United Nations Educational, Scientific and Cultural Organization

Man and the Biosphere Programme

BIOSPHERE RESERVE NOMINATION FORM

[January 2013]

INTRODUCTION

Biosphere reserves are areas of terrestrial and coastal/marine ecosystems, or a combination thereof, which are internationally recognized within the framework of UNESCO's Programme on Man and the Biosphere (MAB) They are established to promote and demonstrate a balanced relationship between humans and the biosphere. Biosphere reserves are designated by the International Coordinating Council of the MAB Programme at the request of the State concerned. Individual biosphere reserves remain under the sovereign jurisdiction of the State where they are situated. Collectively, all biosphere reserves form a World Network in which participation by States is voluntary.

The World Network is governed by the Statutory Framework adopted by the UNESCO General Conference in 1995 which presents the definition, objectives, criteria and the designation procedure for biosphere reserves. The actions recommended for the implementation of biosphere reserves are set out in the "Seville Strategy" and were further developed in the Madrid Action Plan (2008-2013). These documents should be used as basic references for the completion of this nomination form.

The information presented on this nomination form will be used in a number of ways by UNESCO:

(a) for examination of the site by the International Advisory Committee for Biosphere Reserves and by the Bureau of the MAB International Coordinating Council;

(b) for use in a world-wide accessible information system, notably the UNESCO-MABnet and publications, facilitating communications and interaction amongst persons interested in biosphere reserves throughout the world.

The nomination form consists of three parts:
Part one is a summary indicating how the nominated area responds to the functions and criteria for biosphere reserves set out in the Statutory Framework, and presents the signatures of endorsements for the nomination from the authorities concerned. Part two is more descriptive and detailed, referring to the human, physical and biological characteristics as well as to the institutional aspects. Part three consists of two annexes: the first annex will be used to update the Directory of Biosphere Reserves on the MABnet, once the site has been approved as a biosphere reserve. The second annex will be used to provide promotional and communication materials of the biosphere reserve. Tables, illustrations and maps as appropriate throughout the nomination form are welcomed.

The form should be completed in English, French or Spanish. Two copies should be sent to the Secretariat, as follows:

1. The original hard copy, with the original signatures, letters of endorsement, zonation map and supporting documents. This should be sent to the Secretariat through the Official UNESCO channels, i.e. via the National Commission for UNESCO and/or the Permanent Delegation to UNESCO;
2. An electronic version (on diskette, CD, etc.) of the nomination forms and of maps (especially the zonation map). This can be sent directly to the MAB Secretariat:

UNESCO
Division of Ecological and Earth Sciences
1, rue Miollis
F-75352 Paris Cedex 15, France
Tel: +33 (0)1 45 68 41 51
Fax: +33 (0)1 45 68 58 04
Email: mab@unesco.org
http://www.unesco.org/mab

TABLE OF CONTENT

PART I: SUMMARY

PART II: DESCRIPTION

PART I: SUMMARY

1. PROPOSED NAME OF THE BIOSPHERE RESERVE:

[It is advisable to use a locally accepted geographic, descriptive or symbolic name which allows people to identify themselves with the site concerned (e.g. Rio Platano Biosphere Reserve, Bookmark Biosphere Reserve). Except in unusual circumstances, biosphere reserves should not be named after existing national parks or similar administrative areas.]

Tadami Biosphere Reserve: Tadami BR

2. NAME OF THE COUNTRY:

Japan

3. FULFILLMENT OF THE THREE FUNCTIONS OF BIOSPHERE RESERVES:

[Article 3 of the Statutory Framework presents the three functions of conservation, development and logistic support. Explain in general terms how the area fulfills these functions.]

3.1 "Conservation - contribute to the conservation of landscapes, ecosystems, species and genetic variation".

(Stress the importance of the site for conservation of biological and cultural diversity at the regional or global scales).

<Natural environment>

The islands that make up Japan are located off the eastern Eurasian Continent, lying in an arc stretching along the eastern edge to the southern edge of the Sea of Japan, with their outer edges facing the Pacific Ocean. They are located at the edge of a continental plate and close to the border of a continental plate and an oceanic plate; an area of active crustal movements and volcanic activity. Its climate is oceanic, belonging to a typical humid region (K>28) where its climatic climax is forest. There are a large number of rugged mountains due to active crustal movement, volcanic activity and the rainy environment, and narrow alluvial plains are spread across the valleys. A warm current (Tsushima Current) flows into the Sea of Japan which lies between the continent and the Japanese islands, and a dry monsoon wind blowing from the continent in winter picks up moisture from the Sea of Japan, resulting in heavy snowfall (a rare natural occurrence anywhere in the world) on the coastal mountainous backbone ranges of the Japanese islands in the Sea of Japan. The Tadami Biosphere Reserve (hereafter referred to as the “Tadami BR”) proposed site is an enclosed mountainous region about 1,500 m above sea level that faces the winter monsoon, and has one of the heaviest areas of snowfall in Japan (the annual average deepest snow on flat land is 250 cm).

The Tadami BR proposed site is located at the eastern edge of the Echigo Mountains, the western edge of Fukushima Prefecture, and the southern part of the Tohoku region in Honshu (Latitude: N37°06′17.0″-37°28′11.5″, Longitude: E139°09′52.3″-139°34′30.3″). Geographically, it consists of large relief mountains of more than 600 m, middle relief mountains of 400-600 m, low relief mountains of 200-400 m, a gravel plateau and the floodplains of the Tadami River and Ina River basins. The Tadami River, which rises at Ozenuma and flows northward, and the Ina River, which similarly rises near Mt. Hiuchigatake of Oze and flows westward on the east side of the Tadami BR proposed site, meet at the central part of Tadami Town, and then meander before changing direction to the east and flowing down to the sea. The lowest altitude is 350 m at Tadami River near the border of Tadami Town and Kaneyama-town, and the highest altitude is 1,819.9 m at Mt. Maruyamadake located at the border of Tadami Town and Hinoemata-village; giving a difference in elevation of a little more than 1,450 m.

Almost the whole area of the Tadami BR proposed site is a mountain zone about 1,000 m above sea level, where cool temperate deciduous broad-leaved forests, typically beech (*Fagus crenata*) forest grows. In this mountain zone, slopes are shaved off by avalanches, bedrocks are exposed, and a steep and complicated "nivation landform" is created, due to the geological characteristics of heavy winter snowfall and green tuff bedrock with a comparatively fragile structure. In response to these conditions of steep topography and a complicated location environment, a plant population adapted for these different conditions has developed. A landscape mosaic of vegetation is composed of evergreen coniferous forest such as *Pinus parviflora* var. *pentaphylla* or Japanese arborvitae (*Thuja standishii*) on the ridges, shrubs like *Quercus mongolica* var. *undulatifolia* or *Hamamelis japonica obtusata* on the avalanche slopes, beech (*Fagus crenata*) forest on the comparatively stable parts where debris and soil have been deposited by avalanches on the lower part of the slopes, and riparian forests like Japanese wing nut (*Pterocarya rhoifolia*) or Japanese horse chestnut (*Aesculus turbinata*) along the stream banks. This kind of landscape is very rare in mountainous areas of less than 1,000 m above sea level, and moreover in the Tadami area, it exists in a pristine primeval condition with very little human interference and covers a large area of more than 40,000 ha. In addition, in such a vast and primeval natural environment, umbrella species such as raptors, like Golden eagles (*Aquila chrysaetos japonica*) or Mountain Hawk-Eagles (*Spizaetus nipalensis orientalis*) that are living natural monuments, and large mammals, like the black Asiatic bear (*Ursus thibetanus japonicus*) are found in large numbers. In addition, rare animals such as forest bats, like the Frosted myotis (*Myotis pruinosus*) and the Ussuri Tube-nosed Bat (*Murina ussuriensis*) inhabit this area. Also, *Lilium rubellum*, a rare species of alpine lily, is found across the snowpatch grassland of Mt. Asakusadake and Mt. Aizu-Asahidake, and the characteristic avalanche slopes of Tadami, creating the largest autogenesis ground in Japan.

(Flora)

- 140 families, 1,109 species of tracheophyte are confirmed in Tadami Town (about 96% of the Tadami BR proposed site). (Education Board of Tadami Town, Fukushima Prefecture 2006)

(Fauna)

- Numbers of species confirmed in Tadami Town (about 96% of Tadami BR proposed site): 15 families, 32 species for Mammals, 44 families, 145 species for Aves, 6 families, 13 species for Amphibia and 4 families, 10 species for reptiles (Tadami Town Town History Editing Committee 2001). More than 2,000 species are confirmed for Insects (Wataru Tsunoda 2007).
  These are fauna and flora located inside Tadami Town, though the areas, where humans are not able to easily access due to the steep nivation landform, have not been investigated in detail. Moreover, there is a possibility of finding further fauna and flora if the Hinoemata area (Sodesawa right bank line) (about 4% of the Tadami BR proposed site) is included.

<Situation of land use near the area of the Tadami BR proposed site>

- In 1973, the Environment Agency designated 86,129 ha including the Tadami BR proposed site as the "Echigosanzan-Tadami Quasi-national Park," based on the Natural Park Act (27,849 ha in the Tadami BR proposed site).
- A large part (52,368 ha) the core area and the Buffer Zone A and B (mentioned later) of the proposed site is National Forests administrated and managed by the Kanto Regional Forest Office of the Forestry Agency.
- In 2003, the Kanto Regional Forest Office of the Forestry Agency designated 470 ha National Forests of Tadami BR proposed site as the Protected Forest "Hometown Forest," based on the Law on the Administration and Management of National Forests.
- In 2007, the Kanto Regional Forest Office of the Forestry Agency designated 83,891 ha (40,830 ha in the Tadami BR proposed site) National Forests including the Tadami BR proposed site as the "Oku-Aizu Forest Ecosystem Reserve", based on the Law on the Administration and Management of National Forests.

- In 2007, the Kanto Regional Forest Office of the Forestry Agency designated 105,434 ha (10,967 ha in the Tadami BR proposed site) National Forests including the Tadami BR proposed site as the "Aizu-Sanchi Green Corridor", based on the Law on the Administration and Management of National Forests.
- Most of the surrounding areas of the Tadami BR proposed site are mountain zones, the greater parts are administrated and managed by the Kanto Regional Forest Office of the Forestry Agency.
- There is about 857 ha of cropland along the Tadami River and Ina River systems in the Tadami BR proposed site; about 70% rice paddies and the remaining 30% general purpose fields. The farming is generally managed so as not to interfere with the regional biological diversity.
- Non- agriculture plants in the Tadami BR proposed site consist of some small factories scattered across the proposed transition area; such as construction, automobile, electronics, etc.
- In the Buffer Zone B proposed site inside the Tadami BR proposed site, there is an artificial lake (Tagokura Lake) made by damming the Tadami River. This artificial lake is designated as a Class I Special Zone of the Echigosanzan-Tadami Quasi-national Park based on the Natural Park Act, and is an important sightseeing point of the natural landscape in this area. Tadami Lake is located right under Tagokura Lake in the transition area proposed site and this artificial lake also contributes to the conservation of wild animals as a stopover for migratory birds.

3.2 "Development - foster economic and human development which is socio-culturally and ecologically sustainable".

(Indicate current activities and the potential of the proposed biosphere reserve in fulfilling the objective of fostering sustainable economic and socio-cultural development, including by securing flows of ecosystem services from the biosphere reserve).

<Legal system for sustainable land use>

- The Kanto Regional Forest Office of the Forestry Agency established the Regional Administration and Management Plan and the National Forest Operation Plan of the Aizu Forest Planning Area based on the Law on the Administration and Management of National Forests, and administrates and manages 205,290 ha (52,548 ha in Tadami BR proposed site) of National Forests of Aizu area including the Tadami BR proposed site. The main objective of administration and management of National Forests shall be to fulfill public beneficial functions of forests such as nature conservation, wild animals protection, land conservation, etc.
- In 1973, the Environment Agency designated the "Echigosanzan-Tadami Quasi-national Park" as a large primeval mountains park covering the area of the Southern part of the Echigo Mountains that extend over Niigata and Fukushima Prefectures and a part of the neighboring Mikuni Mountains adjacent to the Echigo Mountains, based on the Natural Park Act. Most of the areas are mountainous and difficult for humans to access due to the steep topography and limited number of mountain trails, resulting in a minimal environmental load by tourists.

<Traditional land use by Tadami area residents>

- In a part of the Buffer Zone B proposed site and the transition area proposed site, Tadami Town residents still engage in traditional pursuits, such as hunting, collecting edible wild plants, mushrooms, utilizing firewood and vegetation as fuel and for weaving baskets made from vine, grass tree or tree bark, etc. These historical common practices and by utilizing forest resources in a sustainable way are important elements that support local life and the economy of the area.

<Town administration measure>

- In 2006, Tadami Town developed the 6th Tadami Town development promotion plan with a concept of "A town living life with beech, a town living with snow; challenge of Oku-Aizu Tadami – creation of real local value," with a town plan utilizing the inherited properties of the Tadami area such as nature,

history, culture, living, industry, etc.

- In 2007, the "Tadami Beech Center" was started as a core organization for realizing the 6th Tadami Town development promotion plan. At Tadami Beech Center, there are several activities: (1) conservation of the natural environment and protection of wildlife, (2) investigation and research of the natural environment, (3) operation of a museum "Museum of Japanese Beech and Rivers, Tadami," (4) education and training, (5) information transmission and exchange activities, etc., concerning the Tadami area.
- In 2007, Tadami Town announced an initiative "The Capital of Mother Nature," targeting local residents to re-recognize the value of the large natural environment of the Tadami area, as the inheritance of the next generation. This announcement was publicized both inside and outside the town, and Tadami Town is working on fulfilling each proposed measure.
- Prior to the examination of the registration of the Tadami BR, a study committee was held for branding "The Capital of Mother Nature" to establish the area brand image utilizing the natural environment and local resources of Tadami. In the committee, eight proposals were introduced and institutional utilization of a Biosphere reserve (UNESCO Eco Park) of the UNESCO MAB program was proposed as a framework (platform) to realize these proposals.
- After applying for Tadami BR registration and until registration is completed, Tadami Town is planning to prepare a budget and implement advance projects for promoting activities as a BR after registration. These activities ensure local residents will easily understand BR's principles along with the three important pillars; protection and conservation of biological diversity, investigation and research and sustainable socioeconomic development of the area, as well as conserving the natural environment inherited in the Tadami area, including protecting the traditional culture and life based on the natural environment and development of the local community.

3.3 "Logistic support - support for demonstration projects, environmental education and training, research and monitoring related to local, regional, national and global issues of conservation and sustainable development".

(Please indicate current or planned activities).

- Soon after the Tadami BR proposed site is registered as a BR, an organization (Tadami BR Promotion Council (provisional name)), consisting of the Kanto Regional Forest Office of the Forestry Agency, the Tohoku Regional Environment Office of the Ministry of the Environment, Fukushima Prefecture, local governments of the Tadami BR proposed site, several industrial associations, local community groups, Electric Power Development Co., Ltd., the Japanese Coordinating Committee for MAB etc., will be established for the management and operation of the BR. The Promotion Council will carry out general discussions for the protection and conservation of biological diversity inside the BR, and investigation and research and sustainable socioeconomic development of the area. The Secretariat of the Promotion Council is set up in the Tadami Beech Center (Organization summary is given below Section 4.3). For realizing the purposes of the Tadami BR; especially local development at a grassroots level, the BR area Liaison Council, which is a voluntary organization consisting of commercial establishments in the region, NPO/NGO and individuals, will be established.
- The Kanto Regional Forest Office of the Forestry Agency is conducting the monitoring surveys for the purpose of protection and conservation of the natural environment of the Oku-Aizu Forest Ecosystem Reserve, based on the Law on the Administration and Management of National Forests.
- The Kanto Regional Forest Office of the Forestry Agency is conducting the monitoring surveys for the purpose of appropriate forest management of the Aizu-Sanchi Green Corridor, based on the Law on the Administration and Management of National Forests.
- In 2012, Tadami Town started "'The Capital of Mother Nature': An academic investigation research subsidy project" to encourage researchers or a research group studying basic and applied research

related to conservation, regeneration and utilization of biological diversity in Tadami Town and for research related to utilization of sustainable ecosystem services.

- Tadami Beech Center originally promotes basic research into the natural environment and wildlife of Tadami Town, and in addition centralizes Tadami Town for academic investigation and research, while coordinating with universities and research institutions through "'The Capital of Mother Nature': An academic investigation research subsidy project" that has been set up by Tadami Town.
- Tadami Beech Center collects materials related to the natural environment of the Tadami area and exhibits and explains them in the "Museum of Japanese Beech and Rivers, Tadami."
- Tadami Beech Center not only hosts lectures and nature observation meetings, but also invites and provides lecturers for events aiming to obtain support from residents and visitors concerning the importance of valuing and protecting the natural environment and wildlife of the Tadami area and its utilization.
- Tadami Beech Center proactively supplies and transmits information regarding the nature of Tadami and information concerning the protection, conservation and utilization of nature both inside and outside the town, through the Beech center homepage, newsletters, bulletins, etc. At the same time, the Center sponsors or welcomes a variety of events.
- Tadami Town is examining the possibility of preparing an institution for researchers or students to stay and receive training.
- In 2013, the Education Board of Tadami Town is planning to apply for registration of the Asahi elementary school located in the town to the "UNESCO Associated School Project Network." This will be followed by sequential registrations to the UNESCO Associated School Project Network for other educational institutions located in Tadami Town.

4. CRITERIA FOR DESIGNATION AS A BIOSPHERE RESERVE:

[Article 4 of the Statutory Framework presents 7 general criteria for an area to be qualified for designation as a biosphere reserve which are given in order below.]

4.1 "Encompass a mosaic of ecological systems representative of major biogeographic region(s), including a gradation of human interventions".

(The term "major biogeographic region" is not strictly defined but it would be useful to refer to the Udvardy classification system (http://www.unep-wcmc.org/udvardys-biogeographical-provinces-1975_745.html)).

< Ecological systems representative of biogeographic regions >

- The Tadami BR proposed site is located in "2-15-6 The Palaearctic Realm, Oriental Deciduous Forest" based on biogeographic regions (Udvardy 1975) prepared by IUCN (International Union for Conservation of Nature). It belongs to the Japan Sea area climate and has a complicated variety of locations and environments formed by "nivation landform," which is due to the geological characteristics of 3-5 m heavy snowfall in the winter and green tuff bedrock with a comparatively fragile nature. Due to these locations and environments, a vegetation mosaic is formed with evergreen coniferous forest like *Pinus parviflora* var. *pentaphylla* or Japanese arborvitae (*Thuja standishii*) on the ridge parts, shrubs like *Quercus mongolica* var. *undulatifolia* or *Hamamelis japonica obtusata* on the avalanche slopes, deciduous broad-leaved forest with mainly beech (*Fagus crenata*) at the comparatively stable location where debris and soil have been deposited by avalanches on the lower part of the slopes, and riparian forests like Japanese wing nut (*Pterocarya rhoifolia*) or Japanese horse chestnut (*Aesculus turbinata*) along the streams. This kind of landscape is very rare in cool temperate regions, and starts from a mountain located behind the settlements. It exists in a pristine primeval condition with very little human interference, over a large area of about 40,000 ha (Photo 4-1).
- Most of the area between the primeval mountain zone and the settlements is the mosaic vegetation made up of secondary forests of deciduous broad-leaved trees, used as copses for firewood and charcoal, and planted forests of Japanese cedar (*Cryptmeria japonica*) and Japanese larch (*Larix kaempferi*),

planted on grassland after the Second World War.

- In the area from highly natural mountain zone to secondary forests of deciduous broad-leaved trees (transition area proposed site and a part of the Buffer Zone B proposed site), Tadami Town residents engage in hunting, gathering edible wild plants and mushrooms, woods for fuelwood and living materials; all of which are traditional sustainable use.
- In the transition area of the Tadami BR proposed site, we find the Tadami River, which flows northwards from the southwest side of the proposed site, the Ina River, which flows westward from the east side to eventually meet the Tadami River at the central part of Tadami Town, and tributaries of these rivers, and the settlements of Tadami Town scattered on fluvial terraces found along these rivers.
- In a basin of the Tadami River and Ina River of the Tadami BR proposed site, there is mountainous riparian forest consisting of Salix spp.; such as *Salix hukaoana*, which is a Japanese endemic species as well as the endangered species, *Salix sachalinensi* and *Salix dolichostyla* ssp. *Dolichostyla*, etc. In addition, *Salix hukaoana* is found across a total range of 50 km in this basin, creating the largest autogenesis ground in Japan. The large growth of Salix hukaoana is dependent on river disturbance and indicates the highly natural condition of the river environment in this basin. (Tadami nature-study meeting, 2012)
- There is about 857 ha of cropland in the transition area proposed site; about 70% rice paddies and the remaining 30% general purpose fields. This cropland is along the Tadami River and Ina River systems, and is inside or adjacent to the settlement areas.
- Tadami Town consists of 27 settlements, however, there is no area with a typical townscape. Even in the Tadami district where a town hall is located in the most populated area with a town street with stores, restaurants and guesthouses along a national road, it is still surrounded by forested mountains, fields and cropland. Other districts are even smaller and neighboring village houses are surrounded by cropland and fields and forested mountain scenery.
- Next to the Tadami BR proposed site are found natural forests of deciduous broad-leaved trees, a secondary forest of deciduous broad-leaved forest and a planted forest of Japanese cedar (*Cryptmeria japonica*) and Japanese larch (*Larix kaempferi*), and activities such as forestry, mountain climbing, hunting, fishing and edible wild plant collecting are commonly practiced.

<Legal status>

- In 2007, 40,830 ha of National Forests including a center part of the Tadami BR proposed site were designated as the Oku-Aizu Forest Ecosystem Reserve based on the Law on the Administration and Management of National Forests. The purpose of Forest Ecosystem Reserve is maintaining the natural environment consisting of forest ecosystems, protection of fauna and flora, conservation of genetic resources, development of forest management operation and management technique and contribution to scientific research, which is achieved by conserving primeval natural forest. In addition, 105,434 ha (10,967 ha in the Tadami BR proposed site) of National Forests surrounding the area were also designated as the "Aizu-Sanchi Green Corridor" based on the Law on the Administration and Management of National Forests. The purpose of the Green Corridor is maintenance and improvement of biodiversity through retaining wider and effective continuity of forests, and further protection and conservation of forest ecosystems.
- 470 ha of National Forests located in the northeast area of the Tadami BR proposed site were designated as the Protected Forest "Hometown Forest" based on the Law on the Administration and Management of National Forests. The purpose of the Hometown Forest is appropriate conservation of forests, which have significance as a local symbol etc., in cooperation with the local community and contribution to the rural development.
- In 1973, about 27,849 ha including the central part of the Tadami BR proposed site was designated as a part of the Echigosanzan-Tadami Quasi-national Park based on the Natural Park Act. Included were a specific area with excellent vegetation which needs to be conserved for the future as well, 10,623 ha which is about 38% was designated as a Quasi-national Park Special Protection Zone, 13,190 ha which

is about 47% was designated as a Quasi-national Park Class I Special Zone, and 4,036 ha which is about 15% was designated as a Quasi-national Park Class II Special Zone.

Photo 4-1 Mountains dominated by nivation landforms and mosaic vegetation are found just behind the settlements.

4.2 "Be of significance for biological diversity conservation".

(This should refer not only to the numbers of endemic or rare species, but may also refer to species on the IUCN Red List or CITES appendices, at the local, regional or global levels, and also to species of global importance, rare habitat types or habitats with unique land use practices (for example traditional grazing or artisanal fishing) favouring the conservation of biological diversity).

- Biological diversity is considered on three levels; ecosystem diversity, species diversity and genetic diversity (Convention on Biological Diversity; CBD).

<Ecosystem diversity>

- In the Tadami area, there are primeval natural environments extending across 40,000 ha, with various geological features formed by nivation landform, several types of vegetation growing in the topography and animals inhabiting such unique vegetation, resulting in high ecosystem biodiversity.
- In the Tadami BR proposed site, top species in the ecosystem such as large mammals like the Asiatic black bear (*Ursus thibetanus japonicus*: Listed as Endangered II (Vulnerable) in the IUCN Red List) and raptors like the Golden eagle (*Aquila chrysaetos japonica*) or Mountain Hawk-Eagle (*Spizaetus nipalensis orientalis*) are found in large numbers. Especially, both the Golden eagle (*Aquila chrysaetos japonica*) and the Mountain Hawk-Eagle (*Spizaetus nipalensis orientalis*) are listed as Endangered (EN) in the Red List of the Ministry of the Environment (2012). In general, the Golden eagle (*Aquila chrysaetos japonica*) is found nesting on the rock ledges of steep cliffs in mountainous areas. They hunt Japanese hare (*Lepus brachyurus*), the Copper pheasant (*Syrmaticus soemmerringii*) and such snakes as the Japanese rat snake (*Elaphe climacophora*) in open areas such as shrub zones, grass areas and denuded land next to the forest; its home range extends up to 200 km^2 (Yamazaki, 2002). On the other hand, the Mountain Hawk-Eagle (*Spizaetus nipalensis orientalis*) is highly dependent on the forest,

nesting in large trees and hunting several small and medium size animals in the forest such as; Japanese hare (*Lepus brachyurus*), the Copper pheasant (*Syrmaticus soemmerringii*), snakes, badgers (*Meles meles*), racoon dogs (*Nyctereutes procyonoides*), Japanese martens (*Martes melampus*), Japanese minks (*Mustela itatsi*), flying squirrels (*Petaurista leucogenys*), Japanese squirrels (*Sciurus lis*), brown-eared bulbuls (*Hypsipetes amaurotis*), meadow buntings (*Emberiza cioides*), etc. (Yamazaki 2002). This large and primeval natural environment of the Tadami area, with nivation landform characteristics formed by heavy snowfall and a vegetation mosaic created by those topographies, provides two separate and ideal habitats for the Golden eagle (*Aquila chrysaetos japonica*) and the Mountain Hawk-Eagle (*Spizaetus nipalensis orientalis*), whose nesting environments and food sources are quite different. This demonstrates the existence of these umbrella species (raptors) are indicative of a rich ecosystem in the Tadami BR proposed site.

<Species diversity>

- No endemic species limited in the Tadami BR proposed site were confirmed, although the entire picture is not clarified as the general basic research related to the biological diversity of the Tadami BR proposed site has not been carried out yet.
- About 45% of the native plants (vascular plant) in Japan are endemic species and the percentage of Japanese endemic species, which appear in Tadami Town of the Tadami BR proposed site is about 9%. In addition, there are 12 endangered species designated by the Ministry of the Environment (about 1% of the total) and 17 endangered species designated by Fukushima Prefecture (about 2% of the total) in Tadami Town. Forest wilderness in the Tadami BR proposed site extends over about 70,000 ha, which are generally inaccessible to humans due to their deep and steep topography, however, the percentage of Japanese endemic species and endangered species are expected to increase once the investigation is started.

<Genetic diversity>

- Regarding genetic diversity, the high diversity and endemism of beech (*Fagus crenata*) and Japanese wing nut (*Ptrocrya Rhoifolia*) groups in Tadami Town were confirmed by genetic analysis (Education Board of Tadami Town 2003, Education Board of Tadami Town 2004 and the Education Board of Tadami Town 2005)
- As a result of research on the genetic diversity of rare tree species, *Salix hukaoana*, of the Ina River basin which is the largest autogenesis ground in Japan, genetic differentiation of the group was confirmed and a range of genetic flow was also revealed (Kikuchi, Suzuki 2012).

<Rare species>

- In Tadami Town of the Tadami BR proposed site is the only confirmed site in Fukushima Prefecture of the Frosted myotis (*Myotis pruinosus*), which is a Japanese endemic species of bat and they are listed as Endangered (EN) in the IUCN Red List as well as Endangered (EN) in the Red List of the Ministry of the Environment (2012).
- In the riparian forest in a basin of the Tadami River/Ina River flowing in the Tadami BR proposed site, rare tree species *Salix hukaoana*, which is classified as Endangered II (Vulnerable) in the Red List of the Ministry of the Environment (2012), grow in the largest numbers found in Japan. Since the growth of this tree species depends on river disturbance (snow flood), the large growth of such tree species indicates that the river environment in this basin has been conserved in a highly natural state. (Tadami nature-study meeting, 2012)
- Tadami Town of the Tadami BR proposed site is the largest autogenesis ground of *Lilium rubellum* in Japan, which is a Japanese endemic species and found only around the Iide mountain range, Mt. Azuma and Sumondake, located in the southern part of Miyagi Prefecture and at the prefectural boundaries of Niigata, Fukushima and Yamagata Prefectures. (Yutaka Takahara, et al. 2012) Almost all the places have grassland at the summit area, steep rocky slopes of nivation landform or the ridges of scree slopes;

it is expected to be the most important growth area of a natural population in Japan. This species is classified as Near Threatened (NT) in the Red List of the Ministry of the Environment (2012) as well as in the Red Data Book of Fukushima Prefecture.

Reference: Ecology and conservation of ecosystem of the Golden eagle and Mountain Hawk-Eagle, Toru Yamazaki (2002), the Journal of Japanese Society of Poultry Diseases, Vol. 38 extra edition, p. 41-47

4.3 "Provide an opportunity to explore and demonstrate approaches to sustainable development on a regional scale".

(Describe in general terms the potential of the area to serve as a site of excellence for promoting the sustainable development of its region (or "eco-region")).

- Historically, the economic life of residents in the Tadami area has been basically supported by agriculture (including slash and burn agriculture known as "Kano") and utilization of the rich local natural resources such as hunting, collecting and fishing. This style of life has endured, even during the modernization after the Meiji era, and it still exists today. Therefore, the harmonious relationship between nature and humans has always been found as an undercurrent in this local community, thus fulfilling the criteria of being a sustainable local community.

<Approaches of Tadami Town>

- From 1990, the collection, arrangement and investigation of folk implements were carried out by Tadami Town residents. It is known as the "Tadami method," and some of these folk implements were registered as National Tangible Cultural Properties in 2003.
- In 2006, Tadami Town developed the 6th Tadami Town development promotion plan with a concept of "A town living life with beech, a town living with snow; challenge of Oku-Aizu Tadami – creation of real local value," with a town plan utilizing the inherited properties of the Tadami area such as traditional nature, history, culture, living, industry, etc., clearly separating such subjects from following the contemporary urbanized values.
- In 2007, Tadami Town established the "Tadami Beech Center" as a core organization for actualizing the 6th Tadami Town development promotion plan. At Tadami Beech Center, there are several activities: (1) conservation of the natural environment and protection of wildlife, (2) investigation and research of the natural environment, (3) operation of a museum "Museum of Japanese Beech and Rivers, Tadami," (4) education and training, (5) information transmission and exchange activities, etc., of the Tadami area.
- In 2007, Tadami Town announced "The Capital of Mother Nature," targeting local residents to re-recognize the value of the large natural environment of Tadami area as the inheritance of the next generation.
- In 2012, Tadami Town started "'The Capital of Mother Nature': An academic investigation research subsidy project." This project encourages researchers or research groups that are studying basic and/or applied research related to conservation, regeneration and/or utilization of biological diversity in Tadami Town and for research related to the utilization of sustainable ecosystem services. The research results will be reported and returned to the Tadami Town residents, and moreover, are expected to be presented at academic meetings and in an academic journal.
- Tadami Beech Center is planning to strengthen the relationship with university and research institutes as well as to centralize Tadami Town for academic investigation research through "'The Capital of Mother Nature': An academic investigation research subsidy project," Four Universities are currently working on investigation research: Niigata University, Yokohama National University, Tokyo Metropolitan University and Tokyo University.

<Acceptance of outside research institutes by Tadami Town>

- A database compilation of many aspects of folklore as well as folk implements of Tadami Town were created by Kanagawa University 21st Century COE Program, "Systematization of Non-written Cultural Materials for the Study of Human Societies," and published in a website known as the "Tadami Town Internet Eco-museum." (http://www.himoji.jp/tadami-item/) This website presents the folklore of Tadami Town with an overview of images of Tadami Town, and the system helps to foster understanding of their livelihood with computer images showing the mountain village life of Tadami Town on the internet. At an international symposium conducted by this program, the "Tadami Town Internet Eco-museum" was introduced as an example during the discussion on the possibilities of Internet Eco-museums. (Edited by the Research Promotion Committee of Kanagawa University 21st Century COE Program, "Systematization of Non-written Cultural Materials for the Study of Human Societies," 2008)
- Kanagawa University investigated many aspects of folklore in the Ookura district of Tadami Town, focusing on a "Changes to ethnic group after rapid economic growth" based on an accumulation of folklore investigations of the Tadami area by the Tadami Town Town History Editing Project and Research Promotion Committee of Kanagawa University 21st Century COE Program, "Systematization of Non-written Cultural Materials for the Study of Human Societies." (Edited by Kenji Sano, 2008)
- In 2010, at the 2nd International Symposium of International Center for Folk Culture Studies, "'Story' – Human Culture from the Perspective of folk implements/material cultures," sponsored by the International Center for Folk Culture Studies of Kanagawa University, which is a collaborative study center approved by the Ministry of Education, Culture, Sports, Science and Technology, and the Institute for the Study of Japanese Folk Culture of Kanagawa University, the subject of names for folk implements were discussed using a folk implement of Tadami Town as an example.
- From 2008 to 2011, a general study of ecosystem services related to the Ordinary Meeting of the Conference of the Parties to the Convention on Biological Diversity was conducted by the Forestry and Forest Products Research Institute of the Incorporated Administrative Agency, a report meeting was held in 2010 and its report was released in 2011. (Forestry and Forest Products Research Institute of the Incorporated Administrative Agency, *et al.* 2011)
- Utsunomiya University conducted a rural survey concerning the problems and vitalization of the mountainous area in the Fuzawa district from 2010, and a final report was released in 2012. (Utsunomiya University, 2011; Utsunomiya University, 2012)

<Acceptance as National Forests>

- As almost the whole of the core area and the Buffer Zone A and B of the proposed site is designated as Oku-Aizu Forest Ecosystem Reserve based on the Law on the Administration and Management of National Forests. Thus entering this area is restricted though entering for investigation research is allowed with gaining admission.

<Expectations of the BR proposed site registration>

- The town plan based on an ecosystem of deciduous broad-leaved forest – mainly beech forests in heavy snowfall areas – was introduced internationally and to some neighboring countries, through the World Japanese Beech Tree Summit held in 2005 and 2007. Moreover, if the Tadami BR designation is granted this time, the long worked upon town plan built upon the concept of "A town living life with beech, a town living with snow; challenge of Oku-Aizu Tadami – creation of real local value," will be internationally and widely recognized, resulting in a boost of confidence and a source of great pride for the town residents. It is also expected to be a source of encouragement and motivation for industrial development of the transition area proposed site and social sustainable development.
- Based on this Biosphere Reserve designation, it is expected that there will be increased interest in approaches to "The Capital of Mother Nature," a spread of cooperation and collaboration concerning the town plan and region development, and the development of research in several fields outside the natural sciences, such as in the humanities and social sciences with the study of the history and culture

of the Tadami area.

- A variety of approaches used in the Tadami BR proposed area, including background, method and specific examples of these approaches can be expected to take over and lead the sustainable development of the whole region. In addition, the results will be a model for activation of many similar mountainous areas found all over Japan, and all suffering from the same depopulation, an aging population and a decline of regional community, as found in Tadami.

4.4 "Have an appropriate size to serve the three functions of biosphere reserves"

(This refers more particularly to (a) the surface area required to meet the long term conservation objectives of the core area(s) and the buffer zone(s) and (b) the availability of areas suitable for working with local communities in testing and demonstrating sustainable uses of natural resources).

- Basically, the core area and buffer zone proposed site of the Tadami BR proposed site are the "Preservation Zone" and "Conservation and Utilization Zone" of the Oku-Aizu Forest Ecosystem Reserve, respectively, which were established by the Kanto Regional Forest Office of the Forestry Agency based on the Law on the Administration and Management of National Forests. Actually, the view of zoning of Forest Ecosystem Reserve refers that of Biosphere Reserve. And other areas are set up as transition area of proposed sites. However, a buffer zone is designated for wider purposes such as conservation and utilization based on the BR setting standard of the UNESCO MAB program, and it is difficult to include concerned areas as one category, as the Oku-Aizu Forest Ecosystem Reserve based on the Law on the Administration and Management of National Forests and the Echigosanzan-Tadami Quasi-national Park based on the Natural Park Act have duplicate designations in part of the buffer zone. Therefore, the buffer zone of the Tadami BR proposed area was divided into "Buffer zone A" where conservation of the natural environment is the first priority objective to manage in line with the core area and "Buffer zone B" where sustainable utilization is the objective with an assumption of conservation.
- The proposed core area measures 3,557 ha of forests. The ridgeline connecting Mt. Aizu-Asahidake~Mt. Maruyamadake~Mt. Tsuboiri is centrally located in the proposed site and mosaic vegetation of landslide scar site, herbaceous community, shrub and beech forest exists in a primeval condition on the nivation landform. Also, it's area accords with the Preservation Zone of Oku-Aizu Forest Ecosystem Reserve, which was designated considering any extension required for preserving the biological characteristics of the forest, based on the Law on the Administration and Management of National Forests. These steep mountainous areas are caused by the nivation landform of ridgelines, with no easy access for ordinary persons and no residence. In this manner, it is enough size and location for maintenance and conservation of the primeval forests.
- The proposed site of Buffer Zone A (8,380 ha) is a valuable area for conservation of the regional biological diversity and includes the existence of a mountainous landscape of heavy snowfall areas and habitats for wildlife. It is also designated as a Special Protection Zone of the Echigosanzan-Tadami Quasi-national Park based on the Natural Park Act, as well as a Conservation and Utilization Zone of the Oku-Aizu Forest Ecosystem Reserve based on the Law on the Administration and Management of National Forests.
- In the proposed site of Buffer Zone B (42,953 ha), most of the area (28,894 ha) is designated as the Conservation and Utilization Zone of the Oku-Aizu Forest Ecosystem Reserve based on the Law on the Administration and Management of National Forests, and part of the area is designated as some other legislative and regulatory methods such as the Class I Special Zone and the Class II Special Zone of the Echigosanzan-Tadami Quasi-national Park based on the Natural Park Act, as the Protected Forest "Hometown Forest" based on the Law on the Administration and Management of National Forests and as the "Aizu-Sanchi Green Corridor" based on the Law on the Administration and Management of National Forests. It also includes a small part of the Tadami Town forest (1,498 ha) and the surface of Dam Lake (1,024 ha).

- The size of the proposed site of Buffer Zone A/B (total 51,333 ha) is about 14 times that of the proposed site of the core area, providing a sufficient area to surround the proposed site of the core area and fulfill its role as a mechanism against any impact by humans.
- The proposed site of the transition area (23,142 ha) is a sustainable utilization area with the functions and roles of traditional village-vicinity mountains and village land, with the scenery consisting of about 90% planted forest or copse, about 4% field or rice paddy and about 2% residential area, etc.
- The proposed site of the transition area along the Tadami River is designated as the "Tadami-Yanaizu Prefectural Natural Park" based on the Natural Park Act.
- The proposed site of the transition area has been used by humans since the middle of the Jomon era and it is also convenient for the current inhabitants in terms of geography, topography and access. Therefore, forest resources such as fuel, agricultural material, collection of edible wild plants/mushrooms, etc., have been utilized.

4.5 Through appropriate zonation:
"(a) a legally constituted core area or areas devoted to long term protection, according to the conservation objectives of the biosphere reserve, and of sufficient size to meet these objectives".
(Describe the core area(s) briefly, indicating their legal status, their size, the main conservation objectives).

- Forest Ecosystem Reserve is primeval natural forest, which represents the forests of Japan and has considerable area, designated and managed by the Forestry Agency based on the Law on the Administration and Management of National Forests for the purpose of maintenance of the natural environment, protection of fauna and flora, conservation of genetic resources and contribution of scientific research, and so on. In 2007, the Kanto Regional Forest Office of the Forestry Agency established 83,891 ha of National Forests including the Tadami BR proposed site as the Oku-Aizu Forest Ecosystem Reserve based on the Act. Among this area, 7,715 ha was designated as a Preservation Zone, having a sufficient area to strictly protect the primeval forest ecosystem and to reserve the biological characteristics of the forests.
- The surrounding areas of Mt. Hiuchigatake and a ridgeline which runs from north to south of Mt. Aizu-Asahidake ~ Mt. Maruyamadake ~ Mt. Tsuboiri ~ Mt. Aizu-Komagatake designated as the Preservation Zone of Oku-Aizu Forest Ecosystem Reserve, based on the Law on the Administration and Management of National Forests. Subalpine zone of coniferous forest (aciculignosa) spreads into the surrounding area of Mt. Hiuchigatake, whereas high moor and snowpatch grassland along with a subalpine zone of coniferous forest (aciculignosa) extend from Mt. Aizu-Komagatake ~ Mt. Tsuboiri. On the other hand, in the surrounding area of Mt. Tsuboiri ~ Mt. Maruyamadake ~ Mt. Aizu-Asahidake, a nivation landform has been created by avalanches and excellent scenery of bare land, grassland and shrubs are seen mixed together. In this way, the vegetation varies greatly even in the same Preservation Zone of the Oku-Aizu Forest Ecosystem Reserve (according to an actual vegetation map on a scale of 1:50,000 of Biodiversity Center of Japan). The proposed site of the core area of the Tadami BR proposed site is designated to correspond to the north of Mt. Tsuboiri of Preservation Zone of the Oku-Aizu Forest Ecosystem Reserve (3,557 ha).
- The Preservation Zone of the Oku-Aizu Forest Ecosystem Reserve based on the Law on the Administration and Management of National Forests is generally off-limits to ensure strict protection of the forest ecosystem by eliminating any human influence; it is based on the principle of management of the Oku-Aizu Forest Ecosystem Reserve setting policy.
- Moreover, the proposed site of the core area as an area which requires conservation of scenery and vegetation is designated as a Special Protection Zone and a Class I Special Zone of the Echigosanzan-Tadami Quasi-national Park based on the Natural Park Act.
- A part of the proposed site of the core area is designated as the Tadami Prefectural Wildlife Protection Area and the Tadami Special Protection Area; these zones are based on the Wildlife Protection and Appropriate Hunting Law, which allows no hunting and any human work activities such as cutting trees

and bamboos, and restricts any extended new constructions.

