

Information Sheet on Ramsar Wetlands (RIS) – 2009-2012 version

Available for download from http://www.ramsar.org/ris/key_ris_index.htm.

Categories approved by Recommendation 4.7 (1990), as amended by Resolution VIII.13 of the 8th Conference of the Contracting Parties (2002) and Resolutions IX.1 Annex B, IX.6, IX.21 and IX. 22 of the 9th Conference of the Contracting Parties (2005).

Notes for compilers:

1. The RIS should be completed in accordance with the attached *Explanatory Notes and Guidelines for completing the Information Sheet on Ramsar Wetlands*. Compilers are strongly advised to read this guidance before filling in the RIS.
2. Further information and guidance in support of Ramsar site designations are provided in the *Strategic Framework and guidelines for the future development of the List of Wetlands of International Importance* (Ramsar Wise Use Handbook 14, 3rd edition). A 4th edition of the Handbook is in preparation and will be available in 2009.
3. Once completed, the RIS (and accompanying map(s)) should be submitted to the Ramsar Secretariat. Compilers should provide an electronic (MS Word) copy of the RIS and, where possible, digital copies of all maps.

1. Name and address of the compiler of this form:

Mr. Shuji Kanda
Wildlife Division, Chubu Regional Environment Office,
Ministry of the Environment
2-5-2 Marunouchi, Naka-ku, Nagoya city,
Aichi, 460-0001 JAPAN
Phone: 052-955-2139 Fax: 052-951-8919
Email: REO-CHUBU@env.go.jp

FOR OFFICE USE ONLY.

DD MM YY

--	--	--

Designation date

--	--	--	--	--	--

Site Reference Number

2. Date this sheet was completed/updated:

May 31, 2012

3. Country:

JAPAN

4. Name of the Ramsar site:

The precise name of the designated site in one of the three official languages (English, French or Spanish) of the Convention. Alternative names, including in local language(s), should be given in parentheses after the precise name.

Nakaikemi-shicchi

5. Designation of new Ramsar site or update of existing site:

This RIS is for (tick one box only):

- a) Designation of a new Ramsar site ; or
b) Updated information on an existing Ramsar site

6. For RIS updates only, changes to the site since its designation or earlier update:

- a) Site boundary and area

The Ramsar site boundary and site area are unchanged:

or

If the site boundary has changed:

- i) the boundary has been delineated more accurately ; or
- ii) the boundary has been extended ; or
- iii) the boundary has been restricted**

and/or

If the site area has changed:

- i) the area has been measured more accurately ; or
- ii) the area has been extended ; or
- iii) the area has been reduced**

**** Important note:** If the boundary and/or area of the designated site is being restricted/reduced, the Contracting Party should have followed the procedures established by the Conference of the Parties in the Annex to COP9 Resolution IX.6 and provided a report in line with paragraph 28 of that Annex, prior to the submission of an updated RIS.

b) Describe briefly any major changes to the ecological character of the Ramsar site, including in the application of the Criteria, since the previous RIS for the site:

7. Map of site:

Refer to Annex III of the *Explanatory Note and Guidelines*, for detailed guidance on provision of suitable maps, including digital maps.

a) A map of the site, with clearly delineated boundaries, is included as:

- i) a **hard copy** (required for inclusion of site in the Ramsar List): ;
- ii) an **electronic format** (e.g. a JPEG or ArcView image) ;
- iii) a **GIS file providing geo-referenced site boundary vectors and attribute tables** .

b) Describe briefly the type of boundary delineation applied:

e.g. the boundary is the same as an existing protected area (nature reserve, national park, etc.), or follows a catchment boundary, or follows a geopolitical boundary such as a local government jurisdiction, follows physical boundaries such as roads, follows the shoreline of a waterbody, etc.

The site is in Class II Special Zone of the Echizen Kaga Coast Quasi-National Park.

In Japan, inland areas of natural parks are classified into Special Protection Zones, Class I Special Zones, Class II Special Zones, Class III Special Zones and Ordinary Zones according to natural conditions and utilization. This wetland is included in Class II Special Zones.

8. Geographical coordinates (latitude/longitude, in degrees and minutes):

Provide the coordinates of the approximate centre of the site and/or the limits of the site. If the site is composed of more than one separate area, provide coordinates for each of these areas.

The approximate centre of the site : 35°39'40"N, 136°05'20"E

9. General location:

Include in which part of the country and which large administrative region(s) the site lies and the location of the nearest large town.

The site is located in Fukui Prefecture which is included in Hokuriku Region situated at the centre of Honshu, mainland of Japan. This site is located in the north eastern part of the urban district of Tsuruga City (population: 69,000; area 251.2 km²), at the centre of Fukui Prefecture.

