

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

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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 7, 2nd edition, as amended by COP9 Resolution IX.1 Annex B). A 3rd edition of the Handbook, incorporating these amendments, is in preparation and will be available in 2006.
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.

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Designation date

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Site Reference Number

2. Date this sheet was completed/updated

June 20, 2006

3. Country:

Republic of Korea

4. Name of the Ramsar site

Mulyeongari-oreum

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 included

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:

The boundary is the same as the existing wetland conservation area.

8. Geographical coordinates (latitude/longitude)

N 33° 21' 57.6"

E 126° 41' 33.15"

9. General location:

- Administrative location:
 - 188, Namwon Eup, NamJeju County, Jeju Province, Republic of Korea
 - The wetland is located in the southern part of Jeju Island which is 100 km South of the Korean Peninsula.
 - There is a local road(No. 1118) between Jeju and Seogwipo at west of Mulyounghari and accessible to there from a big city

10. Elevation:

380 ~ 508 m At Sea Level (ASL)

11. Area:

30.9 Hectares

12. Overview:

- The wetland is the only wetland in Korea which is located on top of oreum (secondary volcano). The oreum has kept the original status since it was formed assumingly between 100 and 2.5 thousands years ago.
- The oreum forms a shallow crater lake on top of it. The level of water in the crater-lake changes by the seasons. In the dry season, the crater-lake maintains lower level which makes the area have wetland personalities. The organic materials flow down the slope around the wetland and gather the bottom of the crater which the wetland is located. The wetland displays the distinctive layer of floras. In terms of bio-diversity, the wetland does not show wide bio-diversity.

13. Ramsar Criteria:

1 • **2** • **3** • 4 • 5 • 6 • 7 • 8

14. Justification for the application of each Criterion listed in 11. above:

- **Criterion 1:** A wetland should be considered internationally important if it contains a representative, rare, or unique example of a natural or near-natural wetland type found within the appropriate biogeographic region.
 - The Mulyeongari-oreum is the only wetland in Korea which is located on top of oreum (secondary volcano). The oreum is one of the secondary volcanoes around Halla mountain which had volcanic eruptions about 1.2 million years ago, based on the data from the craters, the formation of layers of the erupted material. It is believed that the wetland was formed by the volcanic activities assumingly in between 100 and 2.5 thousands years. The oreum has kept the original status since it was formed and displays unique example of wetland type.
 - The wetland also exhibits the characteristics of the wetlands in temperate climate zone and high moor due to the height of the mountain (508m), which Mulyeongari-oreum is located.
 - The wetland forms a closed ecosystem due to the shape of the crate which the wetland is placed. This closed ecosystem present distinctive fauna display. Particularly near the wetland, different plants are growing in concentric circles. Due to the closed circulation of ecosystem, the wetland is claimed to face easy degradation and extinction.

- **Criterion 2:** A wetland should be considered internationally important if it supports vulnerable, endangered, or critically endangered species or threatened ecological communities.
 - There are two endangered species (Category II) designated by the Ministry of Environment in the wetland, which are Vuillefroy (*Lethocerus deyrollei*) and Narrow-mouth frog (*Kaloula borealis*).
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- **Criterion 3 :** A wetland should be considered internationally important if it supports populations of plant and/or animal species important for maintaining the biological diversity of a particular biogeographic region.
 - Mulyeongari-oreum has various species in flora and fauna. There are about 210 different plants (74 family 154 genus) including *Persicaria amphibian*, which has been known as they are found only in Upo wetland and wetlands in Ulsan Metropolitan city, 47 Insecta and 14 Amphibia. However, the crater separates inhabitable parts of Mulyeongari-oreum and cause many species to extinct in a little artificial disturbance.

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

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*, Kangwon National University Press, 412pp.
- Takhtajan, A. (1986) *Floristic Regions of the World*, University of California Press, 522pp.