"(b) a buffer zone or zones clearly identified and surrounding or contiguous to the core area or areas, where only activities compatible with the conservation objectives can take place".
(Describe briefly the buffer zones(s), their legal status, their size, and the activities which are ongoing and planned there).

- Proposed site of Buffer Zone A/B is designated to encompass the proposed site of the core area in total.
- The proposed site of Buffer Zone A (8,380 ha), as a required area for conservation of the natural environment and an important habitat of wildlife, is designated as a Conservation and Utilization Zone of the Oku-Aizu Forest Ecosystem Reserve based on the Law on the Administration and Management of National Forests as well as the Special Protection Zone of the Echigosanzan-Tadami Quasi-national Park based on the Natural Park Act. This Buffer Zone A is managed, with more focus on the protection and conservation of biological diversity, even if it is inside the buffer zone.
- Most of the area in the proposed site of Buffer Zone B (42,953 ha) is designated as the Conservation and Utilization Zone of the Oku-Aizu Forest Ecosystem Reserve based on the Law on the Administration and Management of National Forests, and part of the area is designated as some other legislative and regulatory methods such as the Class I Special Zone and the Class II Special Zone of the Echigosanzan-Tadami Quasi-national Park based on the Natural Park Act, as the Protected Forest "Hometown Forest" as well as the "Aizu-Sanchi Green Corridor," based on the Law on the Administration and Management of National Forests. It also includes a small part of the Tadami Town forest. In this zone, utilization by ecotourism, education, study activities, etc., are planned while maintaining sustainable utilization by traditional common practices (including the System of Common Use of National Forest Land), without disturbing the conservation of the natural environment.
- Part of the area proposed site of Buffer Zone B is designated as the Protected Forest "Hometown Forest" based on the Law on the Administration and Management of National Forests. The Protected Forest contributes to the rural development by the conservation of forests or utilizing for recreation, and is managed in cooperation with the local community.

"(c) an outer transition area where sustainable resource management practices are promoted and developed".
(The Seville Strategy gave increased emphasis to the transition area since this is the area where the key issues on environment and development of a given region are to be addressed. Describe briefly the transition area(s), the types of questions to be addressed there in the near and the longer terms. The Madrid Action Plan states that the outer boundary should be defined through stakeholder consultation).

- In the Tadami BR proposed site, the transition area proposed site is set up at the outer section, adjacent to the buffer area proposed site. It consists of forested mountains and fields, cropland, residential areas, etc.
- The residents of the Tadami BR proposed area have been utilizing forest resources traditionally, and in a sustainable way without imposing any great pressure on the natural environment. They have engaged in sustainable hunting, collecting edible wild plants and mushrooms, weaving handiwork made from vine, utilizing firewood as fuel, etc. Edible wild plants and mushrooms collected from the mountains are provided to the visitors in guesthouses. Processed edible wild plants and mushrooms and crafts are sold as specialized products.
- The life, culture and industry of Tadami Town relying on the natural environment and resources are rapidly declining, while suffering from depopulation due to the ever-increasing outflow of young people to urban areas and an aging population which are common factors in the mountainous areas of Japan in recent years. In addition, it is a fact that the natural environment and resources are not well-utilized for a local socioeconomic development suitable to the changing times. Therefore, Tadami Town developed

the 6th Tadami Town development promotion plan (2006) and announced "The Capital of Mother Nature," promoting a town plan utilizing inherited regional properties like nature, history, culture, living, industry, etc., centering on the natural environment as represented by the beech forests and resources.

- The basic industries of Tadami Town are primary industries such as agriculture and forestry. The main agricultural products are rice, buckwheat and tomatoes, and there is no strong branding except for the "Nango Tomato." Therefore, the local economy has not been developed based on agriculture. In the case of organic agriculture, which is sustainable with less pressure on the environment, there is no unified approach for the whole region, although some farmers are practicing organic agriculture (as of 2013 two products have been applied for organic agricultural products). However, establishment of a local economy based on the regional agriculture is expected, by utilizing the existence base of the agriculture and promoting sustainable organic and pesticide-reduced agriculture with less pressure on the environment and branding such cultivated agricultural products in the future.
- Regarding forestry, logging of the natural forest used to be carried out to provide valuable materials for the revival after the Second World War, however, logging has stopped due to the reduction of good resources of natural forests and the strong demand from local community to conserve the natural environment. The planted forests of coniferous trees are enough for intensive harvesting. The coniferous forests were planted to expand afforestation after logging the natural forests, which was carried out as a national policy after the 1950s, however, the industrialization utilizing forest resources didn't make progress because of stagnant wood prices and reduction of wood use. Hence, a management system and infrastructure development towards sustainable forest management utilizing the Forest Certification System etc., will be required in the private and public forests. On the other hand, firewoods are continuously utilized as fuel, reduce local consumption of fossil fuels and have the potential for modeling a low carbon society.
- Concerning inland fisheries, anadromous fish (Salmon/Trout) became extinct due to fragmentation of rivers by the dam for electrical power development in the Tadami River system and other fish resources have decreased due to over-fishing, as a result, fish resources are currently somehow maintained by releasing fish into the rivers. However, mountain stream fishing of Japanese char (*Salvelinus leucomaenis*) and landlocked salmon (*Oncorhynchus masou masou*) is popular and there are many visitors for fishing. It is necessary to strengthen river management and resource management to maintain mountain stream fish resources by natural means.
- In a basin of the Ina River, the river bed is relatively wide allowing a changing flow channel by river disturbance, resulting in the maintenance of a highly natural river environment. As a result, a basin of the Tadami River and Ina River is the largest autogenesis ground of the rare tree species, *Salix hukaoana*, in Japan. However, due to river improvement carried out in recent years, the natural disturbance system required for renewal of this species has been changed and the continuation of the group is threatened. Hence, river management considering the general protection of the river environment including riparian forest such as *Salix hukaoana* will be required.
- Even though the scale is small, there are processing industries utilizing local agricultural products and forest products in Tadami. Its development is expected by management and improvement of utilization along with the Tadami BR project.
- Tourism is one of the main industries of Tadami Town, however, there is a limitation with package group tour type tourism which is mainly conventional dam sightseeing. In addition, infrastructures for sightseeing such as transport systems and lodging facilities are not sufficient. However, there is a high possibility of development by utilizing the rich natural environment of Tadami Town as tourist attractions, based on a principle of the UNESCO MAB program. The Tadami-line of the East Japan Railway Company (JR East), which runs between the primeval natural environments, will not only be an important transport system for residents, but also a mainstay of regional sightseeing. In addition, trekking in beech forests plays a big role in understanding the importance of protection and conservation of the natural environment and wildlife. The scenery of the Ina River basin with its

remaining natural environment is ideal for photo and video shooting, and future utilization is to be expected.

- The ecotourism industry has not yet fully established itself due to problems of preparedness to receive visitors. Hence, it is necessary to establish several facilities, such as; development of an ecotourism guide system, improvement of individual guiding ability of existing guides, training of new guides and development of new tours, etc.
- In Tadami Town, there are several cultural assets, including government-designated important cultural assets based on the Law on Protection of Cultural Properties. However, exhibition facilities and publishing methods have not been strongly established. Hence, it is necessary to develop the exhibition facilities along with effective utilization of cultural assets as a related project to the Tadami BR.
- The establishment of a biosphere reserve will assist the town plan utilizing inherited regional properties such as nature, history, culture, living, industry, etc., centering on the natural environment represented by beech forests and resources, which Tadami Town has been promoting in the 6th Tadami Town development promotion plan. At the same time, it helps local residents to recognize its value and have pride, and helps the connection to regional activation. In addition, it is expected to be a model case to demonstrate an effective breakthrough against the problems faced by a local community, such as decay due to depopulation and an aging population which many semimountainous areas are suffering in Japan.
- Tadami Town was greatly damaged and affected by the accident at Fukushima No.1 Nuclear Power Plant of Tokyo Electric Power Company caused by the Great East Japan Earthquake in March 2011 and its harmful rumors, and also by the Niigata and Fukushima heavy rainfall disaster in July 2011. The background of these accidents and the damage initiated by natural disasters is that people weaken their relationship with nature (direct exchange of resources and spirituality), depend on the technologies created by society and become overconfident in them with the development of a modern society and economy. Against such a background, the international recognition and presentation of the natural environment of the Tadami BR proposed site applied by Tadami Town which is located in Fukushima Prefecture in Japan and the life and culture of Tadami Town residents based on nature, presents one model of humans living in harmony with nature, and will connect to the revitalization of the Fukushima region.

(d) Please provide some additional information about the interaction between the three areas.

- None.

4.6 "Organizational arrangements should be provided for the involvement and participation of a suitable range of inter alia public authorities, local communities and private interests in the design and the carrying out of the functions of a biosphere reserve".

4.6.1 Describe arrangements in place or foreseen.

(Describe involvement of public and/or private stakeholders in support of the activities of the biosphere reserve in core, buffer and transition areas (such as agreements, protocols, letters of intent, protected area(s) plans)).

- From applying for the registration of the Tadami BR proposed site until its registration is completed, the preparation organization (Tadami BR Preparation Liaison Council (provisional name)), consisting of local governments of the Tadami BR proposed site, the Kanto Regional Forest Office of the Forestry Agency, the Tohoku Regional Environment Office of the Ministry of the Environment, several industrial associations, local community groups, the Japanese Coordinating Committee for MAB, etc., is established for management and operation of the BR. The Secretariat of the Preparation Liaison Council is set up in the Tadami Beech Center. In case of a successful registration of the Tadami BR proposed site as a BR, this Preparation Liaison Council will be immediately expanded to the Tadami BR Promotion Council (provisional name). The Promotion Council holds general discussions for

protection and conservation of biological diversity inside the BR, investigation and research and sustainable socioeconomic development of the area, by a roundtable method. The Secretariat of the Promotion Council will be continuously located in the Tadami Beech Center.

- The Promotion Council will set up an expert committee by people of experience or academic standing, who will advise on the protection and conservation of biological diversity inside the BR, investigation/research and local development.
- For realizing the purposes of the Tadami BR, Tadami Town will set up a project team in the town hall, to examine administrative policy, make a plan, and implement it for the large ancestral and primeval natural environment existing in the Tadami BR proposed site and for the benefit of the lives and culture of Tadami Town residents rely on this natural environment.
- For realizing the purposes of the Tadami BR; especially local development at a grassroots level, the Tadami BR Promotion Resident Liaison Council (provisional name), which is a voluntary organization consisting of commercial establishments in the region, NPO/NGO and individuals, is established.

4.6.2 Have any cultural and social impact assessments been conducted, or similar tools and guidelines been used?

(e.g. Convention on Biological Diversity (CBD)'s Akwé: Kon guidelines; Free, Prior, and Informed Consent guidelines, Biocultural Community Protocols, etc.). *(UNESCO's Programme on Man and the Biosphere (MAB) encourages biosphere reserves to consider and respect indigenous and customary rights through programmes or tools, in accordance with the United Nations Declaration on the Rights of Indigenous Peoples* (*http://www.un.org/esa/socdev/unpfii/documents/DRIPS_en.pdf when relevant and appropriate)).*

- The Town History Editing Committee (1989-2004), carried out an investigation and evaluation of the history, culture and industry of Tadami Town, which was edited and published as a town history along with documents (refer supplement documents). Additionally, many investigations on many aspects of folklore have been made by universities and research institutes, and the results were published as publications (refer supplement documents). In the Tadami region, there is a large and primeval natural environment, where residents utilize natural resources in a sustainable way such as; hunting, collecting of edible wile plants and mushrooms, utilizing firewood as fuel and weaving handiwork, such as baskets made from vines, grass tree or tree bark, etc. Also, there are traditional annual celebrations like the "Onbe" (New Year's bonfire) and the "Saotome" dance. On the other hand, the Tadami area is also facing the difficulty of passing on the region's traditional culture as the connection between humans and nature is becoming weaker, due to modern social structures and changes in society's sense of values; along with depopulation due to the ever-increasing flow of young people to urban areas and the aging population. However, if the Tadami BR proposed site is successfully registered as a BR, the international recognition and presentation of such a natural environment as the Tadami area and the traditional lives and culture of the Tadami Town residents based on nature will provide pride to local residents, as well as strengthen the connection between humans and nature. It is expected many further developments will come about through carrying out measures based on the Tadami BR.

4.7 Mechanisms for implementation:

Does the proposed biosphere reserve have:
"(a) mechanisms to manage human use and activities in the buffer zone or zones"?
If yes, describe. If not, describe what is planned.

Yes (No ○ Under planning)

- In the Echigosanzan-Tadami Quasi-national Park and the Oku-Aizu Forest Ecosystem Reserve including the proposed site of Buffer Zone A/B, human exploitation of resources and activities are

regulated and restricted based on the Natural Park Act and the Law on the Administration and Management of National Forests. In addition, in the National Forests of Buffer Zone B, sustainable utilization, such as the collecting of edible wild plants and mushrooms, and management of the forests is carried out by local community, under "The System of National Forest Permitted to Use of Local Dwellers" based on the Law on the Administration and Management of National Forests.

"(b) a management policy or plan for the area as a biosphere reserve"?

If yes, describe. If not, state how such a plan or policy will be developed, and the timeframe. (If the proposed area coincides with one or more existing protected natural area(s), describe how the management plan of the proposed biosphere reserve will be complementary to the management plan of the protected area(s)).

Yes (No ○ Under planning)

- For the Echigosanzan-Tadami Quasi-national Park and the Oku-Aizu Forest Ecosystem Reserve including the core area and the proposed site of Buffer Zone A and B, the Park Plans based on the Natural Park Act and the Regional Administration and Management Plan of National Forests based on the Law on the Administration and Management of National Forests have been established respectively.
- For the proposed site of the transition area, a basic policy consisting of a main five items was established in the 6th Tadami Town development promotion plan (2006). The items have been adopted by Tadami Town, and are carried out without fail. The contents correspond to management of the BR.
- The Tadami BR Promotion Council (provisional name) plans to draw up overall and integrated management and operation plans for the proposed site.

"(c) a designated authority or mechanism to implement this policy or plan"?

Yes (No ○ Under planning)

- For the proposed site of the core area and that of Buffer Zone A and B of the Tadami BR, Fukushima Prefecture and the Kanto Regional Forest Office of the Forestry Agency conduct appropriate protection/conservation measures, based on the Park Plans of the Echigosanzan-Tadami Quasi-national Park and the Regional Administration and Management Plan of National Forests including the Oku-Aizu Forest Ecosystem Reserve respectively.
- An organization (The Tadami BR Promotion Council (provisional name)), consisting of local governments (Tadami Town and Hinoemata-village) of the Tadami BR proposed site, the Kanto Regional Forest Office of the Forestry Agency, the Tohoku Regional Environment Office of the Ministry of the Environment, Fukushima Prefecture, several industrial associations, local community groups, Electric Power Development Co., Ltd., the Japanese Coordinating Committee for MAB, etc., is established for management and operation of the BR. The Promotion Council carries out general discussions for protection and conservation of the biological diversity inside the BR, investigation and research and sustainable socioeconomic development of the area. The Secretariat of the Promotion Council is set up in the Tadami Beech Center.
- Through the cooperation and collaboration of administrative organs, industrial organizations, local community groups and the Japanese Coordinating Committee for MAB which are members of the Tadami BR Promotion Council (provisional name), Tadami Town will take the lead of achieving the targets of the Tadami BR transition area proposed site.
- The Tadami BR Promotion Council (provisional name) will cooperate with the Tadami BR Promotion Resident Liaison Council (working name) which is a commercial establishment based on a management plan to be drawn up in the future for appropriate and functional management of the whole BR.

"(d) programmes for research, monitoring, education and training"?

If yes, describe. If not, describe what is planned.

○Yes (No ○ Under planning)

- Tadami Town, which is the core of the Tadami BR proposed site, has been conducting academic studies concerning beech forest general investigations since 2002, with the aim of understanding the actual condition of the natural environment of the Tadami area.
- Investigation and research of biological diversity was conducted at Tadami Town, mainly by the Forestry and Forest Products Research Institute of the Incorporated Administrative Agency.
- Tadami Beech Center originally promotes basic research of the natural environment and wildlife of Tadami Town.
- Tadami Beech Center not only conducts lectures and nature observation meetings, but also provides lecturers for events aiming to obtain support from residents and visitors concerning the importance of valuing and protecting the natural environment and wildlife of the Tadami area and its utilization.
- Since 2012, several investigations related to the natural environment of the Tadami area have been conducted by researchers and research groups through "'The Capital of Mother Nature': An academic investigation research subsidy project."
- The Tadami Beech Center supports universities and research institutions for academic investigation research in Tadami Town, through "'The Capital of Mother Nature': An academic investigation research subsidy project," it also centralizes Tadami Town for academic investigation and research, while coordinating with universities and research institutions.
- In 2013, the Education Board of Tadami Town is planning to apply for registration of the Asahi elementary school located in the town to the "UNESCO Associated School Project Network." This will be followed by sequential registrations to the UNESCO Associated School Project Network for other educational institutions located in Tadami Town.

5. Approval

5.1. Approval of organs that manage the core area (multiple entries allowed)

Full name and title: 須藤 徳之

Tokuyuki SUDO, Director-General of the Kanto Regional Forest Office, Forestry Agency

Date: 19 / 9 /2013

Address: 4-16-25 Iwagami-machi, Maebashi City, Gunma 371-8508, Japan

Email: kanto_keikaku@rinya.maff.go.jp

Phone number: +81-27-210-1265

Full name and title: 佐藤雄平

Yuhei SATO, Prefectural governor of Fukushima

Date: 13 / 9 /2013

Address: 2-16 Sugitsuma-cho, Fukushima City, Fukushima 960-8670, Japan

Email: shizen@pref.fukushima.lg.jp

Phone number: +81-24-521-7251

5.2. Approval of organs that manage the buffer zone (multiple entries allowed)

Full name and title: 須藤徳之

Tokuyuki SUDO, Director-General of the Kanto Regional Forest Office, Forestry Agency

Date: 19 / 9 /2013

Address: 4-16-25 Iwagami-machi, Maebashi City, Gunma 371-8508, Japan

Email: kanto_keikaku@rinya.maff.go.jp

Phone number: +81-27-210-1265

Full name and title: 佐藤雄平

Yuhei SATO, Prefectural governor of Fukushima

Date: 13 / 9 /2013

Address: 2-16 Sugitsuma-cho, Fukushima City, Fukushima 960-8670, Japan

Email: shizen@pref.fukushima.lg.jp

Phone number: +81-24-521-7251

Full name and title: 目黒吉久

Yoshihisa MEGURO, The mayor of Tadami-town, Fukushima Prefecture

Date: 12 / 9 /2013

Address: 2590 Machishita, Tadami, Tadami-machi, Minami-Aizu-gun, Fukushima 968-0421, Japan

Email: info-buna@amail.plala.or.jp

Phone number: +81-241-72-8355

Full name and title: 吉村光夫

Mitsuo YOSHIMURA, Director of Tagokura Power Station, East Japan Administration Office, Hydropower Department, Electric Power Development Co., Ltd.

Date: 18 / 9 /2013

Address: 1604 Tadami-arayashiki, Tadami-machi, Minami-Aizu-gun, Fukushima 968-0421, Japan

Email:

Phone number: +81-241-82-2251

5.3. Approvals of related organs of Nation (or Prefecture) that has responsibility for managing the core area and buffer zone

Full name and title: 須藤 徳之

Tokuyuki SUDO, Director-General of the Kanto Regional Forest Office, Forestry Agency

Date: 19 / 9 /2013

Address: 4-16-25 Iwagami-machi, Maebashi City, Gunma 371-8508, Japan

Email: kanto_keikaku@rinya.maff.go.jp

Phone number: +81-27-210-1265

Full name and title: 佐藤雄平

Yuhei SATO, Prefectural governor of Fukushima

Date: 13 / 9 /2013

Address: 2-16 Sugitsuma-cho, Fukushima City, Fukushima 960-8670, Japan

Email: shizen@pref.fukushima.lg.jp

Phone number: +81-24-521-7251

Full name and title: 目黒吉久

Yoshihisa MEGURO, The mayor of Tadami-town, Fukushima Prefecture

Date: 12 / 9 /2013

Address: 2590 Machishita, Tadami, Tadami-machi, Minami-Aizu-gun, Fukushima 968-0421, Japan

Email: info-buna@amail.plala.or.jp

Phone number: +81-241-72-8355

5.4. Approvals of representatives of administrative organs, local government and community organizations that exist in the transition area

Full name and title: 須藤徳之

Tokuyuki SUDO, Director-General of the Kanto Regional Forest Office, Forestry Agency

Date: 19/ 9/2013

Address: 4-16-25 Iwagami-machi, Maebashi City, Gunma 371-8508, Japan

Email: kanto_keikaku@rinya.maff.go.jp

Phone number: +81-27-210-1265

Full name and title: 佐藤雄平

Yuhei SATO, Prefectural governor of Fukushima

Date: 13/ 9 /2013

Address: 2-16 Sugitsuma-cho, Fukushima City, Fukushima 960-8670, Japan

Email: shizen@pref.fukushima.lg.jp

Phone number: +81-24-521-7251

Full name and title: 目黒吉久

Yoshihisa MEGURO, The mayor of Tadami-town, Fukushima Prefecture

Date: 12 / 9 /2013

Address: 2590 Machishita, Tadami, Tadami-machi, Minami-Aizu-gun, Fukushima 968-0421, Japan

Email: info-buna@amail.plala.or.jp

Phone number: +81-241-72-8355

5.5 Signed on behalf of the MAB National Committee or focal point:

Full name and title: 鈴木邦雄

Kunio SUZUKI, Chair of MAB National Committee, Japanese National Commission for UNESCO

Date: 27 / 9 /2013

Address: 3-2-2 Kasumigaseki, Chiyoda-ku, Tokyo 100-8959, Japan

Email: jpnatcom@mext.go.jp

Phone number: +81-3-5253-4111

PART II: DESCRIPTION

6. LOCATION (COORDINATES AND MAP(S)):

6.1 Provide the biosphere reserve's standard geographical coordinates (all projected under WGS 84):

Cardinal points:	**Latitude**	**Longitude**
Most central point:	37°17'8.6"	139 °20'45.3"
Northernmost point:	37°28'11.5"	139 °21'45.0"
Southernmost point:	37°06'17.0"	139°20'46.6"
Westernmost point:	37°14'13.1"	139°09'52.3"
Easternmost point:	37°19'22.8"	139°34'30.3"

6.2 Provide a map(s) on a topographic layer of the precise location and delimitation of the three zones of the biosphere reserve (Map(s) shall be provided in both paper and electronic copies). Shapefiles (also in WGS 84 projection system) used to produce the map must be attached to the electronic copy of the form.
If possible, also provide a link to access this map on the internet (e.g. Google map, website…).

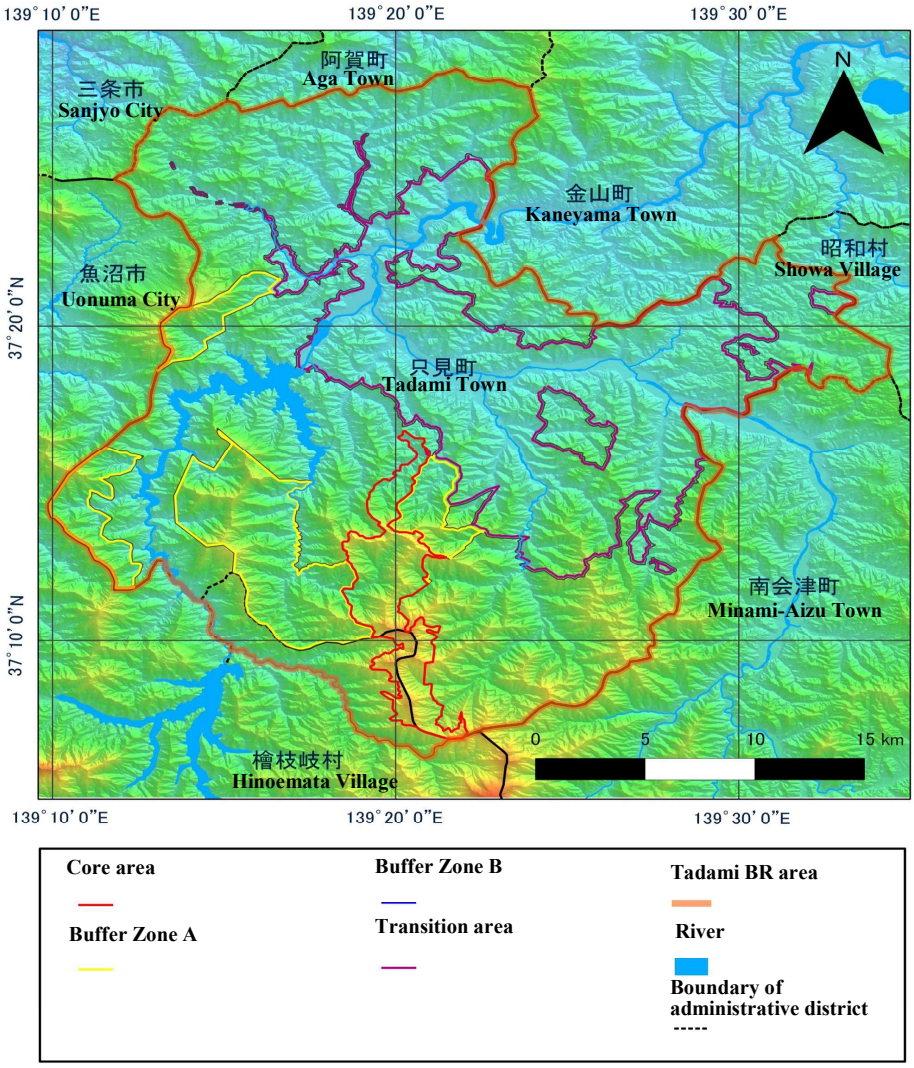


Figure 6-1 Topographic layer and zonation of the Tadami BR proposed site

7. AREA (see map):

Total: 78,032 (ha)

	Terrestrial	Marine (if applicable)	Total
7.1 Area of Core Area(s):	3,557 ha	0 ha	3,557 ha
7.2 Area of Buffer Zone A:	8,380 ha	0 ha	8,380 ha
Area of Buffer Zone B:	42,953 ha	0 ha	42,953 ha
7.3 Area of Transition Area(s):	23,142 ha	0 ha	23,142 ha
TOTAL:	78,032 ha	0 ha	78,032 ha

7.4 Brief rationale of this zonation in terms of the respective functions of the biosphere reserve. If a different type of zonation also exists indicate how it can coexist with the requirements of the biosphere reserve zonation.
(e.g., if national criteria exist for the definition of the area or zones, please provide brief information about these).

- Basically, core area and buffer zone proposed site are the "Preservation Zone" and "Conservation and Utilization Zone" of the Oku-Aizu Forest Ecosystem Reserve respectively, which were established by the Kanto Regional Forest Office of the Forestry Agency based on the Law on the Administration and Management of National Forests. Actually, the view of zoning of Forest Ecosystem Reserve refers that of Biosphere Reserve. And other areas in Tadami Town are set up as transition area of proposed sites. However, the buffer zone must fulfill many purposes such as conservation and utilization based on the BR setting standards of the UNESCO MAB program, and it is difficult to include concerned areas as one single category, as the protection and conservation methods of the natural environment including the Oku-Aizu Forest Ecosystem Reserve and the Echigosanzan-Tadami Quasi-national Park based on the Natural Park Act are designated in duplicate in part of buffer zone. Therefore, the buffer zone of the Tadami BR proposed area was divided into "Buffer Zone A" where conservation of the natural environment is the first priority objective to manage in line with core area and "Buffer Zone B" where sustainable utilization is the objective with the assumption of conservation.
- The proposed site of the core area accords with the Preservation Zone of the Oku-Aizu Forest Ecosystem Reserve based on the Law on the Administration and Management of National Forests. The area of this Preservation Zone is provided in the Aizu Forest Planning Area Regional Administration and Management Plan etc.
- The proposed site of Buffer Zone A is the Conservation and Utilization Zone of the Oku-Aizu Forest Ecosystem Reserve based on the Law on the Administration and Management of National Forests, and it also accords with the area except the core area of the Special Protection Zone of Echigosanzan-Tadami Quasi-national Park based on the Natural Park Act, where protection and conservation of the natural environment and biological diversity are required.
- The proposed site of Buffer Zone B accords with the total area of the Conservation and Utilization Zone of the Forest Ecosystem Reserve based on the Law on the Administration and Management of National Forests other than Buffer Zone A, the Echigosanzan-Tadami Quasi-national Park based on the Natural Park Act other than the core area or Buffer Zone A, the Protected Forests "Hometown Forest" based on the Law on the Administration and Management of National Forests, the Green Corridor and town forest adjacent to the core area. Also in this area, sustainable utilization of natural resources such

as the system of forests where local people are habitually allowed to get in is carried out.

- In the proposed site of the transition area, the 6th Tadami Town development promotion plan has been created utilizing the inherited properties of the Tadami area such as nature, history, culture, life, industry, etc., with a concept of "A town living life with beech, a town living with snow; challenge of Oku-Aizu Tadami – creation of real local value."

8. BIOGEOGRAPHICAL REGION:

[Indicate the generally accepted name of the biogeographical region in which the proposed biosphere reserve is located.] (The term "major biogeographic region" is not strictly defined but you may wish to refer to the Udvardy classification system (http://www.unep-wcmc.org/udvardys-biogeographical-provinces-1975_745.html)).

- The Tadami BR proposed site is located in the southern area of The Palaearctic Realm (IUCN 1975).

2. The Palaearctic Realm
   15. East Asia
      6. Deciduous broad-leaved forests, shrubs or woodlands

9. LAND USE:

9.1 Historical:

(If known, give a brief summary of past/historical land use(s), resource uses and landscape dynamics of each zone of the proposed biosphere reserve).

- Almost all of the proposed site of the core area is designated as the Echigosanzan-Tadami Quasi-national Park based on the Natural Park Act in 1973, and also, the whole area of the core area is designated as the Oku-Aizu Forest Ecosystem Reserve based on the Law on the Administration and Management of National Forests in 2007. Since the proposed site of the core area is located in deep mountains with steep topography, it has never been used for human habitation or for traditional livelihood activities.
- In a part of the National Forests in the Tadami BR proposed site (inside the Buffer Zone B proposed site), the natural forests were logged for railroad ties and furniture in the early Showa era (1926-1989). After the Second World War, with the development of forestry machinery, large scale logging of broad-leaved trees such as beech happened rapidly to meet the increase the wood demand for the national revival. However in 1989, Tadami Town made a strong representation concerning the decrease of the water-retaining capacity of the forest, increasing floods and landslides and the deterioration of the natural environment; this resulted in a year on year decrease in logging. Currently, the administration and management policy of the National Forests in Japan has been changed from focusing on wood supply to maintenance and improvement of public beneficial functions. Most of the area is also designated as the Oku-Aizu Forest Ecosystem Reserve and managed accordingly.
- In the buffer zone of the Tadami BR proposed site, hunting and collecting of edible wild plants and mushrooms have traditionally been carried out by local communities, even now, such activities still continue in a sustainable way, under "The System of National Forest Permitted to Use of Local Dwellers" based on the Law on the Administration and Management of National Forests.
- As part of the country-wide power development projects, after the Second World War, a hydroelectric power generation dam was constructed in the Tadami River basin. Construction work of the Tagokura Dam and Taki Dam were started in 1954 and 1959, respectively, and settlements in the area were submerged or forced to transfer (Photo 9-1). In 1983, the Tadami Dam was constructed and is in operation today.
- On the valley plains and river terraces of a basin of the Tadami River and Ina River, people have been settled since the middle of the Jomon era, and initially lived by hunting, collecting and fishing. Later,

agriculture was spread and farming (including slash and burn agriculture known as “Kano”) and the cultivation of rice crops increased after centralized administration control influenced the area. After the early modern times, agriculture has been developed as basic industry in this area and hunting and collecting became secondary support livelihoods, and their importance did not change until after the Second World War. After the Meiji era, the modern nation was established and as the export of silk increased, sericulture became a famous and important industry in this area, however, it has declined and today, there is no trace.

- Settlements of Tadami Town are scattered on the valley plain and river terrace of a basin of the Tadami River and Ina River, and have often suffered damage from flood waters caused by long periods of rain in the rainy season, typhoons, local heavy rainfall and in addition heavy spring melts of one of the heaviest areas of snowfall in Japan. (In recent years the area has experienced heavy rainfall in 1956, 1969, 1998 and 2011, and typhoons in 1958 and 1982.) The river improvement works of the Tadami River started in 1978 and the Ina River in 1958. In the 1960s, an agriculture restructuring project and the mountain village development special measures project brought modern agriculture to the area with the introduction of farm land consolidation, large agricultural machinery, improvement of farm roads and waterways, etc.
- At the foot of the mountains, a hinterland of the Tadami Town settlement, the land has been traditionally used as hayfields, with the collection of saw grasses for animal fodder, green manure and roof thatch. Since the high economic growth period after the War, use of the grassland has been in decline and currently land use has changed to a planted forest of Japanese cedar (*Cryptmeria japonica*).
- Copses are distributed throughout the surrounding area of the settlements, providing wood for firewood and charcoal for household use by copse forest management. Utilization of copses for firewood and charcoal is still continued, even though the frequency of use has decreased.

Photo 9-1 The Tagokura settlement was submerged by the Dam Lake with the power development project of the Showa period (left). Completed Tagokura Dam (right)

9.2 Who are the main users of the biosphere reserve? (for each zone, and main resources used). If applicable, describe the level of involvement of indigenous people taking into account the "United Nations Declaration on the Rights of Indigenous Peoples". (http://www.un.org/esa/socdev/unpfii/documents/DRIPS_en.pdf).

<Core area proposed site>
- None

<Buffer Zone A proposed site>
- Almost none (Some mountain climbers use some of the mountain trails of Mt. Asakusadake)

<Buffer Zone B proposed site>
- Residents of Tadami Town and Hinoemata-village (Possible to access by mountain and forest roads)

<Transition area>
- Residents of Tadami Town and visitors (Possible to access by train and road)

9.3 What are the rules (including customary or traditional) of land use in and access to each zone of the biosphere reserve?

<Core area proposed site>
- According to the principle of management of the Preservation Zone of the Oku-Aizu Forest Ecosystem Reserve, the area is to leave to natural turnover without human action as a rule. Though it is possible to walk the existing trail, the activities, which have negative impact on the ecosystem, such as picking edible wild plants, mushrooms, other plants, etc. are prohibited. As an exception, monitoring survey and maintenance of the existing trail, etc. are allowed with gaining admission.
- There is no regulation of customary and traditional land use.

<Buffer Zone A proposed site>
- Mountain trails of Mt. Asakusadake are used for access to the Buffer Zone A proposed site surrounding Mt. Asakusadake located in the western part of the Tadami BR proposed site.
- No road has been prepared to access the Buffer Zone A proposed site which is adjacent to the core area proposed site.
- There is no regulation of customary and traditional land use.

<Buffer Zone B proposed site>
- In the Buffer Zone B proposed area; common practices such as collecting edible wild plants and mushrooms are carried out traditionally by local residents and in a sustainable way.

<Transition area>
- In the transition area proposed site, common practices such as the collecting of edible wild plants and mushrooms and utilization of firewood as fuel are traditionally carried out by local residents in a sustainable way.

9.4 Describe women's and men's different levels of access to and control over resources.
(Do men and women use the same resources differently (e.g., for subsistence, market, religious/ritual purposes), or use different resources?).

- Traditional hunting and fishing is usually done by men; in all other ways there are no significant

differences of access to resources.

10. HUMAN POPULATION OF PROPOSED BIOSPHERE RESERVE:

[Approximate number of people living within the proposed biosphere reserve]

	Permanently	Seasonally
10.1 Core Area(s)	0	0
10.2 Buffer Zone A Buffer Zone B	0 0	0 0
10.3 Transition Area(s)	4,695	Almost none
Total:	4,695	Almost none

(As of May 1, 2013)

10.4 Brief description of local communities living within or near the proposed biosphere reserve.
(Indicate ethnic origin and composition, minorities etc., main economic activities (e.g. pastoralism, tourism) and the location of their main areas of concentration, with reference to the map (section 6.2)).

The Tadami BR proposed site includes Tadami Town and a part of Hinoemata- village of Fukushima Prefecture. However, there are no residents in the part of Hinoemata-village that lies inside the Tadami BR proposed site. As seen in the table, the population of Tadami Town living within the Tadami BR proposed site was 4,932 in 2010. The population decreased by 625 in the 10 years from 2000 to 2010.

Table 10-1 Comparison of area and population of Tadami Town and Hinoemata-village which are included in the Tadami BR proposed site (1990-2010)
* There are no residents in the part of Hinoemata-village lying inside the Tadami BR proposed site.

District	Area (km^2)	1990 (Population)	2000 (Population)	2010 (Population)
District	Area (km^2)	1990 (Population)	2000 (Population)	2010 (Population)
Tadami Town	748	6,170	5,557	4,932
Inside the Tadami BR proposed site (Tadami Town)	748	6,170	5,557	4,932
Hinoemata Village	391	702	757	636
Inside the Tadami BR proposed site (HInoemata-village)	33	0	0	0
Total population inside the Tadami BR proposed site	781	6,170	5,557	4,932

Reference: "National census," Ministry of Internal Affairs and Communications

- It is thought that humans have been living in the Tadami Town site since the Old Stone Age, some 17,000 years ago. After the Middle Ages, a local administration organization was established and life revolved mainly around agriculture, hunting, collecting and fishing.
- The settlements of residents are scattered along the Tadami River and Ina River.

10.5 Name(s) of the major settlement(s) within and near the proposed biosphere reserve with reference to the map (section 6.2): _____

<Inside The Tadami BR proposed site>

- Tadami district where the town hall is located (Refer Article 6.2 Drawing)

<Neighborhood of the Tadami BR proposed site>

- Uonuma-city, Niigata Prefecture, Japan (about 37 km in a straight line) (Refer Article 19, Figure 19-1)
  * However, Route 252 which connects Tadami Town and Uonuma-city via the shortest route is closed due to snow in the winter. Access by rail is still possible by the Tadami-line of the East Japan Railway Company (JR East)
- Aizu-Wakamastu-city, Fukushima Prefecture, Japan (about 57 km in a straight line)

10.6 Cultural significance:

(Briefly describe the proposed biosphere reserve's importance in terms of past and current cultural values (religious, historical, political, social, ethnological) and others, if possible with distinction between material and intangible heritage (c.f. UNESCO Convention concerning the Protection of the World Cultural and Natural Heritage 1972 and UNESCO Convention for the Safeguard of the Intangible Cultural Heritage 2003 (http://portal.unesco.org/en/ev.php-URL_ID=13055&URL_DO=DO_TOPIC&URL_SECTION=201.html and http://portal.unesco.org/en/ev.php-URL_ID=17716&URL_DO=DO_TOPIC&URL_SECTION=201.html)).

- From the perspective of religion, polytheism coexists with centralized Buddhism (including various sects of mountainous esoteric Buddhism, etc.) Shintoism and the Japan-specific traditional faith of primitive animism believing that gods are present in all of nature (Yaorozu-no-kami) are accepted; there is also a Christian presence.
- On the river terrace of a basin of the Tadami River and Ina River flowing inside the Tadami BR proposed site, historic ruins dating from the Old Stone Age through to the Heian era were found. There is evidence to show humans have been living in Tadami area for some 17,000 years. In the Jomon era, people built settlements, developed earthenware pottery and lived by hunting, fishing and collecting plants (Tadami Town, Fukushima Prefecture, 2004).
- Earthenware from the Jomon to Yayoi eras and containing rice hulls has been found in ruins, indicating that rice cropping was already established by those times. In addition, secondary graves have been found in the Kubota ruins designated as a historic site by Fukushima Prefecture. This is a burial practice of East Japan from the early Yayoi era, in which a corpse is dug up several years after first burial and the bones are kept in an earthenware pot and reburied. (Tadami Town, Fukushima Prefecture 2004).
- The traditional livelihood of Tadami Town used to be farming, including slash and burn agriculture, hunting and collecting natural resources such as edible wild plants; such traditions are still seen today and are important to the industry of the Tadami area.
- Since the Edo era, paddy rice cultivation and forestry using the limited arable land was popular, and after the Meiji era, this trend expanded with progress on arable land improvement and the advance of forestry companies; paddy rice cultivation became a main occupation.