10. Elevation: (in metres: average and/or maximum & minimum)

Average 45 m

11. Area: (in hectares)

87 ha

12. General overview of the site:

Provide a short paragraph giving a summary description of the principal ecological characteristics and importance of the wetland.

Nakaikemi-shicchi (wetland) is located northeast of the urban district of Tsuruga City, which is in the central part of Fukui Prefecture. The wetland is a valley containing thick sediment at the bottom. It was initially developed for rice cultivation during the Edo period (1603–1868) and has since been used as unprepared wet paddies without improvement. Currently, cultivation has been abandoned for the entire field except for the wet paddies for conservation of wetland. At Nakaikemi-shicchi, diverse aquatic and wetland plant species including national and prefectural threatened species such as *Marsilea quadrifolia* (European Water Clover) and *Eusteralis yatabeana* (Japanese Yellow Bunting) are found. It is the only habitat for *Scymnus nakaikemensis* in the prefecture. Furthermore, an approximately 40-meter-deep peat sediment is found underground, which represents a record of the climate change for a hundred thousand years.

13. Ramsar Criteria:

Tick the box under each Criterion applied to the designation of the Ramsar site. See Annex II of the *Explanatory Notes and Guidelines* for the Criteria and guidelines for their application (adopted by Resolution VII.11). All Criteria which apply should be ticked.

1 • 2 • 3 • 4 • 5 • 6 • 7 • 8 • 9

14. Justification for the application of each Criterion listed in 13 above:

Provide justification for each Criterion in turn, clearly identifying to which Criterion the justification applies (see Annex II for guidance on acceptable forms of justification).

Criterion 1:

Within the Japanese Mixed Forest biogeographic region, this type of low moor wetland is uncommon and not widely distributed. This site is a sac-like sediment filled valley and in the central part, an unique approximately 40-meter-deep, nearly continuous peat layer has very deeply accumulated. This allows for an analysis of changes in climate and vegetation during the past one hundred thousand years.

Criterion 2:

The Japanese yellow bunting regularly uses this wetland as a migratory spot.

Common Name	Latin Name	IUCN	CMS	CITES	National Standard
Japanese yellow bunting	<i>Enberiza sulphurata</i>	VU	×	×	Near Threatened

Criterion 3:

Within this biogeographic region, the wetland is considered as a hot spot in context of biodiversity and more than 2,000 species of animals and plants inhabit and grow in the area, including many threatened species of aquatic and wetland plants, among which specially *Marsilea quadrifolia* (European Water Clover), *Persicaria foliosa* var. *paludicola*, and *Eusteralis yatabeana* (Japanese Yellow Bunting), are associated with paddy cultivation.

15. Biogeography (required when Criteria 1 and/or 3 and /or certain applications of Criterion 2 are applied to the designation):

Name the relevant biogeographic region that includes the Ramsar site, and identify the biogeographic regionalisation system that has been applied.

a) biogeographic region:

Japanese Mixed Forest

b) biogeographic regionalisation scheme (include reference citation):

Udvardy, M.D.F.(1975) *A classification of the biogeographical provinces of the world*
<http://cmsdata.iucn.org/downloads/udvardy.pdf>

16. Physical features of the site:

Describe, as appropriate, the geology, geomorphology; origins - natural or artificial; hydrology; soil type; water quality; water depth, water permanence; fluctuations in water level; tidal variations; downstream area; general climate, etc.

Geology:

Shale

Geomorphology:

Sediment-filled valley

Soil type:

Peat soil

Origins: Natural. The origin of the wetland was attributed to the generation of a reversed fault in a north-south direction by compression in an east-west direction. The fault halted the flow of small sized rivers running toward the east, resulting in the formation of the wetland. The stagnant flow and spring water flowing along the fault formed clay layers of deposition of fine particles, on top of which the remains of plants are decomposed into organic matter. The geological process created a peat layer.

Hydrology:

The wetland is kept in wet condition throughout the year thanks to the ill-drained peat layer and an abundance of spring water flowing from the circumference, with spring water and small-sized open water surfaces in places. There are water passages in every direction, which were used for paddy cultivation performed until around 2000. (In 2002, the development plan of this site was called off and to promote this development plan, land acquisition was advanced. For that reason, abandonment of cultivation has become conspicuous.) The main streams run from west to east, gathering water flowing from surrounding water passages. All water passages meet at the east end and the water flows out of Nakaikemi-shicchi through the channel.

