natural environment, and check what kinds of living things are around you.
- Register information obtained through observation of familiar plants, insects and wild birds to the database of the administration etc.
- Participate in the surveys of living things conducted by TMG, municipalities, and other organizations.



Participation in the survey of living things

There are many kinds of living things in Tokyo.



I think I will participate in the survey of living things.



What the administration will do:

- Establish a sustainable forest circulation that provides public benefits, including the conservation of water resources (flood mitigation, water resource storage, water purification), by retaining and developing forestry staff who will take the initiative in forest maintenance and expanding the use of wood made in the Tama area. [TMG]
- Conserve and utilize the agricultural land and spaces remaining in urban districts, and encourage the retention and training of new farmers by conserving productive green space and developing farms for various purposes, such as allotment gardens.
- In order to promote the resource management of major fish species, such as splendid alfonsino, enhance surveys and evaluations and back up the efforts of fishers who are engaged in resource management. [TMG]



Agricultural land in urban district



Splendid alfonsino



What businesses can do:

- Expand the use of domestically produced wood, including Tama-made wood, by taking advantage of opportunities of construction and equipment purchases.
- Reduce the use of chemical pesticides and fertilizers and produce agricultural products with consideration for biodiversity.
- Pay attention to the trends of fish catches and resources to appropriately conserve and manage fishery resources.



Attractive wooden furniture in a nursery school



MOCTION, a hub for disseminating the appeal of domestic wood



What you can do:

- Consider the use of Tama-made wood when planning new house construction.
- Enjoy growing pesticide-free vegetables for your family in your yard, allotment garden, or farm for hands-on agriculture.
- Avoid releasing exotic fish into rivers as designated invasive alien species, for example the large-mouth bass, can decimate sweetfish in Tokyo's waterways. Avoid releasing exotic fish once you catch them.



Large-mouth bass designated invasive alien species (photo by the Ministry of the Environment)



What the administration will do:

- By thinning and pruning forests and water conservation forests in the Tama area and conserving valleys in hilly terrain in a satoyama landscape, contribute to the prevention of the runoff of earth and sand, the alleviation of flood risks (through the conservation of water resources), and improvements in biodiversity.
- Promote improvements in rainwater infiltration and storage, the mitigation of the heat island effect, and measures against the heat by appropriately conserving and managing nature environments that have multifaceted functions, such as parks, green spaces, and agricultural lands, developing rain gardens, and promoting rainwater infiltration at building sites.
- Promote the initiatives for rainwater infiltration and storage in the entire river basin through subsidies etc. to control rainwater that flows into sewerage and rivers.



Forest that has become brighter through thinning



Rain Garden in Setagaya Ward where rainwater in the vicinity is collected and infiltrated underground



What businesses can do:

- Appropriately conserve and manage the nature environment that has multifaceted functions, such as green spaces and waterfronts in facility or factory sites, to promote rainwater infiltration and storage.
- In the case of development, not only avoid and reduce the impacts on ecosystems but also actively create green spaces and waterfront areas.
- Actively introduce rooftop and wall greening to buildings of facilities and factories to contribute to the mitigation of heat island effect.



Corporate green space with consideration for ecosystem downtown Tokyo (Fujikura Kiba Millennium Woods)



What you can do:

- Contribute to the expansion of local rainwater infiltration areas by installing rainwater leaching pits/pipes* in addition to planting in your yards.
- Participate in volunteer activities to conserve parks, rivers, and public and private green spaces.



Rainwater leaching pit/pipe

Planting trees in my yard will help improve rainwater infiltration capability of the district.



* A bucket shaped pit and drainage pipe buried in the ground to receive rainwater flowing from rain gutter etc. and cause rainwater to infiltrate into the ground from holes on the side or the bottom.