- The “Collections of Production Tools and Working Clothes of Aizu-Tadami,” including 1,917 production tools, 416 working clothes – total 2,333 items – all of which were used in the traditional livelihoods of Tadami Town were arranged by Tadami Town residents, and designated as National Important Tangible Folk Cultural Properties in 2003 (Photo 10-1).
- Traditional performance offering prayers for good harvests in the year, “Saotome dance and Kagura of Kobayashi and Yanatori,” started in the early of Edo era, has been inherited by the Local Preservation Society (Fukushima Prefecture Important Intangible Folk Cultural Property; Photo 10-2).
- On the other hand, Asahiza, a group performing Inaka Kabuki, which was popular from the Edo era

were formed in Tadami Town, but disbanded due to modernization after the Meiji era.

- During the Edo era, a statue of Okurairi Sanjusan-kannon was set up by the local farmers of the Minami-Aizu area. The "Joho Temple Kannon Hall" constructed during the Muromachi era is designated as a National Important Cultural Property (Photo 10-3) and the "Mokuzo Kannon Bosatsu-zazo" enshrined inside is also designated as a Fukushima Prefecture Important Cultural Property.
- The "Former Residence of the Igarashi Family" built in 1718 is the oldest farm house in Fukushima Prefecture and is designated as a National Important Cultural Property (Photo 10-4).
- The "Residence of the Hasebe Family (Totsu guardhouse site)," constructed during the Edo era (1718) used to be a guardhouse on the Hachijuri mountain road which was a trade route between Echigo and Aizu. The house is designated as a Fukushima Prefecture Important Cultural Property.
- In Tadami Town, from the Edo era to today, occupation categories such as Kobiki (saw-man), Motoyama (headman), Sakiyama (miner), Banjo (carpenter), Boujutsu (stick fighting), Kyudo (archery), Ogasawara-style Reihou (etiquette), Sanpou (arithmetic), etc., were inherited over many generations by receiving a scroll (a kind of occupation license).
- In the last 50 to 60 years of the late Edo era (1603 to1868), a craftsman called Kijishi who lived in mountain area, made many woodworks such as bowls and trays by lathe turning. He lived in the Fuzawa area and would trek through the mountain forests in search of raw wood. (Education Board of Tadami Town, 1992). The site known as the Fuzawa Kijishi village ruin was designated as a Tadami Town Historic Site in 1984 (Photo 10-5).

Photo 10-1 Arranged by residents (above) “Collections of Production Tools and Working Clothes of Aizu-Tadami” (bottom) (National Important Tangible Folk Cultural Properties)

Photo 10-2 Kobayashi Saotome Dance (above) and Yanatori Tata Kagura (bottom) (Fukushima Prefecture Important Intangible Folk Cultural Property)

Photo 10-3 Joho Temple Kannnon Hall (National Important Cultural Property)

Photo 10-4 Former Residence of the Igarashi Family (National Important Cultural Property)

Photo 10-5 Tombstones offer a trace of the Ohta Kijishi village, Fuzawa district

10.7 Specify the number of spoken and written languages (including ethnic, minority and endangered languages) in the biosphere reserve.
(Refer, for instance, to the UNESCO Atlas of Endangered languages (http://www.unesco.org/culture/languages-atlas/index.php)).

- The spoken and written language used by almost all the residents of the Tadami BR proposed site is Japanese. However, it is a local dialect known as Tadami-Ben, and is influenced strongly by the Niigata Prefecture region. The vocabulary includes words, dating back to very early times and some are unique to the region (Education Board of Tadami Town, 2002).

11. BIOPHYSICAL CHARACTERISTICS:

11.1 General description of site characteristics and topography of area:

(Briefly describe the major topographic features (wetlands, marshes, mountain ranges, dunes etc.) which most typically characterize the landscape of the area).

- In the Tadami BR proposed site, mountains occupy most of the surface area except for the basins of the Tadami River and its tributary, the Ina River. Particularly in the southern and western parts, steep massifs are found; Mt. Aizu-Asahidake (1,624 m) and Mt. Asakusadake (1,586 m) giving altitudes well in excess of 1,000 m. In the mountains of the southern part, ridges extend in a north-south direction, limiting the flow direction of the Tadami and Ina Rivers and their major tributaries. Whereas in the northern part of the Ina River basin, relatively gentle-sloping mountain ranges are found around Mt. Asakusadake with a regular height of 800-1,000 m. In these mountains, slopes are shaved off by avalanches, bedrocks are exposed, and a steep and complicated "nivation landform" is found. This is due to the geological characteristics of heavy snowfall - the Tadami area has one of the heaviest snowfalls in Japan, with an annual winter average snow coverage of 2.5 m in flat areas -, and the green tuff bedrock with a comparatively fragile nature. On these complicated topographies, a "mosaic of vegetation" is found as plant communities grow by adapting to each habitat environment. The minimum altitude is 350 m at the Tadami River near the border of Tadami Town and Kaneyama-town, and the maximum altitude is 1,819.9 m at Mt. Maruyamadake located at the border of Tadami Town and Hinoemata-village.

11.2 Altitudinal range:

11.2.1 Highest elevation above sea level:

1,819.9 m (Mt. Maruyamadake located at the border of Tadami Town and Hinoemata-village)

11.2.2 Lowest elevation above sea level:

350 m at the left bank of Tagosawa-bridge of Tadami River near the border of Tadami Town and Kaneyama-town
(139°22′43.9″E, 37°23′11.5″N)

11.2.3 For coastal/marine areas, maximum depth below mean sea level: _____metres

There is no connection to the coast or any marine area.

11.3 Climate:

(Briefly describe the climate of the area, you may wish to use the regional climate classification by Köppen as suggested by WMO (http://www.wmo.int/pages/themes/climate/understanding_climate.php)).

- The Tadami BR proposed site is categorized as a humid subtropical climate in the Köppen climate classification system, and belongs to the Japan Sea area climate and is an area of heavy rainfall and snowfall.

11.3.1 Average temperature of the warmest month:

- 25.5 °C at 377 m above sea level (August)

11.3.2 Average temperature of the coldest month:

- -0.7 °C at 377 m above sea level (January)

Table 11-1 2010 Monthly mean temperature, maximum temperature, minimum temperature and Warm Index (WI) of the Tadami BR proposed site measured by the Automated Meteorological Data Acquisition System (AMeDAS) of the Japan Meteorological Agency (139°19'0.0"E 37°20'4.0"N, at 377m above sea level)

Month	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	WI
Monthly mean temperature (℃)	-0.7	-0.5	1.7	5.0	12.9	19.4	23.4	25.5	20.2	13.9	6.3	2.4	86.6
Maximum temperature (℃)	2.5	3.6	6.3	10.6	19.9	26.0	29.1	31.8	25.3	18.7	11.8	6.6	
Minimum temperature (℃)	-3.4	-3.9	-1.6	0.9	7.0	14.1	19.7	21.6	16.8	10.8	2.7	1.1	

11.3.3 Mean annual precipitation: 2,284.7 mm, recorded at an elevation of 377 metres

The measured values of precipitation from 2006 to 2010 of the Tadami BR proposed site measured by the Automated Meteorological Data Acquisition System (AMeDAS) of the Japan Meteorological Agency (139°19'0.0"E 37°20'4.0"N, at 377 m above sea level) are shown in the table below.

Table 11-2 Precipitation from 2006 to 2010 in the Tadami BR proposed site measured by the Automated Meteorological Data Acquisition System (AMeDAS) of the Japan Meteorological Agency (139°19'0.0"E 37°20'4.0"N, at 377 m above sea level)

Precipitation	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Annual precipitation
2006	175.0	163.0	196.0	171.0	94.0	115.0	542.0	62.0	171.0	253.0	222.0	335.0	2499.0
2007	128.0	169.0	198.0	95.0	106.0	291.0	303.0	182.0	96.0	178.0	202.0	228.0	2176.0
2008	207.5	219.0	157.5	119.0	65.0	89.0	225.5	140.0	62.0	156.0	158.0	313.0	1911.5
2009	196.0	220.0	59.0	88.5	73.5	108.5	270.5	228.0	207.5	123.5	250.5	289.0	2114.5
2010	424.0	202.0	182.0	158.0	99.5	204.0	194.0	132.0	325.5	112.0	274.5	415.0	2722.5

The Tadami BR proposed site is located in one of the heaviest snowfall areas in Japan (Photo 11-1). The measured values of snowfall and snow depth from 2006 to 2010 of the Tadami BR proposed site measured by the Automated Meteorological Data Acquisition System (AMeDAS) of the Japan Meteorological Agency (139°19'0.0"E 37°20'4.0"N, at 377 m above sea level) are shown in the table below.

Table 11-3 Monthly average snowfall and annual snowfall from 2006 to 2010 in the Tadami BR proposed site measured by the Automated Meteorological Data Acquisition System (AMeDAS) of the Japan Meteorological Agency (139°19'0.0"E 37°20'4.0"N, at 377 m above sea level)

The total snowfall (cm)	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Annual snowfall
2006	425.0	286.0	309.0	179.0	24.0	0.0	0.0	0.0	0.0	0.0	0.0	126.0	1349.0
2007	224.0	220.0	280.0	46.0	0.0	0.0	0.0	0.0	0.0	0.0	88.0	187.0	1045.0
2008	371.0	413.0	136.0	64.0	0.0	0.0	0.0	0.0	0.0	0.0	62.0	101.0	1147.0
2009	280.0	229.0	248.0	55.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	319.0	1131.0
2010	427.0	270.0	172.0	191.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	273.0	1333.0
Monthly average snowfall (cm)	345.4	283.6	229.0	107.0	4.8	0.0	0.0	0.0	0.0	0.0	30.0	201.2	

Table 11-4 Monthly average of maximum snow depths from 2006 to 2010 in the Tadami BR proposed site measured by the Automated Meteorological Data Acquisition System (AMeDAS) of the Japan Mete Meteorological Agency (139°19'0.0"E 37°20'4.0"N, at 377 m above sea level)

Maximum snow depth (cm)	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
2006	284.0	284.0	262.0	232.0	41.0	0.0	0.0	0.0	0.0	0.0	0.0	88.0
2007	98.0	122.0	158.0	80.0	106.0	0.0	0.0	0.0	0.0	0.0	33.0	86.0
2008	138.0	232.0	201.0	107.0	0.0	0.0	0.0	0.0	0.0	0.0	38.0	65.0
2009	149.0	151.0	117.0	67.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	163.0
2010	245.0	247.0	173.0	133.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	126.0
Monthly average of maximum snow depth (cm)	182.8	207.2	182.2	123.8	29.4	0.0	0.0	0.0	0.0	0.0	14.2	105.6

Photo 11-1 Tadami Town is located in a heavy snowfall area
2-3 m snow coverage is common even in town (above) and residents work hard to clear the snow away (below)

11.3.4 Is there a meteorological station in or near the proposed biosphere reserve? If so, what is its name and location and how long has it been operating?

- The Automated Meteorological Data Acquisition System (AMeDAS) of the Japan Meteorological Agency has been set up in the Tadami BR proposed site (139°19'0.0"E 37°20'4.0"N, at 377 m above sea level), and temperature and precipitation data have been recorded since 1976.

11.4 Geology, geomorphology, soils:

(Briefly describe important formations and conditions, including bedrock geology, sedimentary deposits, and important soil types).

Geology: Most of the southwest area of the Tadami BR proposed site, forms a stratum of bedrock centering mainly on sedimentation rock of the Jurassic period known as Hinoemata Formation, and intrusive (magma from deep underground rises to the earth's crust) Granite rocks of the Late Cretaceous period are also distributed. Most of the bedrocks in the northern area are volcaniclastic rocks and lava which accumulated at the bottom of a sea between the Early Miocene and early Middle Miocene Epoch in the Neogene Period. On the border of the Fukushima and Niigata Prefectures centered on Mt. Asakusadake, andesite terrestrial volcanic ejecta of the Quaternary Period are found. Also in the lowlands along the Tadami River and Ina River, terrace deposits formed in the latter half of the Quaternary Period are distributed. (Tadami Town 2001).

Soil: The majority of the area is covered by brown forest soil, and surface gleyed brown forest soil is found in the flatlands and concave sections of gentle slopes where the soil layer is heavy clay presenting stiff and wall-like formations. Dry podzolic soil is distributed on ridge lines at 350 m above sea level, wet corrosive podzolic soil is found from halfway up the mountain to the ridge line at an altitude of around 1,500 m and wet iron podzolic soil is found at an altitude of about 600 m and on the concave sections of gentle slopes or flatland where snow remains for a long time. Black soils are distributed on hillocks. Also, soil erosion is found in areas with a thin soil layer and an inclined angle of 30 degrees or more where the surface layer is peeled off by snow movement (The Kanto Regional Forest Office of the Forestry Agency 2012).

11.5 Bioclimatic zone:

(Indicate the bioclimatic region in which the proposed biosphere reserve is located, refer to the table below and tick the appropriate box for each area of the biosphere reserve).

Areas	Average annual rainfall/mm	Aridity index		Core area(s)	Buffer zone(s)	Transition area(s)
		Penman	(UNEP index)			
Hyper-arid	P<100	<0.05	<0.05			
Arid	100-400	0.05-0.28	0.05-0.20			
Semi-arid	400-600	0.28-0.43	0.21-0.50			
Dry Sub-humid	600-800	0.43-0.60	0.51-0.65			
Moist Sub-humid	800-1200	0.60-0.90	>0.65			
Per-humid	P>1200	>0.90		○	○	○

Table 1: Aridity index resulting from the use of P/ETP
*Mean annual precipitation (**P**)/mean annual potential evapotranspiration (**ETP**)*

11.6 Biological characteristics:

List main habitat types (e.g. tropical evergreen forest, savanna woodland, alpine tundra, coral reef, kelp beds) and land cover types (e.g. residential areas, agricultural land, pastoral land, cultivated areas, rangeland).

For each type, indicate:
- REGIONAL if the habitat or land cover type is widely distributed within the biogeographical region within which the proposed biosphere reserve is located, to assess the habitat's or land cover type's representativeness;

- LOCAL if the habitat or land cover type is of limited distribution within the proposed biosphere reserve, to assess the habitat's or land cover type's uniqueness.

For each habitat or land cover type, list characteristic species and describe important natural processes (e.g. tides, sedimentation, glacial retreat, natural fire) or human impacts (e.g. grazing, selective cutting, agricultural practices) affecting the system. As appropriate, refer to the vegetation or land cover map provided as supporting documentation.

- Habitat type 1. cool-temperate deciduous broad-leaved forest (nivation landform and mosaic vegetation) (Regional)

<Habitat type>

- The most predominant vegetation in the core area proposed site and Buffer Zone A/B proposed site which is distributed widely throughout most of the Tadami BR proposed site is deciduous broad-leaved forest (cool-temperate zone). However in this regional area, slopes are shaved off by avalanches (Photo 11-2), bedrocks are exposed, and steep and complicated “nivation landforms” are found (Photo 11-3). This is due to the geographical characteristics of heavy snowfall in winter, a green tuff bedrock with a comparatively fragile nature or deeply-weathered granite bedrocks. Main topographies are ridges, middle slopes, lower valley side slopes and valley floor flood plains in mountainous areas, and alpine

grasslands are found in the pseudo-alpine zones of Mt. Asakusadake. Due to the steep topography and complicated location environment formed in this way, plant populations have adapted for each environment and a forest vegetation mosaic is formed, with evergreen coniferous forests such as *Pinus parviflora* var. *pentaphylla* or Japanese arborvitae (*Thuja standishii*) in the ridge parts, shrubs such as *Quercus mongolica* var. *undulatifolia* or *Hamamelis japonica* subsp. *obtusata* in the avalanche slopes, beech (*Fagus crenata*) forests at the comparatively stable location where debris and soil have been deposited by avalanches on the lower part of the slopes, and riparian forests such as Japanese wing nut (*Pterocarya rhoifolia*) or Japanese horse chestnut (*Aesculus turbinata*) along the streams (Photo 11-4). Especially nivation landforms and the vegetation landscapes which are found on such landforms are very rare in mountainous areas of less than 1,500 m altitude. Moreover, this natural landscape exists in a primeval condition with little human interference, and covering a large area of more than 40,000 ha is very characteristic of the Tadami area.

<Characteristic species>

- This variety of vegetation provides various habitats for animal species. In the Tadami BR proposed site, top species in the ecosystem such as large mammals like the Asiatic black bear (*Ursus thibetanus japonicus*: Listed as Endangered II (Vulnerable) in the IUCN Red List) and raptors like the Golden eagle (*Aquila chrysaetos japonica*) or Mountain Hawk-Eagle (*Spizaetus nipalensis orientalis*) are found in large numbers. Especially, both the Golden eagle (*Aquila chrysaetos japonica*) and the Mountain Hawk-Eagle (*Spizaetus nipalensis orientalis*) are listed as Endangered (EN) in the Red List of the Ministry of the Environment (2012). In general, the Golden eagle (*Aquila chrysaetos japonica*) is found nesting on the rock ledges of steep cliffs in mountainous areas. They hunt Japanese hare (*Lepus brachyurus*), the Copper pheasant (*Syrmaticus soemmerringii*) and such snakes as the Japanese rat snake (*Elaphe climacophora*) in open areas such as shrub zones, grass areas and denuded land next to the forest; its home range extends up to 200 km2 (Yamazaki, 2002). On the other hand, the Mountain Hawk-Eagle (*Spizaetus nipalensis orientalis*) is highly dependent on the forest, nesting in large trees and hunting several small and medium size animals in the forest such as; Japanese hare (*Lepus brachyurus*), the Copper pheasant (*Syrmaticus soemmerringii*), snakes, badgers (*Meles meles*), racoon dogs (*Nyctereutes procyonoides*), Japanese martens (*Martes melampus*), Japanese minks (*Mustela itatsi*), flying squirrels (*Petaurista leucogenys*), Japanese squirrels (*Sciurus lis*), brown-eared bulbuls (*Hypsipetes amaurotis*), meadow buntings (*Emberiza cioides*), etc. (Yamazaki 2002). This large and primeval natural environment of the Tadami area, with nivation landform characteristics formed by heavy snowfall and a vegetation mosaic created by these topographies, provides two separate and ideal habitats for the Golden eagle (*Aquila chrysaetos japonica*) and the Mountain Hawk-Eagle (*Spizaetus nipalensis orientalis*) whose nesting environments and food sources are quite different. This demonstrates the existence of these umbrella species (raptors) are indicative of a rich ecosystem in the Tadami BR proposed site.
- The rare alpine lily *Lilium rubellum* (Near Threatened (NT) in the Red List of the Ministry of the Environment (2012) as well as in the Red Data Book of Fukushima Prefecture (2007)) is a Japanese endemic species, and a rare species which is found only around the Iide mountain range, Mt. Azuma and Sumondake, located in the southern part of Miyagi Prefecture and the prefectural boundaries of Niigata, Fukushima and Yamagata Prefectures. In the Tadami BR proposed site, it grows naturally in the grasslands of the pseudo-alpine zones of Mt. Asakusadake and on the steep rocky slopes of nivation landforms or the ridges of scree slopes which are the largest autogenesis ground in Japan (Takahara, et al. 2012).
- Tadami Town of the Tadami BR proposed site is the only confirmed site in Fukushima Prefecture of the Frosted myotis (*Myotis pruinosus*), which is a Japanese endemic species of bat and they are listed as Endangered (EN) in the Red List of the Ministry of the Environment (2012). Its habitat condition requires natural forest with wide diameter trees for nesting in tree hollows (Education Board of Tadami Town, 2001), confirmation of this species in the Tadami BR proposed site indicates the existence of

highly natural forest inside the proposed site.

<Important nature>

- In the deciduous broad-leaved mountain forests, the southern part of the Tadami River is formed on a bedrock stratum centering mainly on sedimentation rock of the Jurassic period known as Hinoemata Formation, and intrusive (magma from deep underground rises to the earth's crust) Granite rocks of the Late Cretaceous period, while almost all of the bedrocks in the northern part of the Tadami River are formed on volcaniclastic rocks and lava which accumulated at the bottom of a sea between the Early Miocene and early Middle Miocene Epoch in the Neogene Period. On the border of the Fukushima and Niigata Prefectures centered on Mt. Asakusadake, limited andesite terrestrial volcanic ejecta of the Quaternary period are seen with a typical landslide topography, however, this has almost no influence on the vegetation.
- As it is located in a heavy snowfall area, outstanding nivation landforms are created by snow coverage and avalanches. Also in the Spring snowmelt rivers flood regularly, which has a significant influence on the river environment and vegetation.

<Human impact>

- In the National Forests of the core area and the Buffer Zone A and B proposed site, the primeval natural forests are maintained and conserved based on the Law on the Administration and Management of National Forests and the Natural Park Act; this ensures no negative factors affect the area.

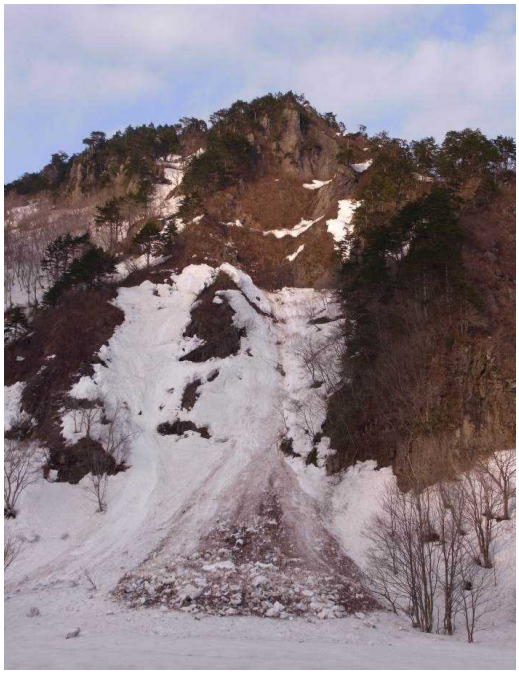


Photo 11-2 Early spring with frequent avalanches shaving off the mountainsides in the Tadami BR proposed site

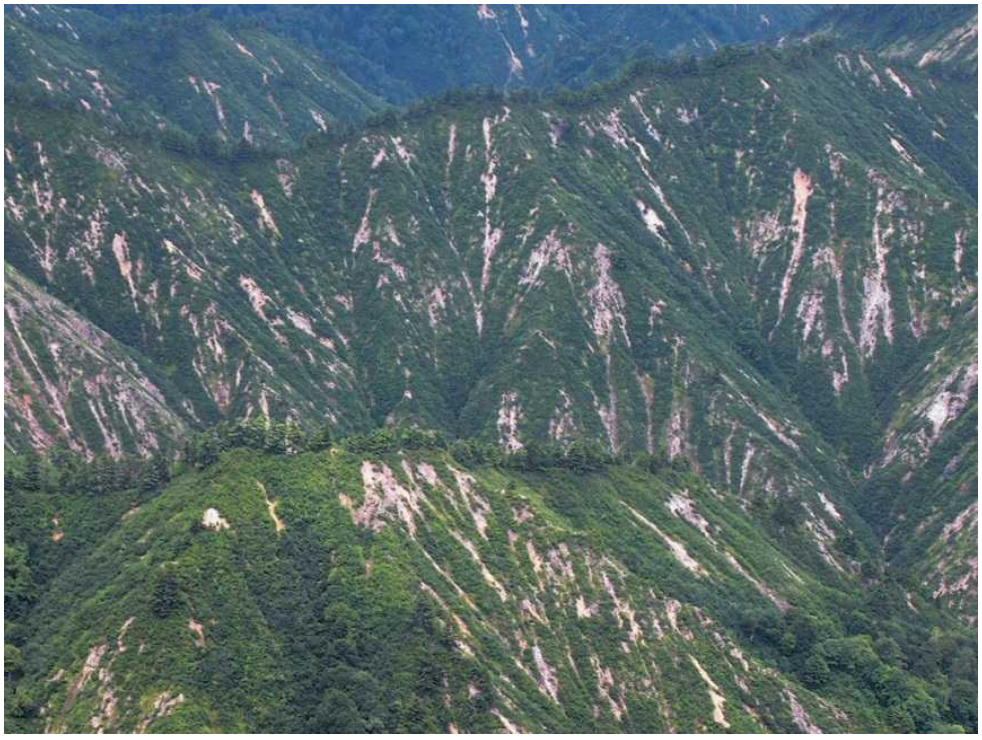


Photo 11-3 Nivation landform and mosaic vegetation formed by avalanches of heavy snowfall and geological factors

Photo 11-4 Main elements of mosaic vegetation
Upper left: Coniferous forest trees stand along a ridge line (*Pinus parviflora* var. *pentaphylla*).
Upper right: Shrubs such as *Quercus mongolica* var. *undulatifolia* colonize avalanche slopes.
Lower left: Beech (*Fagus crenata*) forest grows in stable locations.
Lower right: Riparian forests settle along streams (Japanese horse chestnut (*Aesculus turbinata*) and Japanese wing nut (*Pterocarya rhoifolia*)).

- Habitat Type 2 (Regional)

<Habitat type>

- The Ina and Tadami Rivers flow through the Tadami BR proposed site. There is also a riparian environment including mountainous riparian forests growing along the river tributaries (Photo 11-5)

<Characteristic species>

- Along the Tadami and Ina Rivers that flow through the Buffer Zone B proposed site and the transition area proposed site, highly natural riparian forests of Salix spp. dominate the landscape, and the rare tree species *Salix hukaoana,* which is classified as Endangered II (Vulnerable) in the Red List of the Ministry of the Environment (2012), grows on the largest scale found in Japan.
- In the rivers, a variety of fish, some Near Threatened or Vulnerable are found. In particular, Salmonidae fish such as the Japanese char (*Salvelinus leucomaenis*), Japanese fluvial sculpin (*Cottus pollux)* (listed as Near Threatened (NT) in the Red List of the Ministry of the Environment (2013)), Siluridae fish such as akaza (*Liobagrus reini*) (listed as Endangered II (Vulnerable) in the Red List of the Ministry of the Environment (2013)), landlocked Arctic lamprey (*Lethenteron camtschaticum*) (listed as Endangered II (Vulnerable) in the Red List of the Ministry of the Environment (2013)).

<Important Nature>

- Before construction of the dams, the river environment was shaped by the powerful effects upon the riverbed geology of a regular rise in the river and flooding, etc. With the construction of five dams on the Tadami River in March and July of 1959, 1960, 1963 and 1964, and an intake dam in the Ina River, the flow rate was regularized resulting in many changes to the river environment, such as a rise in the riverbed caused by an expansion of the decreased flow rate area throughout the river system increasing the sedimentation of gravel, an overall reduction of the minimum flow rate, and a lengthening of the flow rate reduction period. Today, some 50 years after dam construction, the river environment ecosystem, including the dam lake, has stabilized and is now an integral part of the regional environment.

<Human impact>

- Due to river improvements carried out in recent years, the continuation of the largest group of *Salix hukaoana* growing in the Tadami River and Ina River basins is threatened by a change in the natural disturbance system required for renewal by this rare tree species. This group is also the biggest autogenesis grounds found in this area, and hence, river management for the general protection of the river environment including riparian forest such as *Salix hukaoana* will be required.
- After the War, power generation and erosion control dams, along with multipurpose dams for domestic and agricultural water, etc., were constructed. According to the division of the river ecosystem or river section, the flow rate reduced, and this influenced the river ecosystem. Also, these river structures block the migration of anadromous fish.
- Catching by recreational angling reduces the population of mountain stream fish.
- In Tadami Town, selectively bred and cultivated Japanese char (*Salvelinus leucomaenis*) have been released into the river since around 1970, causing the disappearance of the native Japanese char from many places. However, there are small streams where the small number of wild *Salvelinus leucomaenis pluvius* live and conservation of their habitat is required.
- Fish such as the Japanese char (*Salvelinus leucomaenis*) are maintained by releasing, and seasonal and licensed fishing, etc., carried out under the management of the Inland Water Fishery Cooperative Association. In addition, fishing is banned in some rivers to protect fish stocks.
- Management of river flow rates, disaster prevention, etc., are carried out under the River Act.

Photo 11-5 Mountainous riparian forest dominated by Salix spp. growing in a basin of the Ina River

- Land coverage Type 1 (Regional)

<Land coverage type>

- In the Buffer Zone B proposed site and transition area proposed site, a secondary forest of deciduous broad-leaved forest traditionally utilized by local residents for hunting, collecting, production of firewood and charcoal as fuel, and planted forest consisting of evergreen coniferous forest, Japanese cedar (*Cryptmeria japonica*) and deciduous coniferous forest, Japanese larch (*Larix kaempferi*), grown for wood production are found. These forests are located along the tributaries of the Tadami and Ina Rivers and at the base of mountains behind the settlements and they form a mosaic landscape along with natural vegetation growing on nivation landforms (Photo 11-6).
- In a secondary forest of deciduous broad-leaved forest, over many years, a huge group of pollarded (Agariko-type) Konara Oak (*Quercus serrata*), have been created by repeated cutting of trunk bud flush grown from the coppicing surface and on-snow logging in the winter for the purpose of firewood production. The pollarded shape of Konara Oak (*Quercus serrata*) is an historical asset showing one historical type of forest utilization in this region. This pollarded Konara Oak (*Quercus serrata*) is not common in Japan and was created by firewood and charcoal forestry as a result of natural regeneration through sprouting and on-snow logging in heavy snowfall regions such as the Tadami area (Photo 11-7). In Tadami Town, there is a very rare complex type of pollarded Beech (*Fagus crenata*) formed from the simultaneous production of charcoal wood from ground level bud flush cutting and firewood harvested from coppicing (Suzuki, Kikuchi 2012) (Local; Photo 11-8).

<Important Nature>

- It is formed in the mountains on a base of volcaniclastic rocks and lava of the Neogene period; there is little impact from avalanches even in areas of heavy snowfall, as it is formed on flatland or tableland at the foot of the mountains. However in planted forests, root twisting of planted trees caused by sedimentation pressure and the movement pressure of snow is found, and frequent snow damage by snow accretion results in poor tree growth.

- In this area, secondary beech forest springs up soon after logging of the natural beech forest, however in the case of firewood utilization by cutting short young trees, this secondary beech forest changes to a secondary forest of Japanese oak (*Quercus crispula*) or Konara Oak (*Quercus serrata*). If this is subject to any additional human disturbance such as burning, it changes yet again to a secondary forest dominated by Japanese white birch (*Betula platyphylla*). The past land use can be deduced by studying the compositional features of these forest communities.

<Human Impact>

- The National Forests of the Buffer Zone B of proposed site are administrated and managed to fulfill public beneficial functions of forests, such as rehabilitation and regeneration of the natural forests in the planted forests, resulting in less negative environmental impact.
- Private and public forest owned forest in the transition area proposed site is managed by the "Aizu Regional Forest Plan" based on the Forest Law, resulting in no negative impact on the regional environment. In addition, after the registration of the Tadami BR, a plan targeting sustainable forest management with less environmental load will be implemented, by introducing a Certification System related to sustainable forest management.

Photo 11-6 A planted forest where a secondary forest of deciduous broad-leaved trees and Japanese cedar (*Cryptmeria japonica*) have spread across the base of the mountains showing evidence of nivation landforms and mosaic vegetation patterns (Left bank of the Ina River).

Photo 11-7 Pollarded shapes of a Konara Oak (*Quercus serrata*) forest

Photo 11-8 Complex type Beech (Fagus crenata) formed by ground level cutting and on-snow logging

- Land coverage Type 2 (Regional)

<Land coverage>

- In the river terraces, flood plains and the gentle piedmont slopes located along the Tadami and Ina Rivers flowing through the proposed transition area of the Tadami BR proposed site, settlements are scattered along with croplands of rice paddy and fields (Photo 11-9).

<Characteristic species>

- In the spring waters and agricultural irrigation ponds of Tadami Town, egg-laying by salamanders and newts is commonly found, e.g. the Japanese black salamander (*Hynobius nigrescens*)(listed as Near Threatened (NT) in the Red List of the Ministry of the Environment (2012)), the Tohoku hynobiid Salamander (*Hynobius lichenatus*) (listed as Near Threatened (NT) in the Red List of the Ministry of the Environment (2012)) and the Japanese Fire Belly Newt (listed as Near Threatened (NT) in the Red List of the Ministry of the Environment (2012)).
- In the flooded rice paddies before or after rice-planting, egg-laying by the forest green tree frog (*Rhacophorus arboreus*) and Schlegel's green tree frog (*Rhacophorus schlegelii)* is found.
- In early summer, the firefly species Luciola (*Luciola cruciata*) and *Luciola lateralis* are found in proximity to the rice paddies and the flow channels.

<Important Nature>

- In the lowlands along the Tadami and Ina Rivers, terrace deposits formed in the latter half of the Quaternary Period are distributed, forming roughly four terrace plains. There has been little change to the earth surface.

<Human impact>

- The area classified as cropland is 628 ha, according to the 58th Fukushima Agriculture, Forestry and Fisheries Annual Report (2012). However, the management of arable land is decreasing due to the reduction of the farming population caused by a lack of successors and an aging population. Most of the sites are actually deserted arable land, however, the influence of such land on the natural environment is not clear.
- In the 5 years from 2005 to 2010, the population decreased by 352 from 5,284 to 4,932, and no large-scale housing land development has been carried out. Also, there are no plans for any large-scale resort development.
- Cropland spread across the terraces and diluvial plain, and in addition to conventional agriculture, organic agriculture, pesticide-free and pesticide-reduced agriculture are being practiced. There is no plan for consolidation of the arable land.
- In the residential district of Tadami Town, "Creating a hometown landscape in harmony with nature and people's livelihoods" based on the Tadami Town townscape ordinance is being addressed.

Photo 11-9 Scenery along the Ina River

12. ECOSYSTEM SERVICES:

12.1 If possible, identify the ecosystem services provided by each ecosystem of the biosphere reserve and the beneficiaries of these services.

(Please refer to the Millennium Ecosystem Assessment Framework and The Economics of Ecosystems and Biodiversity (TEEB) Framework (http://millenniumassessment.org/en/Framework.html and http://www.teebweb.org/publications/teeb-study-reports/foundations/)).

<Supporting services>

- The soil formation, cycle of minerals nutrient and primary production by autotrophs such as plants, maintain the healthy ecosystem of the Tadami area and are essential to provide the ecosystem services. The benefits are received by the Tadami residents, visitors and residents surrounding the Tadami BR proposed site.

<Provisioning services>

- Conservation of biological diversity provides: supplies of bird and animal meat, edible wild plants and mushrooms (Photo 12-1) and freshwater fish, abundant water resources due to heavy snowfall, wood production for building materials and firewood (Photo 12-2), material supplies of traditional crafts (Photo 12-3) such as tree bark and grass tree used for weaving handiwork and honey from apiculture (Photo 12-4). All these resources are used by Tadami residents, and made available to visitors and outside residents who purchase the products delivered from this area.
- Hydroelectricity, a renewable energy source making use of the abundant water resources from heavy snowfall is supplied to the Kanto region.

<Regulating services>

- Regulation services, such as regulation of climate, control of soil erosion, control of flood, water purification and air purification are received by the Tadami residents, visitors, and residents surrounding the Tadami BR proposed site.

<Cultural services>

- Information on such traditional skills as weaving using tree bark and the grass tree that have been practiced indoors in the winter (agricultural off-season), traditional food preservation methods such as dried Osmund (*Osmunda japonica*), Izushi of minnow (Japanese dace: *Tribolodon hakonensis*) (Photo 12-5), annual events like the Saotome dance and Onbe (New Year's bonfire), trekking and Eco-tourism, discovery of scientific knowledge by investigation and research, environmental education, etc., are received by the Tadami residents, visitors, and people related to the Tadami BR proposed site (including mail, HP, etc.).

Photo 12-1 Harvesting of Osmunds (*Osmunda japonica*) on avalanche slopes after the thaw (above), and crumpling Osmunds (*Osmunda japonica*) (Preparing dried Osmunds) (below)

Photo 12-2 Firewood is still a key fuel
(Firewood cut on the mountains in early spring (above) and stored firewood (below))

Photo 12-3 Woven handiwork made from natural materials
Photo (above): wild vine (*Vitis coignetiae*) (upper left), three-leaf akebia (*Akebia trifoliata*) (upper right), Varnish tree (*Toxicodendron trichocarpum*) (lower left), Manchurian walnut (*Juglans mandshurica var. sieboldiana*) (lower middle), *Carex multifolia* (lower right)
Photo (below): Silver vine (*Actinidia polygama*) handiwork is a characteristic material of this area and articles are light, with good drainage and ideal for everyday use.

Photo 12-4 Apiculture (Bee hives)

Photo 12-5 Izushi of minnow (Japanese dace: *Tribolodon hakonensis*)

12.2 Specify whether indicators of ecosystem services are used to evaluate the three functions (conservation, development and logistic) of biosphere reserves. If yes, which ones and give details.

- In the reserve proposed site, research of fauna and flora and floristic composition was conducted, and utilized to designate the forest ecosystem reserve based on the Law on the Administration and Management of National Forests and Quasi-national Park based on the Natural Park Act.
- For local development, the types and amount of collection or economic value of edible wild plants and mushrooms are evaluated, and thus provide basic information of regional socio-economic activities. In addition, insect fauna were surveyed while investigating biodiversity, and as a result, the pollination of farm products and the inhibitory effect on crop damage from diseases and harmful insects were evaluated.
- Much support is given by institutions such as the Town History Editing Projects and investigation and research conducted by the natural sciences and the humanities and social sciences into the Tadami BR proposed site by universities and research institutes, all of which provide information for socioeconomic activities and education activities in the area.

12.3 Describe biodiversity involved in the provision of ecosystems services in the biosphere reserve (e.g. species or groups of species involved).

- Edible wild plants:
  Osmund (*Osmunda japonica*), bracken (*Pteridium aquilinum*), Ostrich fern (*Matteuccia struthiopteris*), *Urtica thunbergiana*, daylily (*Hosta montana*), udo (*Aralia cordata*), Japanese butterburs (*Petasites japonicus*), Japanese angelica tree (*Aralia elata)*, red pepper (*Gamblea innovans*), *Eleutherococcus sciadophylloides*, Kalopanax (*Kalopanax septemlobus*), greenbrier (*Smilax riparia*), Asteraceae flowering plant (*Parasenecio delphiniifolius*), *Elatostema umbellatum* var. *majus*, Water dropworts (*Oenanthe javanica*), Japanese honewort (*Oenanthe javanica*), wasabi (*Wasabia japonica*), wild rocambole (*Allium macrostemon*), wormwood (*Artemisia indica* var. *maximowiczii*), bamboo shoots of Sasa kurinensis (*Artemisia indica* var. *maximowiczii*), Japanese pepper (*Artemisia indica* var. *maximowiczii*), etc.
- Fruits:
  Japanese Chestnut (*Castanea crenata*), Manchurian walnut (*Juglans mandshurica* var. *sieboldiana)*, Heartnut tree (*Juglans mandshurica* var. *cordiformis)*, Japanese horse chestnut (*Aesculus turbinata*), wild vine (*Vitis coignetiae*), silver vine (*Actinidia polygama*), hardy kiwi (*Actinidia arguta*), Japanese mulberry (*Morus australis*), *Akebia trifoliata*, white angel (*Malus Tschonoskii*), etc.
- Mushrooms:
  Matsutake mushrooms (*Tricholoma matsutake*), Maitake mushrooms (*Grifola frondosa*), Nameko mushrooms (*Pholiota microspora*), honey mushrooms (*Armillaria mellea* subsp. *Nipponica*), Shimeji mushrooms (*Lyophyllum shimeji*), *Mycoleptodonoides aitchisonii*, *Sarcodon aspratus*, *Sarcomyxa serotina*, Jew's ear mushrooms (*Auricularia auricula-judae*), *Meripilus giganteus*, Brick Cap mushroom (*Hypholoma sublateritium*), chicken mushrooms (*Laetiporus sulphureus*), *Amanita hemibapha*, *Climacodon septentrionalis*, *Hygrophorus russula*, etc.
- Materials for weaving:
  The vine of Silver vine (*Actinidia polygama*), *Akebia trifoliata*, *Clematis apiifolia* var. *biternata*, tree bark of Manchurian walnut (*Juglans mandshurica* var. *sieboldiana)*, wild vine (*Vitis coignetiae*), trunks of Japanese sumac (*Toxicodendron trichocarpum*), grass tree of *Carex dolichostachya*, *Boehmeria silvestrii,* etc.

12.4 Specify whether any ecosystem services assessment has been done for the proposed biosphere reserve. If yes, is this assessment used to develop the management plan?