Water quality:

pH 5.5-9.0 (1997), Ca²⁺ 14-1197 uM(1997), NO₃⁻ 0-78 uM (1997), NO₂⁻ 0-0.83 uM (1997),

NH₄⁺ 0.1-62.9 uM (1997), PO₄²⁻ 0-30.3 uM (1997), EC 54-340 uS/cm (1997).

Water depth:

0.5 m on average (ditch)

Water level:

The water depth is usually kept at about 0.5 m, and increases to overflow the water passages during the rainy and winter seasons with a high amount of rainfall.

Climate:

Annual precipitation: 2940.5 mm, annual mean temperature: 15 degrees Celsius

17. Physical features of the catchment area:

Describe the surface area, general geology and geomorphological features, general soil types, and climate (including climate type).

Surface area:

Catchment area 62ha (excluding core area), core area 25ha and total registered area 87ha

General geology and geomorphological features:

The basement of the Nakaikemi area essentially consists of the geological strata of the Mino-Tamba belt developed in the Jurassic Period of the Mesozoic era. It is covered with strata of the terrace deposits of the Quaternary Pleistocene times, alluvial deposits of the Alluvial period, and other deposits. The bedrock of the surrounding mountains basically consists of shale with a small amount of sandstone and greenstone. At the foot and on the mild slope of the mountains, talus deposits are distributed as weathering products and slope movement materials of bedrock.

General soil types:

Mainly melange and shale are found in the northern part, and sandstone in the southern part.

General land use:

Forest

Climate:

Annual precipitation: 2940.5mm, annual mean temperature: 15 degrees Celsius

18. Hydrological values:

Describe the functions and values of the wetland in groundwater recharge, flood control, sediment trapping, shoreline stabilization, etc.

Sediment trapping:

Nutrients are maintained by sediment trapping of peat layer.

Agricultural water:

It was used as water for rice paddies.

19. Wetland Types

a) presence:

Circle or underline the applicable codes for the wetland types of the Ramsar "Classification System for Wetland Type" present in the Ramsar site. Descriptions of each wetland type code are provided in Annex I of the *Explanatory Notes & Guidelines*.

Marine/coastal: A • B • C • D • E • F • G • H • I • J • K • Zk(a)

Inland: L • M • N • O • P • Q • R • Sp • Ss • Tp • Ts • U • Va •
Vt • W • Xf • Xp • Y • Zg • Zk(b)

Human-made: 1 • 2 • 3 • 4 • 5 • 6 • 7 • 8 • 9 • Zk(c)

b) dominance:

List the wetland types identified in a) above in order of their dominance (by area) in the Ramsar site, starting with the wetland type with the largest area.

U, 3

20. General ecological features:

Provide further description, as appropriate, of the main habitats, vegetation types, plant and animal communities present in the Ramsar site, and the ecosystem services of the site and the benefits derived from them.

Nakaikemi wetland is a low moor, in which tall perennial grass vegetation including *Phragmites australis* (Reed) and *Zizania latifolia* (Manchurian Wild Rice) communities are rampant with scattered short herbaceous communities. In such communities, many rare species of aquatic plants associated with paddy cultivation, such as *Marsilea quadrifolia* (European Water Clover) and *Eusteralis yatabeana* (Japanese Yellow Bunting), are living. More than 70 kinds of dragonflies such as *Nannophya pygmaea* (Scarlet Dwarf), *Oligoaeschna pryleri*, and *Aeschnophlebia anisoptera* have been recorded, accounting for about 38% of 184 dragonflies that have been identified in Japan. The many rare kinds of plants and animals found in Nakaikemi-shicchi require the environment of wet paddies, either currently cultivated or immediately after abandonment of cultivation, in order to inhabit and grow. To sustain the environment, it has been suggested that human intervention is necessary.

21. Noteworthy flora:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 14, Justification for the application of the Criteria) indicating, e.g., which species/communities are unique, rare, endangered or biogeographically important, etc. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

Isoetes japonica (Gullwort) NT*1, CR/EN*2
Marsilea quadrifolia (European Water Clover) VU*1, CR/EN*2
Salvinia natans (Natant Salvinia) NT*1, VU *2
Persicaria foliosa var. *paludicola* VU *1, CR/EN*2
Trapa incisa VU*1, CR/EN*2
Eusteralis yatabeana VU*1, CR/EN*2
Prenanthes tanakae NT*1, VU*2
Ottelia japonica (Duck Lettuce) VU*1, NT*2
Najas japonica NT*1, CR/EN*2
Monochoria korsakowii NT*1, CR/EN*2
Iris laevigata (Rabbit ear Iris) NT*1, VU*2
Sparganium erectum (Simple stem Bur-reed) NT*1, NT*2
Sparganium japonicum NT*1, NT*2

All of the above are categorized as Least Concerned in IUCN Red List.