What the administration will do:

- Through the appropriate maintenance and management of natural parks and conservation areas, create opportunities to allow Tokyo residents to closely interact with nature and contribute to promoting their health and improving non-cognitive skills of their children, including motivation and will as well as ability to be aware, look beyond, and cooperate with others.
- Create a comfortable and high-quality living environment that allows Tokyo residents to feel close to nature in their daily lives and contributes to their health and education through the development and management of parks, green spaces, and allotment gardens that provide enriched lives and comfort for Tokyo residents and act as lively places with diversity to foster familiarity with nature.
- Conserve paddy fields in valleys in hilly terrain, wooded areas, and reservoirs through traditional farming methods, and conserve and pass on beautiful scenery, history, culture, and luxuriant ecosystems of satoyama landscape.



Activities to interact with nature



Metropolitan Takaide Park opened in 2020

What businesses can do:

- Create opportunities for Tokyo residents to interact with nature by opening their green spaces to them.
- Provide citizens with opportunities for agriculture experience by opening and operating farms for hands-on agriculture.
- Find the values of tourism resources in food culture and traditional knowledge rooted in local nature and contribute to the conservation and succession of such culture and knowledge.



Camellia oil as specialty of Izu Islands*

What you can do:

- Create opportunities for children to interact with nature as they grow.
- Actively participate in hands-on nature activities, nature observation meetings, and agriculture experience planned by the administration, businesses, and private organizations.
- By participating in volunteering activities that utilize traditional knowledge to conserve paddy fields in valleys in hilly terrain, wooded areas, and reservoirs, contribute to the conservation of the environment of valleys in hilly terrain of satoyama landscape and learn about traditional farming methods and culture.



Hands-on nature activities at waterfront



Using traditional knowledge to restore abandoned paddy fields

* Tokyo Treasure Islands, website of Bureau of General Affairs, TMG; Certified Locally Sourced Food Products, website of Bureau of Industrial and Labor Affairs, TMG



What the administration will do:

- Encourage the understanding of biodiversity in the lives and economic activities of Tokyo residents by raising awareness of biodiversity and promoting initiatives and plans in a variety of fields with consideration for biodiversity.
- Actively raise awareness of places and events in Tokyo where people can enjoy observing living things and experiencing nature and agriculture.
- In order to facilitate collaboration between municipalities that have similar issues, construct networks between them, make their activities more efficient by helping them to share information and technologies, and encourage their broad-based activities.



Experience Nature in Tokyo!
- Satoyama (website with information on forest and green space conservation activities)



What businesses can do:

- Enhance initiatives to consider and contribute to biodiversity and share its value and importance with their employees through business activities, including product sales, and CSR activities.
- Actively disclose and disseminate information on their initiatives to consider and contribute to biodiversity to consumers and users through websites and SNS.
- When implementing the initiatives to consider and contribute to biodiversity, aim at realizing them more effectively, by for example collaboration with NPOs with expertise.



Consideration of biodiversity
in economic activities



What you can do:

- Take an interest in the nature in your area and the changing of the seasons and check what kind of living things and nature exist around you.
- Actively participate in seminars on biodiversity and nature experience programs implemented by the administration, NPOs and NGOs, pass on what you have learned about biodiversity to your family members and friends, and look for and then implement what you can do for biodiversity at your work and in your lives.
- Learn about the importance of biodiversity while enjoying nature by following the rules for using parks, natural parks, and green spaces.



An initiative in cooperation with volunteers to drain the water from Inokashira Pond and clean its bottom



Patrol by rangers to make usage rules known

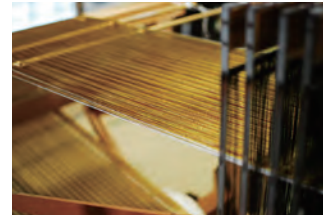


What the administration will do:

- Encourage education on the environment and hands-on nature activities in hubs where people can learn about biodiversity, including parks and green spaces, waterfront and other natural lands, and botanical gardens and zoos.
- Develop human resources, such as green volunteers and nature guides, who will safeguard Tokyo's nature and use it in a sustainable manner.
- Retain and develop people who will take the lead in the agriculture, forestry, and fisheries industries in Tokyo and promote traditional techniques rooted in nature.



