

# Information Sheet on Ramsar Wetlands (RIS) – 2006-2008 version

Available for download from [http://www.ramsar.org/ris/key\\_ris\\_index.htm](http://www.ramsar.org/ris/key_ris_index.htm).

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

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Designation date

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Site Reference Number

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## 2. Date this sheet was completed/updated:

June 26, 2008

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## 3. Country:

Republic of Korea

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## 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.

Muljangori-oreum wetland

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## 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

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## 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:**

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**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 circumference of a crater is set as a boundary

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**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.

North Latitude: 33° 24'15"-33° 24'33"

East Longitude: 126° 36'18" -126° 36'32"

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**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.

- Jurisdictionally located at the border of Bonggae-dong, Jeju-si (city), Jeju-do (Island), Republic of Korea
- Located at 900m altitude of the northeast peak of Mt. Halla and is included in the Halla-san National Park.

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

at an altitude around the range of 900~937m

**11. Area:** (in hectares)

62.8ha

**12. General overview of the site:**

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

- Muljangori-oreum wetland is a mountain crater lake formed at the volcanic crater, which is at 900m~937m above the sea level, 9km of the northeast side of Mt. Halla (1,950 m). The surface water in the wetland is maintained by the rainfall. During the dry season, most part of wetland becomes dry except the deepest hole in the south (about 50 m of water depth) and during the rainy season, most of it gets submerged under the water.
- Featuring a representative pattern of the forest of broad-leaved deciduous trees of Jeju Island, the vegetation of this region is dominated by *Carpinus tshonoskii* var. *tshonoskii*, Japanese strawberry tree (*Cornus kousa*), Painted Maple (*Acer pictum* subsp. *monoii*), and the wetland vegetation by the community comprising *Juncus effusus* var. *decipiens*, *Scripus triangulates*, and *Persicaria hydropiper*. Given the small size of this area, the number of plant species is quite numerous.

Oreums such as Mulyoungari-oreum, Muljangori-oreum and Mulchatori-oreum hold rain water at craters consequently forming wetlands on top.

**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:**

**a wetland with characteristic features of its own**

- A mountain crater lake which is formed at 900m~937m above the sea level, 9km of the northeast side of Mt. Halla (1,950 m).

This kind of parasitic cone was formed by volcanic activities at the end of the third Cenozoic Era and exists only in Jeju Island. Around Hallasan (Mt.), about 370 parasitic cones are located and only about 30% of them has mountain craters. Oreum is mostly composed of water-permeable basalt, so it's difficult to have a wet mountain crater lake on the top of Oreum. Only rain will provide water to this kind of mountain crater. In water-scarce Jeju-island, these mountain crater wetlands have become habitats of wildlife and aquatic life. The deposits of Muljangori-orum are expected to reveal ancient vegetation of Jeju-island.

**○ Criterion 2 : an ecological community of endangered species or species at risk**

- One species of MoE level I endangered species of wild fauna and flora is present, the Peregrine falcon (*Falco peregrinus*). A group of MoE level II endangered species is present, including Fairy pitta (*Pitta nympha*; IUCN Vulnerable), Black kites (*Milvus migrans*; IUCN Least Concern), Japanese lesser sparrow hawks (*Accipiter gularis*; IUCN Least Concern), Black paradise flycatchers (*Terpsiphona atrocaudata*; IUCN Near Threatened), Wangeunjeom Pyobeomnabi (*Fabriciana nerippe*), and Giant water bug (*Lethocerus deyrollei*).
- Only one of the MoE-designated level II endangered flora species, Japanese forest peony (*Paeonia obovata*), is known to be present, and a Sujeongranpul (*Monotropastrum globosum*) has been discovered.

**○ Criterion 3: a wetland with many benefits to the biodiversity of fauna and flora**

- 181 species of diverse flowering plants, including Japanese forest peony (*Paeonia obovata*), Geumsaeunan (*Calanthe sieboldii*), Bochunhwa (*Cymbidium goeringii*).
- Diverse wildlife population of mammals such as Eastern roe deer (*Capreolus pygargus*) and Jeju striped field mouse (*Apodemus chejuensis*), birds such as Peregrine falcon (*Falco peregrinus*) and Japanese lesser sparrow hawk (*Accipiter gularis*), amphibians such as Jeju salamander (*Hynobius quepjaertensis*) and Dark-spotted frog (*Rana nigromaculata*), reptiles such as Asian tiger snake (*Rhabdophis tigrinus*) and Steppe rat snake (*Elaphe diene*), terrestrial and aquatic insects such as Giant water bug (*Lethocerus deyrollei*).
- The wetland vegetation and animals are organically combined, rendering this wetland essential for the maintenance of biodiversity.