- A study of the ecosystem services of the Tadami BR proposed site by the Forestry and Forest Products Research Institute of the Incorporated Administrative Agency is evaluating each utilization of a variety of forestry ecosystem services concerning mountains in the vicinity of villages so as to provide data for developing methods of over-all assessment based on indexes and economic standards (Refer 16.1. Article 2). This evaluation will be utilized for designing a maintenance management plan.

13. MAIN OBJECTIVES FOR THE BIOSPHERE RESERVE'S DESIGNATION:

13.1 Describe the main objectives of the proposed biosphere reserve, integrating the three functions (conservation, development and logistic), presented below (sections 14 to 16), including components of biological and cultural diversity. Please specify the indirect pressures and/or organizational issues.

- In the Oku-Aizu Tadami area, for a considerable time, the local community has developed by taking advantage of the rich natural environment and a variety of natural resources. It has inherited a traditional living culture, which has continued since the Jomon era, including hunting, collecting, and fishing along with agriculture and forestry, all of which provide the means for a basic livelihood, and form an undercurrent in this local community: this is known as a Beech Zone culture. However, in recent years, with increasing depopulation and an aging population, these kinds of socioeconomics systems are declining along with local communities. In response, Tadami Town developed the 6th Tadami Town development promotion plan, to utilize the rich natural environment (snow, beech forest) and natural resources of this area in many different ways, and to inherit the many regional traditions, cultures and industries that have grown based on the natural environment. The plan also develops and promotes regional independence and activation; to realize and promote this plan even more, it has been decided to utilize the framework of the Biosphere Reserve of the UNESCO MAB Program.
- In the Tadami BR proposed site, nivation landforms formed by heavy snowfall and a large primeval natural environment characterized with a vegetation mosaic are protected and conserved under existing legal systems, such as the Oku-Aizu Forest Ecosystem Reserve based on the Law on the Administration and Management of National Forests and the Echigosanzan-Tadami Quasi-national Park based on the Natural Park Act; and as a result, the traditional lifestyles or culture of the people who rely on the natural environment have been maintained in a sustainable way. Also, the Town History Editing Projects of Tadami Town, the receiving of external research institutes, and a variety of investigation and research by the natural sciences and the humanities and social sciences into the Tadami BR proposed site have all been conducted and information transmission from the Tadami Beech Center has been carried out. However, in the Tadami BR proposed site, on the other hand, the local community is suffering from the decline of industry, the decay of the local community and the weakening of the inherited connection between local residents and the natural environment, due to the modern social economy and changing values; along with depopulation and an aging population which many mountainous areas are suffering in Japan, caused by the ever-increasing outflow of young people to urban areas. Therefore, registration of the Tadami BR proposed site targets presenting the concept of the BR to the residents of the Tadami BR proposed site, and help them adapt the traditional lives or culture of the people who rely on the inherited natural environment of the proposed site for their social economy and local industry; encouraging and tying the regionally inherited connection between humans and nature as well as activating the area and achieving the purpose of the BR concepts by the participation of the residents. In addition, the results of such achievements of those approaches in the

Tadami BR proposed site, will be a model to demonstrate the effectiveness of the BR on the local development of many other mountainous areas which are all suffering from the same problems.

13.2 Describe the sustainable development objectives of the biosphere reserve.
(If appropriate, please refer to Agenda 21, Rio+20 and SDG post 2015).

- The current total population of Tadami Town is 4,695, with 42.4% aged 65 or older giving a high population aging rate (As of May 1, 2013). The population of Tadami Town, after the Second World War, rose to more than 12,000 at the time of the Tagokura Dam construction on the Tadami River; after completion of construction the population fell and rapid depopulation has continued (Figure 13-1). The biggest reason is that there is no industry capable of supporting such a population in the Tadami area. The fundamental industry of the Tadami area is agriculture and forestry industry. Agriculture is now well established and productivity is competitively high, however, agricultural income is not sufficient to make a living. Also, the processing of agricultural products to enhance value has been worked on, but in reality new product development or market development has a long way to go. Regarding forestry, predatory forestry such as excessive logging of the natural forest, used to be carried out, with a consequent reduction of resources. However coniferous planted forests, planted to expand afforestation after the Second World War, still need forest management operations, thinning is not conducted appropriately due to stagnant wood prices; resulting in difficult conditions for industrialization.
- In the 1930s before the Second World War, the population was estimated at about 8,000 people and the area was very viable, vital and sound. However, according to the 2010 statistics, the total population was less than 5,000, which is lower than the prewar total population. The population problem of Tadami Town is not just simply depopulation, but also concerns population composition. As seen in the population breakdown of 1965, the population was basically distributed as a pyramid type with a thick base of young people and an aging apex, whereas in the statistics of 2010, the pyramid has inverted with a thick top band of aged people (Figure 13-2). This clearly demonstrates the serious depopulation of young people who would have supported the area in the future, in addition to the decrease of the total population; in a sense, a neo-futuristic rapid progress of depopulation. Moreover, the outflow of young people with no working opportunities to urban areas only exacerbate the situation. As a result, a phenomenon of a society with extremely few young people in their twenties is seen. In the future, depopulation will increase, due to the death of aged people, the outflow of young people and a further decrease of the number of children. The biggest problem here is that the current population composition is not able to maintain a local population at a critical constant level, which in turn then connects to the decline of industry and the further future decay of the local community. In order to solve this problem, it is essential to maintain the young population and to do that, it is important to ensure working opportunities through local development and the development of industry, by utilizing the natural environment and natural resources of the Tadami area in a sustainable way (Figure 13-3).
- The setting up of the Biosphere Reserve will encourage the town plan which has been promoted in the 6th Tadami Town development promotion plan by Tadami Town to utilize the inherited properties of the area such as nature, history, culture, living, industry, etc., by centralizing the natural environment represented by our beech forests, providing a source of pride to Tadami residents and help the connection to regional activation.
  In addition, it is expected to be a model case to demonstrate an effective breakthrough against the problems faced by a local community, such as decay due to depopulation and an aging population which many local communities are suffering in Japan (Figure 13-3).
- Tadami Town was greatly damaged and affected directly and indirectly by the accident at Fukushima Daiichi (No.1) Nuclear Power Plant of the Tokyo Electric Power Company caused by the Great East Japan Earthquake in March 2011 as well as the Niigata and Fukushima heavy rainfall disaster in July of the same year. The background of these accidents and the damage initiated by natural disasters is that

people weaken their relationship with nature (direct exchange of resources and spirituality), depend on the technologies created by society and become overconfident in them. Against such a background, the international recognition and presentation of the regional, inherited and rich natural environment with the characteristic of heavy snowfall and the traditional life and culture of Tadami Town residents who rely on such an environment in the Tadami BR proposed site which is located in Fukushima Prefecture in Japan, presents one model of humans living in harmony with nature, and will connect to the revitalization of the Fukushima region (Figure 13-3).

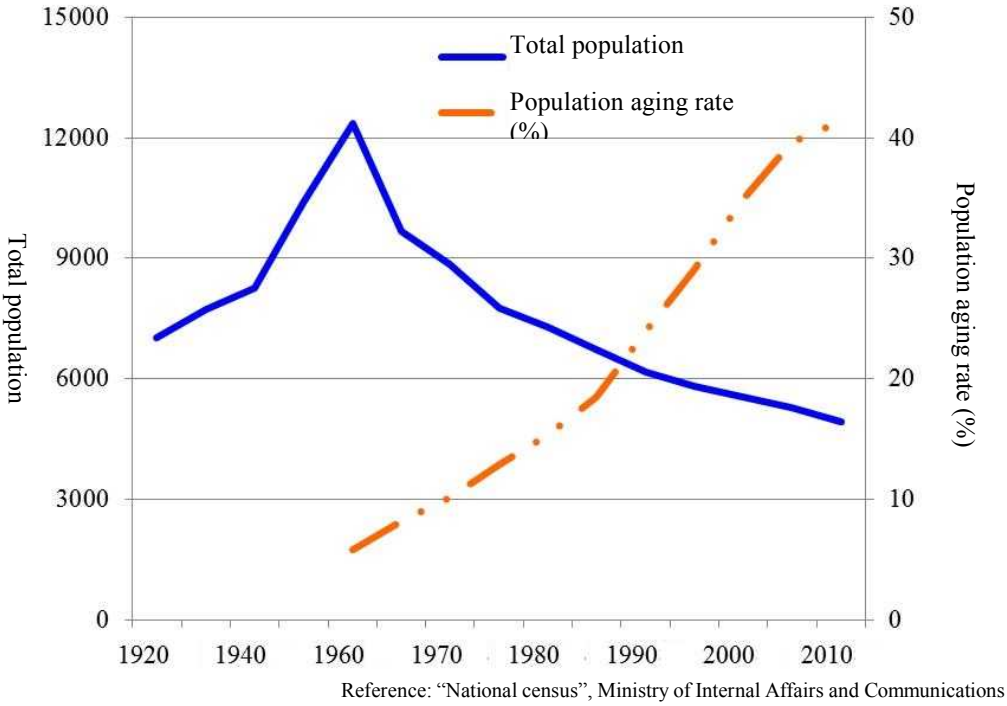
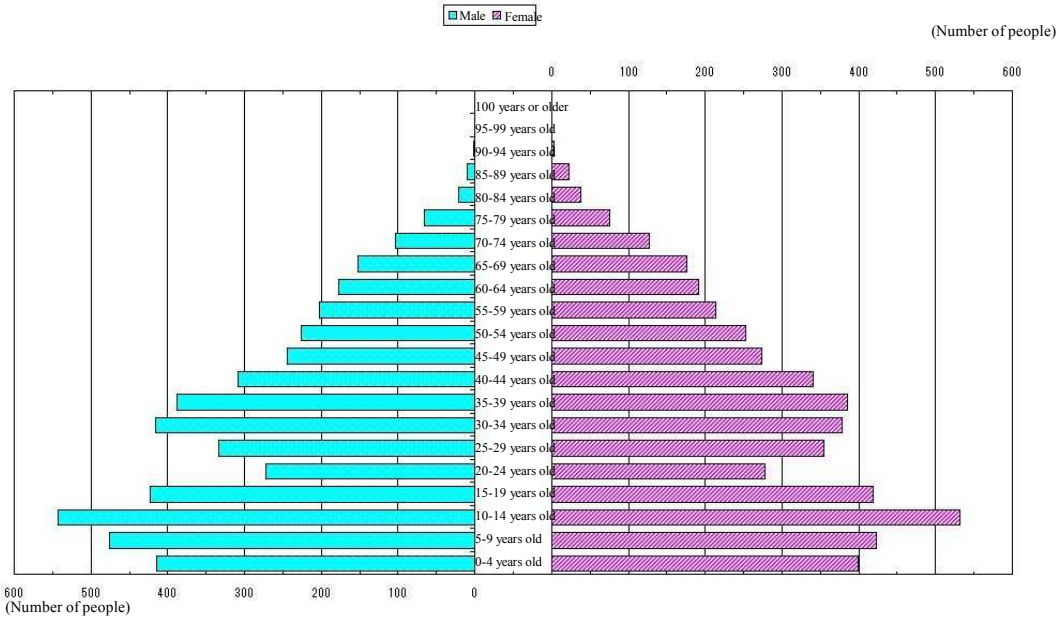


Figure 13-1 Transition of total population and population aging rate of Tadami Town

Population composition of Tadami Town in 1965



Population composition of Tadami Town in 2010

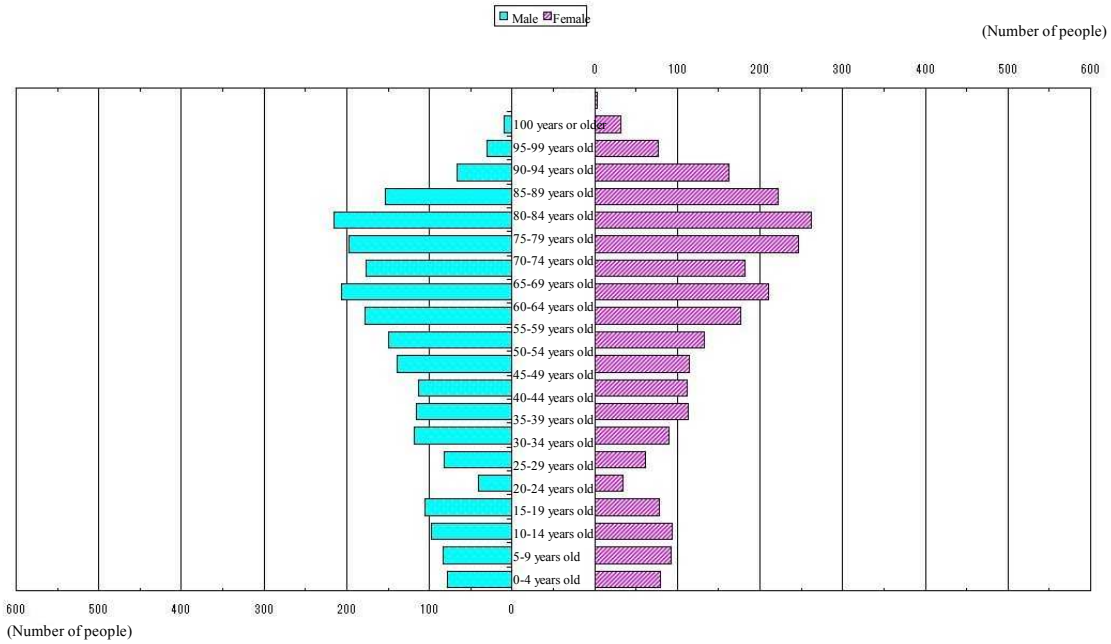


Figure 13-2 Population composition of Tadami Town (above: in 1965, below: in 2010)
(Reference: “National census,” Ministry of Internal Affairs and Communications)

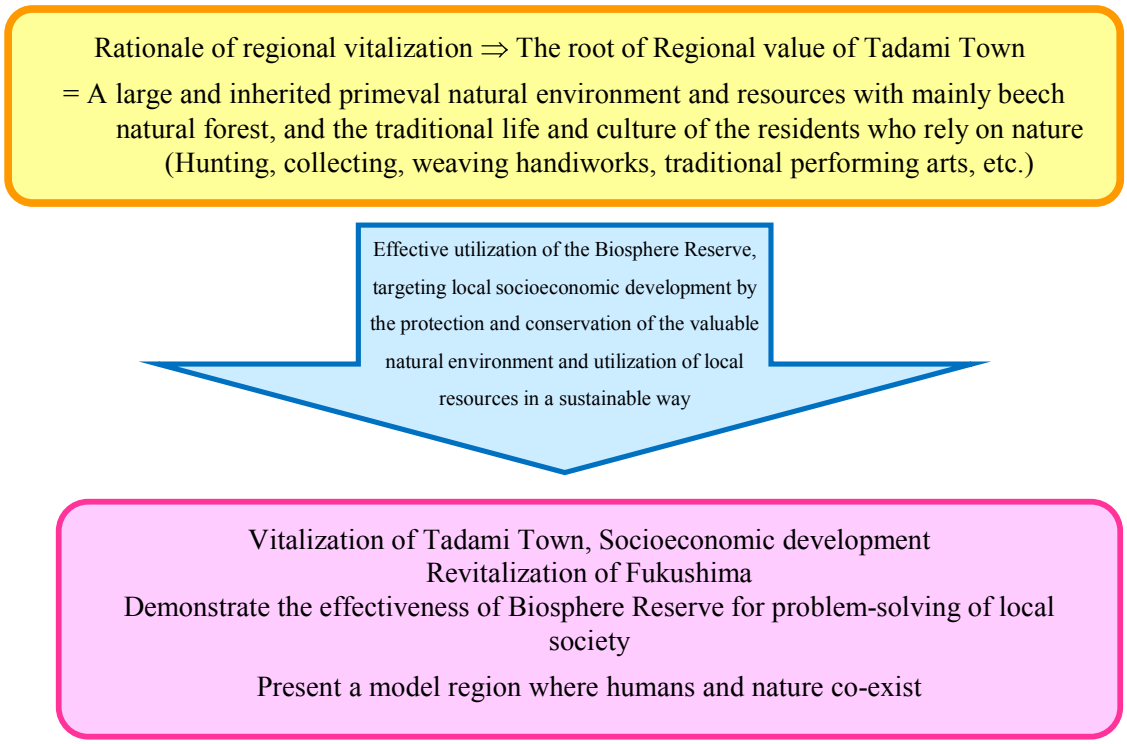


Figure 13-3 Objectives of the Tadami BR

13.3 Indicate the main stakeholders involved in the management of the biosphere reserve.

- The Kanto Regional Forest Office of the Forestry Agency, Fukushima Prefecture, Tadami Town of Fukushima Prefecture and Hinoemata-village of Fukushima Prefecture

13.4 What consultation procedure was used for designing the biosphere reserve?

- In December 2011, Tadami Town established a study committee consisting of people of experience or academic standing and town residents for branding “The Capital of Mother Nature.” In the committee, nine proposals were introduced and a framework of the BR system was proposed as a frame to realize the branding.
- In May 2012, Tadami Town established a study committee consisting of people of experience or academic standing and town residents for the Tadami BR to conduct monthly regular meetings from May to August, to discuss policy and proposals concerning the area-setting related to the application of the Biosphere Reserve (Photo 13-4).

Photo 13-4 The study committee of Tadami Town BR (May to August 2012)

13.5 How will stakeholder involvement in implementing and managing the biosphere reserve be fostered?

- The Tadami BR Promotion Council (provisional name), consisting of related administrative organizations (the Kanto Regional Forest Office of the Forestry Agency, the Tohoku Regional Environment Office of the Ministry of the Environment, Fukushima Prefecture, Tadami Town, Hinoemata-village), local industrial associations, local community groups, Electric Power Development Co., Ltd., the Japanese Coordinating Committee for MAB,etc., was established, and the Secretariat of the Promotion Council was set up in Tadami Town for integrated management and operation of the Tadami BR proposed site. The Promotion Council will set up an expert committee consisting of people of experience or academic standing, to obtain scientific advice.
- Prior to the registration of the Tadami BR, Tadami Town will set up a project team for BR promotion in the town hall, to implement the region development plan of the Tadami BR as a center. The project team will examine administrative measures related to the BR, make plans for the related projects and implement them.
- For promoting the Tadami BR, the Resident Liaison Council (the Tadami BR Promotion Resident Liaison Council (provisional name)), which is a voluntary organization consisting of local residents and community organizations, will be established. The Resident Liaison Council will work on proposals, requests and voluntary activities, to realize the BR.
- Refer Figure 13-1.

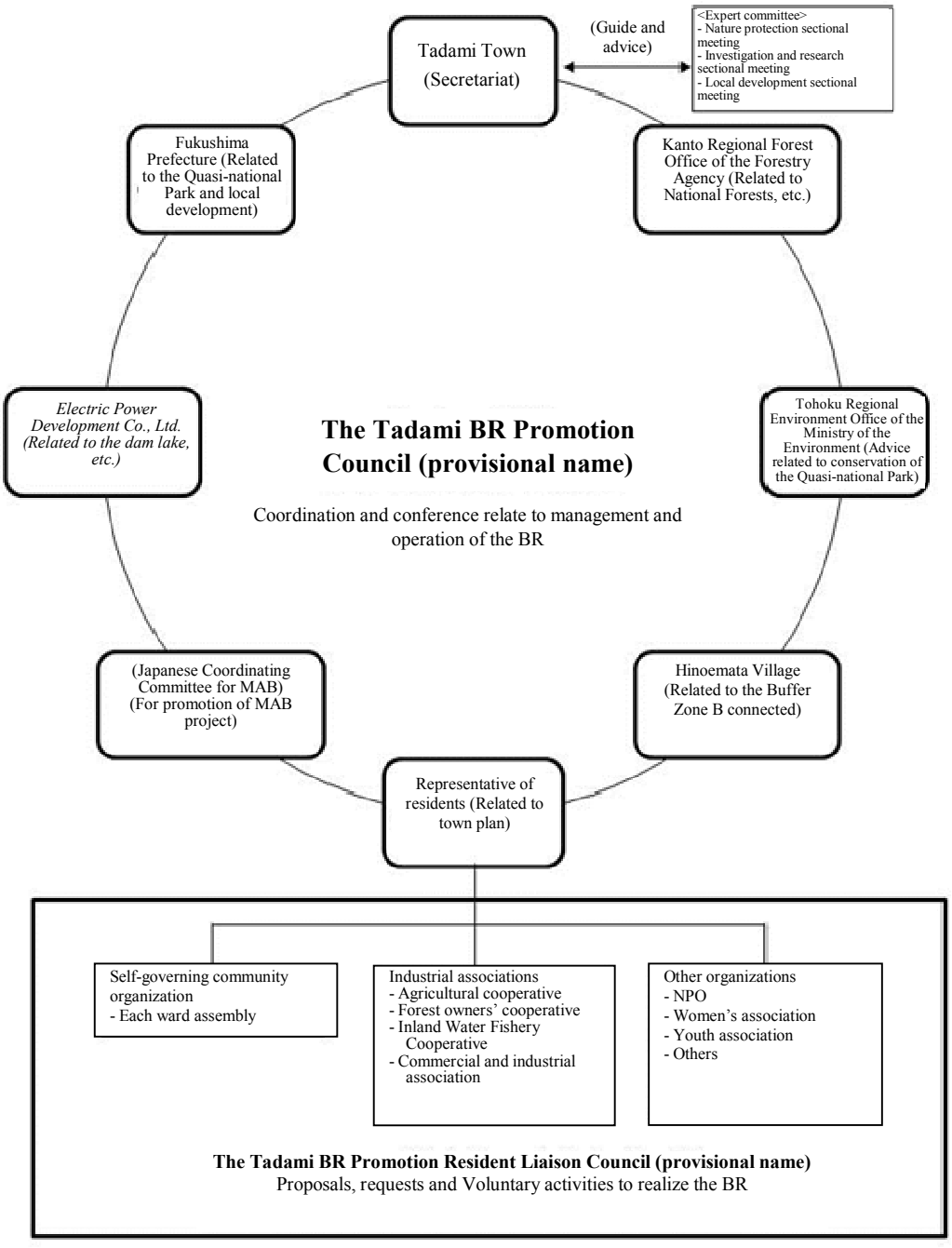


Figure 13-1 Organization chart of the Tadami BR promotion system (Draft)

13.6 What are the expected main sources of resources (financial, material and human) to implement the objectives of the biosphere reserve and projects within it?
(Please provide formal commitments and engagements.)

- Concerning the management and operation of the Tadami BR, each organ sources financial measures, personnel distribution for cases regulated by the related organs.
- Concerning operation of the Tadami BR Promotion Council (provisional name), Tadami Town is responsible for care of the Secretariat (Tadami Beech Center) as well as the financial and personnel measures for operating the Council.
- Financial resources related to the BR promotion project implemented by a project team of Tadami Town hall are the self-sponsored funds of Tadami Town.

14. CONSERVATION FUNCTION:

14.1. At the level of landscapes and ecosystems (including soils, water and climate):
14.1.1 Describe and give the location of ecosystems and/or land cover types of the biosphere reserve.

- Refer Article 11.6.

14.1.2 Describe the state and trends of the ecosystems and/or land cover types described above and the natural and human drivers of the trends.

- Refer Article 11.6.

14.1.3 What kind of protection regimes (including customary and traditional) exist for the core area(s) and the buffer zone(s)?

- Refer Article 7.4.

14.1.4 Which indicators or data are used to assess the efficiency of the actions/strategy used?

- Investigation of Endangered Species of Wildlife Protection Management Strategy (mountain hawk eagle, etc.) implemented in National Forests by the Kanto Regional Forest Office of the Forestry Agency
- Tadami Town Beech Forest General study
- Ecosystem and fauna and flora data investigated by Tadami Town History Editing Projects
- Academic investigations conducted by universities and research institutes
- Basic research of natural environment implemented by Tadami Beech Center basis (ecosystem monitoring).

14.2 At the level of species and ecosystem diversity:

14.2.1 Identify main groups of species or species of particular interest for the conservation objectives, especially those that are endemic to this biosphere reserve, and provide a brief description of the communities in which they occur.

<Flora>

- *Salix hukaoana* (Photo 14-1)
  In a riparian forest of a basin of the Tadami River and Ina River of the Tadami BR proposed site, a rare tree species, *Salix hukaoana* which is classified as Endangered II (Vunerable) in the Red List of the Ministry of the Environment (2012), grows naturally in the largest numbers found in Japan. Since the growth of this tree species depends on river disturbance (Spring melts), the large numbers and growth of such tree species indicates that the river environment in this basin has been conserved in a highly natural state. (Tadami nature-study meeting, 2012)
- *Lilium rubellum* (Photo 14-2)
  Tadami Town of the Tadami BR proposed site is the largest autogenesis ground of *Lilium rubellum* in Japan, which is a Japanese endemic species of alpine lily and found only around the Iide mountain range, Mt. Azumasan and Sumondake, located in the southern part of Miyagi Prefecture and at the prefectural boundaries of Niigata, Fukushima and Yamagata Prefectures. These autogenesis grounds remain as grasslands of pseudo-alpine zone, steep rocky slopes of nivation landforms or the ridge of scree slope in a natural state, and are expected to be the most important growth area in Japan. This species is classified as Near Threatened (NT) in the Red List of the Ministry of the Environment (2012) as well as in the Red List of Fukushima Prefecture (2007). (Takahara, *et al.* 2012)
- *Cirsium aidzuense*
  Cirsium aidzuense, is a Japanese endemic plant species and is seen in the Tadami BR proposed site and distributed in the Aizu-region of Fukushima Prefecture and its adjacent Prefectures such as Yamagata, Niigata, Gunma and a part of Tochigi (Critically Endangered (CR) in the Red List of the Ministry of the Environment (2012))

<Fauna>

- Golden eagle (*Aquila chrysaetos japonica*) (Photo 14-3) and Mountain Hawk-Eagle (*Spizaetus nipalensis orientalis*) (Photo 14-4)
  In the Tadami BR proposed site, top species such as raptors like the Golden eagle (*Aquila chrysaetos japonica*) or Mountain Hawk-Eagle (*Spizaetus nipalensis orientalis*) are found. Both species are listed as Endangered (EN) in the Red List of the Ministry of the Environment (2012). In general, the Golden eagle (*Aquila chrysaetos japonica*) is found nesting on the rock ledges of steep cliffs in mountainous areas. They hunt Japanese hare (*Lepus brachyurus*), the Copper pheasant *(Syrmaticus soemmerringii*) and snakes such as the Japanese rat snake (*Elaphe climacophora*) in open areas such as shrub zones, grass areas and denuded land next to the forest; its home range extends up to 200 km^2 (Yamazaki, 2002). On the other hand, the Mountain Hawk-Eagle (*Spizaetus nipalensis orientalis*) is highly dependent on the forest, nesting in large trees and hunting several small and medium size animals in the forest such as; Japanese hare (*Lepus brachyurus*), the Copper pheasant *(Syrmaticus soemmerringii*), snakes, badgers (*Meles meles*), racoon dogs (*Nyctereutes procyonoides*), Japanese martens (*Martes melampus*), Japanese minks (*Mustela itatsi*), flying squirrels (*Petaurista leucogenys*), Japanese squirrels (*Sciurus lis*), brown-eared bulbuls (*Hypsipetes amaurotis*), meadow buntings (*Emberiza cioides*), etc. (Yamazaki 2002). This large and primeval natural environment of the Tadami area, with characteristics of nivation landforms formed by heavy snowfall and a vegetation mosaic created by these conditions, provides two separate and ideal habitats for the Golden eagle (*Aquila chrysaetos japonica*) and the Mountain Hawk-Eagle (*Spizaetus nipalensis orientalis*), whose nesting environment and food sources are quite different. This demonstrates the existence of these umbrella species (raptors) are indicative of a rich ecosystem in the Tadami BR proposed site.
- Black Asiatic bear (*Ursus thibetanus japonicus*)

The Black Asiatic bear (*Ursus thibetanus japonicus*), which is an umbrella species and a large mammal (listed as Endangered II (Vulnerable) in the IUCN Red List), inhabits the deciduous broad-leaved forest of the Tadami area and lives by foraging and scavenging nuts, fruits and the buds of Fagaceae trees such as beech (*Fagus crenata*), konara oak (*Quercus serrata*), Mongolian oak (*Quercus crispula*) and chestnut (*Castanea crenata*), insects, carrion, etc. Tree hollows found in old age trees are required for winter hibernation.

- Japanese serow (*Capricornis crispus*) (Photo 14-5)
  This goat antelope is a Japanese endemic species and is globally classified and protected as a scientifically rare animal. It is designated as a National Special Natural Monument and inhabits deciduous broad-leaved forests.
- Frosted myotis (*Myotis pruinosus*) (Photo 14-6)
  In Tadami Town of the Tadami BR proposed site, The Frosted myotis bat (*Myotis pruinosus*), which is a Japanese endemic species and listed as Endangered (EN) in the Red List of the Ministry of the Environment (2012), has been found only in Fukushima Prefecture. Its habitat condition requires natural forest with wide diameter trees for tree hollow nests (Education Board of Tadami Town, 2001), and it is considered to inhabit the highly natural deciduous broad-leaved forests of the Tadami area.
- Landlocked Arctic lamprey (*Lethenteron camtschaticum*)
  In general, the Arctic lamprey (*Lethenteron camtschaticum*) is born in a river and spends there during larval stage before travelling downstream as an adult to the sea. Then it spends two years growing to a length of about 50 cm in the sea. Later the fully mature fish return to the river of their birth and spawn. Most of the Landlocked Arctic Lamprey are found in a basin of the Ina River including the Tadami BR proposed site and have a small body length of about 15-20 cm. They are known as the landlocked type as they live and breed in a river for their whole life. Habitat locations are very few and the basin of Ina River including the Tadami BR proposed site is a rare habitat of the Landlocked Arctic lamprey. It is also classified as Endangered II (Vulnerable) in the Red List of the Ministry of the Environment (2013) (Inaba, 2012).

Photo 14-1 Male catkins of *Salix hukaoana*

Photo 14-2 Lilium rubellum grows on the steep rocky slopes of nivation landforms (Above and below)

Photo 14-3 Golden eagle (*Aquila chrysaetos japonica*)

Photo 14-4 Mountain Hawk-Eagle (*Spizaetus nipalensis orientalis*)

Photo 14-5 Japanese serow (*Capricornis crispus*)

Photo 14-6 Frosted myotis (*Myotis pruinosus*)

14.2.2 What are the pressures on key species? In other words: what are the threats (example unsustainable management of forest), their immediate causes (drivers of change like forest change or habitat change), their underlying causes (example overgrazing, fire, pollution), and the main driving forces (example: economic, political, social, external, etc.) and the area(s) concerned?

- Concerning the core area of the proposed site and the Buffer Zone A/B proposed site both are managed under the Law on the Administration and Management of National Forests as well as the Natural Park Act, resulting in no pressure on any major species. In the transition area proposed site, the important natural disturbance system which generates a variety of habitats may be affected by any public works, especially of the river environment for river improvement, however, such work is generally managed in a sustainable way.

14.2.3 What kind of measures and indicators are currently used, or planned to be used to assess both species groups and the pressures on them? Who undertakes this work, or will do so in the future?

- Investigation of Endangered Species of Wildlife Protection Management Strategy (mountain hawk eagle, etc.) is implemented in National Forests by the Kanto Regional Forest Office of the Forestry Agency.
- Basic research of natural environment implemented by the Tadami Beech Center basis (ecosystem monitoring) and investigation of population dynamics of specific species groups (Luciola fireflies (*Luciola cruciata*), *Luciola lateralis*, the char (*Salvelinus leucomaenis pluvius*) and salamanders) are planned to be implemented in the future.

14.2.4 What actions are currently undertaken to reduce these pressures?

- Public works with less influence on the natural environment and wildlife are promoted.

14.2.5 What actions do you intend to take to reduce these pressures?

- The Tadami BR Promotion Council (provisional name), consisting of related administrative organizations (the Kanto Regional Forest Office of the Forestry Agency, the Tohoku Regional Environment Office of the Ministry of the Environment, Fukushima Prefecture, Tadami Town, Hinoemata-village), local industrial associations, local community groups, Electric Power Development Co., Ltd., the Japanese Coordinating Committee for MAB,etc., where the Secretariat of the Promotion Council was set up in Tadami Town for integrated management and operation of the Tadami BR proposed site, will discuss to make any adjustments of public works to minimize any influence on the natural environment and wildlife.

14.3. At the level of genetic diversity:
14.3.1 Indicate species or varieties that are of importance (e.g. for conservation, medicine, food production, agrobiodiversity, cultural practices etc).

- Japanese horse chestnut (*Aesculus turbinata*)
  It is a pollen source for bees and the seeds are used as an ingredient of Tochi Mochi.
- White angel (*Malus Tschonoskii*)
  Fruits are macerated in alcohol to be used as cough medicine. This is the reason that the large White

angel trees are protected and remain in large numbers in the town.

- Amur cork tree (*Phellodendron amurense*)
  Bark has been used as a stomach medicine.
- Nikko maple (*Acer maximowiczianum*)
  It has been used as medicine for eye diseases.
- *Tilia jmaximowicziana*
  Bark fiber is used for cable stitch and cloth (Shinafu).
- *Carex multifolia*
  It is used as a material for Hiroro weaving.
- Three leaf akebia (*Akebia trifoliata*), Silver vine (*Actinidia polygama*), wild vine (*Vitis coignetiae*), *Clematis apiifolia* var. *biternata*, Japanese walnut (*Juglans mandshurica* var. *sieboldiana*) and Varnish tree (*Toxicodendron trichocarpum*)
  They are used as materials for weaving handiworks.
- Silver vine (*Actinidia polygama*), hardy kiwi (*Actinidia arguta*)
  The fruits are eaten raw and also used for fruit wine.
- *Pyrus pyrifolia*
  The fruits are eaten raw and also pickled in salt.
- Paulownia tree (*Paulownia tomentosa*)
  Wood is used for furniture such as cabinets.
- Toshima mulberry (*Morus bombycis*) (a variety for sericulture)
  It is a kind of Japanese mulberry, grown in the mountains and is resistant to cold weather and is early ripening; it was cultivated in fields for use in sericulture.
- Japanese walnut (*Juglans mandshurica* var. *sieboldiana*)
  Nuts are collected and stored for raw consumption.
- Edible wild plants such as Osmund (*Osmunda japonica*), bracken shoots (*Pteridium aquilinum*), Ostrich fern (*Matteuccia struthiopteris*), *Diplazium squamigerum*, daylily (*Hosta montana*), etc., are used as foods.
- Mushrooms such as Matsutake mushrooms (*Tricholoma matsutake*), Maitake mushrooms (*Grifola frondosa*), Nameko mushrooms (*Pholiota microspora*), etc., are used as foods.
- Japanese honey bee (*Apis cerana japonica)*
  It is a bee used for collecting pollen to make honey.
- Wheel tree (*Trochodendron aralioides*)
  The bark is soaked in water to rot, and the muddy residue is taken out and pounded in a mortar to make "birdlime." This sticky birdlime is smeared on tree branches or poles to catch birds, dragonflies and flies.
- Native Japanese Char (*Salvelinus leucomaenis pluvius*)
  It is necessary to examine and protect for genetic diversity in the Tadami area. It is designated as Data Deficient (DD) in the Red List of the Ministry of the Environment (2013).
- Landlocked sculpin (*Cottus pollux*)
  It is a Japanese endemic species and inhabits the Tadami River, Ina River and those tributaries of the Tadami BR proposed site. Migratory sculpin which travel to the sea and Japanese fluvial sculpin which stay in a river for their whole life are thought to be two different species, as they differ in the number of soft rays (interior fin bones) of their pectoral fins as well as in their lifestyle and genes (Inaba, 2012). It is listed as Near Threatened (NT) in the Red List of the Ministry of the Environment (2013).
- Landlocked Arctic lamprey (*Lethenteron camtschaticum*)
  It is classified as Endangered II (Vulnerable) in the Red List of the Ministry of the Environment (2013) and habitat areas in Japan are now fewer. A basin of the Ina River including the Tadami BR proposed site is a precious habitat for the Landlocked Arctic lamprey (Inaba, 2012).
- Japanese dace (*Tribolodon hakonensis*)
  This fish is the ingredient of "Ohira" or "Izushi," which are traditional dishes of the Tadami area.

- *Tribolodon ezoe*
  Its population is declining throughout the entire Fukushima Prefecture and a population group in a basin of the Tadami River and Ina River is latitudinally the southern limit of distribution on the Japan Sea side. Therefore, conservation of this species is required (Inaba, 2012). *Tribolodon ezoe* of the Tohoku region is listed as a Threatened Local Population (LP) in the Red List of the Ministry of the Environment (2013).

14.3.2 What ecological, economic or social pressures or changes may threaten these species or varieties?

- Decline in the population of vines by collecting for material of woven handiwork.
- Decline in population of aquatic biota such as; Japanese dace (*Tribolodon hakonensis*), Large egg type sculpin (*Cottus pollux*) (Near Threatened (NT) in the Red List of the Ministry of the Environment (2013)), Landlocked Arctic lamprey (*Lethenteron camtschaticum*) (Endangered II (Vulnerable) in the Red List of the Ministry of the Environment (2013)), chenopod (*Liobagrus reini*) (Endangered II (Vulnerable) in the Red List of the Ministry of the Environment (2013)), *Inversiunio jokohamensis* (Near Threatened (NT) in the Red List of the Ministry of the Environment (2012)), etc., by deterioration of the river environment and over-fishing.
- There is a possibility of gene disturbance to Native Japanese Char (*Salvelinus leucomaenis pluvius*) (Data Deficient (DD) in the Red List of the Ministry of the Environment (2013)) by releasing of selective captive-bred Japanese Char (*Salvelinus leucomaenis*) into rivers.

14.3.3 What indicators, at the level of the species, are used, or will be used, to assess the evolution of population status and associated use?

- Distribution survey of *Lilium rubellum*, investigation (monitoring) of the population dynamics (Takahara, *et al.* 2012)
- Investigation (monitoring) of the population of *Salix hukaoana* (Education Board of Tadami Town, 2005; Suzuki and Kikuchi, 2006; Suzuki and Kikuchi, 2008; Tadami nature-study meeting, 2012)
- Tadami nature-study meeting has continuously implemented the investigation (monitoring) of the population of fireflies.
- Research and genetic analysis of Native Japanese Char (*Salvelinus leucomaenis pluvius*) of the Tadami area is planned to be conducted by Tadami Beech Center base in the future.

14.3.4 What measures will be used to conserve genetic diversity and practices associated with their conservation?

- Elucidation of collective genetic structure of important and rare species.
- Protection of found habitat area (river) of Native Japanese Char (*Salvelinus leucomaenis pluvius*)

15. DEVELOPMENT FUNCTION:

15.1. Potential for fostering economic and human development which is socio-culturally and ecologically sustainable:

15.1.1 Describe how and why the area has potential to serve as a site of excellence/model region for promoting sustainable development.

- The Tadami area is a typical mountainous area in Japan, and like so many of these areas is especially suffering from depopulation and an aging population, decreased birthrate, and depopulation, with a consequent rapid decline of industry. On the other hand, the Tadami area is an area where humans and nature have historically co-existed in a sustainable way based on the inherited natural environment, natural resources (edible wild plants, mushrooms, firewood, etc.) and the traditional culture and life of the residents who rely on such nature. This area will be an excellent model to promote sustainable development, which is local development utilizing traditional culture and life relying on the primordial value of this area such as the natural environment and natural resources as a means to solve the problems faced by communities in mountainous areas.

15.1.2 How do you assess changes and successes (which objectives and by which indicator)?

- Inheritance and development of traditional culture and industry are used as assessment indicators. Specifically, they are a number of groups and participants to inherit traditional culture and production volumes, income, and the employment population of industry.

15.2. If tourism is a major activity:

15.2.1 Describe the type(s) of tourism and the touristic facilities available. Summarize the main touristic attractions in the proposed biosphere reserve and their location(s).

<Type of Tourism>

- Mountain climbing (trekking)
  Climbing of Tadami's three famous mountains; Mt. Asakusadake, Mt. Aizu-Asahidake and Mt. Gamoudake, and others; Mt. Onigatsura and Mt. Yougai. Such information as climbing routes is available at the Tadami Town Planning Association and Tadami Beech Center.
- Recreational angling
  Mountain stream fishing of Japanese Char (*Salvelinus leucomaenis*) and landlocked salmon (*Oncorhynchus masou masou*) in a basin of Tadami River and Ina River. The Ina and Ihoku Fishery Cooperative Associations sell and manage the fishing licences.
- Ecotour
  The ecotourism industry has not yet fully established itself due to problems of preparedness to receive visitors. Some ecotours of "The blessed forest" and "The healing forest" with forest guides and historical sites tours are conducted on a small scale. As lodging facilities for ecotours, there are School Annex in the Forest Fuzawa, Youth Travel Village and guesthouses. Information on ecotours is available at the Tadami Town Planning Association and Tadami Beech Center.
- Farming experience
  Self-catering "Farm stays" offer visitors the opportunity to experience farming activities all while living in a farmhouse. In addition, School Annex in the Forest Fuzawa located in typical mountainous areas in the Fuzawa district, is a lodging facility and provides farming experiences. It is not only the center of stay-type tourism, but also an exchange center for people from urban and mountainous areas, acting as a major facilitator or visitors to involve themselves in the actual practicalities of local life and deepen their understanding of local mountainous society.
- Sport camping, education and training

Some camping using the comfortable natural environment for sports and cultural activities, etc., is conducted, but, not on a large scale. In recent years, there has been some use as an environmental education place for universities and educational institutes, and further development is expected. Available facilities are the Museum of Japanese Beech and Rivers, Tadami, Youth Travel Village and School Annex in the Forest Fuzawa.