Development of environmental human resources



Kihachijo fabric



What businesses can do:

- Encourage their employees to participate in events for environmental education on biodiversity and deepen their understanding of it so that they can implement consideration for biodiversity into their corporate activities and daily lives.
- Open corporate green spaces to Tokyo residents as places for hands-on nature activities and nature observation to create environments where they can learn about the importance of biodiversity.
- Hold hands-on nature activities for local children and contribute to the development of human resources in the field of natural environment through CSR activities.



Potato digging event with local children at Fujikura Kiba Millennium Woods



What you can do:

- Participate in environmental education events for biodiversity planned by TMG, municipalities, and NPOs and deepen your understanding so that you can implement what you have learned in your daily lives.
- Visit botanical gardens, zoos, aquariums, museums, and facilities for environmental learning and create opportunities for children to interact with nature and living things by participating in activities and events which encourage them to become interested in biodiversity.
- Participate in conservation activities that utilize traditional or local knowledge, learn about traditional farming methods and culture, and deepen your understanding of biodiversity.



Rice planting in a satoyama conservation area

I want to participate in such events!



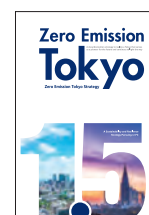


What the administration will do:

- Reduce environment load by promoting green purchasing^{*1} etc. and encourage the expanded use of environmentally certified or biodiversity-friendly products.
- Promote green finance that will also lead to biodiversity conservation.
- To realize the sustainable use of resources, explore sustainable consumption and production in Tokyo and implement initiatives to achieve it. [TMG]
- To realize a Zero Emission Tokyo by 2050, which will contribute to achieving net zero CO₂ emissions worldwide, promote initiatives toward "Carbon Half," a plan to halve greenhouse gas emissions in Tokyo by 2030. [TMG]



Ceremony for Tokyo Financial Award



Zero Emission Tokyo Strategy



What businesses can do:

- Actively promote investments and loans for corporations and projects developing businesses that consider and contribute to biodiversity (for financial institutions only).
- In supply chains, promote efforts to restore biodiversity in addition to those reducing negative impacts on biodiversity.
- Reduce the consumption of single-use plastics by actively promoting reuse, sharing, and selling by weight and implementing closed-loop recycling^{*2} through improved efficiency and technological innovation in collection and transportation routes.
- Promote environmentally-friendly business activities to contribute to the realization of net zero CO₂ emissions and an environmentally symbiotic society by 2050.



Website of Tokyo Circular Economy Action



What you can do:

- Actively purchase environmentally certified or biodiversity-friendly products.
- Actively purchase Tokyo Metropolitan Government Eco Agricultural Product with the certified mark of TMG, organic agricultural products, and special cultivation agricultural products.
- Lead a life free of single-use plastics by bringing your own shopping bags and thermos as well as making efforts to focus on reuse, sharing, and purchasing products sold by weight.
- Lead environmentally-friendly lives every day to contribute to the realization of net zero CO₂ emissions and an environmentally symbiotic society by 2050.



Consumption behavior with consideration for the environment

Let's do what we can!



^{*1} Purchasing products and services with minimum environmental load from businesses that strive to reduce environmental load by sufficiently exploring the necessity of purchasing and considering the environment in addition to quality and prices.

^{*2} A type of recycling that uses used products as raw materials to produce identical products.



Inokashira Park

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Edited and published by:

Planning Section, Natural Environment Division,
Bureau of Environment, Tokyo Metropolitan Government
8-1 Nishi-Shinjuku 2-chome, Shinjuku-ku, Tokyo 163-8001
TEL (03) 5388-3548
<https://www.kankyo.metro.tokyo.lg.jp/>

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