**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:**

- Holarctic Region – Eastern Asiatic Region

**b) biogeographic regionalisation scheme** (include reference citation):

- Lee, Y.C. and Yim, Y.J., 2002. "Plant Geography", Gwangwon National University Press, Korea. 412pp.
- Takhtajan, A., 1986. "Floristic Regions of the World", University of California Press. 522pp.

**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.

Landform/topography:

- Formed in the mountain crater lake of a parasitic volcano, Muljangori-oreum wetland is located in an mountainous area with an altitude higher than 600 meters, along with Bulkandi-oreum (994 m above the sea level), Eohu-oreum (1014m above the sea level), Ssalsonjang-oreum (916m above the sea level) in the surrounding areas, and is thus quite steep.

- The peak of the crater is at an altitude of 937 meters. The inside Muljangori-oreum wetland is 900 meters high, and the circumferences of the wetland and the crater are approximately 400 meters and 3,094 meters, respectively.
- Geological features:
  - As a cinder cone formed by the Hawaiian or Stromboly eruption, this parasitic cone is a lava dome, similar to a tuff cone and tuff ring formed by hydrovolcanism whereby groundwater or sea water was involved in the volcano activities.
- Climate: based on 30 years (1971~2000) of records by the Jeju Meteorological Administration located in the vicinity of Muljangori-oreum Wetland
  - Average annual temperature: 15.5 °C
  - Average temperature of the coldest month (January): 5.6 °C
  - Average temperature of the warmest month (August): 26.5°C
  - Average annual precipitation: 1,457mm
  - Average annual wind velocity: 3.8m/s

Muljangori-oreum wetland is geomorphologically different from the Mulyoungari-oreum, Ramsar site, and lacks peat deposits.

These wet mountain craters are significant for various reasons. These wetlands are important sources for ancient geology study between 160000 years ago and 70000 years ago and during that period, volcanic eruptions happened five times

### 17. Physical features of the catchment area:

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

As a mountain-crater lake, Muljangori-oreum wetland has a highly fluctuating water level with most part of the wetland revealed during the dry season, while covered with water during the rainy season. The only water source is rainfall.

### 18. Hydrological values:

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

The abundant supply of water allowed it to be used as drinking water by nearby residents in the surrounding areas. During the dry season, other area residents used to come this area to conduct rain-praying rituals.

### 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 • Is • 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.

Ts, Va

**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.

**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.*

- Flora: According to surveys, it is inhabited by 69 families, 136 genera, 181 species of flowering plants.
- Featuring a representative pattern of the forest of broad-leaved deciduous trees of Jeju Island, the vegetation of this region is dominated by Gaeseoeonamu (*Carpinus tsbonoskii* var. *Tsbonoskii*), Japanese strawberry tree (*Cornus kousa*), Painted Maple (*Acer pictum* subsp. *mono*), and it is inhabited by 69 families, 136 genera, 181 species of flowering plants, including Kkorigosari (*Asplenium incisum*), Bochunhwa (*Cymbidium goeringii*), Okjamnancho (*Liparis kumokiri*) and Geumsaeunan (*Calanthe Sieboldii*).
- Wetland vegetation includes populations of Keungorangi (*Scripus tabernaemontani*) and Golpul (*Juncus effusus* var. *decipiens*) that dominate the edges of the Muljangori-oreum wetland, and Gijangdaepul (*Isachne globosa*), Byeolnalgaepul (*Juncus diastrophanthus*), and Cheongbinyeogolpul (*Juncus papillosus*) are also present. At the deeper water levels, a mixed community comprising Semogorangi (*Scripus triqueter* L.(dominant)), Gomari (*Persicaria thunbergii*) and Bopul (*Sagittaria aginashi*) is present while at the surface of the opening, the population of Mareum (*Trapa japonica*) is dominant.