16. Physical features of the site:

- **Topography:** Mulyeongari-oreum is located on the Mt. Suryeong (sea level attitude : 508m) on the Halla mountain in Jeju island. It is a typical parasitic cone and the mouth of a volcano has a girth of 300m, 40m in depth and 1,000m in the around the crater. Viewing in summit of a mountain and north of crater, its external shapes have a concentric circle and hollowed surface in the middle of crater respectively.
- **Scenery :** An external scenery around the crater lakes has a steep slope to form the boundary between South and North of ranch. Wetlands have been created in the crater lakes and the slopes accepting crater lakes inclines gently down and vegetations of thirty years are found everywhere. Especially, we can observe the growth courses of vegetations from edges to center of the wetlands. It comprises vegetations of hydrophic and aquatic, and hydrological as well as environmental conditions combine to constitute the wetland ecosystem. This is also one of the reason for scientific values.
- **Properties of soil**
 - Soils of crater lakes are composed of volcanic ashes and ejecta. After volcanic eruptions, crater lakes were in equilibrium condition. Soil particles resulted from weathering and erosion rolled down in and out of the crater lakes forming surface soils. Various vegetation grew well depending on hydrological conditions and growth periods.

- Weather condition (based on data by the weather station at Seogwipo, Jeju Island, sea level attitude 40m)
 - The annual mean temperature : 12.4°C
 - Minimum temperature: 9.5°C
 - Maximum temperature: 15.9°C
 - The annual mean precipitation : 1,527mm
 - The annual mean velocity of the wind: 2.8 m/s
 - Maximum velocity of the wind: 24.9 m/s

17. Physical features of the catchment area:

- Local features
 - Mulyounghari oreum is located on the southeast of Jeju Island and the center of NamJeju. It is also adjacent to east of Pyosunmyeon and Seogwipo and north of BukJeju. There is a local road(No. 1118) between Jeju and Seogwipo at west of Mulyounghari and accessible to there from a big city
 - Mulyeongari's outskirts have gentle slopes. It is on grass and easy to access from all directions

18. Hydrological values:

- Mulyeongari-oreum has a closed hydrology due to topographical features. There is no maintenance water flowed into the river or underground water and just rainfalls provide water to Mulyeongari-oreum. There are no outlets linked to the external sites .
- The water level is 20~30m generally and increases until boundary of wetlands in the wet season and localized torrential rainfalls. In the dry season, water penetrates surface water or evaporates and the water level maintains beyond communities of *Scirpus triqueter*) and 1m in the middle of wetlands.

19. Wetland Types

a) presence:

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:

U

20. General ecological features:

The wetland also exhibits the characteristics of the wetlands in temperate climate zone and high moor. During various seasons, water level changes. In the dry season, the crater-lake maintains lower level which makes the area have wetland personalities. The oreum also creates a closed ecosystem.

21. Noteworthy flora:

- 210 plants (74 family 154 genus) were observed (2001, The ministry of Environment).
- The groups of wetland and aquatic vegetations are found such as *Scirpus triqueter*, *Persicaria thunbergii*, *Persicaria nipponensis*, *Deinostema violacea* (Max.) Yamazaki, *Semiaquilegia adoxoides* (DC.) Makino and *Trapa japonica*. *Rosa multiflora* and *Rubus coreannus* grow along the wetland. The forest on the slope surrounding the wetland is dominated by *Carpinus laxiflora*, *Cornus kousa*, *Torreya nucifera* S. et Z., *Euonymus fortunei* var. *radicans* (Sieb. et Miq.) Rehder., *Hedera rhombea* (Miq.) Bean. and *Styrax japonica*, which is estimated to be between 30 and 40 years old. *Scirpus triqueter* and *Persicaria thunbergii* form vegetation communities in concentric circles from the center of the wetland. Some thorny bushes like *Rosa multiflora*, *Rubus coreannus* and *Smilax china* are found from the top of the crater to outer slope of the Mulyeongari-oreum. It prevent cattles to enter inside crater and wetland. The boundaries have *Triadenum japonicum* and *Sagittaria aginashi* in the dry season. The outskirts of wetlands form zonations due to clusters of *Persicaria thunbergii*

22. Noteworthy fauna:

- Insecta and Aquatic Insecta: 47 insecta (5 order 24 family 47 species) were observed and 18 of them were aquatic insecta. Presence of Vuillefroy (*Lethocerus deyrollei*) in Mulyeongari-oreum, which was designated as an endangered species (Category II) by the Ministry of Environment in 1998, is significant. *Plateumaris sericea*, *Gryllotalpa orientalis* and *Anisodactylus signatus* were also found. The presence of Vuillefroy (*Lethocerus deyrollei*) in Jeju Island has been widely known, however, there is high possibility that each species might be genetically different from species in other areas in Jeju Island because each species habitat in isolated areas. Protection of these species is necessary. It might be able to provide an important source for research on genetics.
- 2 orders, 3 families, 6species (37 individuals) in amphibians and 1 order, 3 families, 8species (15 individuals) were found and captured. *Rana nigromaculata* was the dominant amphibians and *Scincella laterale laterale* was the dominant reptiles, however, *Hynobius leechii* and *Elaphe dione* were rarely found in this area.