<Tourist facilities>
- Museum of Japanese Beech and Rivers, Tadami
- Memorial Museum of Tsugunosuke Kawai
- Aizu Tadami Museum of Archaeological
- School Annex in the Forest Fuzawa
- Tagokura Dam, Lake Tagokura
- Tadami Ski slopes
- Youth Travel Village (Tadami Town)
- Bracken Garden tourism (Gamou, Yoriiwa, Toshima and Shiozawa)
- The hometown of Japanese char (Kurotani Shirasawa)
- Fukasawa Hot spring

15.2.2 How many visitors come to the proposed biosphere reserve each year? (Distinguish between single-day visitors and overnight guests, visitors only visiting the proposed biosphere reserve or only passing on the way to another place). Is there an upward or downward trend, or a particular target?
The exact number is not known, howe

- ver, about 200,000 people each year visit the Tadami BR proposed site for a day trip or overnight stay and tour. In recent years, the number has been declining. In 2011, the number of visitors seriously dropped to about 150,000 people, due to the accident at Fukushima Daiichi (No.1) Nuclear Power Plant of Tokyo Electric Power Company and the Niigata and Fukushima heavy rainfall disaster.

15.2.3 How are tourism activities currently managed?

- They are mainly managed by the Promotion Exchange Group of Industry Development Section of Tadami Town hall and Tadami Town Planning Association (General incorporated association).

15.2.4 Indicate possible positive and/or negative impacts of tourism at present or foreseen and how they will be assessed (linked to section 14)?

<Future expected positive impact>
- The number of people, who see, experience and study the ecosystem or scenery of nivation landforms formed by heavy snowfall and a vegetation mosaic adapted to each topography which cannot be seen in any other place, is expected to increase.
- It is expected to further vitalize the local economy, by developing tourism as an industry utilizing the local natural environment resources (selling of local products, ecotourism, etc.) based on international valuation of the approaches to the tourism industry; by protecting and conserving the highly natural ecosystem of deciduous broad-leaved forests located in one of the heaviest areas of snowfall in Japan and by utilizing the inherited traditional living, culture and industry along with those of the natural environment.

<Future expected negative impact>

- There are some concerns such as the bad impact on the environment by over-use or garbage problems caused by many visitors and the decrease and decay of resources by threatening the usage rules of traditional natural resources.

<Assessment>

- Increase or decrease of visitors

15.2.5 How will these impacts be managed, and by whom?

- These impacts will be managed by the Kanto Regional Forest Office of the Forestry Agency, the Nature Conservation Division of Fukushima Prefecture, Tadami Town hall measures, local industrial associations (Tadami Town Commercial and Industrial Association, Forest owners' cooperative association, Agricultural Cooperatives (JA) and Inland Fishery Cooperative) and local self-governing community organizations.

15.3. Agricultural (including grazing) and other activities (including traditional and customary):

15.3.1 Describe the type of agricultural (including grazing) and other activities, area concerned and people involved (including men and women).

<Agriculture>

- In the transition area proposed site, there are about 857 ha of cropland along the Tadami River and Ina River systems; about 70% rice paddies and the remaining 30% general purpose fields. The main agricultural products are rice, buckwheat and promotion products like tomatoes and flowering plants. Among them, tomatoes are branded as “Nango Tomato.”
- There are 780 farmers, of which 291 are self-supported farmers, 121 are full-time farmers and 368 are part-time farmers (Statistical information of Ministry of Agriculture, Forestry and Fisheries, 2007).
- In addition to conventional agriculture, local residents are partially working on environmental conservation type agriculture such as organic agriculture.
- In the Tadami BR Proposed site, there are 80 Eco farmer-certified farmers (44 for rice, 21 for tomatoes, 15 for asparagus, 1 for soya beans, 3 for soaproot, 10 for gentian and 6 for calla), who have received certification of the appropriate introduction plan (certified farmer) by submitting a “Plan for the Introduction of Sustainable Agricultural Production Practices” to the prefectural governor, based on Article 4 of the “Act on Promotion of Introduction of Sustainable Agricultural Production Practices (Sustainable Agricultural Law)”. Also, 2 agricultural products (rice) have been certified as specially cultivated agricultural products (agricultural product using pesticide and chemical fertilizer 50% lower than the normal amount) and 2 agricultural products (rice) have been applied for organic agricultural products (as of July, 2013).
- The Tadami BR proposed site is within the jurisdiction of JA Aizu-Minami, consisting of 3 towns and 1 village of Minami-Aizu county, Fukushima Prefecture.

<Traditional collection of edible wild plants and mushrooms>

- Also, the Buffer Zone B proposed site and the transition area proposed site are important areas for collecting edible wild plants, mushrooms and the gathering of firewood for local residents. These gathering activities are done using local traditional common practices and in a sustainable way.
- Collected edible wild plants and mushrooms are utilized in three ways; self-consumption, private sale and as gifts. For edible wild plants, about 40% is for self-consumption, about 45% is for private sale and about 15% is for gifts. For mushrooms, about 60% is for self-consumption, about 20% is for private sale and about 20% is for gifts (Sugimura, 2011).
- In some districts of Tadami Town, an average of about 20% of everyday meals consist of edible wild

plants and mushrooms (Tadami Beech Center, 2013).

<Traditional events>

- Saotome Odori (dance) and Tata Kagura, traditional New Year performances to pray for bounteous harvests in the year, have been inherited by the Local Preservation Society. Both are designated as a Fukushima Prefecture Important Intangible Folk Cultural Property.

15.3.2 Indicate the possible positive and/or negative impacts of these activities on biosphere reserve objectives (section 14).

- Agriculture is mostly performed with consideration of the natural environment, so that fauna and flora is maintained. In the future, the promotion of agriculture with greater consideration to the natural environment, by increasing the number of certificated Eco Farmers, specially cultivated agricultural products and organic agricultural products, is expected.
- On the other hand, with an increasingly aging agricultural workforce, especially in rice cropping, farmland consolidation of rice paddy is undertaken for work efficiency and the reduction of production costs, resulting in an increase of possible impact on fauna and flora which grow in the surrounding environment. In addition, the number of abandoned cropland areas is expected to increase, so that it is necessary to observe carefully the influence on the environment and fauna and flora.
- Collecting of edible wild plants and mushrooms is traditional in the Tadami area and carried out in a sustainable way. However, with depopulation and the aging population, the reduced frequency of harvesting and any influence is unknown.

15.3.3 Which indicators are, or will be used to assess the state and its trends?

- Trends of agricultural workers and agriculture production, numbers of certificated Eco Farmers, organic agricultural products and specially cultivated agricultural products, and trends of the amounts of collected edible wild plants and mushrooms.

15.3.4 What actions are currently undertaken, and which measures will be applied to strengthen positive impacts or reduce negative impacts on the biosphere reserve objectives?

- Currently, strengthening of positive impact and reduction of negative impact are planned under the guidance of Tadami Beech Center and the Kanto Regional Forest Office of the Forestry Agency. In future, in the Tadami BR Promotion Council (provisional name) established after BR registration, concerned people will discuss, corporate and strengthen the measures.
- Concerning edible wild plants and mushrooms, excessive harvesting is prevented by self-management of local settlements and utilization of the forest by people other than local residents is controlled.

15.4 Other types of activities positively or negatively contributing to local sustainable development, including impact/influence of the biosphere reserve outside its boundaries.

15.4.1 Describe the type of activities, area concerned and people involved (including men and women).

- "Tadami nature-study meeting" (about 70 members), an organization for encouraging and building community, conducts activities to become familiar with, study and understand the natural environment. (HP of Tadami nature-study meeting: http://www.fukosya.com/manabu.htm)
- "Guides Association" organized by official guides of Tadami Town explain about nature to better the understanding of tourists and elementary and junior high school students who visit for outdoor study through guided activities.
- There is no active organization which has a negative impact in the Tadami BR proposed site.
- School Annex in the Forest Fuzawa, utilization of the closed elementary branch school, provide opportunities to be involved in the actual situation and understand the true richness of nature; also acts as an interactive lodging facility.

15.4.2 Indicate the possible positive and/or negative impacts of these activities on biosphere reserve objectives (section 14). Have some results already been achieved?

- The activities of the "Tadami nature-study meeting" receive constant empathy and support from local residents, greatly contribute to the protection and conservation of the local natural environment and provide the policy on utilization of natural environment and resources in a sustainable way.
- Nature guiding conducted by members of the "Guides Association" greatly contributes to tourists and children who participate in environmental education to understand the ecosystem and importance of protection and conservation as well as for local personnel training.
- School Annex in the Forest Fuzawa is not only the center of stay-type tourism but also an exchange center of people from urban and mountainous areas, playing a major role for visitors to be involved in the actual situation and better understand local mountainous society.

15.4.3 What indicators are, or will be used to assess the state and its trends?

- Assess by the number of organization and its participants, funding, etc.

15.4.4 What actions are currently undertaken, and which measures will be applied to strengthen positive impacts or reducing negative ones on the biosphere reserve objectives?

- To target sustainable local socioeconomic development by the BR, Tadami Town plans BR related projects in advance of registration and appropriates budgets of the projects for regional activation. These projects involve the branding of local special products, promotion service for inheritance of traditional handicrafts and performing arts, preparation for introducing the Forest Certification System for sustainable forest management, promotion of organic agriculture, guide training for ecotourism, townscape improvement, infrastructure improvement, etc.

15.5 Benefits of economic activities to local people:

- Assessment and pride as a local community harmonized with nature

- Expansion of employment opportunities
- Income growth
- Convenience by infrastructure development
- Tours to visit beautiful nature, green tourism, agriculture tourism, ecotourism, sport camping, forest therapy, forest environment education, opening a variety of traditional cultures, visitors a variety of events, etc.
- Economic activities involving selling local agricultural, forest and fishery products and production and sales of various processing products.
- Sightseeing of the Tadami-line of the JR East Japan Railway Company
- Visitors for photography and filming

15.5.1 For the activities described above, what income or benefits do local communities (including men and women) derive directly from the site proposed as a biosphere reserve and how?

- Natural resources such as edible wild plants and mushrooms, firewood, etc., are directly consumed by local residents, as important food materials and fuel. At the same time, Osmund (*Osmunda japonica*), brackens (*Pteridium aquilinum*) and mushrooms are sold as products to generate cash income.
- Guide for ecotourism, stay of tourists in lodging facilities and sales of souvenir and fishing licenses also provide cash income.
- Security of agricultural water by abundant water resources and health promotion by clean air.

15.5.2 What indicators are used to measure such income or other benefits?

- Statistical information of Tadami Town, the number of tourists and overnight guests, collected amount of edible wild plants and mushrooms are used as indicators.

15.6 Spiritual and cultural values and customary practices:
(Provide an overview of values and practices, including cultural diversity).

15.6.1 Describe any cultural and spiritual values and customary practices including languages, rituals, and traditional livelihoods. Are any of these endangered or declining?

<Rites and faith>

- Yamairi (Photo 15-1)
  On the morning of January 2nd, a family holds "Yamairi" in which the family makes a rope for each family member, some families only make ropes for the men of the household, and then they offer the ropes with thinly sliced rice-cakes to Yamanokami (Yamagami: God of the Mountain) before breakfast to pray for safety in forestry work for the that year. In recent years, the number of people who offer "Yamairi" has reduced due to the aging population and decrease in the number of people who work in the forest.
- Onbe (Sainokami) (Photo 15-2)
  During the Lunar New Year, a fire festival known as "Onbe (Sainokami; New Year's bonfire)" is held in each district of Tadami Town to pray for a bounteous harvest, sound health, the safety of family members, and to exorcise demons and the like.
- "Kobayashi Saotome Odori" and "Yanatori Daidai Kagura" (Fukushima Prefecture Important Intangible Folk Cultural Property)

Saotome Odori (dance) and Tata Kagura, traditional performances that started in the early Edo era to pray for bounteous harvests in that year, have been inherited by the Local Preservation Society.

- "Joho-ji Kannon Do (Joho Temple Kannon Hall)" (Fukushima Prefecture Important Intangible Folk Cultural Property) and "Mokuzo Kannon Bosatsu-zazo" (Fukushima Prefecture Important Tangible Folk Cultural Properties)
  During the Edo era, Okurairi Sanjusan-kannon was placed and set up by local farmers of the Minami-Aizu area. Among them, "Joho-ji Kannon Do" constructed during the Muromachi era is designated as a National Important Tangible Folk Cultural Property and the "Mokuzo Kannon Bosatsu-zazo" enshrined inside is designated as a Fukushima Prefecture Important Intangible Folk Cultural Property. The inscription on the "Mokuzo Kannon Bosatsu-zazo" includes the year 1311, indicating that it is the oldest historical artifact concerning the Kannon spiritual practice in this area. It is believed Kannon helps the prevention of crime and disaster, and also aids in child rearing.
- Nikkusawa Kannon Do (Photo 15-3)
  The principal image is a natural rock called "Kannon Iwa," which is similar to Kannon. People pray for the safety of their family and they also used to have religious faith in horses.
- Scroll
  In Tadami Town, from the Edo to Heisei eras, such traditional occupations as Kobiki (sawyer), Motoyama (craftsman who cuts and processes trees), Yamasaki (private Shinto senior priest), Banjo (carpenter), Boujutsu, Kyudo, Ogasawara-style Reihou, Sanpou, etc. were inherited by passing down a scroll (a kind of occupation license) through many generations. In recent years, this practice of traditional folklore has nearly ended due to the change in the modern social economy and values.
- Mitsuishi Shrine (Photo 15-4)
  Mitsuishi Shrine is located at the foot of Mt. Yougai and the first, second and third rocks of the mountain are revered as "Iwakura" (Dwelling place of a god). It is traditionally believed that as a god of marriage wishes come true by tying a thread of floss silk and twisted-paper string or passing a votive offering through holes in the rock, with the thumb and little finger.

<Language>

- The language of Tadami Town is Japanese, but spoken in a form belonging to the Aizu Mountains dialect-Western Region dialect (Tadami River and Ina river systems) of the Minai-Ouu dialect zone. The language is slightly different compared to the cities, towns and villages using Western District dialect, and even in Tadami Town, it differs by district (Education Board of Tadami Town, 2002). These dialects are thriving and used on a daily basis even today.

<Folklore>

- The Tadami area is cut off by snow for about half a year from early winter to early spring. Children are not able to go out to play and adults carry out indoor work during the long quiet agricultural season of winter. Because of the shorter daytime and longer nights, family members stay together for long periods of time gathered round the Irori (traditional hearth) or Kotatsu used for lighting and warmth at night. On such occasions, children ask adults to tell traditional folktales and in this way, the regional folklore has been passed down. The folklore of the Tadami area is common and general to Minami-Aizu County, including the way of telling the stories. This indicates closed interchange and marriage between settlements in the basin of the Ina River (Education Board of Tadami Town, 1996).

Photo 15-1 Yamairi (Offered holy straw rope)
In the past, enough holy straw ropes used to be offered to cover the trunk circumference completely, but nowadays the numbers have reduced considerably.

Photo 15-2 Onbe (Sainokami)
The style of the event has been simplified due to depopulation, an aging population and the decreasing number of young people.

Photo 15-3 Nikkusawa Kannon Do

Photo 15-4 Mitsuishi Shrine

15.6.2 Indicate activities aimed at identifying, safeguarding, promoting and/or revitalising such values and practices.

- Since 1989, the history and folklore of the Tadami area (historical sites, folk implements, folk tales, dialect and local place names, Kijishi, occupational scrolls, etc.) have been investigated, and detailed information of the relationship between humans and nature in the Tadami area has been recorded, by the Town History Editing Projects implemented by the Education Board (Refer Article 16.1.2).
- Based on the "Development of new technology of culture information transmission," the fourth group of Kanagawa University 21st Century COE Program "Systematization of Non-written Cultural Materials for the Study of Human Societies," a database compilation of many aspects of folklore together with folk implements of Tadami Town, were created and published in a website known as the "Tadami Town Internet Eco-museum" (http://www.himoji.jp/tadami-item/).
- Folklore studies have been conducted in the Ookura district of Tadami Town by Kanagawa University, focusing on "ethnic changes after rapid economic growth." (Edited by Sano, 2008)
- Folklore is passed down by the "Tadami Town Folklore Meetings."
- Concerning weaving handiworks using natural materials like vines, weaving classes are held by the "Tadami Folkcraft Preservation Society," "Asahi Silver Vine Handicrafts Club" and "Meiwa Folkcraft Preservation Society" of the Tadami, Meiwa and Asahi districts. In addition, the weaving classes are held by "Matatabi-ya," which also coordinates sales of woven handiworks. In this way, the skills of weaving are passed down (Photo 15-5).
- Refer Article 15.6.1 for Kagura and Saotome Odori.

Photo 15-5 Weaving class held by the local community

15.6.3 How should cultural values be integrated in the development process: elements of identity, traditional knowledge, social organizations, etc.?

<Approaches by organizations>

- The Tadami BR Preparation Liaison Council (provisional name), consisting of related administrative organizations (the Kanto Regional Forest Office of the Forestry Agency, the Tohoku Regional Environment Office of the Ministry of the Environment, Fukushima Prefecture, Hinoemata-village), local industrial associations, local community groups, Electric Power Development Co., Ltd., the Japanese Coordinating Committee for MAB, etc., is established for the integral management and operation of the Tadami BR proposed site, and the Secretariat is set up in Tadami Town.
- Prior to registration of the Tadami BR, Tadami Town will set up a project team in the town hall, for local development centered on the Tadami BR, for realizing the purposes of the Tadami BR and for promotion of the BR. This project team is responsible for examining administrative policies related to the BR, also, planning and implementing the related projects.
- For promoting the Tadami BR, the Resident Liaison Council, a voluntary organization consisting of local residents and community organizations, is established. The Liaison Council suggests, requests and does voluntary activity to realize the BR.
- These organizations work with policies to protect, utilize and develop the inherited and rich natural environment and the local traditional culture and life which rely on nature.

<Individual and specific approaches>

- Hunting
  Birds and animals hunted under appropriate wild animal management are cooked and served on the menu at a restaurant in the Tadami BR proposed site. In addition, hunters are expected to be leaders for wild life preservation management.
- Collecting of edible wild plants and mushrooms
  Edible wild plants and mushrooms collected from the mountains are sold with branding, and separate from farm products.
- Fishery
  While protecting the habitat area of the Native Japanese Char (*Salvelinus leucomaenis pluvius*) which inhabit in a small number in a small stream of the Tadami BR proposed site, plans for regeneration of the habitat and in the future, utilization as resources (food, fishing).
- Weaving handiworks
  Weaving skills are passed down by holding weaving classes, and also the sale of products.
- Traditional performing arts (Saotome Odori, Kagura)
  They are a tourist resource, and are performed for sightseeing tours and at a variety of events and also passed down by the Preservation Society.

15.6.4 Specify whether any indicators are used to evaluate these activities. If yes, which ones and give details.

(Examples of indicators: presence and number of formal and non-formal education programmes that transmit these values and practices, number of revitalisation programmes in place, number of speakers of an endangered or minority language).

- Hunting
  The number of hunting groups, participants and head counts of dead birds and animals
- Collecting of edible wild plants and mushrooms
  Settlements which do traditional collecting, the number of people, production amount and output
- Weaving handiworks

The number of weaving handiworks groups and classes

- Traditional performing arts
  The number of Preservation Society of Saotome Odori, participants and classes

16. LOGISTIC SUPPORT FUNCTION:

16.1 Research and monitoring:

16.1.1 Describe existing and planned research programmes and projects as well as monitoring activities and the area(s) in which they are (will be) undertaken in order to address specific questions related to biosphere reserve management and for the implementation of the management plan (please refer to variables in Annex I).

<The Existing Research Program, Project, Monitoring Activities>
(Natural sciences research)
(1) "The Capital of Mother Nature": An academic investigation research subsidy project]
Since 2012, Tadami Town started "'The Capital of Mother Nature': An academic investigation research subsidy project" to encourage researchers studying basic and applied research related to conservation, regeneration and utilization of biological diversity in Tadami Town and for research related to utilization of sustainable ecosystem services, for the purpose of promoting interchange with each research institute, storing and utilizing research results and providing learning opportunities to the residents. Four universities in 2012 and 7 universities or groups in 2013 were selected for subsidized Investigation Research. Below is a list of researchers and research outlines that received subsidies in 2012.

Subsidized Investigation Research 1
1. Research theme
Renewal of vegetation after large scale disturbance (Niigata and Fukushima heavy rainfall disaster in July 2011) in the mountainous riparian forest
2. Responsible organization
Niigata University Graduate School
3. Investigation items
Setting and measurement of 1.0 ha study area, tree census of the study area, survey of substrates and light inside the forest, driftwood survey (tree type, central diameter, stem length, rotted degree, number of bud flush, location), survey of seed dispersal situation of the study area, follow-up survey of survival of current-year seedlings in a cubicle set up in the study area and survey of water and light environment
4. Purpose of investigation
To identify the influence of disturbance by large scale flooding occurring in 100 year cycles to the riparian forest where the rare tree species, *Salix hukaoana,* grows.
5. Investigative method
1.0 ha study area was set up at the riparian forest of Ina River of Tadami river water system in Tadami Town affected by the Niigata and Fukushima heavy rainfall disaster in July 2011. First of all, to understand the situation of the riparian forest after the disturbance, tree census of the study area, substrates and driftwood. Then, the microenvironment of any seedling outbreak site is measured along with a follow-up survey of survival of seedlings, to understand the renewal situation of vegetation.
6. Investigative area
The transition area proposed site

Subsidized Investigation Research 2
1. Research theme
Tree distribution pattern in the area from river flow channel to a slope of heavy snowfall mountains

2. Responsible organization
Yokohama National University Graduate School
3. Investigation items
Topographical survey, tree census, classifying particle size of the superficial sediment, measurement of soil depth and measurements of snow depth and snow pressure
4. Purpose of investigation
The forest formed along the streams of the mountain is called riparian forest, where Japanese wing nut and Japanese horse chestnut are species forming the typical riparian forest on the Japan Sea side. However, Japanese wing nut and Japanese horse chestnut are not dominants in the entire area along the streams of the mountain, and there are many locations where other tree species are dominant. In the Tadami area, beech grows along the streams of the mountain in many places, indicating different vegetation from the typical riparian forest reported by existing research. It is unclear what factors form such vegetation patterns or what is the influence of characteristic snow coverage on this heavy snowfall area. Therefore, this study is to clarify the detailed distribution pattern of forest vegetation along with the streams of the heavy snowfall area and any regulating factors.
5. Investigative method
In the Tadami River system, a tree distribution survey and environment survey are conducted by belt transect and analysis of tree distribution patterns and environmental factors are made using statistical methods such as GLM.
6. Investigative area
The Buffer Zone B and the transition area proposed site

Subsidized Investigation Research 3
1. Research theme
To determine the most favorable environment for beech to self-regenerate and dominate the other species in the natural forest.
2. Responsible organization
University of Tokyo, Graduate school
3. Investigation items
Measurements of seedlings and the height of young trees and the annual growth of beech and other tree species; carry out transplantation trials of seedlings of beech and evergreen coniferous forest.
4. Purpose of investigation
In cool-temperate zones, forests highly dominated by beech are commonly found. From the results of natural forest practice, the conditions required for an even-aged forest of beech to be self-regenerating are becoming clear. However, it is still not known why beech established its dominance in the first place. Thus, this study was conducted to identify the environmental conditions where beech can renew itself and dominate other species, with a focus on the differences in the tolerance of trees against destructive disturbance such as avalanches and landslides.
5. Investigative method
In the mountain area near Tadami Town where evergreen coniferous forest and beech trees are mixed, record the type of topography where beech forest dominates the canopy. Set up five meter square quadrants in the area where seedling and young beech trees with different dominance and topography of beech canopy grow, and measure the tree height and annual growth height of beech and seedling and young trees of other tree species. Also, conduct transplantation trials to places outside where disturbance frequently occurs, to compare the impact of disturbance on the branches and leaves of beech and evergreen coniferous forest.
6. Investigative area
The Buffer Zone B proposed site and the transition area proposed site

Subsidized Investigation Research 4
1. Research theme

To study the wide-area distribution and growth situation of the population of *Lilium rubellum* in the Tadami area.
2. Responsible organization
Tokyo Metropolitan University
3. Investigation items
Population survey: Measurement of life history stage, base diameter, height and the number of leaves of *Lilium rubellum*
Environmental survey: Record of soil moisture content, intensity and vegetation
4. Purpose of investigation
The herbaceous plant group is not only useful for life by providing materials for food or clothes, but also there are aspects of seasonal blooming that have affected the formation of the Japanese mindscape and emotional culture. The Tadami area is one of the areas with the heaviest snowfall in Japan, characterized by the long utilization of mountains near villages, and also by the continuous large and highly natural deciduous broad-leaved forests and rich flora of herbaceous plants surrounding the forest. Among the flora of herbaceous plants, the appearance of foreign species is comparatively rare compared to other areas, and also some native species which are facing extinction in other areas, such as *Lilium rubellum,* are found growing abundantly. In recent years, some herbaceous plant species have been identified which are likely to become endangered in the near future, caused by development of the mountains followed by an invasion of foreign species, the dying out of human management of mountains near villages and village land, and also over-collection. Therefore, for the flora of herbaceous plants, it may be necessary for conservation to record not only the number of growing species, but also their related habitat environment and individual frequency. *Lilium rubellum* is comparatively seen in a large area of Tadami Town as a representative species of Tadami, however, any knowledge of the actual survival situation in its natural environment is very poor. The purpose of this research is to clarify the distribution of *Lilium rubellum* in a variety of landscapes and its population structure, which are essential information to help the conservation of *Lilium rubellum.*
5. Investigative method
Set up study areas of 10 to 50 square meters under different site conditions of Tadami Town where *Lilium rubellum* is distributed, such as on grasslands, slopes and riparian shrub forests. Distribution, population structure and the situation of blooming will be investigated in June, which is the flowering time of *Lilium rubellum*. At the same time, set up a one square meter quadrant, and measure life history stages, base diameter, height and the number of leaves of every individual plant. In addition, measure and record the soil moisture content, light intensity and vegetation of each study area.
6. Investigative area
The Buffer Zone B proposed site and the transition area proposed site

(2) Investigation conducted in National Forests by the Forestry Agency
1. Research theme
Investigation of the Endangered Species of Wildlife Protection Management Strategy (Mountain Hawk Eagle, etc.)
2. Responsible organization
Minami-Aizu branch office of Aizu District Forest Office, the Kanto Regional Forest Office of the Forestry Agency
3. Investigation items
Investigation of habitat situation, nesting places and surrounding areas of the planned sites of birds classified as National Endangered Species of Wild Fauna and Flora species such as the Mountain Hawk Eagle.
4. Purpose of investigation
To focus on the birds, classified as National Endangered Species of Wild Fauna and Flora species (Mountain Hawk Eagle, etc.), and living in the National Forest of Minai-Aizu district of Fukushima Prefecture. Carry out continuous and regular Investigation, so as to understand the habitat situation of selected species and conserve their habitat environment.

5. Investigative method
In nesting sites and surrounding areas of the planned sites, which were confirmed in previous years by field studies undertaken by researchers, set up observation fixed points to conduct fixed-point observation as well as confirm nesting conditions of the surrounding areas of the planned sites.
6. Investigative area
The Buffer Zone B proposed site and the transition area proposed site.

(3) Investigation conducted in National Forests by the Forestry Agency-2
1. Research theme
Monitoring survey of the Natural Forests in the Forests Ecosystem Reserve and the Green Corridor of Aizu district
2. Responsible organization
Forest Planning Division of the Kanto Regional Forest Office, Forestry Agency
3. Investigation items
Investigation for vicissitude of length of seedlings and young trees, preparation of section of vegetation and projection of stem, illuminance survey, vegetation survey
4. Purpose of investigation
Gathering the fundamental data, such as succession process from secondary forests, methods to change the coniferous single-layer forests to the mixed coniferous-broadleaved forests and, and examination for making progresses with technical knowledge and methods of maintain or restoration of nature, etc.
5. Investigative method
At the plots established in the planted forests and the natural forests, Conducting continuous and regular investigations at every year.
6. Investigative area
The Buffer Zone B and the transition area

(4) Investigation conducted by the Tadami Beech Center
1. Research theme
Structures and dynamics of beech natural forest and secondary forest in the Tadami area
2. Responsible organization
The Tadami Beech Center
3. Investigation items
Investigation on community composition of forest stand, forest stand structure, renewal patterns and dynamics
4. Purpose of investigation
To accumulate basic information related to the conservation and restoration of beech forests, investigate the composition, structure and dynamics of the beech natural forest, which is distributed in low mountain areas of heavy snowfall areas, as well as s secondary forest formed after logging.
5. Investigative method
Set up 0.5 ha or 0.05 ha study areas in beech natural forests and a secondary forests, conduct tree census, measure and record tree species names, diameter at breast height and height.
6. Investigative area
The Buffer Zone B proposed site.

(Humanities and social sciences research [population statistics, economic science, traditional knowledge, etc.])
(1) Currently in Tadami Town, historical investigation and research into historical sites and ancient documents are being carried out mainly by the Education Board of Tadami Town

Investigation of historical sites

1. Name of the historical site and location
Kurotani Tateato (Inside Idojiri, Kurotani, Tadami Town)
2. Responsible organization
The Education Board of Tadami Town
3. Investigation items
Preservation of records of archaeological features and relics, analysis of silicic acid, pollen analysis, dead seed analysis, identification of tree species (excavated lacquer ware) and preservative treatment of wooden artifacts.
4. Purpose of investigation
Kurotani Tateato is a ruin whose existence is confirmed in several historical documents as being from at least the 1500s. This research is to conduct excavation for investigation and preservation of records, before implementation of the "Naka-Asahi District" Management Unit Development infrastructure projects of Fukushima Prefecture.
5. Investigative method
With a study area of 3,250 m² including the Kurotani Tateato moat and area outside the moat, conduct preservation and records of archeological features and relics, estimate the paleoenvironment by silicic acid and pollen analysis and the identification of plant species of excavated seed and lacquer ware.
6. Investigative area
The transition area proposed site.

(2) Research conducted by the Forestry and Forest Products Research Institute of the Incorporated Administrative Agency
1. Study summary
To clarify empirically and theoretically, the interrelation between the development of rules, regulations and social relationships on common forest utilization and development of common forest management performance, focused on several settlements of Tadami Town.
2. Research theme
Pleiotropic and systematic approaches related to transition into open commons
3. Responsible organization
The Forestry and Forest Products Research Institute of the Incorporated Administrative Agency, Iwate Prefectural University, the University of Tokyo, Shibaura Institute of Technology and Rikkyo University
4. Investigation items
Rules of utilization and management of common forests of each settlement and their changes, social relationships on each settlement and their changes, past usage conditions of common forests.
5. Purpose of investigation
As forest management by local residents is reaching its limit due to depopulation and an aging population, which many semimountainous areas are suffering in Japan, it is necessary to determine rules and practices to prevent the decay of resources while accepting forest utilization by outsiders, in addition to local residents. Clarify the interrelation between the development of rules and regulations on common forest and the development of actual usage conditions and practices, in Tadami Town where the development of a variety of rules related to common forest utilization are seen.
6. Investigative method
Interviews, collecting information, reading of maps and photographs, field work, etc.
7. Investigative area
The transition area proposed site.

<Planned Research Programs, Projects, Monitoring activities>
(Natural sciences research)
- Investigation and research conducted by the Tadami Beech Center

Concerning the dynamics of a variety of forest communities in Tadami Town, monitoring is planned to better understand the relation of natural disturbance and human disturbance and its impact (beech natural forest, beech secondary forest, salamanders, death of Japanese Oaks, etc.)
Confirmation of habitat of Native Japanese Char (*Salvelinus leucomaenis pluvius*) which is facing extinction in Tadami Town, and monitoring to understand population dynamics (outsourcing) are planned.

- Investigation conducted in National Forests by the Forestry Agency
  "Investigation of the Endangered Species of Wildlife Protection Management Strategy (Mountain Hawk Eagle, etc.)" and "Monitoring study of national forests in the Forest Ecosystem Reserve and Green Corridor" are planned to continue after the next fiscal year.
- Basic research on the natural environment (the Forestry and Forest Products Research Institute outsourcing project)
- Continuation of "The Capital of Mother Nature: An academic investigation research subsidy project"
  As "The Capital of Mother Nature: An academic investigation research subsidy project" continues investigation and research of basic and/or applied research related to conservation, regeneration and/or utilization of biological diversity in the Tadami area, and for research related to the utilization of sustainable ecosystem services studied by researchers is planned to be carried out.

(Humanities and social sciences research)

- Research on buried cultural property
  An exploratory excavation investigation of the Miyamae ruins is planned to be conducted along with the main government building of town hall is constructed. At Miyamae ruins, several ground stone axes and cylindrical beads (Kudadama) have been collected from the surface.

16.1.2 Summarize past research and monitoring activities related to biosphere reserve management (please refer to variables in Annex I).

(1) The Town History Editing Committee

Since April 1989, the Town History Editing Committee was implemented as the 30th anniversary project of the town organization of Tadami Town, and has been gathering important basic information about Tadami Town. In the natural sciences, comprehensive studies concerning the aspects of weather, topography and geography, fauna and flora, and ecology of the Tadami area have been conducted. On the other hand, in the humanities and social sciences, investigations related to history, folklore (historical sites, folk implements, folk tales, dialect and local place names, Kijishi, occupational scrolls, etc.) of the Tadami area have been conducted, and the relation between humans and nature studied and recorded. Especially in the investigation of folk implements, later the so-called "Tadami method" was carried out by the Tadami Town residents themselves to record onto investigation cards the names of folk implements, their usage, donors, etc., and then arrange all the exhibits as a collection. In 2003, a "Collection of Production Tools and Working Clothes of Aizu-Tadami," 1,917 production tools, 416 working clothes – total 2,333 – which were used in the traditional crafts and livelihoods of Tadami Town, all of which were investigated by the residents, were designated as National Important Tangible Folk Cultural Assets in 2003.

Table: List of Natural science books published by Tadami Town by the Town History Editing Committee

No.	Author and Editor	Title	Published year
1	Tadami Town Town History Editing Committee	Tadami Town history document collection No. 4, "Nature of Aizu Tadami – Plants"	2001
2	Tadami Town Town History Editing Committee	Tadami Town history document collection No. 4, "Nature of Aizu Tadami - climate, geology and animals"	2001
3	Education Board of Tadami Town, Fukushima Prefecture	Tadami Cultural Heritage survey report No. 9, "Academic research on forest vegetation and biological diversity of the Tadami area, Fukushima Prefecture"	2003
4	Tadami Town Town History Editing Committee	Tadami Town history Vol. 1, Overview 1, "Nature, the primitive, ancient, medieval and early modern times"	2004
5	Education Board of Tadami Town, Fukushima Prefecture	Tadami Cultural Heritage survey report No. 10, "2nd report of Academic research on forest vegetation and biological diversity of the Tadami area, Fukushima Prefecture"	2004
6	Education Board of Tadami Town, Fukushima Prefecture	Tadami Cultural Heritage survey report No. 11, "Plants of Aizu Tadami"	2004
7	Education Board of Tadami Town, Fukushima Prefecture	Tadami Cultural Heritage survey report No. 12, "3rd report of Academic research on forest vegetation and biological diversity of the Tadami area, Fukushima Prefecture"	2004
8	Education Board of Tadami Town, Fukushima Prefecture	Tadami Cultural Heritage survey report No. 14, "Biology and inheritance of rare tree species, *Salix hukaoana*, in the Tadami River system of Fukushima Prefecture"	2005

Table: List of Humanities and social sciences books published by Tadami Town for the Town History Editing Committee

No.	Author and Editor	Title	Published year
1	Tadami Town Town History Editing Committee	Tadam-town history document collection No. 1, "Diagram – Folk implements of Aizu Tadami"	1991
2	Education Board of Tadami Town, Fukushima Prefecture	Tadami Cultural Heritage survey report No. 4, "Kubota ruins - Excavation investigation report for establishment of Tadami Museum of Archaeology"	1991
3	Tadami Town Town History Editing Committee	Tadami Town history Vol. 3 "Ethnic"	1992
4	Education Board of Tadami Town, Fukushima Prefecture	Tadami Cultural Heritage survey report No. 5, "Tracks of Kijishi of Fuzawa, Oku-Aizu"	1992
5	Tadami Town Town History Editing Committee	Tadami Town history Vol. 5, Materials 2 "Modern times"	1994
6	Tadami Town Town History Editing Committee	Tadami Town history Vol. 6, Materials 3 "Present times"	1995
7	Tadami Town Town History Editing Committee	Tadami Town history document collection No. 2, "Folklore of Aizu Tadami"	1995
8	Education Board of Tadami Town, Fukushima Prefecture	Tadami Cultural Heritage survey report No. 6, "Diagram -The medieval castle ruin of Aizu Tadami"	1995
9	Tadami Town Town History Editing Committee	Tadami Town history Vol. 2, Overview 2, "Modern and present times"	1997
10	Tadami Town Town History Editing Committee	Tadami Town history document collection No. 3, "Development of electric power resources of the Oze and Tadami Rivers"	1997
11	Tadami Town Town History Editing Committee	Tadami Town history Vol. 4, Materials 1 "The primitive, ancient, medieval and early modern times"	1999
12	Tadami Town Town History Editing Committee	Tadami Town history document collection No. 5, "Dialect and local place names of Aizu Tadami"	2002
13	Education Board of Tadami Town, Fukushima Prefecture	Tadami Cultural Heritage survey report No. 7, "A mountain castle in the Age of Civil Wars - archaeological features of Mizukubo Castle"	2002
14	Education Board of Tadami Town, Fukushima Prefecture	Tadami Cultural Heritage survey report No. 8, "Occupation scrolls of Aizu-Tadami"	2002
15	Tadami Town Town History Editing Committee	Tadami Town history Vol. 1, Overview 1, "Nature, the primitive, ancient, medieval and early modern times"	2004
16	Education Board of Tadami Town, Fukushima Prefecture	Tadami Cultural Heritage survey report No. 13, "Collections of Production Tools and Working Clothes of Aizu-Tadami"	2004
17	Education Board of Tadami Town, Fukushima Prefecture	Tadami Cultural Heritage survey report No. 15, "Tadami Town ruins exploratory excavation investigation report – Arai Tateato, Kurotani Tateato"	2009
18	Education Board of Tadami Town, Fukushima Prefecture	Tadami Cultural Heritage survey report No. 16, "Tadami Town ruins exploratory excavation investigation report – Shichijyukari ruins"	2010
19	Aizu architectural firm of Fukushima Prefecture, Education Board of Tadami Town, Fukushima Prefecture	Tadami Cultural Heritage survey report No. 17, "Shichijyukari ruins excavation investigation report – Excavation investigation report due to large scale river improvement work on the Ina River"	2012

(2) Research activities of Tadami Beech Center

Investigations related to the natural environment of Tadami Town, such as; the effect of the Niigata/Fukushima heavy rainfall disaster of July 29, 2011 to the Tadami River system, the increase in the number of dead Japanese Oaks within the jurisdiction of Tadami Town, the forest structure and the formation process of the "pollarded beech forest" seen in Tadami Town, are conducted mainly by the Tadami Beech Center. The Center publishes a "Tadami Town Field Guide Series" for town residents and visitors to use as a guidebook while sightseeing in the natural environment of Tadami Town. In particular, Inaba (2012) has records of the fresh water fish and amphibian species seen in Tadami Town. Also, the Center publishes guidebooks for exhibitions held at the "Museum of Japanese Beech and Rivers, Tadami," focusing on the natural environment of Tadami Town and the traditional life and culture of the residents. The

Center also made a “River map of Tadami Town” which was created by a survey of town residents to establish the names of river areas in Tadami Town.