**22. Noteworthy fauna:**

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 12, 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.*

- Fauna:
  - Mammals
    - The habitation of 9 families, 13 species, including Jeju striped field mouse (*Apodemus chejuensis*), Eastern roe deer (*Capreolus pygargus*; IUCN Least Concern species), and Badger (*Meles meles*; IUCN Least Concern) have been confirmed.
  - Amphibians
    - Jeju salamander (*Hynobius quelpaertensis*), Oriental fire-bellied toad (*Bombina orientalis*; IUCN Least Concern species), Dark-spotted frog (*Rana nigromaculata*; IUCN Near-threatened species), Japanese tree frog (*Hyla japonica*; IUCN Least Concern species), Dybowski's brown frog (*Rana dybowskii*; IUCN Least Concern species)

○ Reptiles

- Soesalmosa (*Gloydius ussuriensis*), Asian Tiger Snake (*Rhabdophis tigrinus*), Daeryuk yuhyeolmoki (*Amphiesma vibakari ruthveni*), Juljangjibam (*Takydromus wolteri*), Steppe rat snake (*Elaphe dione*)

○ Fish

- One abundant species, Mikkuri (*Misgurnus anguillicaudatus*)

○ Insects

- A total of 72 families, 182 species, including 8 indigenous species, such as Wangeunjeom pyobeomnabi (*Fabriciana nerippe*: MoE level II endangered species), 2 species of Giant water bug (*Lethocerus deyrollei*), and Jeju jipgaebeolre (*Anechura quelparta*), Jeju ttangkongmulbangge (*Agabus miyamotoi*), Tamrabyeongdaebeolre (*Podabrus heydeni*).

### 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:

- one of the three holy mountains that have been deified, along with the Five Hundred Arhats of Mt. Halla.
- a story of a goddess, Seolmundae-halmang from the legend of Jeju's beginning

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:
- ✓ 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:

National forest **of the Halla-san National Park**

b) in the surrounding area:

The national forest for the most part

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**25. Current land (including water) use:**

a) within the Ramsar site:

Muljangori-oreum wetland has been designated as a national park zone under the Natural Environment Conservation Act and as a core protected area under the Special Act on Jeju Self-governing Province, namely, the Special Act on the Establishment of Jeju Special Self-Governing Province and International Free City. The wetland is also designated and managed as Mt.Halla Nature Reserve under the Natural Heritage Conservation Act. There is currently no development activity.

b) in the surroundings/catchment:

Mostly forest area and under the Special Act, it is a core protected area.

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**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:

No development activity

b) in the surrounding area:

Forest

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**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.

- The 130 ha Muljangori-oreum wetland is within a National Park zone under the Natural Environment Conservation Act, a core protected area under the Special Act on Jeju Self-governing Province, and Hallasan (Mt.) Nature Reserve under the Natural Heritage Conservation Act
- The size of the Hallasan (Mt.) National Park is 15338 ha; the Muljangori-oreum wetland makes up about 0.85% of the Hallasan (Mt.) National Park. At the beginning, the size of the national park was 13300ha, and then later the size changed to 15338ha.
- The site is within a UNESCO Biosphere Reserve (Dec.16, 2002) of 83094ha (which also includes the outside of Hallasan (Mt.) National Park).
- The site is within a World Heritage Site (June 27, 2007) of 18845ha. It includes Hallasan (Mt.) Nature Reserve, Seongsan ilchulbong (volcanic crater) and lava tunnels.

**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

IV: Habitat/Species Management Area

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

An officially approved wetland management plan doesn't exist yet.

**d)** Describe any other current management practices:

- A patrol has been hired to take more than one round of inspections every day to keep watch for any potential illegal activity.
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**28. Conservation measures proposed but not yet implemented:**

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

- To designate Muljangori-oreum wetland as wetland protected area, the discussion has been going on between Jeju provincial government and Ministry of Environment.

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**29. Current scientific research and facilities:**

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

None, but there is a plan to purchase and use automatic climate measurement tool, tubular well, wares, and fixed enumeration district later.

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**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.

- Existing facility: none
- To be added: information board (1), security post (1), explanation boards , fences , visitors' center, visiting trail

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**31. Current recreation and tourism:**

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

Since Muljangori-oreum wetland is a core protected area under the Special Act on Jeju Self-governing Province, any recreation-related project is not being considered. After Ramsar site designation, only limited access would be allowed to visitors.

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**32. Jurisdiction:**

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

- Jeju Province

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**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.

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**34. Bibliographical references:**

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

Ministry of Environment, 2000. National Inland Survey- Muljangori-oreum Wetland in Jeju Island.

CHOI, Gilryong etc. 1998 Natural Environment Study on Jeju Orum. Korean Nature Conservation Association. Serial 17. 79pp.

Jeju Development Research Center, Jeju KFEM. 2001. Jeju Wetlands. 270pp

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