23. Social and Cultural Value

Mulyeonghari-oreum is known as “Su-ryeong-ak: or Suyeongak 水靈岳” which literally means a hill with holy water. The name has connection with contained water in the crater. There was an old fable about wetland. A boy was searching for his missing cow and fell asleep near the crater. He dreamt about an old man with long white beard. The old man told him not to worry about his missing cow. When he woke up, he found his cow drinking water at the crater.

24. Land tenure/ownership:

(a) within the Ramsar site:

- Under government ownership

(b) in the surrounding area:

- Under government ownership

25. Current land (including water) use:

(a) within the Ramsar site:

- All development activities are prohibited and there has been no development activity since the wetlands was designated as a Wetland Conservation Area in December 5, 2000

(b) in the surroundings/catchment:

- Pastureland and grassland

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 activities

(b) in the surrounding area:

- It has been used for pasturing purpose.

27. Conservation measures taken:

- The wetland was designated as Wetland Conservation Area in December 5, 2000 based on a detailed survey by the Ministry of Environment in 1999. Since the designation, the wetland has been protected from the public access and activities. The changes of the wetland have been also closely surveyed for the monitoring purpose.
- Mulyeongari-oreum (hereafter the wetland) was designated as the first wetland conservation area in the Republic of Korea (hereafter Korea) in December 11, 2000. The Ministry of Environment has prohibited any access to the wetland since July 12, 2001 in order to protect the wetland from excessive human activities.
- In 2001, the comprehensive wetland conservation plan was set up by the Ministry of Environment, which includes ecological survey, complex assessment, management and conservation plan and investment plan.

28. Conservation measures proposed but not yet implemented:

- The detailed monitoring** on the wetland will be conducted by the National Institute of Environmental Research from April to December, 2007 based on Wetland Conservation Plan.
- Wooden fences** around the wetland will be put up according to the comprehensive wetland conservation plan (2001, the Ministry of Environment)
- The wetland guards** are planned to patrol the area to protect the wetland from illegal human activities.
- Petrol station** for the wetland guards will be constructed in the area.
- Eco-guide** by the local people and **incentive system** for the local people to conserve the wetland will be introduced.

29. Current scientific research and facilities:

- Regular monitoring** on the wetland has been conducted twice a year by Yeongsan River Basin Environmental Office. The monitoring covers geology and ecology
- There is **no permanently located scientific facility** in the wetland.

30. Current conservation education:

- There is **no conservation education programme** in action. However, wetland tour programs, eco-guide training sessions and wetland study tour are being developed. These programmes will begin with the completion of the visitors centre and other facilities.
- There are **five introduction signs, wooden nature trailer (530m) and wooden fence (50m) installed.**

31. Current recreation and tourism:

- None.
- Public access will be prohibited until July 19, 2007 for the protection of the wetland and building a visitors centre and nature trails.
- Forest tour and wetland eco tour programme is in development stage. These will be introduced after the completion of the visitors centre and other facilities.

32. Jurisdiction:

- Under Jeju Province's control

33. Management authority:

- The head of Yeongsan River Basin Environmental Office will have responsibility of management of the wetland based on the phrase 18, Wetland Conservation Act.
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34. Bibliographical references:

- Ministry of Environment (1999) *Natural Environment Survey in Mulyeongari-oreum*, 55pp.
- Ministry of Environment (2001) *Comprehensive wetland conservation plan on the wetland in Mulyeongari-oreum*, 165pp.
- Lee, Y.C. and Yim, Y.J. (2002) *Plant Geography*, Kangwon National University Press, 412pp.
- Takhtajan, A. (1986) *Floristic Regions of the World*, University of California Press, 522pp.
- www.iucnredlist.org downloaded on July'06.

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