Table: List of literature, books and maps of Tadami Beech Center

No.	Author and Editor	Title	Published year	Publication Magazine
1	Satoshi Kikuchi and Wajiro Suzuki	Genetic diversity and its conservation in the Tadami River basin, especially *Salix hukaoana* of Odosawa	2012	The Bulletin of Tadami Beech Center – Nature of Tadami – No. 1:7-11
2	Wajiro Suzuki and Kazuko Watabe	Impact of the Heavy rainfall disaster in July, 2011 to *Salix hukaoana* forests of the Ina River basin	2012	The Bulletin of Tadami Beech Center – Nature of Tadami – No. 1:12-18
3	Wajiro Suzuki and Kazuko Watabe	Actual conditions of driftwood caused by Heavy rainfall disaster (July 29) in Shionoki River	2012	The Bulletin of Tadami Beech Center – Nature of Tadami – No. 1:19-24
4	Wajiro Suzuki and Satoshi Kikuchi	Forest structure and formation process of “Pollarded beech forests” seen in Tadami Town	2012	The Bulletin of Tadami Beech Center – Nature of Tadami – No. 1:25-31
5	Wajiro Suzuki and Kazuko Watabe	Decay in the population of Japanese Oaks in the Tadami area	2012	The Bulletin of Tadami Beech Center – Nature of Tadami – No. 1:32-39
6	Tadami Beech Center	Tadami field guide I - “Flowers on climbing routes – Flowers for a season from snow melt to early summer – 44 species”	2012	
7	Tadami Beech Center	Tadami field guide II- “The big trees and giant trees of Tadami Town”	2012	
8	Osamu Inaba	Tadami field guide III – “Rivers and riparian lives of Tadami”	2012	
9	Tadami Beech Center	Exhibition guide series I – “Enjoy foods from nature around Tadami”	2013	
10	Tadami Beech Center	Exhibition guide series II – “Ecology and utilization of vines”	2012	
11	Tadami Beech Center and Fukosha	River map of Tadami Town	2013	

(3) National Survey on the Natural Environment

National Survey on the Natural Environment is a survey which has been conducted about every five years since 1973 by the Ministry of the Environment, based on Article 4 of the Nature Conservation Law. Its purpose is to understand the situation of the natural environment and any changes in Japan from a nationwide point of view and to arrange basic documents to promote natural environmental conservation measures. Investigations on the habitat situation of bats and on the distribution of forest vegetation such as beech in the Tadami area were conducted to analyze and verify the relation between forest vegetation and the fauna that depend on it.

Table: Report on Natural environment conservation basic research related to the Tadami area

No.	Author and Editor	Title	Published year
1	Fukushima Prefecture (The Ministry of the Environment)	Report on the 7th National Survey on the Natural Environment, biological diversity research and species diversity research (Fukushima Prefecture)	2007

(4) [Investigation conducted in National Forests by the Forestry Agency]

1. Research on the primeval beech forest

This academic research was conducted to identify the concept of the forests, which should be retained for future generations, such as the primeval beech forests and to identify actual forest ranges. Through the investigation the forest structure of beech natural forests, the concept of organize approaches to the primeval beech natural forest was identified.

2. Monitoring study related to Natural Forests of the Aizu area

Conducted fixed-point observation of sample area (inside of Buffer Zone B) set up in the planted and natural forests of the Oku-Aizu Forest Ecosystem Reserve and Aizu-Sanchi Green Corridor. Basic information for examination of the succession process from secondary forests and guidance methods for mixed coniferous - broadleaved forests etc. were collected and considered.
3. Investigation of the Endangered Species Protection Management for the Strategy (Mountain Hawk Eagle, etc.)
Focusing on birds living in the National Forest of the Minami-Aizu district of Fukushima Prefecture and classified as National Endangered Species of Wild Fauna and Flora (Mountain Hawk Eagle, etc.), the investigations were conducted continuously and regularly to better understand the habitat situation of selected species and conserve the habitat environment.

Table: List of literature of natural sciences research conducted in National Forests by the Forestry Agency

No.	Author and Editor	Title	Published year
1	Kanto Regional Forest Office of the Forestry Agency	Research report on the primeval beech forest	2005
2	Kanto Regional Forest Office of the Forestry Agency	Report on monitoring study related to the Natural Forest of the Aizu area	2005-2012
3	Kanto Regional Forest Office of the Forestry Agency	Investigation Report of Endangered Species Protection Management Strategy (Mountain Hawk Eagle, etc.)	2007-2012

(5) [Investigation conducted by the Forestry and Forest Products Research Institute of the Incorporated Administrative Agency]
(The Ministry of the Environment; Environmental research general promotion cost projects)

The objective of environmental research general promotion cost projects are to comprehensively promote investigation, research and technological development from interdisciplinary and international points of view, by collecting all the works of researchers in several fields, and to conserve the environment for the creation of a sustainable society. Among these projects, the research group basis of the Forestry and Forest Products Research Institute of the Incorporated Administrative Agency conducted a field survey across an area spread from southwest Fukushima with a high natural forest rate to southeast Fukushima and the northern part of Ibaraki Prefecture with a high planted forest rate; its purpose was to develop comprehensive evaluation methods for each evaluation index and economic standard, to help the effective utilization of a variety of forest ecosystem services in villages in the vicinity of mountains.

Table: List of literature of Humanities and social sciences research conducted by the Forestry and Forest Products Research Institute of the Incorporated Administrative Agency

Study subject: Research on a comprehensive evaluation method of forest ecosystem services for villages in the vicinity of mountains initiative.

No.	Author and Editor	Sub-theme	Published year
1	Kentaro Yoshida	Economic evaluation of ecosystem services supplied by biological diversity	2011
2	Ken Sugimura	Analysis of Asian specific features on utilization of forest ecosystem services	2011
3	Kaoru Maeto	Evaluation of ecosystem functions supplied to the agro-ecosystem from forests	2011
4	Hiroshi Tanaka and Kimiko Okabe	Evaluation of changes in the ecosystem functions of forests by human activities.	2011

(6) [Research on folklore by Kanagawa University 21st Century COE Program, "Systematization of Non-written Cultural Materials for the Study of Human Societies" Research Promotion Committee
Based on the "Development of new technology of culture information transmission," the fourth group of Kanagawa University 21st Century COE Program "Systematization of Non-written Cultural Materials for the Study of Human Societies," along with the systematization of non-written materials, were implemented for the purpose of (1) development of a system to transmit local culture and information in an integrated manner,

and (2) development of training methods for a specialized curator (senior curator) to master the new technology. Especially for (2), a database compilation of many aspects of folklore together with folk implements of Tadami Town, were created and published in a website known as the "Tadami Town Internet Eco-museum" (http://www.himoji.jp/tadami-item/). This website presents the folklore of Tadami Town and gives overview images of Tadami Town, and the system helps to foster understanding of the local people and their livelihoods with computer images making the mountain village life of Tadami Town available on the internet. In 2006, a symposium "Folk implements connect the world" was held in Tadami Town, Fukushima Prefecture. At the 3rd International symposium "Memory of place, Memory of body – the new horizon of non-written materials research" held under the same program was held in 2007. Discussions were held exploring the possibilities of Internet Eco-museums using the example of "Tadami Town Internet Eco-museum" (Edited by Kanagawa University 21st Century COE Program, "Systematization of Non-written Cultural Materials for the Study of Human Societies" Research Promotion Committee, 2008)

Table: List of literature of humanities and social sciences research conducted by Kanagawa University 21st Century COE Program, "Systematization of Non-written Cultural Materials for the Study of Human Societies" Research Promotion Committee

No.	Author and Editor	Title	Published year	Publication Magazine
1	Kenji Sano	"Non-written materials" and the local community - Preservation and practical use of Folk implements of Tadami Town, Fukushima Prefecture -	2004	Annual Report: "Systematization of Non-written Cultural Materials for the Study of Human Societies Vol. 1"
2	Michiaki Kono	Tohoku district seen from the distribution of existing farming tools	2005	Annual Report: "Systematization of Non-written Cultural Materials for the Study of Human Societies Vol.2"
3	Satoru Amino	Non-written materials and documentation	2005	Annual Report: "Systematization of Non-written Cultural Materials for the Study of Human Societies Vol.2"
4	Kenji Sano	Internet museum as a culture information transmission system – Focusing on cooperation with the University and the local museum -	2006	Annual Report: "Systematization of Non-written Cultural Materials for the Study of Human Societies Vol.3"
5	Edited by the fourth group of "Systematization of Non-written Cultural Materials for the Study of Human Societies"	Report on study results of Kanagawa University 21st Century COE Program, "Systematization of Non-written Cultural Materials for the Study of Human Societies" - "Development of area informatics : the way to innovation of knowledge"	2008	
6	Edited by Kanagawa University 21st Century COE Program, "Systematization of Non-written Cultural Materials for the Study of Human Societies" Research Promotion Committee	Report on study results of Kanagawa University 21st Century COE Program, "Systematization of Non-written Cultural Materials for the Study of Human Societies" Development and results of non-written materials studies - Research Project Summary Report -	2008	

Table: List of symposiums conducted by Kanagawa University 21st Century COE Program, "Systematization of Non-written Cultural Materials for the Study of Human Societies" Research Promotion Committee

No.	Sponsor	Title of symposium	Year
1	Tadami Town, Fukushima Prefecture Kanagawa University 21st Century COE Program,	Folk implements connect the world – The connection between humans and nature -	2006
2	Kanagawa University 21st Century COE Program	The Third International Symposium "Memory of place, Memory of body – the new horizon of non-written materials research"	2008

(7) Folklore studies by Kanagawa University
Based on the accumulated folklore studies of the Tadami area by Tadami Town Town History Editing Committee and Kanagawa University 21st Century COE Program, "Systematization of Non-written Cultural Materials for the Study of Human Societies" Research Promotion Committee, another folklore study was conducted in the Ookura district of Tadami Town, and reported by focusing on "ethnic changes after rapid economic growth."

Edited by Kenji Sano (2008), Kanagawa University History and Folklore study report No. 6, "Folklore of Ookura – Ookura, Tadami Town, Minami-Aizu, Fukushima Prefecture," Graduate School of History & Folklore Studies, Kanagawa University Graduate School, p 227.

(8) Study by Utsunomiya University (Outsourcing project on settlement revitalization study utilizing the skills of college students of Fukushima Prefecture)
In depopulated mountainous areas in Fukushima Prefecture where further depopulation and an aging population are of grave concern, the Local Promotion Division, Planning & Coordination Department, Fukushima Prefecture conducted a project whereby college students visit settlements to regenerate and train the "regional potential" of settlements for revitalization and development of the local area by utilizing "power and knowledge from the outside" such as new perspectives, ability to respond, special skills or knowledge which college students possess. This project also helps to maintain and strengthen the original local "inner power," such as the relationship between residents, mutual aid and community, local characteristic traditional cultures or customs, and the beautiful and rich diversity of nature and scenery. Utsunomiya University conducted an interview in the Fuzawa district of Tadami Town and presented a regional activation plan.

Table: List of study reports conducted by Utsunomiya University

No.	Author and Editor	Title	Published year
1	Ito *et al.*	Report on outsourcing project on settlement revitalization study utilizing the skills of college students, 2010 "Fuzawa – The way for development"	2010
2	Komagata *et al.*	Report on outsourcing project on settlement revitalization study utilizing the skills of college students, 2011, "Connect a smile – from the present to the future, from Fuzawa to Fukushima"	2011

(9) Other natural sciences research
Kashimura (1969) studied natural forest vegetation in the down-stream basin of the Tadami River for research on plants. Sugita (1988) investigated the relationship between distribution of plant communities and environmental factors (especially snow depth) at Mt. Asakusadake, which has one of the heaviest snowfalls in Japan. Suzuki *et al.* (2006) studied distribution of the rare tree species, *Salix hukaoana*, composition and structure of the riparian forest, in the Tadami River system where the fifth largest autogenesis ground of *Salix hukaoana* was found in 2003. In recent years, community groups of Tadami Town, "Tadami nature-study meeting," conducted investigations on the distribution and group conditions of *Salix hukaoana* in the Tadami River system (2012) and growing conditions of the rare species *Lilium rubellum* (2012).
Concerning insects, Tsunoda (2010) has been recording insect species seen in Tadami Town. The study group of the Forestry and Forest Products Research Institute of the Incorporated Administrative Agency investigates the difference between the secondary forest and the primeval forest, from the perspective of habitat of biota, by collecting, comparing and considering the flower visiting insects, bumblebees and Pidonia beetles found in the forests of Tadami Town, (Takihisa, *et al*. 2012).

Table: List of literature of natural sciences research conducted in the Tadami BR proposed site

No.	Author and Editor	Title	Published year	Publication Magazine
1	The Nature Conservation Society of Japan	Academic research report of Echigosanzan-Tadami Quasi-national Park	1968	Research report of the Nature Conservation Society of Japan, No. 34
2	Hisashi Sugita	Environmental factors and their effects on the distribution of plant communities in Mt. Asakusa, a mountain with deep snow: with special relation to the growth form of *fagus crenata*: I. Relationship between snow depth and the distribution pattern of plant communities	1988	Bulletin of Japanese Journal of Ecology 38 (3): 217-227.
3	Wajiro Suzuki and Satoshi Kikuchi	Floristic composition and stand structure of riparian forests in the Tadami River basin and the ecological distribution of an endangered tree, *Salix hukaoana*	2006	Japanese Journal of Conservation Ecology 11 (2): 85-93.
4	Wataru Tsunoda	List of insects of Tadami Town	2010	
5	Yutaka Takahara, Kazuko Watabe and Takahide Kurosawa	Growing conditions of *Lilium rubellum* and its conservation in Tadami Town	2012	Bulletin of Nature of Tadami – Tadami Beech Center No. 1:2-6.
11	Tadami nature-study meeting	Rare tree species, *Salix hukaoana*, in the Tadami River system of Fukushima Prefecture – Report on Its distribution and group conditions -	2012	
12	Osamu Inaba	Tadami field guide III – "Rivers and riparian lives of Tadami"	2012	
13	KASHIMURA Toshimichi	Ecological study of the natural forest vegetation in the snowy region along the lower Tadami valley	1969	Ecological Review 17 (3):153-170, Mount Hakkoda Botanical Laboratory, Tohoku University
14	Suzuki Wajiro, Kikuchi Satoshi	Ecology and conservation of an endangered willow, *Salix hukaoana*.	2008	Sakio H, Tamura T (eds) Ecology of riparian forests in Japan: disturbance, life history, and regeneration. Springer, Tokyo, p.281-297

16.1.3 Indicate what research infrastructure is available in the proposed biosphere reserve, and what role the biosphere reserve will play in supporting such infrastructure.

- In 2007, "Tadami Beech Center" was launched as a core organization for realizing the 6th Tadami Town development promotion plan.
  The main purposes of Tadami Beech Center are;
  (1) Protect and conserve the rich natural environment and wildlife of the Tadami area and pass it onto the next generation,
  (2) Investigate and research the natural environment and wildlife of Tadami, as well as the traditional life and culture of the residents, which is deeply connected to nature, and to clarify the actual situation,
  (3) Exhibit and explain the documents and information accumulated by investigation and research at the adjunct museum (Museum of Japanese Beech and Rivers, Tadami),
  (4) Utilize as a place for environmental education and training and
  (5) Widely provide information related to the natural environment and traditional culture of Tadami Town and promote personal exchanges inside and outside the town.
  The major activities are;
  (1) Conservation of the natural environment and protection of wildlife,
  (2) In addition to its own basic research of the natural environment and wildlife of Tadami Town, strengthen cooperation with universities and research institutes through "'The Capital of Mother

Nature': An academic investigation research subsidy project" and centralize Tadami Town for academic investigation and research,
(3) Collect information related to the natural environment of the Tadami area, exhibit and explain at the "Museum of Japanese Beech and Rivers, Tadami" (Photo 16-1, 16-2),
(4) Host lectures and nature observation meetings, invite and provide lecturers for events aiming to obtain support from residents and visitors concerning the importance of valuing and protecting the natural environment and wildlife of the Tadami area and its utilization, (Photo 16-3, 16-4) and
(5) Positively supply and transmit information concerning the natural environment of Tadami Town and information concerning the protection, conservation and utilization of nature, through the Beech Center homepage, newsletters, bulletins, etc.; simultaneously the Center sponsors or hosts a variety of events.

- Registration of the BR strongly supports the purposes and activities of the Tadami Beech Center.
- The number of research staff is currently three.

Photo 16-1 Museum of Japanese Beech and Rivers, Tadami

Photo 16-2 Display inside the "Museum of Japanese Beech and Rivers, Tadami"

Photo 16-3 A Beech Center lecture
(Causes and countermeasures to prevent the death of Japanese Oaks)

Photo 16-4 Nature observation meetings of the Beech Center (Walk in the Beech forest)

16.2 Education for sustainable development and public awareness:

16.2.1 Describe existing and planned activities, indicating the target group(s) and numbers of people involved (as "teachers" and "students") and the area concerned.

- The Education Board of Tadami Town conducts "Home town Tadami - personnel training lectures," to train personnel to support regional development in a great variety of ways, through their extensive knowledge of basic and academic approaches and who can correspond to new issues.
- The Education Board of Tadami Town promotes "Tadami interesting study," a learning activity presenting local resources such as nature, history, culture, tradition, industry, etc., of Tadami Town as

the learning target for children and adults to learn and better understand the region, resulting in the rediscovery of local values and creation of the region.

- As part of the ESD, plan to participate ProSPER-Net project of the United Nations University and receive students as candidates for field practice.
- Until registration of the Tadami BR proposed site, as BR related projects of Tadami Town, there are plans to hold training courses for nature observation instructors of the Nature Conservation Society of Japan (NACS-J) mainly for Tadami Town residents to train as nature observation instructors. Nature observation instructors trained by the courses are expected to educate the Tadami Town residents about protection of the natural environment through nature observation in the Tadami BR proposed site.
- To promote organic agriculture; there are plans to conduct lectures by inviting lecturers from the Japan Organic Agriculture Association.
- To realize and promote the sustainable operation of forests; use of the Forest Certification System and its educational training are planned.
- One of the elementary schools of Tadami Town will apply for registration to the "UNESCO Associated Schools Project Network" in 2013. In this elementary school, students make visits to natural sites, cultural and traditional events of the town during their classes on life environmental or comprehensive studies, to learn from people who are familiar with such subjects. This activity helps the cultural exchange among local residents and leads to a deeper understanding of the nature and culture of Tadami Town, while utilizing familiar "humans, things and events" of the Tadami Town area. Other educational institutions located in Tadami Town will also apply for registration after the year of 2013.

16.2.2 What facilities and financial resources are (or will be) available for these activities?

<Facilities>

- Museum of Japanese Beech and Rivers, Tadami
- School Annex in the Forest Fuzawa
- Aizu Tadami Museum of Archaeological
- Memorial Museum of Kawai Tsuginosuke
- Each district center (Three facilities of Tadami, Asahi and Meiwa in total)
- Elementary schools, junior high schools and high schools

<Financial base>

- Self-sponsored funds of Tadami Town and assessed contributions of related organs

16.3 Contribution to the World Network of Biosphere Reserves:

16.3.1 How will the proposed biosphere reserve contribute to the World Network of Biosphere Reserves, its Regional and Thematic Networks?

- It will contribute by supplying information from investigation and research and/or local development, receiving researchers and holding symposiums.

16.3.2 What are the expected benefits of international cooperation for the biosphere reserve?

- The expected benefits are information exchange of new knowledge related to protection and conservation methods of the natural environment, investigation and research, and local development, and personal and social exchange.

16.4 Internal and external communication channels and media used by the biosphere reserve:
16.4.1 Is (will) there (be) a biosphere reserve website? If yes, what is its URL?

- Currently there is no website, however, it is planned to launch a website shortly.

16.4.2 Is (will) there (be) an electronic newsletter? If yes, how often will it be published?

- Currently there is no electronic newsletter, however, it is planned to launch a newsletter shortly.

16.4.3 Does (will) the biosphere reserve belong to a social network (Facebook, Twitter, etc.)?

- Currently it is not registered in any social network (Facebook, Twitter, etc.), however, it is planned to register.

17. GOVERNANCE, BIOSPHERE RESERVE MANAGEMENT AND COORDINATION:

[Describe the following characteristics in the prospective that the site is being designated.]
17.1 Management and coordination structure:
17.1.1 What is the legal status of the biosphere reserve?

- Refer Article 4.4.

17.1.2 What is the legal status of the core area(s) and the buffer zone(s)?

- Basically refer Article 4.4.

<Core area>

- The proposed core area is accord with the Preservation Zone of the Oku-Aizu Forest Ecosystem Reserve based on the Law on the Administration and Management of National Forests, where the area is basically left to natural turnover without human action. Most of the proposed core area is surrounded by the Conservation and Utilization Zone of the Oku-Aizu Forest Ecosystem Reserve based on the Law on the Administration and Management of National Forests, where no forest management operation for woods production is conducted, and the Special Protection Zone of the Echigosanzan-Tadami Quasi-national Park based on the Natural Park Act, where any human work activities such as the cutting of trees and bamboos and any extended new construction is restricted. Moreover in the Oku -Aizu Forest Ecosystem Reserve and "Aizu-Sanchi Green Corridor," monitoring surveys are conducted to more accurately understand its situation, and to conserve and manage appropriately in the future. Based on the above framework, there is very little possibility of negative impact by human activity in the proposed core area.

<Buffer Zone A proposed site>

- The Buffer Zone A proposed site is accord with the Special Protection Zone of the Echigosanzan-Tadami Quasi-national Park based on the Natural Park Act as well as the Conservation and Utilization Zone of the Oku-Aizu Forest Ecosystem Reserve based on the Law on the Administration and Management of National Forests, where such human activities as the cutting of trees or bamboos and any extended new construction are restricted.
- In the Conservation and Utilization Zone of the Oku-Aizu Forest Ecosystem Reserve based on the Law

on the Administration and Management of National Forests including the Buffer Zone A proposed site, it acts as a buffer to protect the Preservation Zone from direct influence from outside by conducting no forest management operation for wood production based on the setting policy concerning the Oku-Aizu Forest Ecosystem Reserve.

<Buffer Zone B proposed site>

- In the Conservation and Utilization Zone of the Oku-Aizu Forest Ecosystem Reserve based on the Law on the Administration and Management of National Forests, having the majority of Buffer Zone B proposed site, it acts as a buffer to protect the Preservation Zone from direct influence from outside by conducting no forest management operation for wood production based on the setting policy concerning the Oku-Aizu Forest Ecosystem Reserve. However, in the Conservation and Utilization Zone, the forest management operations to make the planted forests to the natural forests in the future.
- The Aizu-Sanchi Green Corridor, designated for the purpose of maintenance and improvement of biological diversity based on the Law on the Administration and Management of National Forests, encourages appropriate forest management with consideration to the habitat environment of rare wild animals and provides places for education concerning the forest environment, according to the management policy of the Aizu-Sanchi Green Corridor.
- The Protected Forest "Hometown Forest" based on the Law on the Administration and Management of National Forests is conserved as significant forest in cooperation with the local community and positively utilized to contributes to rural local development through activities such as natural sightseeing, therapeutic walk in the forests, and forest recreation based on the regional historical and cultural background.
- Eco tours by local guides are carried out in "Megumino-Mori"; designated as the Protected Forest "Hometown Forest" based on the Law on the Administration and Management of National Forests.
- Regarding the National Forests, sustainable forest administration and management is carried out according to The Fourth Aizu Forest Planning Area Regional Administration and Management Plan based on the Law on the Administration and Management of National Forests. Especially, in the National Forests adjacent to the Oku-Aizu Forest Ecosystem Reserve; no forest management operations that will rapidly change the environment inside the Forest Ecosystem Reserve will be carried out and the operations will be handled sensitively.
- In the Class I Special Zones and Class II Special Zones of Echigosanzan-Tadami Quasi-national Park based on the Natural Park Act, human work activities such as cutting down trees and bamboos, new construction, reconstruction, and extension of structures are restricted.
- In the Buffer Zone B proposed site, common practices such as collecting edible wild plants and mushrooms are traditionally carried out by local residents in a sustainable way and appropriately carried out under "The System of National Forest Permitted to Use of Local Dwellers" based on the Law on the Administration and Management of National Forests.
- In the town forests, the forests are managed with consideration of the conservation of biological diversity by the Tadami Town Forest Improvement Plan based on the Forest Law.

17.1.3 Which administrative authorities have competence for each zone of the biosphere reserve (core area(s), buffer zone(s), transition area(s))?

<Core area proposed site>
The Kanto Regional Forest Office of the Forestry Agency, Fukushima Prefecture and the Ministry of the Environment

<Buffer Zone A proposed site>

The Kanto Regional Forest Office of the Forestry Agency, Fukushima Prefecture and the Ministry of the Environment

<Buffer Zone B proposed site>
The Kanto Regional Forest Office of the Forestry Agency, the Ministry of the Environment, Fukushima Prefecture and Tadami Town

<Transition area proposed site>
The Kanto Regional Forest Office of the Forestry Agency, the Ministry of the Environment, Fukushima Prefecture and Tadami Town

17.1.4. Clarify the respective competence of each of these authorities. Make a distinction between each zone if necessary and mention any decentralized authority.

<Core area proposed site>
The Kanto Regional Forest Office of the Forestry Agency (Administration and Management of National Forests based on the Law on the Administration and Management of National Forests), Fukushima Prefecture (Management of the Quasi-national Park based on the Natural Park Act) and the Ministry of the Environment (Designation of the Quasi-national Park based on the Natural Park Act, etc.)

<Buffer Zone A proposed site>
The Kanto Regional Forest Office of the Forestry Agency (Administration and Management of National Forests based on the Law on the Administration and Management of National Forests), Fukushima Prefecture (Management of the Quasi-national Park based on the Natural Park Act) and the Ministry of the Environment (Designation of the Quasi-national Park based on the Natural Park Act, etc.)

<Buffer Zone B proposed site>
The Kanto Regional Forest Office of the Forestry Agency (Administration and Management of National Forests based on the Law on the Administration and Management of National Forests), Fukushima Prefecture (Management of the Quasi-national Park based on the Natural Park Act), Tadami Town (Management of town forest Tadami Town bylaws), and the Ministry of the Environment (Designation of the Quasi-national Park based on the Natural Park Act, etc.)

<Transition area proposed site>
The Kanto Regional Forest Office of the Forestry Agency (Administration and Management of National Forests based on the Law on the Administration and Management of National Forests), Fukushima Prefecture (prefectural government) and Tadami Town (Management of town forest Tadami Town bylaws, town goverment.)

17.1.5 Indicate the main land tenure (ownership) for each zone.

<Core area proposed site>
The Kanto Regional Forest Office of the Forestry Agency

<Buffer Zone A proposed site>
The Kanto Regional Forest Office of the Forestry Agency

<Buffer Zone B proposed site>
The Kanto Regional Forest Office of the Forestry Agency, Tadami Town and the Electric Power Development Co. Ltd.

<Transition area proposed site>
The Kanto Regional Forest Office of the Forestry Agency, Fukushima Prefecture, Tadami Town and the Electric Power Development Co. Ltd., Others

17.1.6 Is there a single manager/coordinator of the biosphere reserve or are several people in charge of managing it? If one manager/coordinator, who designates and employs him/her (national authorities, environmental administrative agency, local authorities)?

- The Kanto Regional Forest Office of the Forestry Agency, Fukushima Prefecture and Tadami Town will act as the administrators of the BR area, based on the each authorities mentioned above (17.1.4).
- Operation and management of the BR will be adjusted and conducted by the Council which will be organized after registration of the BR mainly by Tadami Town.

17.1.7 Are there consultative advisory or decision-making bodies (e.g., scientific council, general assembly of inhabitants of the reserve) for each zone or for the whole biosphere reserve?
  - If yes, describe their composition, role and competence, and the frequency of their meetings.

- Refer Article 4.6.1.

17.1.8 Has a coordination structure been established specifically for the biosphere reserve?
  - If yes, describe in detail its functioning, composition and the relative proportion of each group in this structure, its role and competence.
  - Is this coordination structure autonomous or is it under the authority of local or central government, or of the manager/coordinator of the biosphere reserve?

- Currently, no specific adjustment system for the BR has been established, however, the BR Promotion Council consisting of the BR related administrative organizations, industrial associations and local community groups are planned to be organized soon after the BR registration is completed. The Council will be operated by a round table method where the members can discuss on an equal footing. The Secretariat of the Council will be the responsibility of Tadami Town.

17.1.9 How is the management/coordination adapted to the local situation?

- This is an agenda item after establishing the BR Promotion Council.

17.1.10 Is there a procedure for evaluating and monitoring the effectiveness of the management?

- Currently there is no procedure, however in the future, internal and external evaluation monitoring systems are planned to be installed.

17.2 Conflicts within the biosphere reserve:
17.2.1 Describe any important conflicts regarding the access or the use of natural resources in the area considered (and precise period if accurate). If the biosphere reserve has contributed to preventing or resolving some of these conflicts, explain what has been resolved or prevented, and how this was achieved for each zone.

- In the Tadami BR proposed site, there is no conflict as natural resources are utilized in a sustainable way.

17.2.2 If there are any conflicts in competence among the different administrative authorities in the management of the biosphere reserve, describe these.

- Maintenance and management are properly carried out between administrative offices.

17.2.3 Explain the means used to resolve these conflicts, and their effectiveness.

- Same as Article 17.2.1.
- Discussion and adjustment between administrative offices resolve any conflict appropriately.

17.3 Representation, participation and consultation of local communities:
17.3.1 At what stages in the existence of a biosphere reserve have local people been involved: design of the biosphere reserve, drawing up of the management/cooperation plan, implementation of the plan, day to day management of the biosphere reserve? Give some specific examples.

- In December 2011, a study committee made up of members with experience or academic standing and town residents, was established for branding "The Capital of Mother Nature," and nine proposals were introduced. Among them, a framework for the BR system was proposed to realize the branding.
- In May 2012, Tadami Town established the study committee of the Tadami BR consisting of people of experience or academic standing and town residents to hold monthly regular meetings from May to August, to discuss policy and proposals concerning area-setting related to the application for a Biosphere Reserve (Photo 17-1).
- In September 2012, Tadami Town held a meeting to explain to local residents a summary of the BR and proposals on setting up the BR proposed site which was reported at previous committees, in three districts, Tadami, Asahi and Meiwa.
- In November 2012, Tadami Town held a Biosphere Reserve Local Symposium for Tadami Town residents. In the symposium, the residents attended lectures related to the BR and given by people of experience or academic standing, and also people from the Aya BR, an advanced BR area. Discussions concerning the utilization of the Tadami Town BR were held with the lecturers to deepen the understanding of the BR among town residents and promote the registration of the Tadami BR.
- The Tadami BR Preparation Liaison Council (provisional name), consisting of related administrative organizations (the Kanto Regional Forest Office of the Forestry Agency, the Tohoku Regional Environment Office of the Ministry of the Environment, Fukushima Prefecture, Hinoemata-village), local industrial associations, local community groups, Electric Power Development Co., Ltd., the Japanese Coordinating Committee for MAB, etc., is established for the integral management and

operation of the BR proposed site, and the Secretariat is set up in Tadami Town. The Council will set up an expert committee made up of people of experience or academic standing, as an organization to offer advice on matters concerning the appropriate management and operation of the BR.

- Prior to registration of the Tadami BR, Tadami Town will set up a project team in the town hall, for local development centered on the Tadami BR, for realizing the purposes of the Tadami BR and for promotion of the BR. This project team is responsible for examining and implementing administrative policies related to the BR, and plans related to projects.
- For realizing the purposes of the Tadami BR, the Resident Liaison Council, a voluntary organization consisting of local residents and community organizations, is established. The Liaison Council suggests, requests and does voluntary activity to realize the BR.

Photo 17-1 Biosphere Reserve Local Symposium "The future of Tadami created by the BR"
(Photo of Panel Discussion between lecturers and the residents)

17.3.2 Describe how the local people (including women and indigenous communities) have been, and/or are represented in the planning and management of the biosphere reserve (e.g., assembly of representatives, consultative groups).

- The Tadami BR study committee examined policies and proposals on area-setting related to application of the Tadami BR proposed site; the town residents (including representatives of women's groups in each district) participated in the discussions.
- In the Tadami BR Promotion Council (provisional name), residents' representatives participate and ensure their point of view is sufficiently represented. The Tadami BR Promotion Resident Liaison Council (provisional name) (Photo 17-1), an organization to promote the BR at the town residents level, also works as a cooperative organization of the Tadami BR Promotion Council.

17.3.3 Describe the specific situation of young people in the proposed biosphere reserve (e.g., potential impacts of the biosphere reserve on youth, consideration of their interests and needs, incentives to encourage them to participate actively in the governance system of the biosphere reserve).

- While depopulation in the Tadami BR proposed site has proceeded over the past decades, it is essential to help encourage the settlement of young people to maintain and develop the local community. It is expected to play a role as a center for regional vitalization utilizing natural resources and traditional culture and livelihoods which rely on the sustainable management of nature.
- The number of young people who have urban values is increasing. However, opportunities for the re-recognition of the values of the Tadami BR proposed site to be passed on to the next generation, (values which are different from urban values), and protection and development of the area will be generated by registration of the Tadami BR proposed site as a BR, along with the international-wide recognition of natural resources, traditional cultures and livelihoods relying on nature and the promotion of related projects.
- The project team which promotes BR related projects in the town-hall is organized by young people basis.
- Young people will participate in the Tadami BR Promotion Resident Liaison Council (provisional name), organized to promote the BR at the town resident level.

17.3.4 What form does this representation take (e.g., companies, associations, environmental associations, trade unions)?

- Agricultural cooperative, Women's associations, Commercial and industrial associations, Forest owners' cooperative association, Fishery cooperative, self-governing organizations, local community groups, NPOs

17.3.5 Are there procedures for integrating the representative body of local communities (e.g., financial, election of representatives, traditional authorities)?

- The representatives of local industrial associations, community groups and self-governing organizations constitute the BR Promotion Council.

17.3.6 How long-lived are consultation mechanisms (permanent assembly, consultation on specific projects)? Make a complete description of this consultation. What are the roles of involved stakeholders compared to the role of the biosphere reserve?

- In Tadami Town, 27 settlements have resident self-governing organizations to discuss and resolve the issues of the district. As experienced persons elders of the community give advice on historical practices, and their opinions are treated with respect.

17.3.7 What consultation mechanisms have been used, and who has been involved? Are they for specific purposes or long-term? What impacts have they had on decision-making processes (decisional, consultative or merely to inform the population)?

- While developing proposals for the BR area-setting and its zoning issues were raised, mainly about whether to keep or change certain common customs. Through discussion the importance of respecting the conventional and traditional land use practices was understood, and this provided a platform to move the setting of proposals forward.

17.3.8 Do women participate in community organizations and decision-making processes? Are their interests and needs given equal consideration? What incentives or programmes are in place to encourage their representation and participation (e.g.: was(were) a "gender impact assessment(s)" carried out)?

- Women's associations are organized in three districts, Tadami, Asahi and Meiwa, and their opinions are respected and reflected in the local community.

17.4. The management/cooperation plan/policy:
17.4.1 Is there a management/cooperation plan/policy for the biosphere reserve as a whole?

- The MAB working group of the Japanese National Commission for UNESCO of the Ministry of Education, Culture, Sports, Science and Technology has given guidelines for the establishment of BRs in Japan.
- The Tadami BR proposed site is formed at the Tadami BR Promotion Council (provisional name) organized after the BR registration.

17.4.2 Which actors are involved in preparing the management/cooperation plan? How are they involved?

- Concerning the Tadami BR Promotion Council (provisional name), the participants will include the Kanto Regional Forest Office of the Forestry Agency, the Tohoku Regional Environment Office of the Ministry of the Environment, Fukushima Prefecture, Tadami Town, Hinoemata-village, representatives of the town residents (from the Tadami BR Promotion Resident Liaison Council (provisional name)), Electric Power Development Co., Ltd. and the Japanese Coordinating Committee for MAB. The number of members will be about 12.

17.4.3 Do local authorities formally adopt the management/cooperation plan? Are local authorities making reference to it in other policies and/or plans? If so, please provide details.

- The BR management and operation plan is expected to be developed through discussion between Fukushima Prefecture, Tadami Town and Hinoemata-village. In the measures, it is specified by Fukushima Prefecture and Tadami Town that the BR will play a significant role in the conservation of the local natural environment and local development.

17.4.4 What is the duration of the management/cooperation plan? How often is it revised or renegotiated?

- It is a 10-year plan, and will be revised every 5 years.

17.4.5 Describe the contents of the management/cooperation plan. Does it consist of detailed measures or detailed guidelines? Give some examples of measures or guidelines advocated by the plan? (Enclose a copy).

- The Tadami BR proposed area is a rich natural environment, with a long history of sustainable utilization of natural resources based on traditional common practices, along with an inherited traditional culture grown out of a background of this environment and resources. The management and operation plan is expected to be designed for the purpose of local development and revitalization, to maintain and develop those local communities who are part of a modern society and yet are co-existing with nature, and for the protection and conservation of a valuable natural environment and biological diversity.
- The plan consists of BR related projects centered upon Tadami Town, along with the purposes of the BR; the protection and conservation of the natural environment, investigation and research, personnel training and sustainable socioeconomic development (local development). Detailed information for each related project is as follows.

(1) Protection and conservation of the natural environment

1. Holding a training course of natural observation instructors and assistants given by the Nature Conservation Society of Japan.

Purpose: For training personnel who will practice and spread the protection and conservation of nature in the Tadami BR proposed area. The "Natural Observation Instructors Training Course" will be held mainly for Tadami Town residents, and will train "Nature observation instructors" to be a practitioner of nature protection education and also act as a volunteer leader to protect local nature and create a group that values nature by holding nature observation meetings sponsored by the Nature Conservation Society of Japan, a Public Interest Incorporated Foundation. Participants are expected to play a role as nature protection observers in the area in the future, by holding nature observation meetings for nature protection inside the Tadami BR proposed area and spreading the concepts of nature protection.

2. Conservation of wetlands

Purpose: In general, rare plants and animals inhabit the wetlands. The Oosone wetlands located in the Yanatori district of Tadami Town was designated as a Natural Monument of Tadami Town in 1986, however later, it was left as it was and proper protection and conservation have not been carried out, resulting in the rotting of the wooden footpath set in the wetland. In addition, its existence is not utilized sufficiently as an important local resource. Therefore, the utilization of the wetlands as a local resource will be promoted by removing the wooden footpath and setting up surrounding walkways and preparing platforms, for better protection and conservation of the wetland.

3. Maintenance of "The Nature Observation Forest"

Purpose: Tadami Town announced "The Capital of Mother Nature," for promoting the town plan with a symbol of the deciduous broad-leaved forests represented by beech forests, and to disseminate information and activities. Among them, walking in the beech forest is promoted, and in fact, many people from outside the town visit to take walks. However, on other hand, "The Blessed Forest" and "The Healing Forest" which were arranged along the main existing walking paths are difficult to access from the center of the town and the routes are not easy to walk without proper equipment and hiking experience. In addition, it is necessary to enhance the recognition of town residents concerning their local forests. Therefore, forests which are comparatively easy to access from the main roads of the town, but are not beech forests and yet are still characteristic of Tadami Town, have been set up for visitors to visit and utilize. The initiative is known as "The Forest of Nature Observation" and they are easy to explore freely with only light equipment. At the same time, recognition of the forest by town's people

will be enhanced, as the residents of local settlements will maintain and manage the forest by themselves under the guidance of the Beech Center.
Place: Fukui (Beech (*Fagus crenata*) forest), Sugisawa (*Salix hukaoana* forest), Narato (*Salix hukaoana* forest), Managawa (Pollarded Beech (*Fagus crenata*) forest), Kurosawa (Pollarded Konara Oak (*Quercus serrata*) forest), Yanatori (Beech (*Fagus crenata*) forest), Narato (Beech (*Fagus crenata*) forest)

(2) Academic investigation and research, personnel training

1. Improvement of "The Capital of Mother Nature": An academic investigation research subsidy project (continued since 2012)
Purpose: This project supports investigation and research, symposiums, etc., related to events or problems existing in the town, such as conservation, regeneration and utilization of biological diversity in Tadami Town, utilization of sustainable ecosystem services and the regeneration of nature. The purposes of this project are to promote the town plan to appreciate nature in accordance with the 6th Tadami Town development promotion plan (2006), to promote establishment of branding "The Capital of Mother Nature" for revitalization and recovery from the Niigata and Fukushima heavy rainfall disaster in July 2011, to improve educational opportunities for the residents, enhance exchanges with research institutes and to store and utilize the research results.
2. Implementation of natural environment basic research
* Research themes will be decided after examination with an outsourcing research institute, or the Forestry and Forest Products Research Institute; there are also plans to conduct research related to hill slope vegetation in the Tadami area, which has not been conducted to date.
3. Registration to the "UNESCO Associated Schools Project Network"
Purpose: In 1953, the UNESCO School Associated Schools Project Network (ASPnet) was started to put into practice the principles of the Constitution of UNESCO in schools, as a community to conduct and maintain comparative research on experimental trials of education for international understanding. The year 2013 is its 60th anniversary and approximately 9,000 schools in over 180 countries have joined as members of ASPnet. In Japan, as of September 2012, 519 kindergartens, elementary schools, junior high schools, high schools and teacher colleges are participating in this network. Also in Japan, a school approved to join ASPnet is known as a UNESCO school. UNESCO schools exchange with schools around the world by utilizing the organization's global network, for the purpose of developing and expanding new education contents or methods that young people can manage for several global problems, by sharing information or experiences between students and teachers. The Ministry of Education, Culture, Sports, Science and Technology and Japanese National Commission for UNESCO place UNESCO schools as a promotion base of ESD (Education for Sustainable Development). Therefore, the registration of the educational institutes of Tadami Town as UNESCO schools is expected to be utilized as a place for personnel training to practice the principles of the Biosphere Reserve, with such support as sending lecturers and teaching materials (books) to educational institutes.