Note: *1 Red List of Threatened Wildlife of Japan. Ministry of the Environment

*2 Red List of Threatened Wildlife of Fukui. Fukui Prefectural Government

CR: Critically Endangered, EN: Endangered, VU: Vulnerable, NT: Near Threatened

22. Noteworthy fauna:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 14. Justification for the application of the Criteria) indicating, e.g., which species/communities are unique, rare, endangered or biogeographically important, etc., including count data. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

[Birds]

Accipiter gentilis fujiiyamae (Northern Goshawk) NT*1, CR/EN*2

Falco peregrinus japonensis (Peregrine Falcon) VU*1, VU*2

Pericrocotus divaricatus divaricatus (Ashy Minivet) VU*1, VU*2

Emberiza yessoensis yessoensis (Ochre-rumped Bunting) VU*1, VU*2

[Fish]

Oryzias latipes (Medaka ricefish) VU*1, VU*2

Lefua echigonia (Eight Barbel Loach) EN*1, CR/EN*2

Note: *1 Red List of Threatened Wildlife of Japan. Ministry of the Environment

*2 Red List of Threatened Wildlife of Fukui. Fukui Prefectural Government

CR: Critically Endangered, EN: Endangered, VU: Vulnerable, NT: Near Threatened

23. Social and cultural values:

a) Describe if the site has any general social and/or cultural values e.g., fisheries production, forestry, religious importance, archaeological sites, social relations with the wetland, etc. Distinguish between historical/archaeological/religious significance and current socio-economic values:

In the past, the wetland as a whole was used as rice paddies and it was also utilized as the place of agricultural production. In addition, it is a deep-mud paddy field as the mire is profound, only the traditional agricultural method could be applied. Consequently, the culture maintaining traditional rice cultivation method remains.

b) Is the site considered of international importance for holding, in addition to relevant ecological values, examples of significant cultural values, whether material or non-material, linked to its origin, conservation and/or ecological functioning?

If Yes, tick the box and describe this importance under one or more of the following categories:

- i) sites which provide a model of wetland wise use, demonstrating the application of traditional knowledge and methods of management and use that maintain the ecological character of the wetland:
- ii) sites which have exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland:
- iii) sites where the ecological character of the wetland depends on the interaction with local communities or indigenous peoples:
- iv) sites where relevant non-material values such as sacred sites are present and their existence is strongly linked with the maintenance of the ecological character of the wetland:

24. Land tenure/ownership:

a) within the Ramsar site:

Municipal land (Tsuruga City) : 25ha

b) in the surrounding area:

Catchment : 62ha

National land (Ministry of Land infrastructure, Transport and Tourism) : 6ha

Municipal land (Tsuruga City) : 54ha

Private land : 2ha

25. Current land (including water) use:

a) within the Ramsar site:

Support of environmental education, nature observation tours, experience learning, and environmental education for elementary and junior high schools.

b) in the surroundings/catchment:

Forest

26. Factors (past, present or potential) adversely affecting the site's ecological character, including changes in land (including water) use and development projects:

a) within the Ramsar site:

Incursion of alien species such as *Procambarus clarkia* (Red swamp crawfish) and *Solidago altissima* (Canada goldenrod).

Vegetation succession owing to aridification and land subsidence

b) in the surrounding area:

Widening of roads and inflow of discharged water

Incursion of alien species such as *Procambarus clarkia* (Red swamp crawfish) and *Solidago altissima* (Canada goldenrod).

27. Conservation measures taken:

a) List national and/or international category and legal status of protected areas, including boundary relationships with the Ramsar site:

In particular, if the site is partly or wholly a World Heritage Site and/or a UNESCO Biosphere Reserve, please give the names of the site under these designations.

It was designated as Class II Special Zone of Echizen kaga Coast Quasi-National Park (87ha) (Natural Parks Law) in 2011. (Class II explained in section 7.b)

b) If appropriate, list the IUCN (1994) protected areas category/ies which apply to the site (tick the box or boxes as appropriate):

Ia ; Ib ; II ; III ; IV ; V ; VI

c) Does an officially approved management plan exist; and is it being implemented?:

None

d) Describe any other current management practices:

The visitor centre has the function of management office for the wetland in its establishment.

28. Conservation measures proposed but not yet implemented:

e.g. management plan in preparation; official proposal as a legally protected area, etc.

None

29. Current scientific research and facilities:

e.g., details of current research projects, including biodiversity monitoring; existence of a field research station, etc.