(3) Local development

1. Fish reproduction projects
Purpose: In Tadami Town, selectively bred and cultivated Japanese char (*Salvelinus leucomaenis pluvius*) have been released in large numbers into the rivers since the 1970s, causing the disappearance from many places of the native Japanese char (*Salvelinus leucomaenis pluvius*). To protect native species, protection of the local population and its habitat is required. The challenges are for Tadami Town to protect the local population and its habitat and/or regenerate the native Japanese char (*Salvelinus leucomaenis pluvius*), as a symbol of actualizing the co-existence of humans and nature. In the future, after proliferation, projects contributing to industrial development through resource utilizations, such as processing, game fishing, etc, will be implemented. In 2013, the habitat of the native Japanese char

(*Salvelinus leucomaenis pluvius*) will be studied and basic documents prepared for the protection and regeneration of their habitat and utilization of resources which will be conducted after 2013.

2. Forest management by the Forest Certification System

Purpose: In the Tadami Town, seecondary forests of deciduous broad-leaved trees used as firewood forests and planted forests of Japanese cedar (*Cryptmeria japonica*) and Japanese larch (*Larix kaempferi*), the result of expanded afforestation after the Second World War, are recently not so much used as resources. This is a result wood prices, the aging of forest owners, and the spread of petroleum fuel heaters, etc. On the other hand, in the Biosphere Reserve that practices the co-existence of humans and the natural environment, sustainable utilization is required along with the protection and conservation of the forest inside the area. For the registration of the Biosphere Reserve and town plan after the BR registration, it is necessary to promote sustainable utilization of the forests by once again reconsidering the forests as valuable resource. Towards that end, in the public and private forests, forest management by the Forest Certification System will introduce measurable sustainable utilization and conservation by the award of the certification mark on woods produced from appropriately managed forests.

In urban areas, there is a movement to use environmentally-friendly woods due to global warming, and in certain wards in Tokyo, as a part of the prevention measures against global warming, building owners are required to include a certain amount of woods when constructing buildings of more than a certain total floor area. The forest of the Tadami area will also obtain forest certification to guarantee environmentally-friendly woods, thus targeting the promotion of wood use, forest improvement and exchange with the people of urban areas by utilizing such systems of urban area in the future.

This year, classroom lectures and advanced area inspection for Forest Management Certification will be conducted to study and understand the forest development needed for Forest Certification by the parties concerned in the Tadami BR proposed site and surrounding forest.

3. Local products (Support on the passing down of knowledge and selling of edible wild plants and weaving handiworks of Osmund (*Osmunda japonica*) and Bracken (*Pteridium aquilinum*), honey and frozen mochi)

Purpose: To utilize sustainable local resources and promote socioeconomic development along with the traditions and culture of the local community; the passing down of the technical knowledge of traditional products, quality improvement and production of packaging or sales promotion tools of traditional products utilizing the rich natural environment and natural resources of the Tadami area will be supported, for those people who are involved in the technological traditions, development and sales among the town. Traditional products are Dried Osmund (*Osmunda japonica*) collected from the mountain, Dried Bracken (*Pteridium aquilinum*), weaving handiworks, honey from the Japanese honey bee (*Apis cerana japonica*) and frozen mochi. These are sustainable resources collected from the natural environment of the Tadami area, and are truly authentic with distinct local characteristics – traditional products and skills that have been passed down from generation to generation. Supporting these products will symbolically enhance the understanding of town residents concerning the town development by the Biosphere Reserve.

4. Collection, organization and publication of documents related to the Tagokura settlement

Purpose: The Tagokura settlement was submerged in the dam lake created in response to the power development needed to revitalize Japan after the Second World War. In the ensuing years, the dam lake has brought many benefits to Tadami Town and it is not too much to say that the Tadami Town of today owes its life to the sacrifice of the Tagokura settlement. It is said that the life of the Tagokura settlement was productive and wealthy, making full use of the rich resources from mountains and rivers, but unfortunately in just a few short decades much valuable documentation has been scattered and lost. To restore the areas collective history and memory and record the cultural value of the Tagokura settlement and its historically significant role and sacrifice in the creation of Tadami Town, the collection, organization and publication, both inside and outside the town, of documents telling the story of the Tagokura settlement will be conducted.

5. Promotion of Ecotourism (training of town–official nature guides)
Purpose: Ecotourism is a regional-wide effort to put across region-specific attractions such as the natural environment or historical culture to tourists; this requires an understanding of its value and importance which is then finally connected to its conservation. Local residents also re-recognize the value of their own resources by explaining such local resources to visitors and tourists, resulting in the increasing appreciation of the originality of local sightseeing which connects not only just to simple activation, but also the local community itself seems to be activated by a series of such efforts carried out in their local area (HP of the Ministry of the Environment). This approach is the same as the purpose of the Biosphere Reserve, the co-existence of protection and conservation of the natural environment and human socioeconomic activity, so it is greatly significant to conduct ecotourism inside the Biosphere Reserve. Tadami Town announced "The Capital of Mother Nature," and has already promoted Ecotourism as one of the aspects of tourism in the town, however, it has not yet been fully established due to problems of preparedness to receive visitors. Therefore, the training of ecotour guides will be conducted for the further promotion of ecotourism.
Reference: URL of the Ministry of the Environment HP
http://www.env.go.jp/nature/ecotourism/try-ecotourism/about/index.html
6. Restoration of landscape in the Ina River basin (especially, improvement of the forest surrounding the prefectural road on the right bank)
Purpose: The Planted Forests of Japanese cedar (*Cryptmeria japonica*) and Japanese larch (*Larix kaempferi*) were planted in the expanded afforestation after the Second World War. Because of decline in the price of domestic woods which was influenced by imported woods, the forest improvement in the private forests had been made neglect. On the other hand, the mountainous riparian forest consisting of the rare tree species, *Salix hukaoana* and *Salix spp*., are seen from the prefectural road which runs on the right bank of the Ina River in Tadami Town, and the mountains of nivation landforms and mosaic vegetation that are characteristic of the Tadami area are seen on the other side, providing Tadami Town with two unique types of landscape. However in fact, there are some private forests of planted trees along the prefectural road, in need of forest improvement and these block the view of the beautiful verdant landscapes. The current situation is one of under-utilized forest resources and also blighted landscape resources. Therefore, the improvement of the private forests surrounding the prefectural road, especially on the right bank of Ina River basin, will be conducted as well as improvement of the landscape will be conducted.

17.4.6 Indicate how this management/cooperation addresses the objectives of the proposed biosphere reserve (as described in section 13.1).

- As described in section 13.1

17.4.7 Is the plan binding? Is it based on a consensus?

- The plan will be decided based on a consensus of the BR Promotion Council (provisional name). Its contents should be respected; however, there is no legal binding obligation.

17.4.8 Which authorities are in charge of the implementation of the plan, especially in the buffer zone(s) and the transition area(s)? Please provide evidence of the role of these authorities.

- Management and operation of the Tadami BR will be carried out by the Tadami BR Promotion Council (provisional name) centering on Tadami Town.

- Concerning the Buffer Zone A andB proposed site, the Kanto Regional Forest Office of the Forestry Agency administrates and manages National Forest and Fukushima Prefecture manages the Quasi-national Park.
- Concerning the transition area proposed site, management will be carried out by the Tadami Town project team and the Tadami Beech Center.

17.4.9 Which factors impede or help its implementation (e.g.: reluctance of local people, conflicts between different levels of decision-making).

- There are no factors which impede the implementation. The BR Promotion Resident Liaison Council is a positive factor promoting its implementation.

17.4.10 Is the biosphere reserve integrated in regional/national strategies? Vice versa, how are the local/municipal plans integrated in the planning of the biosphere reserve?

- The Oku-Aizu Forest Ecosystem Reserve setting policy based on the Law on the Administration and Management of National Forests.
- Park Plans of the Echigosanzan-Tadami Quasi-national Park based on the Natural Park Act.
- In the "National Biodiversity Strategy 2012-2020 (2012)" which is a basic plan related to conservation of biological diversity and sustainable utilization based on regulation of the Basic Act on Biodiversity, examination of the development of new measures utilizing the BR structure is focused on strengthening the benefits gained from biological diversity and ecosystem services through the conservation and recovery of ecosystems as aimed at by each country.
- The BR system will be utilized as a practical framework to promote the 6th Tadami Town development promotion plan (2006).

17.4.11 Indicate the main source of the funding and the estimated yearly budget.

- Main supply source of funds is a budget funded by Tadami Town. The annual approximate budget is 25 million yen to 50 million yen.

17.5 Conclusions:

17.5.1 In your opinion, what will ensure that both the functioning of the biosphere reserve and the structures in place will be satisfactory? Explain why and how, especially regarding the fulfillment of the three functions of biosphere reserves (conservation, development, logistic) and the participation of local communities.

- In the Tadami BR Proposed site, under the legal protection already in place, such as the Oku-Aizu Forest Ecosystem Reserve based on the Law on the Administration and Management of National Forests or the Echigosanzan-Tadami Quasi-national Park based on the Natural Park Act, a large primeval natural environment with the characteristics of nivation landforms created by heavy snow and mosaic vegetation has been protected and conserved and the traditional life and culture of the residents who rely on such a natural environment has been structured in a sustainable way. In addition, The Town History Editing Committee has accepted outside research institutes, and a variety of investigation and research conducted by the natural sciences and humanities and social sciences on the Tadami BR proposed site

have been conducted. Such information was disseminated from the Tadami Town Beech Center. In such a context, it can be said that the Tadami BR proposed site was already demonstrating significant elements of a BR and the existing regulations have functioned well. However on the other hand, in the Tadami BR proposed site, the local community is suffering from the decline of industry, the decay of the local community and the weakening of the inherited connection between local residents and the natural environment, due to the modern social economy and changing values; along with the depopulation and aging population which many mountainous areas are suffering from in Japan, coupled with the ever-increasing outflow of young people to urban areas.

Therefore, as well as activating the area, there is a requirement to tie the regionally inherited connection between humans and nature, by ensuring a comprehensive understanding of the concepts of the BR among the residents of the Tadami BR proposed site, and adapting the traditional life and culture of the people who rely on the inherited natural environment found in the proposed area into a modern social economy with industrialization of the local economy.

- As a method to fulfill such requirements, the establishment of the Tadami BR Promotion Council (provisional name) which manages the entire Tadami BR proposed site strengthens cooperation between all concerned people, and along with the Tadami Town Hall project team takes the lead in implementing the project under the basic policy of a town plan which utilizes, inherits and develops the natural environment of the Tadami area based on the BR concepts, and the livings or traditions of the local people who are reliant on nature. Also, the Tadami BR Promotion Council is established to promote the BR at a grassroots level. The purposes of the BR are expected to be achieved by participation of residents in the above ways.
- Especially, the transmission area carrying sustainable socioeconomic development (local development), (both the purpose and challenge of the Tadami BR proposed site), is carried out based on the BR concepts centering on agriculture and forestry, the basic industries of the Tadami area. Current agriculture and forestry have been generally carried out without disturbing the biological diversity of the area and any effective utilization of resources will only take place with continuing care for the natural environment. Concrete measures will involve the development of agriculture beginning with organic agriculture with a minimum environmental load, and sustainable forestry under the Forest Certification System. In addition, the natural environment of the Tadami area, with stay-type tourism to positively invite tourists from the urban area and ecotourism are all promoted.
- In the Tadami BR proposed site, the achievement of these initiatives will offer an excellent model of the BR as an effective means for the local development of other mountainous areas which are suffering from similar problems.

18. SPECIAL DESIGNATIONS:

[Special designations recognize the importance of particular sites in carrying out the functions important in a biosphere reserve, such as conservation, monitoring, experimental research, and environmental education. These designations can help strengthen these functions where they exist or provide opportunities for developing them. Special designations may apply to an entire proposed biosphere reserve or to a site included within. They are therefore complementary and reinforcing of the designation as a biosphere reserve. Check each designation that applies to the proposed biosphere reserve and indicate its name]

Name:

(×) None

( ) UNESCO World Heritage Site

( ) RAMSAR Wetland Convention Site

( ) Other international/regional conservation conventions/directives (specify)

( ) Long term monitoring site (specify)

( ) Long Term Ecological Research (LTER site)

( ) Other (specify)

19. SUPPORTING DOCUMENTS (to be submitted with nomination form):

(1) Location and zonation map with coordinates

[Provide the biosphere reserve's standard geographical coordinates (all projected under WGS 84).
Provide a map on a topographic layer of the precise location and delimitation of the three zones of the biosphere reserve (Map(s) shall be provided in both paper and electronic copies). Shapefiles (also in WGS 84 projection system) used to produce the map must also be attached to the electronic copy of the form. If applicable, also provide a link to access this map on the internet (e.g. Google map, website).]

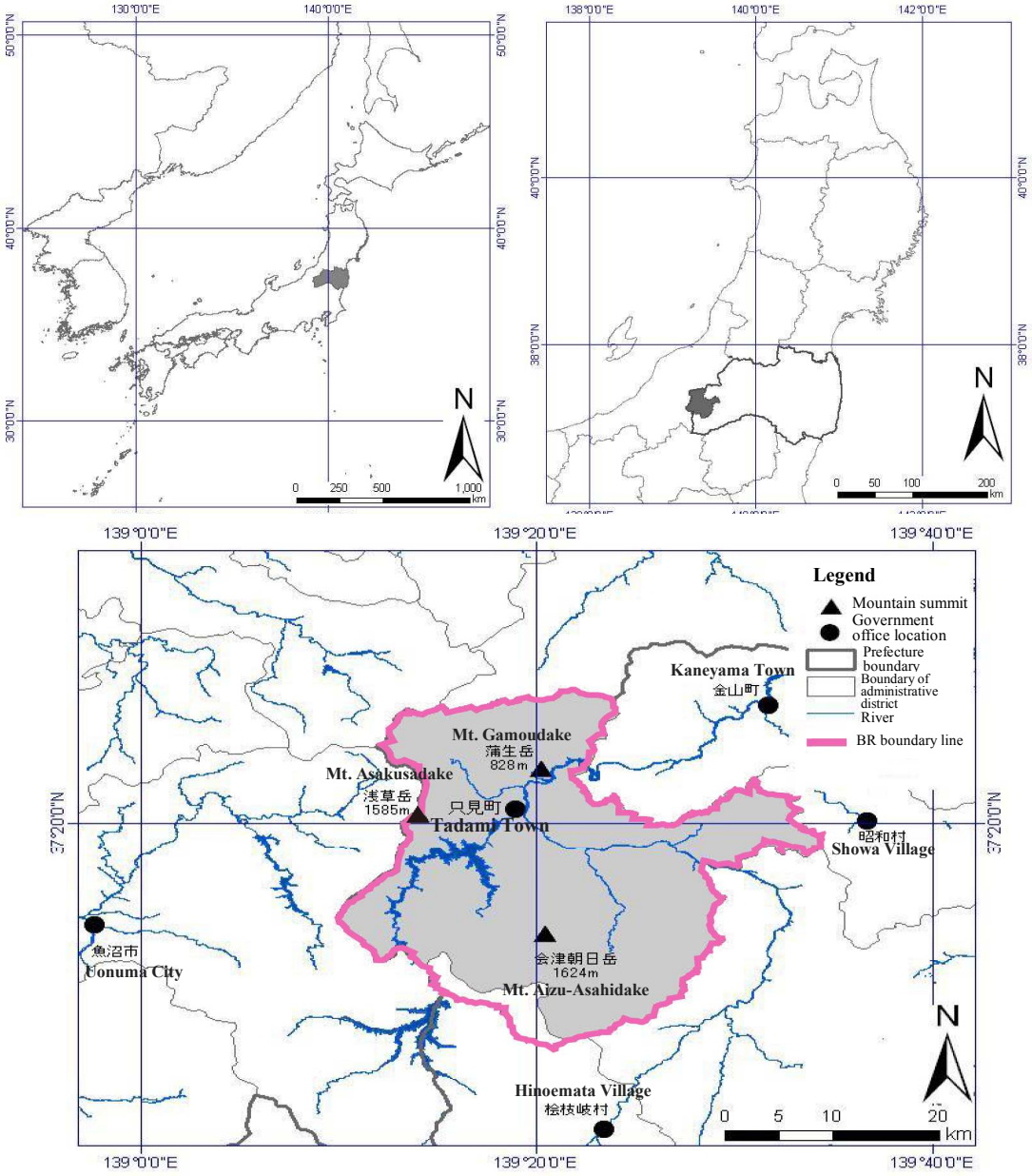


Figure 19-1 Locality map of the Tadami BR proposed site (upper left: location of Fukushima Prefecture in Japan, upper right: location of Tadami Town in Fukushima Prefecture, below: location of the Tadami BR proposed site and surrounding cities, towns and villages)

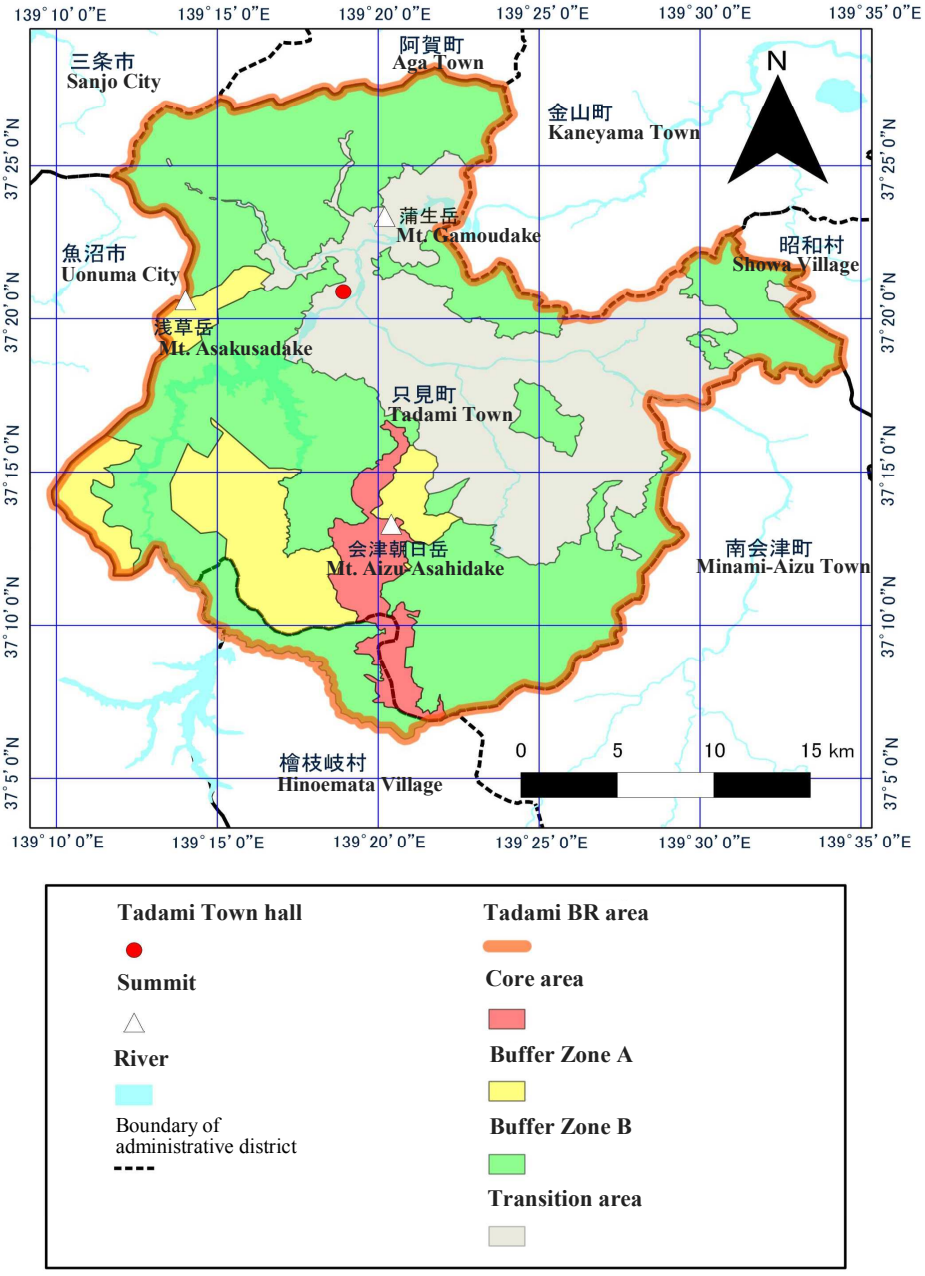


Figure 19-2 Area of the Tadami BR proposed site and zoning

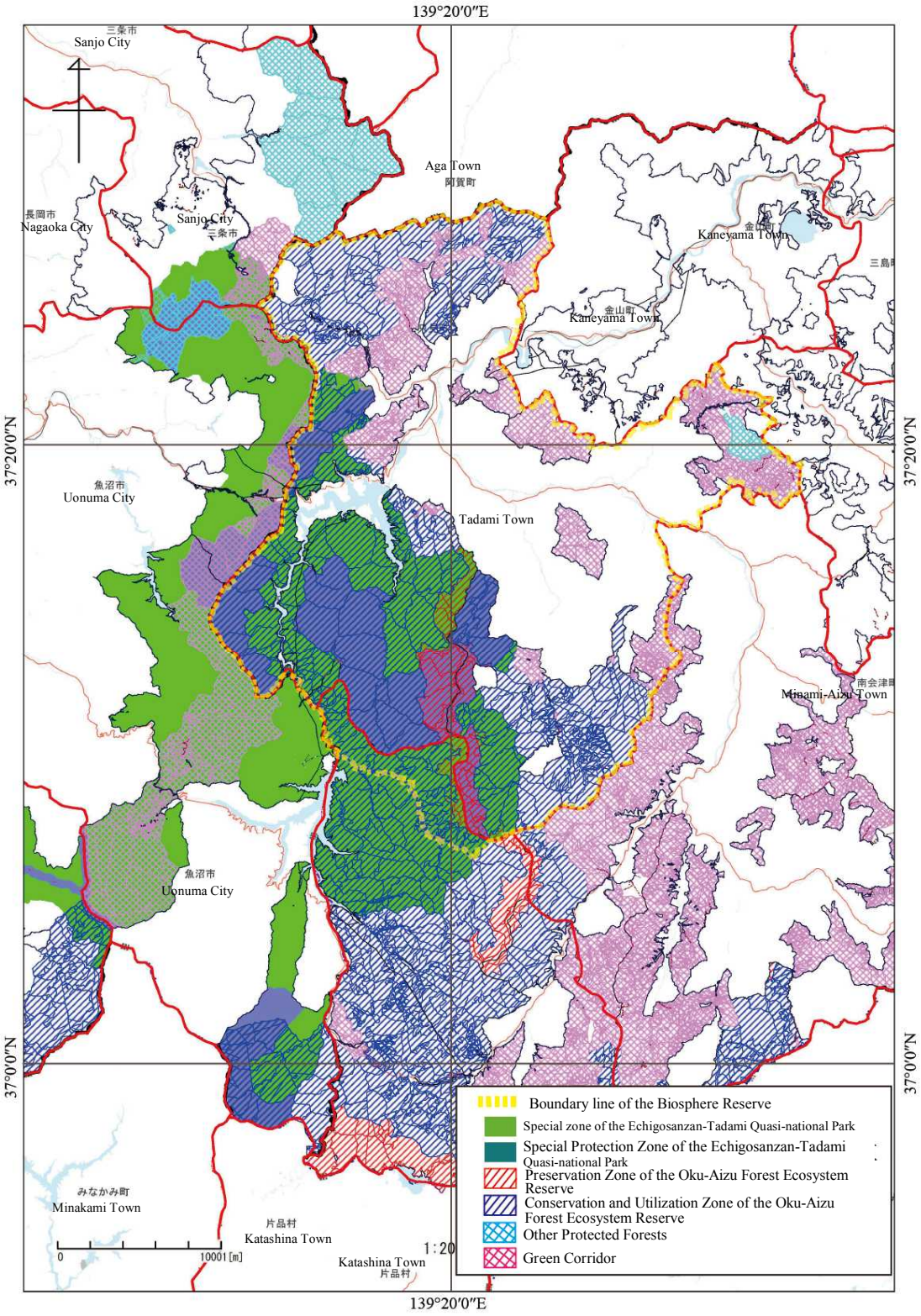


Figure 19-3 Locations of the Oku-Aizu Forest Ecosystem Reserve and the Echigosanzan-Tadami Quasi-national Park, etc.

(2) Vegetation map or land cover map

[A vegetation map or land cover map showing the principal habitats and land cover types of the proposed biosphere reserve should be provided, if available].

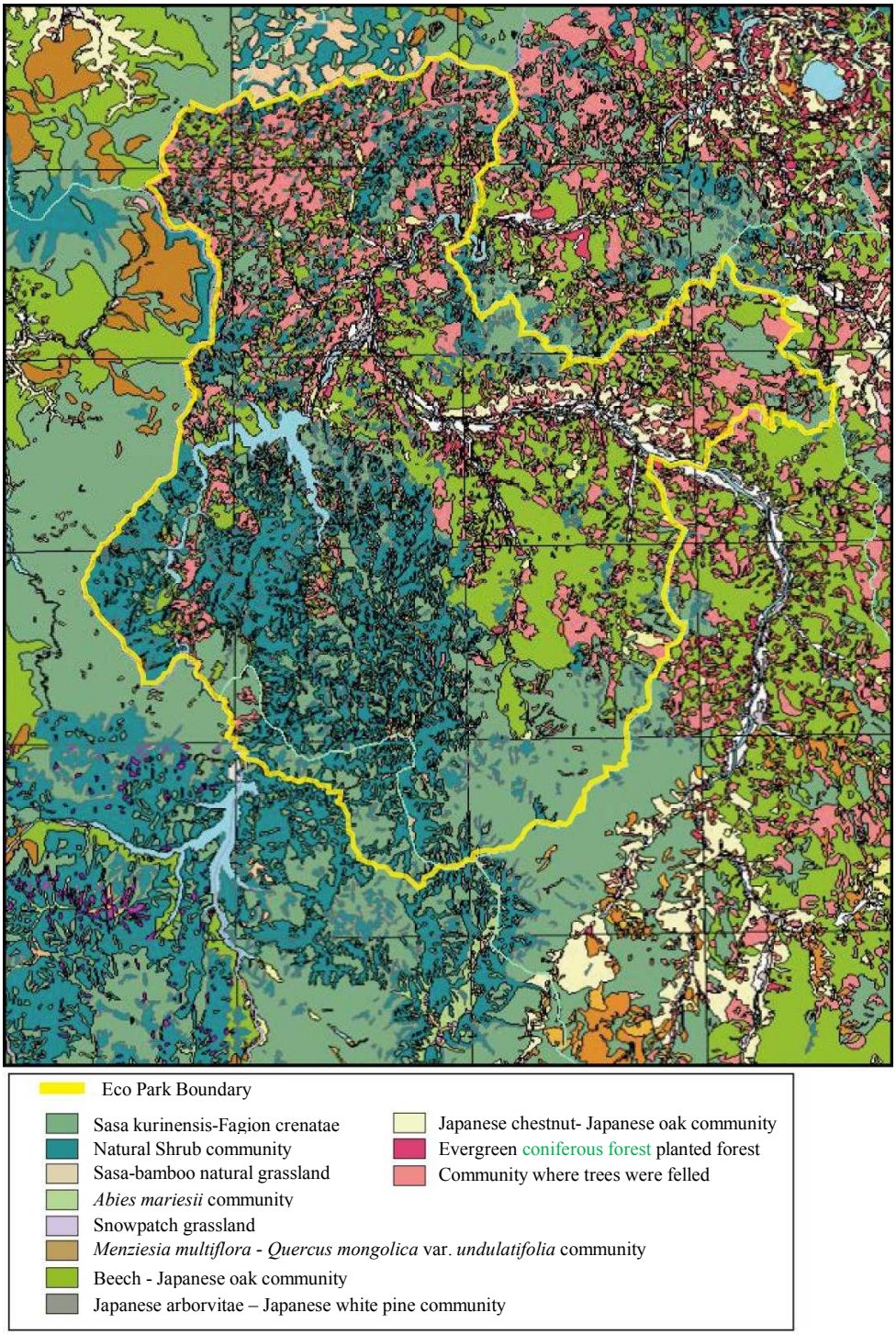


Figure 19-4 Vegetation map of surrounding areas of the Tadami BR proposed site (From Natural environment GIS of the Ministry of the Environment)

(3) List of legal documents (if possible with English, French or Spanish synthesis of its contents and a translation of its most relevant provisions)

[List the principal legal documents authorizing the establishment and governing use and management of the proposed biosphere reserve and any administrative area(s) they contain. Provide a copy of these documents.

(4) List of land use and management/cooperation plans

[List existing land use and management/cooperation plans (with dates and reference numbers) for the administrative area(s) included within the proposed biosphere reserve. Provide a copy of these documents. It is recommended to produce English, French or Spanish synthesis of its contents and a translation of its most relevant provisions]

- Law on the Administration and Management of National Forests (Act No. 246 of 1951, Latest revision: 2012)
- (The Forestry Agency) Rules for Designating Protected Forests (Notification of Director-General of Forestry Agency "Restructure and Expansion of Protected Forest", 1989)
- (The Forestry Agency) Green Corridor Setting Rule (Notification of Director-General of Forest Agency "Setting of Green Corridors in National Forests", 2000)
- (The Kanto Regional Forest Office of the Forestry Agency) Aizu Forest Planning Area Regional Administration and Management Plan (Formulated in 2012, Latest revision: 2013)
- Act on Protection of Cultural Properties (Act No. 214 of 1950, Latest revision: 2011), Natural monument designation (Japanese serow, Japanese dormouse, etc.)
- Fishery Act (Act No. 267 of 1949, Latest revision: 2011) Fukushima Prefecture Inland Waters Fishing Ground Management Commissions
- Forest Law (Act No. 249 of 1951, Latest revision: 2012)
- (Fukushima Prefecture) Aizu Regional Forest Plan (Formulated in 2007, Latest revision: 2012)
- (Tadami Town) Tadami Town Forest Improvement Plan (Formulated in 2012)
- Natural Park Act (Act No. 161 of 1957, Latest revision: 2013) ("Tadami Yamaizu Prefectural Natural Park," "Echigosanzan-Tadami Quasi-national Park" admitted)
- Law for the Conservation of Endangered Species of Wild Fauna and Flora (Act No. 75 of 1992, Latest revision: 2011)
- (Fukushima Prefecture) Fukushima Prefectural Natural Park Regulations (Enforced in 1958)
- (Fukushima Prefecture) Regulation for the Protection of Wild Fauna and Flora of Fukushima Prefecture (Enforced in 2005)
- River Act (Act No. 167 of 1964, Latest revision: 2011)
- Agricultural Land Act (Act No. 229 of 1954, Latest revision: 2011)
- Act on Special Measures for Promotion for Independence for Underpopulated Areas (Act No. 15 of 2000, Latest revision: 2012)
- Mountain Villages Development Act (Act No. 64 of 1965, Latest revision: 2011)
- Act on Special Measures concerning Countermeasures for Heavy Snowfall Areas (Act No, 73 of 1962, Latest revision: 2012)
- (Tadami Town) Regulation for the protection and encouragement of natural scenery of Tadami Town (Act No. 25 of 1999)
- (Tadami Town) The 6th Tadami Town development promotion plan (Formulated in 2006)
- (Tadami Town) Tadami Town Ordinance for the Protection of Cultural Properties (Act No. 13 of 1985, Latest revision: 2007)
- National Biodiversity Strategy 2012-2020 ~Road map for the realization of a rich natural harmonious society~ (Cabinet decision in 2012)
- Act on Promotion of Introduction of Sustainable Agricultural Production Practices (Act No, 110 of 1999, Latest revision: 2011)

(5) Species list (to be annexed)

[Provide a list of important species occurring within the proposed biosphere reserve, including common names, wherever possible.]

Table 19-1 The fauna and flora of Tadami Town and categories as mentioned in the Red List of the Ministry of the Environment and the Fukushima Red Data Book.

Broad category	Scientific name	Category by Ministry of the Environment	The number of species	The number of the Endangered species	Ratio (%)	Category by Fukushima Prefecture	Others
Plants (vascular plants)	*Cirsium aidzuense*	Critically Endangered (CR)				Rare	
	Goodyera foliosa var. *maximowicziana*					Endangered (Vulnerable)	
	Dichocarpum nipponicum					Near Threatened	
	Viola awagatakensis	Near Threatened (NT)				Endangered (Vulnerable)	
	Lespedeza tomentosa	Endangered (Vulnerable)				Endangered (Vulnerable)	
	Bistorta major var. *japonica*					Near Threatened	
	Orchis graminifolia var. *graminifolia*	Endangered (Vulnerable)				Endangered (Vulnerable)	
	Crypsinus veitchii					Near Threatened	
	Calanthe discolor	Near Threatened (NT)				Endangered (Vulnerable)	
	Parnassia foliosa var. *japonica*					Critically Endangered + Endangered	
	Prenanthes tanakae					Near Threatened	
	Diplazium nipponicum					Near Threatened	
	Galeorchis cyclochila	Near Threatened (NT)				Critically Endangered + Endangered	
	Lespedeza juncea					Rare	
	Taxus cuspidata var. *nana*					Rare	
	Carex pyrenaica					Near Threatened	
	Cephalanthera falcata	Endangered (Vulnerable)				Near Threatened	
	Geranium eriostemon var. *reinii*					Critically Endangered + Endangered	
	Amitostigma kinoshitae	Endangered (Vulnerable)				Endangered (Vulnerable)	
	Tephroseris flammea subsp. glabrifolia	Endangered (Vulnerable)				Endangered (Vulnerable)	
	Oreorchis patens					Endangered (Vulnerable)	
	Asarum megacalyx	Near Threatened (NT)				Endangered (Vulnerable)	
	Fritillaria koidzumiana					Near Threatened	
	Ribes maximowiczianum					Critically Endangered + Endangered	
	Glaucidium palmatum					Near Threatened	
	Lycopodium cryptomerinum	Endangered (Vulnerable)				Non-evaluation	
	Lindernia antipoda					Endangered (Vulnerable)	
	Dianthus superbus var. *speciosus*					Rare	
	Rosa nipponensis Crepin					Critically Endangered + Endangered	
	Prunella prunelliformis					Rare	
	Arnica mallotopus					Rare	
	Phyllodoce nipponica					Rare	

	Veronica tenella					Rare	
	Pogonia japonica	Near Threatened (NT)				Near Threatened	
	Anemone narcissiflora var. *nipponica*					Near Threatened	
	Primula cuneifolia var. *hakusanensis*					Rare	
	Bupleurum nipponicum					Near Threatened	
	Macropodium pterospermum					Near Threatened	
	Epilobium fauriei					Critically Endangered + Endangered	
	Schizocodon ilicifolius					Rare	
	Lilium rubellum	Near Threatened (NT)				Near Threatened	
	Iris gracilipes	Near Threatened (NT)					
	Adonis ramosa					Endangered (Vulnerable)	
	Sparganium erectum	Near Threatened (NT)				Attention	
	Coptis trifoliolata					Endangered (Vulnerable)	
	Crypsinus veitchii					Near Threatened	
	Aconitum nipponicum					Non-evaluation	
	Sedum japonicum var. *senanense*					Critically Endangered + Endangered	
	Drosera rotundifolia					Critically Endangered + Endangered	
	Astragalus reflexistipulus					Endangered (Vulnerable)	
	Ribes ambiguum	Near Threatened (NT)				Endangered (Vulnerable)	
	Paeonia japonica	Near Threatened (NT)				Endangered (Vulnerable)	
	Agrostis hideoi	Endangered (EN)					
	Primula modesta					Rare	
	Salix hukaoana	Endangered (Vulnerable)					
Subtotal			19	1,779	1.1%		
Plants (moss algae)	*Ricciocarpos natans*	Near Threatened (NT)				Critically Endangered + Endangered	
Subtotal			1	241	0.4%		
Plants (algae)	*Batrachospermum gelatinosum*	Endangered (Vulnerable)					
Subtotal			1	116	0.9%		
Aves	*Halcyon coromanda major*					Endangered (Vulnerable)	
	Aquila chrysaetos japonica	Endangered (EN)				Critically Endangered + Endangered	
	Dendrocopos leucotos stejnegeri					Rare	
	Accipiter gentilis fujiyamae	Near Threatened (NT)				Critically Endangered + Endangered	
	Aix galericulata	Data deficient (DD)					
	Fulica atra					Rare	
	Haliaeetus albicilla	Endangered (Vulnerable)				Endangered (Vulnerable)	National Natural Monument
	Spizaetus nipalensis orientalis	Endangered (EN)				Critically Endangered + Endangered	
	Turdus cardis					Endangered (Vulnerable)	
	Muscicapa dauurica					Endangered (Vulnerable)	
	Otus sunia japonicus					Endangered (Vulnerable)	

	Butastur indicus	Endangered (Vulnerable)				Near Threatened	
	Pericrocotus divaricatus divaricatus	Endangered (Vulnerable)				Near Threatened	
	Lanius tigrinus	Critically Endangered (CR)				Critically Endangered + Endangered	
	Accipiter gularis					Rare	
	Anas formosa	Endangered (Vulnerable)				Rare	
	Emberiza sulphurata	Near Threatened (NT)				Attention	
	Buteo japonicus					Near Threatened	
	Accipiter nisus nisosimilis	Near Threatened (NT)				Near Threatened	
	Pernis apivorus orientalis	Near Threatened (NT)				Endangered (Vulnerable)	
	Falco peregrinus japonensis	Endangered (Vulnerable)				Critically Endangered + Endangered	
	Porzana fusca erythrothorax	Near Threatened (NT)				Endangered (Vulnerable)	
	Eurystomus orientalis	Endangered (EN)				Near Threatened	
	Pandion haliaetus haliaetus	Near Threatened (NT)				Endangered (Vulnerable)	
	Caprimulgus indicus jotaka	Near Threatened (NT)					
Subtotal			17	97	17.5%		
Fish	*Liobagrus reinii*	Endangered (Vulnerable)				Near Threatened	
	Tribolodon sachalinensis	Threatened Local Population (LP)				Non-evaluation	
	Cottus pollux	Near Threatened (NT)					
	Lethenteron camtschaticum	Endangered (Vulnerable)				Non-evaluation	
	Oncorhynchus masou masou	Near Threatened (NT)				Near Threatened	
	Misgurnus anguillicaudatus	Data Deficient (DD)					
	Salvelinus leucomaenis pluvius	Data Deficient (DD)					
	Tanakia lanceolata	Near Threatened (NT)				Near Threatened	
Subtotal			6	144	4.2%		
Shellfish	*Inversiunio jokohamensis*	Near Threatened (NT)					
	Pronodularia japanensis	Near Threatened (NT)					
Subtotal			2	563	0.4%		
Amphibians	*Cynops pyrrhogaster*	Near Threatened (NT)				Near Threatened	
	Buergeria buergeri					Rare	
	Hynobius nigrescens	Near Threatened (NT)				Near Threatened	
	Rana rugosa					Near Threatened	
	Hynobius lichenatus	Near Threatened (NT)				Near Threatened	
	Rana nigromaculata	Near Threatened (NT)				Non-evaluation	
	Rhacophorus arboreus					Rare	
Subtotal			4	22	18.2%		
Reptiles	*Dinodon orientale*					Rare	
	Achalinus spinalis					Non-evaluation	
	Amphiesma vibakari					Rare	
Subtotal			0	36	0.0%		
Mammals	*Myotis pruinosus*	Endangered (EN)				Rare	
	Eothenomys smithii					Rare	
	japonicus					Attention	
	Capricornis crispus					Attention	National Natural Monument
	Murina ussuriensis					Rare	
	Macaca fuscata					Attention	
	Murina hilgendorfi					Rare	
	Mustela erminea nippon	Near Threatened (NT)				Rare	

	Pteromys momonga					Non-evaluation	
	Glirulus japonicus					Rare	National Natural Monument
Subtotal			2	34	5.9%		
Insects	*Cicindela gemmata*	Near Threatened (NT)				Near Threatened	
	Dytiscus marginalis czerskii	Endangered (Vulnerable)					
	Dorcus hopei binodulus	Endangered (Vulnerable)				Rare	
	Maculinea arionides	Near Threatened (NT)				Near Threatened	
	Elaphrus japonicas					Near Threatened	
	Sasakia charonda	Near Threatened (NT)				Attention	
	Luehdorfia japonica	Endangered (Vulnerable)				Near Threatened	
	Kirinia fentoni	Near Threatened (NT)				Endangered (Vulnerable)	
	Spindasis takanonis	Near Threatened (NT)				Endangered (Vulnerable)	
	Leptalina unicolor	Near Threatened (NT)					
	Haliplus japonicus	Data Deficient (DD)					
	Hyphydrus japonicus	Near Threatened (NT)					
	Cybister japonicus	Endangered (Vulnerable)					
	Plebejus argus	Near Threatened (NT)				Attention	
	Leptidea amurensis	Endangered (EN)				Near Threatened	
	Brenthis daphne rabdia	Endangered(Vulnerable)				Endangered (Vulnerable)	
	Enallagma boreale circulatum					Near Threatened	
Subtotal			15	358	4.2		
Literature	The Town History Editing Committee (2001) "Nature of Aizu-Tadami - climate, geology and animal (Tadami Town History Document Collection No. 4)," Tadami Town, Fukushima Prefecture The Town History Editing Committee (2001), "Nature of Aizu-Tadami - Plants (Tadami Town History Document Collection No. 4)," Tadami Town, Fukushima Prefecture List of insects of Tadami Town, Wataru Tsunoda (2007),			The fourth Red List, the Ministry of the Environment (2012), The fourth Red List, the Ministry of the Environment (2013)		Fukushima Red Data book I, Fukushima Prefecture (2002), Fukushima Red Data book II, Fukushima Prefecture (2003)	