[Scientific research]

Monitoring-site 1000 (Ministry of the Environment)

(Monitoring-site 1000 is a nationwide project for monitoring ecosystems and biodiversity in Japan.)

Monitoring of the inhabitation and growing conditions for major animals and plants (Tsuruga City, public opinion survey by civic organization from 1997 to as of 2012).

[Facilities established for research]

None

30. Current communications, education and public awareness (CEPA) activities related to or benefiting the site:

e.g. visitors' centre, observation hides and nature trails, information booklets, facilities for school visits, etc.

- As Nakaikemi Harmony of Rural Nature and Human Life, a visitor centre (including the administration building) for environmental education as well as boardwalks, paths, and information boards have been built in the wetland, at the same time, making pamphlets and holding symposium to enhance CEPA are organized, and are managed by Tsuruga City.
- Annual number of visitors: approx. 15,000

31. Current recreation and tourism:

State if the wetland is used for recreation/tourism; indicate type(s) and their frequency/intensity.

- The visitor centre (including the administration building), boardwalks, information boards for edification and diffusion, and local guideboards have been built.
- The visitor centre undertakes environmental education programs for the local educational institutes, and the NPOs conduct nature observation tours and biological surveys.
- Annual number of visitors: approx. 15,000
- Visitors are concentrated in spring and autumn, which are the flower seasons of the wetland.
- Visitors come from both inside and outside of the prefecture because they can enjoy the site as a walking course connected with the surrounding city parks.

32. Jurisdiction:

Include territorial, e.g. state/region, and functional/sectoral, e.g. Dept of Agriculture/Dept. of Environment, etc.

[Territorial]

Tsuruga City

Ministry of Land, Infrastructure, Transport and Tourism

[Functional]

Ministry of the Environment (in charge of administration of the designation of quasi-national parks by National Park Division of Ministry of the Environment, and its local branch, Chubu Regional Environment Office)

Fukui Prefectural Government (in charge of administration of quasi-national parks regarding the administration of park planning and authority over permission)

33. Management authority:

Provide the name and address of the local office(s) of the agency(ies) or organisation(s) directly responsible for managing the wetland. Wherever possible provide also the title and/or name of the person or persons in this office with responsibility for the wetland.

Ms. Takeko Takagi
Wildlife Division
Chubu Regional Environment of Ministry of the Environment
2-5-2 Marunouchi, Naka-ku, Nagoya city,
Aichi, 460-0001 JAPAN
Phone: 052-955-2139
Email: TAKEKO_TAKAGI@env.go.jp

34. Bibliographical references:

Scientific/technical references only. If biogeographic regionalisation scheme applied (see 15 above), list full reference citation for the scheme.

- Fukui Prefecture (ed.). 1999. Exceptional nature of Fukui - plants -
Fukui Prefecture (ed.). 1999. Exceptional nature of Fukui - animals -
Fukui Prefecture (ed.). 2002. Threatened animals of Fukui Pref. Fukui Red Data Book
Fukui Prefecture (ed.) 2004 Threatened plants of Fukui Pref. Fukui Red Data Book
Fukui Prefecture, Fukui Nature Conservation Center 2006 Protection and Tradition, Satoyama
of Fukui.
Fukui Prefecture. 2010. Geological Map of Fukui Prefecture (2010 edition).
Green Bank data, Fukui <http://www.erc.pref.fukui.jp/gbank/>
Kyoto University, Kobe University, Fukui University Academic research team in Nakaikemi
Marsh, Biodiversity Defence Network of JAPAN 2000 Scientific Report on Nakaikemi
Marsh — Report of the Second Scientific Research.
Meteorological Agency website <http://www.jma.go.jp/jma/index.htm>
Michiko Shimoda. 2007 Conservation and management of rice field biodiversity. Wetlands:
Monitoring, Modelling and Management (Okruszko et al. (eds)). 323-329. Taylor & Francis,
London.
Michiko Shimoda, Nakamoto Manabu. 2003 Vegetation and threatened plant dynamics of wet
abandoned rice fields in Nakaikemi, Fukui Prefecture, Japan. Japanese Journal of Ecology
53:197-217
National Institute for Environmental Studies. 2003. Scientific Report of Nakaikemi Marsh,
Tsuruga, Fukui Prefecture, Research Report from the National Institute for Environmental
Studies, Japan No.176.2003
Osaka Gas Co., Ltd. 1996 The Environmental Impact Statement of Tsuruga liquefied natural gas
plant construction.
Osaka Gas Co., Ltd. 2000. Natural and Human of Nakaikemi.
Tsuruga City. 2012. Annual report relating to the conservation, management and utilization
Nakaikemi by citizens.
-