Table 19-2 Japanese endemic plants grown in Tadami Town (Vascular plants)

Family	Scientific name	Red data book Category by the Ministry of the Environment
Hymenophyllaceae	*Locosteopsis orientalis* var. *abbreviata*	
Aspidiaceae	*Dryopteris fructuosa*	
Blechnaceae	*Blechnum amabile*	
	Struthiopteris castanea	
	Struthiopteris niponica	
Pinaceae	*Abies mariesii*	
	Pinus parviflora var. *pentaphylla*	
Cupressaceae	*Thuja standishii*	
Cephalotaxaceae	*Cephalotaxus harringtonia* var. *nana*	
Taxaceae	*Taxus cuspidata* var. *nana*	
	Torreya nucifera var. *radicans*	
Salicaceae	*Salix hukaoana*	Vulnerable (VU)
	Salix future	
	Salix jessoensis	
	Salix vulpina	
Betulaceae	*Alnus fauriei*	
	Betula corylifolia	
	Betula maximowicziana	
Fagaceae	*Fagus crenata*	
	Quercus mongolica var. *undulatifolia*	
Urticaceae	*Elatostema laeteviren*	
Polygonaceae	*Reynoutria japonica* var. *uzenensis*	
	Rumex madaio	
Caryophyllaceae	*Silene gracillima*	
Magnoliaceae	*Magnolia obovata*	
	Magnolia salicifolia	
Lauraceae	*Lindera praecox* var. *pubescens*	
	Lindera umbellata var. *membranacea*	
Ranunculaceae	*Aconitum subcuneatum*	
	Anemone narcissiflora var. *nipponica*	
	Clematis apiifolia var. *biternata*	
	Clematis stans	
	Clematis tosaensis	
	Coptis trifoliolata	
	Dichocarpum nipponicum	
	Ranunculus nipponicus var. *submerses*	
	Thalictrum aquilegiifolium	
	Trautvetteria japonica	

Family	Scientific name	Red data book Category by the Ministry of the Environment
Diapensiaceae	*Schizocodon ilicifolius*	
	Schizocodon soldanelloides var. *magnus*	
	Shortia uniflora var. *uniflora*	
Ericaceae	*Tripetaleia bracteata*	
	Tripetaleia paniculata	
	Enkianthus campanulatus	
	Enkianthus subsessilis	
	Epigaea asiatica	
	Gaultheria adenothrix	
	Menziesia multiflora	
	Phyllodoce nipponica	
	Rhododendron albrechtii	
	Rhododendron brachycarpum	
	Rhododendron degronianum	
	Rhododendron nudipes subsp. niphophilum	
	Rhododendron nipponicum	
	Rhododendron trinerve	
	Vaccinium hirtum	
	Vaccinium yatabei	
Primulaceae	*Primula japonica*	
	Primula modesta	
Gentianaceae	*Gentiana makinoi*	
	Gentiana scabra	
	Gentiana thunbergii f. minor	
	hrophyllidium crista-galli	
Asclepiadaceae	*Tylophora aristolochioides*	
Rubiaceae	*Galium kikumugura*	
	Hedyotis lindleyana var. *glabra*	
Boraginaceae	*Omphalodes japonica*	
	Trigonotis brevipes	
	Trigonotis guilielmii	
Labiatae	*Ajuga yesoensis*	
	Chelonopsis moschata	
	Clinopodium macranthum	
	Rabdosia trichocarpa	
	Rabdosia umbrosa var. *excisinflexa*	
	Leucosceptrum japonicum	
	Prunella prunelliformis	

Family	Scientific name	Red data book Category by the Ministry of the Environment
Aristolochiaceae	*Asarum ikegamii*	
	Heterotropa megacalyx	Near Threatened (NT)
Paeoniaceae	*Paeonia japonica*	Near Threatened (NT)
Glaucidiaceae	*Glaucidium palmatum*	
Theaceae	*Camellia japonica* var. *decumbens*	
Clusiaceae	*Hypericum kamtschaticum* var. *hondoense*	
	Hypericum pseudopetiolatum	
Brassicaceae	*Cardamine appendiculata*	
	Cardamine niigatensis	
Hamamelidaceae	*Hamamelis japonica* var. *obtusata*	
Crassulaceae	*Hylotelephium sordidum*	
	Sedum japonicum var. *senanense*	
Saxifragaceae	*Astilbe microphylla*	
	Astilbe odontophylla	
	Cardiandra alternifolia	
	Chrysosplenium fauriei	
	Chrysosplenium grayanum	
	Deutzia crenata	
	Hydrangea involucrata	
	Hydrangea macrophylla var. *megacarpa*	
	Mitella pauciflora	
	Parnassia foliosa var. *japonica*	
	Philadelphus satsumi	
	Saxifraga fusca	
Rosaceae	*Aria japonica*	
	Prunus apetala var. *pilosa*	
	Filipendula auriculata	
	Malus tschonoskii	
	Prunus grayana	
Leguminosae	*Astragalus reflexistipulus*	
	Lespedeza homoloba	
	Lespedeza thunbergii var. *patens*	
	Wisteria floribunda	
Euphorbiaceae	*Euphorbia sinanensis*	
	Euphorbia sieboldiana	
Daphniphyllaceae	*Daphniphyllum macropodum* var. *humile*	
Aceraceae	*Acer palmatum* var. *matsumurae*	
	Acer distylum	
	Acer japonicum	

Family	Scientific name	Red data book Category by the Ministry of the Environment
	Salvia lutescens var. *crenata*	
	Salvia nipponica	
Scrophulariaceae	*Euphrasia insignis* var. *japonica*	
	Melampyrum laxum	
	Pedicularis nipponica	
	Pseudolysimachion schmidtianum subsp. Senanense	
	Veronicastrum japonicum	
Caprifoliaceae	*Abelia spathulata* var. *stenophylla*	
	Sambucus racemosa var. *major*	
	Viburnum sieboldii var. *obovatifolium*	
	Weigela hortensis	
Valerianaceae	*Patrinia triloba*	
Campanulaceae	*Campanula punctata* var. *hondoensis*	
Asteraceae	*Anaphalis margaritacea subsp. yedoensis*	
	Arnica mallotopus	
	Artemisia monophylla	
	Aster iinumae	
	Aster ageratoides subsp. *Ovatus*	
	Aster viscidulus	
	Carpesium divaricatum var. *matsuei*	
	Cirsium aidzuense	Critically Endangered (CR)
	Cirsium borealinipponense	
	Cirsium inundatum	
	Cirsium nipponicum	
	Cirsium yezoense	
	Pertya rigidula	
	Saussurea sagitta	
	Synurus pungens	
Liliaceae	*Aletris foliata*	
	Fritillaria koidzumiana	
	Hosta sieboldiana	
	Lilium auratum	
	Lilium rubellum	Near Threatened (NT)
	Narthecium asiaticum	
	Kinugasa japonica	
	Paris tetraphylla	
	Polygonatum lasianthum	
	Polygonatum macranthum	
	Polygonatum odoratum var. *thunbergii*	

Family	Scientific name	Red data book Category by the Ministry of the Environment
	Acer micranthum	
	Acer maximowiczianum	
	Acer nipponicum	
	Acer mono var. *glaucum*	
	Acer mono var. *mayrii*	
	Acer rufinerve	
	Acer sieboldianum	
	Acer tschonoskii	
Hippocastanaceae	*Aesculus turbinata*	
Rhamnaceae	*Berchemia longiracemosa*	
	Berchemia racemosa	
	Rhamnus costata	
Tiliaceae	*Tilia maximowicziana*	
Thymelaeaceae	*Daphne miyabeana*	
	Galeola septentrionalis	Endangered (EN)
Elaeagnaceae	*Elaeagnus multiflora* var. *hortensis*	
Violaceae	*Viola brevistipulata*	
	Viola eizanensis	
	Viola faurieana var. *rhizomata*	
	Viola rostrata	
	Viola vaginata	
Stachyuraceae	*Stachyurus praecox* var. *leucotrichus*	
Cucurbitaceae	*Trichosanthes kirilowii* var. *japonica*	
Cornaceae	*Aucuda japonica* var. *borealis*	
Araliaceae	*Evodiopanax innovans*	
	Acanthopanax sciadophylloides	
	Oplopanax japonicus	
	Panax japonicus	
Umbelliferae	*Angelica acutiloba*	
	Angelica sachalinensi	
	Bupleurum nipponicum	
	Chamaele decumbens	
	Tilingia holopetala	

Family	Scientific name	Red data book Category by the Ministry of the Environment
	Smilacina viridiflora	
	Triantha japonica	
	Tricyrtis latifolia	
	Veratrum stamineum	
Iridaceae	*Iris gracilipes*	Near Threatened (NT)
Poaceae	*Agrostis hideoi*	Endangered (EN)
	Anthoxanthum japonicum	
	Calamagrostis fauriei	
	Calamagrostis longiseta	
	Microstegium japonicum var. *boreale*	
	Miscanthus intermedius	
	Muhlenbergia curviaristata	
Bambusoideae	*Sasa yahikoensis*	
Araceae	*Arisaema amurense subsp. robustum*	
	Arisaema thunbergii subsp. urashima	
Cyperaceae	*Carex aphyllopus*	
	Carex curvicollis	
	Carex dissitiflora	
	Carex multifolia	
	Carex miyabei	
	Carex filipes	
	Carex flabellata	
	Carex hondoensis	
	Carex incisa	
	Carex insaniae var. *insaniae*	
	Carex insaniae var. *papillaticulmis*	
	Carex kiotensis	
	Carex maximowiczii var. *levisaccus*	
	Carex olivacea subsp. confertiflora	
	Carex podogyna	
	Rhynchospora fauriei	
	Rhynchospora yasudana	
Orchidaceae	*Platanthera florentii*	

(6) List of main bibliographic references (to be annexed)

[Provide a list of the main publications and articles of relevance to the proposed biosphere reserve over the past 5-10 years].

(Natural sciences)

No.	Publisher and Author	Title	Published Year	Publication Magazine
1	Nature Conservation Society of Japan	Academic research report of the Echigosanzan-Tadami Quasi-national Park	1968	Research report of Nature Conservation Society of Japan, No. 34
2	KASHIMURA Toshimichi	Ecological study of the natural forest vegetation in the snowy region along the lower Tadami valley	1969	Ecological Review 17(3):153-170, Mount Hakkoda Botanical Laboratory, Tohoku University
3	Hisashi Sugita	Environmental factors and their effects on the distribution of plant communities in Mt. Asakusa, a mountain with deep snow: with special relation to the growth from of fagus crenata: I. Relationship between snow depth and distribution pattern of plant communities	1988	Bulletin of the Ecological Society of Japan 38 (3): 217-227.
4	Tadami Town Town History Editing Committee	Tadami Town History Document Collection No. 4, "Nature of Aizu-Tadami – Plants"	2001	
5	Tadami Town Town History Editing Committee	Tadami Town History Document Collection No. 4, "Nature of Aizu-Tadami - climate, geology and animals"	2001	
6	Education Board of Tadami Town, Fukushima Prefecture	Tadami Cultural Heritage Survey Report No. 9, "Scientific report on the forest vegetation and biodiversity in Tadami District, Fukushima Prefecture, Honshu, Japan"	2003	
7	Tadami Town Town History Editing Committee	Tadami Town History Vol. 1, Overview 1, "Nature, the primitive, ancient, medieval and early modern times"	2004	
8	Education Board of Tadami Town, Fukushima Prefecture	Tadami Cultural Heritage Survey Report No. 10, "Scientific report on the forest vegetation and biodiversity in Tadami District, Fukushima Prefecture, Honshu, Japan (2nd report)"	2004	
9	Education Board of Tadami Town, Fukushima Prefecture	Tadami Cultural Heritage Survey Report No. 11, "Plants of Aizu-Tadami"	2004	
10	Education Board of Tadami Town, Fukushima Prefecture	Tadami Cultural Heritage Survey Report No. 12, "Scientific report on the forest vegetation and biodiversity in Tadami District, Fukushima Prefecture, Honshu, Japan (3rd report)"	2004	
11	Education Board of Tadami Town, Fukushima Prefecture	Tadami Cultural Heritage Survey Report No. 14, "Biology and inheritance of rare tree species, *Salix hukaoana*, in the Tadami River system of Fukushima Prefecture"	2005	
12	Kanto Regional Forest Office of the Forestry Agency	Research report on the primeval beech forest	2005	
13	Wajiro Suzuki and Satoshi Kikuchi	Floristic composition and stand structure of riparian forests in the Tadami River basin and the ecological distribution of an endangered tree, *Salix hukaoana*	2006	Japanese Journal of Conservation Ecology 11 (2): 85-93.
14	Fukushima Prefecture (The Ministry of the Environment)	Reports on the 7th Natural environment conservation basic research, biological diversity research and species diversity research (Fukushima Prefecture)	2007	
15	Suzuki Wajiro, Kikuchi Satoshi	Ecology and conservation of an endangered willow, *Salix hukaoana*.	2008	Sakio H, Tamura T (eds) Ecology of riparian forests in Japan: disturbance, life history,

No.	Publisher and Author	Title	Published Year	Publication Magazine
				and regeneration. Springer, Tokyo, pp281-297
16	Wataru Tsunoda	List of insects of Tadami Town	2010	
17	Yutaka Takahara, Kazuko Watabe and Takahide Kurosawa	Growing conditions of *Lilium rubellum* and its conservation in Tadami Town	2012	The Bulletin of Nature of Tadami - Tadami Beech Center No. 1:2-6.
18	Satoshi Kikuchi, Wajiro Suzuki	Genetic diversity and its conservation in the Tadami River basin, especially *Salix hukaoana* of Odosawa	2012	The Bulletin of Tadami Beech Center – Nature of Tadami – No. 1:7-11
19	Wajiro Suzuki and Kazuko Watabe	Influence of Heavy rainfall disaster in July, 2011 to the *Salix hukaoana* forest of the Ina River basin	2012	The Bulletin of Tadami Beech Center – Nature of Tadami – No. 1:12-18
20	Wajiro Suzuki and Kazuko Watabe	Actual conditions of driftwood caused by Heavy rainfall disaster in Shionoki River	2012	The Bulletin of Tadami Beech Center – Nature of Tadami – No. 1:19-24
21	Wajiro Suzuki and Satoshi Kikuchi	Forest structure and formation process of "Pollarded beech forest" seen in Tadami Town	2012	The Bulletin of Tadami Beech Center – Nature of Tadami – No. 1:25-31
22	Wajiro Suzuki and Kazuko Watabe	Decay in population of Japanese Oaks in the Tadami area	2012	The Bulletin of Tadami Beech Center – Nature of Tadami – No. 1:32-39
23	Tadami nature-study meeting	Rare tree species, *Salix hukaoana*, in the Tadami River system of Fukushima Prefecture – Report on its distribution and group conditions -	2012	
24	Osamu Inaba	Tadami Field Guide III – "Rivers and riparian lives of Tadami"	2012	
25	Hisatomo Taki, Hiroshi Makihara, Takeshi Matsumura, Motohiro Hasegawa, Toshiya Matsuura, Hiroshi Tanaka, Shun'ichi Makino, Kimiko Okabe	Evaluation of secondary forests as alternative habitats to primary forests for flower-visiting insects	2012	Journal of Insect Conservation, Springer, Online first
26	Tadami Beech Center	Tadami Field Guide I - "Flowers on climbing routes – Flowers for a season from snow melt to early summer – 44 species"	2012	
27	Tadami Beech Center	Tadami Field Guide II- "Big trees and giant trees of Tadami Town"	2012	
28	Osamu Inaba	Tadami Field Guide III – "Rivers and riparian lives of Tadami"	2012	
29	Tadami Beech Center	Exhibition Guide Series II – "Ecology and utilization of vines"	2012	
30	Kanto Regional Forest Office of the Forestry Agency	Report on monitoring study related to Natural Forests of the Aizu area	2005-2012	
31	Kanto Regional Forest Office of the Forestry Agency	Investigation report of Endangered Species of Wildlife Protection Management Strategy (mountain hawk eagle, etc.)	2007-2012	

(Humanities and social sciences)

No.	Publisher and Author	Title	Published Year	Publication Magazine
1	Tadami Town Town History Editing Committee	Tadami Town History Document Collection No. 1, "Diagram - Folk implements of Aizu-Tadami"	1991	
2	Education Board of Tadami Town, Fukushima Prefecture	Tadami Cultural Heritage Survey Report No. 4, "Kubota ruins - Excavation investigation report for establishment of Tadami Museum of Archaeology"	1991	
3	Tadami Town Town History Editing Committee	Tadami Town History Vol. 3 "Ethnic"	1992	
4	Education Board of Tadami Town, Fukushima Prefecture	Tadami Cultural Heritage Survey Report No. 5, "Track of Kijishi of Fuzawa, Oku-Aizu"	1992	
5	Tadami Town Town History Editing Committee	Tadami Town History Vol. 5, Materials 2 "Modern time"	1994	
6	Tadami Town Town History Editing Committee	Tadami Town History Vol. 6, Materials 3 "Present time"	1995	
7	Tadami Town Town History Editing Committee	Tadami Town History Document Collection No. 2, "Folklore of Aizu-Tadami"	1995	
8	Education Board of Tadami Town, Fukushima Prefecture	Tadami Cultural Heritage Survey Report No. 6, "Diagram -The medieval Castle ruin of Aizu-Tadami"	1995	
9	Tadami Town Town History Editing Committee	Tadami Town History Vol. 2, Overview 2, "Modern and present times"	1997	
10	Tadami Town Town History Editing Committee	Tadami Town History Document Collection No. 3, "Development of electric power resources of the Oze and Tadami River"	1997	
11	Tadami Town Town History Editing Committee	Tadami Town History Vol. 4, Materials 1 "The primitive, ancient, medieval and early modern times"	1999	
12	Tadami Town Folklore Meetings	Once upon a time in Tadami: Folklores of Tadami, Okuaizu	1999	
13	Tadami Town Town History Editing Committee	Tadami Town History Document Collection No. 5, "Dialect and local place names of Aizu-Tadami"	2002	
14	Education Board of Tadami Town, Fukushima Prefecture	Tadami Cultural Heritage Survey Report No. 7, "A Mountain Castle in the Age of Civil Wars - Relics of Mizukubo Castle"	2002	
15	Education Board of Tadami Town, Fukushima Prefecture	Tadami Cultural Heritage Survey Report No. 8, "Occupation scrolls of Aizu-Tadami"	2002	
16	Tadami Town Town History Editing Committee	Tadami Town History Vol. 1, Overview 1, "Nature, the primitive, ancient, medieval and early modern times"	2004	
17	Education Board of Tadami Town, Fukushima Prefecture	Tadami Cultural Heritage Survey Report No. 13, "Collections of production tools and working clothes of Aizu-Tadami".	2004	
18	Kenji Sano	"Non-written materials" and the	2004	1st Annual Report of

No.	Publisher and Author	Title	Published Year	Publication Magazine
		local community - Preservation and practical use of Folk implements of Tadami Town, Fukushima Prefecture -		"Systematization of Non-written Cultural Materials for the Study of Human Societies," Kanagawa University 21st Century COE Program Research Promotion Committee
19	Michiaki Kono	Tohoku district seen from the distribution of existing farming tools	2005	Annual Report of "Systematization of Non-written Cultural Materials for the Study of Human Societies 2"
20	Satoru Amino	Non-written materials and documentation	2005	Annual Report of "Systematization of Non-written Cultural Materials for the Study of Human Societies 2"
21	Michiaki Kono	Tohoku district seen from the distribution of existing farming tools	2005	Annual Report of "Systematization of Non-written Cultural Materials for the Study of Human Societies 2"
22	Kenji Sano	Internet museum as a cultural information transmission system – Focusing on cooperation with the University and the local museum -	2006	Annual Report of "Systematization of Non-written Cultural Materials for the Study of Human Societies 3"
23	Edited by Kenji Sano (2008), Graduate School of History & Folklore Studies, Kanagawa University Graduate School	Kanagawa University History and Folklore Study Report No. 6, "Folklore of Ookura – Ookura, Tadami Town, Minami-Aizu, Fukushima Prefecture"	2008	
24	Edited by the 4th group of "Systematization of Non-written Cultural Materials for the Study of Human Societies"	Report on study results of Kanagawa University 21st Century COE Program, "Systematization of Non-written Cultural Materials for the Study of Human Societies" - "Development of area informatics : the way to innovation of knowledge"	2008	
25	Edited by Kanagawa University 21st Century COE Program, "Systematization of Non-written Cultural Materials for the Study of Human Societies" Research Promotion Committee	Report on study results of Kanagawa University 21st Century COE Program, "Systematization of Non-written Cultural Materials for the Study of Human Societies" Research Summary of "Systematization of Non-written Cultural Materials for the Study of Human Societies"	2008	
26	Education Board of Tadami Town, Fukushima Prefecture	Tadami Cultural Heritage Survey Report No. 15, "Tadami Town Ruins exploratory excavation investigation report – Arai Tateato, Kurotani Tateato"	2009	
27	Education Board of Tadami Town, Fukushima Prefecture	Tadami Cultural Heritage Survey Report No. 16, "Tadami Town Ruins exploratory excavation investigation report – Shichijyukari ruins"	2010	
28	Toshihiko Hisano, National Museum of Japanese History	Shugen Ryuzo-in Shogyo Tenseki Documents list	2010	
29	Ito *et al.*	Report on an outsourcing project on a settlement revitalization study utilizing the power and skills of college students, 2010 "Fuzawa – The way for development"	2010	
30	Ito *et al.*	Report on an outsourcing project on a settlement revitalization	2010	

No.	Publisher and Author	Title	Published Year	Publication Magazine
		study utilizing the power and skills of college students, 2010 "Fuzawa – The way for development"		
31	Kentaro Yoshida	Economic evaluation of ecosystem services supplied by biological diversity	2011	
32	Ken Sugimura	Analysis of Asian specific features on the utilization of forest ecosystem services	2011	
33	Kaoru Maeto	Evaluation of ecosystem functions supplied to agro-ecosystems from forests	2011	
34	Hiroshi Tanaka and Kimiko Okabe	Evaluation of changes in ecosystem functions of forests by human activities.	2011	
35	Komagata *et al.*	Report on an outsourcing project on settlement revitalization studies utilizing the power and skills of college students, 2011, "Connect a smile – from present to the future, from Fuzawa to Fukushima"	2011	
36	Komagata *et al.*	Report on outsourcing a project on settlement revitalization studies utilizing the power and skills of college students, 2011, "Connect a smile – from present to the future, from Fuzawa to Fukushima"	2011	
37	Aizu architectural firm of Fukushima Prefecture, Education Board of Tadami Town, Fukushima Prefecture	Tadami Cultural Heritage Survey Report No. 17, "Shichijyukari Ruins excavational investigation report – Excavational investigation report due to large scale riparian works of Ina River"	2012	
38	Tadami Beech Center	Exhibition guide series I – "Enjoy foods from the nature found around Tadami"	2013	
39	Tadami Beech Center and Fukosha	River map of Tadami Town	2013	

(7) Original Endorsement letters according to paragraph 5

(8) Further supporting documents.

20. ADDRESSES:

20.1 Contact address of the proposed biosphere reserve:
[Government agency, organization, or other entity (entities) to serve as the main contact and to whom all correspondence within the World Network of Biosphere Reserves should be addressed.]

Name: Tadami Beech Center, Administration and Planning Division, Tadami Town Hall, Fukushima Prefecture
Street or P.O. Box: 2590 Machishita, Tadami, Tadami-machi,
City with postal code: Minami-Aizu-gun, Fukushima 968-0421
Country: Japan
Telephone: +81-241-72-8355
E-mail: info-buna@amail.plala.or.jp
Web site: http://www.tadami-buna.jp/

20.2. Administering entity of the core area(s):

Name: Forest Plannning Division Kanto Regional Forest Office, Forestry Agency
Street or P.O. Box: 4-16-25 Iwagami-cho,
City with postal code: Maebashi-shi, Gunma 371-8508
Country: Japan
Telephone: +81-27-210-1265
E-mail: kanto_keikaku@rinya.maff.go.jp
Web site: http://www.rinya.maff.go.jp/kanto/

Name: Nature Conservation Division of Fukushima Prefecture
Street or P.O. Box: 2-16 Sugitsuma-cho,
City with postal code: Fukushima-shi, Fukushima 960-8670
Country: Japan
Telephone: +81-24-521-7251
E-mail: shizen@pref.fukushima.lg.jp
Web site: http://wwwcms.pref.fukushima.jp/

20.3. Administering entity of the buffer zone(s):

Name: Forest Plannning Division Kanto Regional Forest Office, Forestry Agency
Street or P.O. Box: 4-16-25 Iwagami-cho,
City with postal code: Maebashi-shi, Gunma 371-8508

Country: Japan
Telephone: +81-27-210-1265
E-mail: kanto_keikaku@rinya.maff.go.jp
Web site: http://www.rinya.maff.go.jp/kanto/

Name: Nature Conservation Division of Fukushima Prefecture
Street or P.O. Box: 2-16 Sugitsuma-cho,
City with postal code: Fukushima-shi, Fukushima 960-8670
Country: Japan
Telephone: +81-24-521-7251
E-mail: shizen@pref.fukushima.lg.jp
Web site: http://wwwcms.pref.fukushima.jp/

Name: Tadami Beech Center, Administration and Planning Division, Tadami Town Hall, Fukushima Prefecture
Street or P.O. Box: 2590 Machishita, Tadami, Tadami-machi,
City with postal code: Minami-Aizu-gun, Fukushima 968-0421
Country: Japan
Telephone: +81-241-72-8355
E-mail: info-buna@amail.plala.or.jp
Web site: http://www.tadami-buna.jp/

20.4. Administering entity of the transition area(s):

Name: Forest Plannning Division Kanto Regional Forest Office, Forestry Agency
Street or P.O. Box: 4-16-25 Iwagami-cho,
City with postal code: Maebashi-shi, Gunma 371-8508
Country: Japan
Telephone: +81-27-210-1265
E-mail: kanto_keikaku@rinya.maff.go.jp
Web site: http://www.rinya.maff.go.jp/kanto/

Name: Nature Conservation Division of Fukushima Prefecture
Street or P.O. Box: 2-16 Sugitsuma-cho,
City with postal code: Fukushima-shi, Fukushima 960-8670
Country: Japan

Telephone: +81-24-521-7251
E-mail: shizen@pref.fukushima.lg.jp
Web site: http://wwwcms.pref.fukushima.jp/

Name: Tadami Beech Center, Administration and Planning Division, Tadami Town Hall, Fukushima Prefecture
Street or P.O. Box: 2590 Machishita, Tadami, Tadami-machi,
City with postal code: Minami-Aizu-gun, Fukushima 968-0421
Country: Japan
Telephone: +81-241-72-8355
E-mail: info-buna@amail.plala.or.jp
Web site: http://www.tadami-buna.jp/

Annex I to the Biosphere Reserve Nomination Form, January 2013

MABnet Directory of Biosphere Reserves

Biosphere Reserve Description[1]

Administrative details

Country: Japan

Name of BR: Tadami Biosphere Reserve: Tadami BR

Year designated: (*to be completed by MAB Secretariat)*
(The year to be completed by the Secretariat)

Administrative authorities: (17.1.3)
<Core area proposed site>
The Kanto Regional Forest Office of the Forestry Agency and Fukushima Prefecture
<Buffer Zone A proposed site>
The Kanto Regional Forest Office of the Forestry Agency and Fukushima Prefecture
<Buffer Zone B proposed site>
The Kanto Regional Forest Office of the Forestry Agency, the Ministry of the Environment, Fukushima Prefecture and Tadami Town
<Transition area proposed site>
The Kanto Regional Forest Office of the Forestry Agency, the Ministry of the Environment, Fukushima Prefecture and Tadami Town

Name Contact: (20.1)
Name of the organization: Tadami Beech Center

Contact address: *(Including phone number, postal and email adresses)* (20.1)
Address (postal code): 2590 Machishita, Tadami, Tadami-machi, Minami-Aizu-gun, Fukushima 968-0421, Japan
Phone number: +81-241-72-8355
Fax number: +81-241-72-8356
Email: info-buna@amail.plala.or.jp

Related links: *(web sites)*
Web site: http://www.tadami-buna.jp/

Social networks**: (16.4.3)**

- Currently it is not registered in any social network (Facebook, Twitter, etc.), however, it will be registered.

[1] To be posted on the MABnet once the nomination has been approved. The numbers refer to the relevant sections of the nomination form.

Description

General description: *(Site characteristics in 11.1; human population in 10)*

Approximately 25 lines

In the Tadami BR proposed site, mountains occupy most of the earth's surface area except for the basins of the Tadami River and its tributary, the Ina River. Especially in the southern and western areas, steep massifs - Mt. Aizu Asahidake (1,624 m) and Mt. Asakusadake (1,586 m) – both with altitudes above 1,000 m are found. In the mountains of the southern part, ridges extend in a north-south direction, limiting the flow direction of the Tadami River, Ina River and their major tributaries. Whereas in the northern area of the Ina River basin, gently-sloping mountain ranges are found around Mt. Asakusadake with a constant altitude of 800 to 1,000 m. In those mountains, slopes are shaved off by avalanches, bedrocks are exposed, and steep and complicated "nivation landforms" are formed, due to the geological characteristics of heavy snowfall, the Tadami area has one of the heaviest snowfalls in Japan (annual average snow coverage in winter is 2.5 m), and the green tuff bedrock with a comparatively fragile nature. In this complicated topography, a "mosaic vegetation" where plant communities grow by adapting to each habitat environment is formed. The minimum altitude is 350 m at the Tadami River near the border of Tadami Town and Kaneyama-town, and the maximum altitude is 1,819.9 m at Mt. Maruyamadake located at the border of Tadami Town and Hinoemata-village. The number of residents living in the area along the Tadami River and Ina River, which is the transition proposed site is 4,695 (As of May 1, 2013).

Major ecosystem type: (14.1)
Cool-temperate deciduous broad-leaved forests (Nivation landform and mosaic vegetation)

Major habitats & land cover types: (11.6)
Cool-temperate deciduous broad-leaved forests (Nivation landform and mosaic vegetation)

Bioclimatic zone (11.5)
Entire proposed site belongs to the humid zone.

Location (latitude & longitude): (6.1)

Key points	Latitude	Longitude
Central point	37°17'8.6"	139°20'45.3"
Northernmost point	37°28'11.5"	139 °21'45.0"
Southernmost point	37°06'17.0"	139°20'46.6"
Westernmost point	37°14'13.1"	139°09'52.3"
Easternmost extent	37°19'22.8"	139°34'30.3"

Total Area (ha): (7)
78,032 ha (only land)

Core area*(s):* (7)
3,557 ha (only land)

Buffer zone*(s):* (7)
Buffer Zone A 8,380 ha (only land)
Buffer Zone B 42,953 ha (only land)

Transition area*(s) :* (7)
23,142 ha (only land)

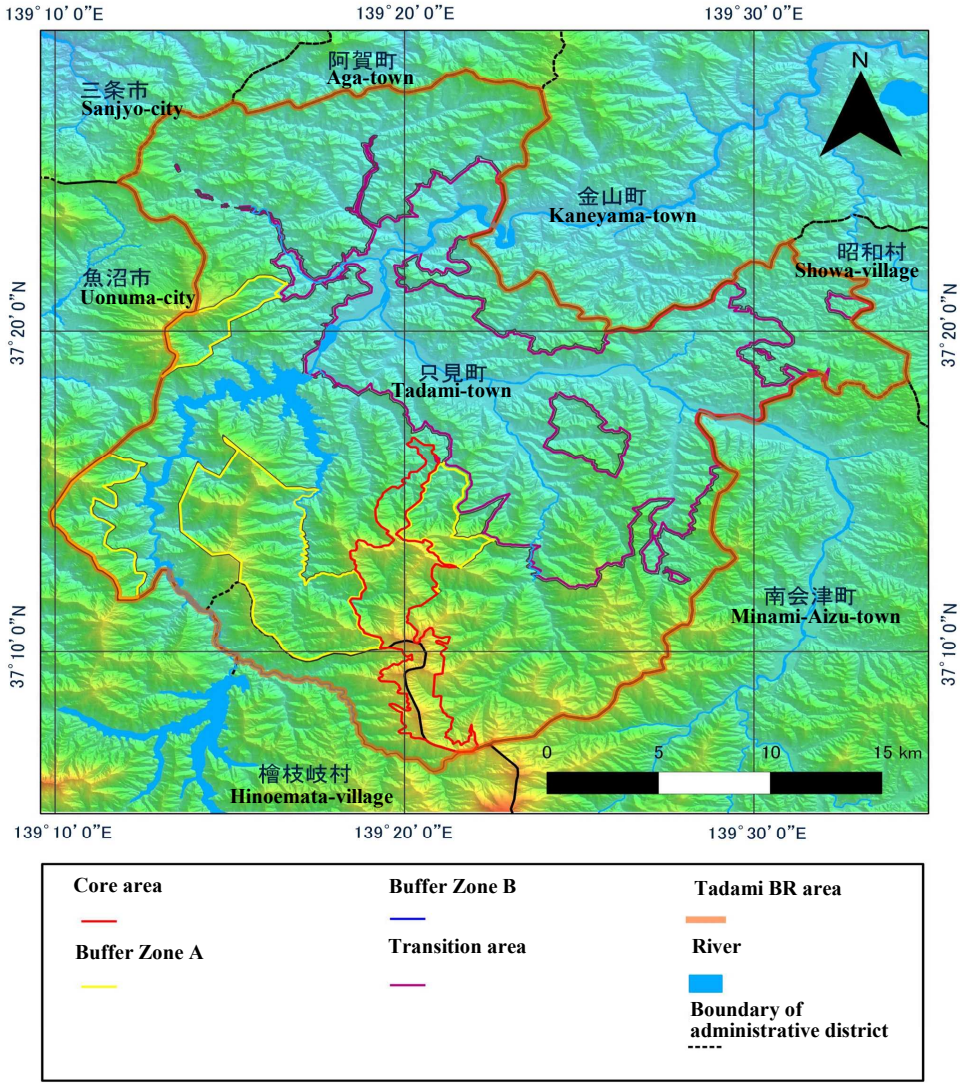
Different existing zonation: (7.4)

- Protection Zone and Conservation and Utilization Zone of "Oku-Aizu Forest Ecosystem Reserve" based on the Law on the Administration and Management of National Forests
- Special Protection Zone, Class I Special Zone and Class II Special Zone of "Echigosanzan-Tadami Quasi-national Park" based on the Natural Park Act

- Protected Forests “Hometown Forest” and “Aizu Mountains Green Corridor” based on the Law on the Administration and Management of National Forests

Altitudinal range *(*metres above sea level): (11.2)
350 to 1819 m

Zonation map(s): (6.2)



Main objectives of the biosphere reserve

Brief description (13.1)

Approximately 5 lines

In the Tadami area, the local community has developed historically by taking advantage of the rich natural environment and utilizing a variety of natural sources through hunting and collecting. However, in recent years, with depopulation and an aging population, these kinds of socioeconomics systems are now distorted and local communities have fallen into decline. Therefore, regional independence and activation are promoted by variedly utilizing the rich natural environment (snow, beech forest) and natural resources of this area, by inheriting the regional traditions, cultures and industries grown out of and developed from such natural resources.

Research

Brief description (16.1.1)

Approximately 5 lines

Tadami Beech Center originally conducts basic research such as investigation into the dynamics of beech natural forests and secondary forest, and in addition, centralizes Tadami Town for academic investigation and research, while coordinating with universities and research institutions concerned with the biological diversity of the Tadami area, through a subsidized project that has been set up by Tadami Town.

Monitoring

Brief description (16.1.1)

Approximately 5 lines

The Tadami Beech Center conducts monitoring studies on beech natural forests, secondary forest and *Salix hukaoana* forest. The Kanto Regional Forest Office of the Forestry Agency conducts forest monitoring of the Forest Ecosystem Reserve and investigations into the habitat situation and nesting place of birds such as the Mountain Hawk Eagle, which is designated as a endangered species of wild fauna and flora.

Specific variables (fill in the table below and tick the relevant parameters)

Abiotic		Biodiversity	
Abiotic factors		Afforestation/Reforestation	
Acidic deposition/Atmospheric factors		Algae	
Air quality		Alien and/or invasive species	
Air temperature	○	Amphibians	○
Climate, climatology		Arid and semi-arid systems	
Contaminants		Autoecology	
Drought		Beach/soft bottom systems	
Erosion	○	Benthos	
Geology	○	Biodiversity aspects	○
Geomorphology	○	Biogeography	○
Geophysics		Biology	○
Glaciology		Biotechnology	
Global change		Birds	○
Groundwater		Boreal forest systems	○
Habitat issues		Breeding	○
Heavy metals		Coastal/marine systems	
Hydrology	○	Community studies	○
Indicators		Conservation	○
Meteorology	○	Coral reefs	
Modeling		Degraded areas	○
Monitoring/methodologies		Desertification	
Nutrients	○	Dune systems	
Physical oceanography		Ecology	○
Pollution, pollutants		Ecosystem assessment	○
Siltation/sedimentation	○	Ecosystem functioning/structure	○
Soil	○	Ecosystem services	○
Speleology		Ecotones	○
Topography		Endemic species	○
Toxicology		Ethology	○
UV radiation		Evapotranspiration	○
		Evolutionary studies/Palaeoecology	○
		Fauna	○
		Fires/fire ecology	
		Fishes	○
		Flora	○
		Forest systems	○
		Freshwater systems	○
		Fungi	○
		Genetic resources	○
		Genetically modified organisms	
		Home gardens	
		Indicators	
		Invertebrates	○
		Island systems/studies	
		Lagoon systems	

		Lichens	○
		Mammals	○
		Mangrove systems	
		Mediterranean type systems	
		Microorganisms	○
		Migrating populations	
		Modeling	○
		Monitoring/methodologies	○
		Mountain and highland systems	
		Natural and other resources	○
		Natural medicinal products	○
		Perturbations and resilience	
		Pests/Diseases	
		Phenology	○
		Phytosociology/Succession	○
		Plankton	○
		Plants	○
		Polar systems	
		Pollination	○
		Population genetics/dynamics	○
		Productivity	○
		Rare/Endangered species	○
		Reptiles	○
		Restoration/Rehabilitation	○
		Species (re) introduction	
		Species inventorying	○
		Sub-tropical and temperate rainforest	
		Taxonomy	○
		Temperate forest systems	○
		Temperate grassland systems	○
		Tropical dry forest systems	
		Tropical grassland and savannah systems	
		Tropical humid forest systems	
		Tundra systems	
		Vegetation studies	○
		Volcanic/Geothermal systems	○
		Wetland systems	○
		Wildlife	○

Socio-economic		Integrated monitoring	
Agriculture/Other production systems	○	Biogeochemical studies	○
Agroforestry	○	Carrying capacity	○
Anthropological studies	○	Climate change	○
Aquaculture	○	Conflict analysis/resolution	○
Archaeology	○	Ecosystem approach	○
Bioprospecting	○	Education and public awareness	○
Capacity building	○	Environmental changes	○
Cottage (home-based) industry	○	Geographic Information System (GIS)	○
Cultural aspects	○	Impact and risk studies	○
Demography	○	Indicators	○
Economic studies	○	Indicators of environmental quality	○
Economically important species	○	Infrastructure development	○
Energy production systems	○	Institutional and legal aspects	○
Ethnology/traditional practices/knowledge	○	Integrated studies	○
Firewood cutting	○	Interdisciplinary studies	○
Fishery	○	Land tenure	○
Forestry	○	Land use/Land cover	○
Human health	○	Landscape inventorying/monitoring	○
Human migration	○	Management issues	○
Hunting	○	Mapping	○
Indicators	○	Modelling	○
Indicators of sustainability	○	Monitoring/methodologies	○
Indigenous people's issues		Planning and zoning measures	○
Industry	○	Policy issues	○
Livelihood measures	○	Remote sensing	○
Livestock and related impacts	○	Rural systems	○
Local participation	○	Sustainable development/use	○
Micro-credits	○	Transboundary issues/measures	
Mining		Urban systems	
Modelling	○	Watershed studies/monitoring	○
Monitoring/methodologies	○		
Natural hazards	○		
Non-timber forest products	○		
Pastoralism			
People-Nature relations	○		
Poverty			
Quality economies/marketing	○		
Recreation	○		
Resource use	○		
Role of women	○		
Sacred sites			
Small business initiatives	○		
Social/Socio-economic aspects	○		
Stakeholders' interests	○		
Tourism	○		
Transports	○		