

Information Sheet on Ramsar Wetlands (RIS) – 2009-2014 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:

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Designation date

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Site Reference Number

2. Date this sheet was completed/updated:

01/07/2013

3. Country:

Cape Verde

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.

Salinas of the English Port (Salinas de Porto Inglês)

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:

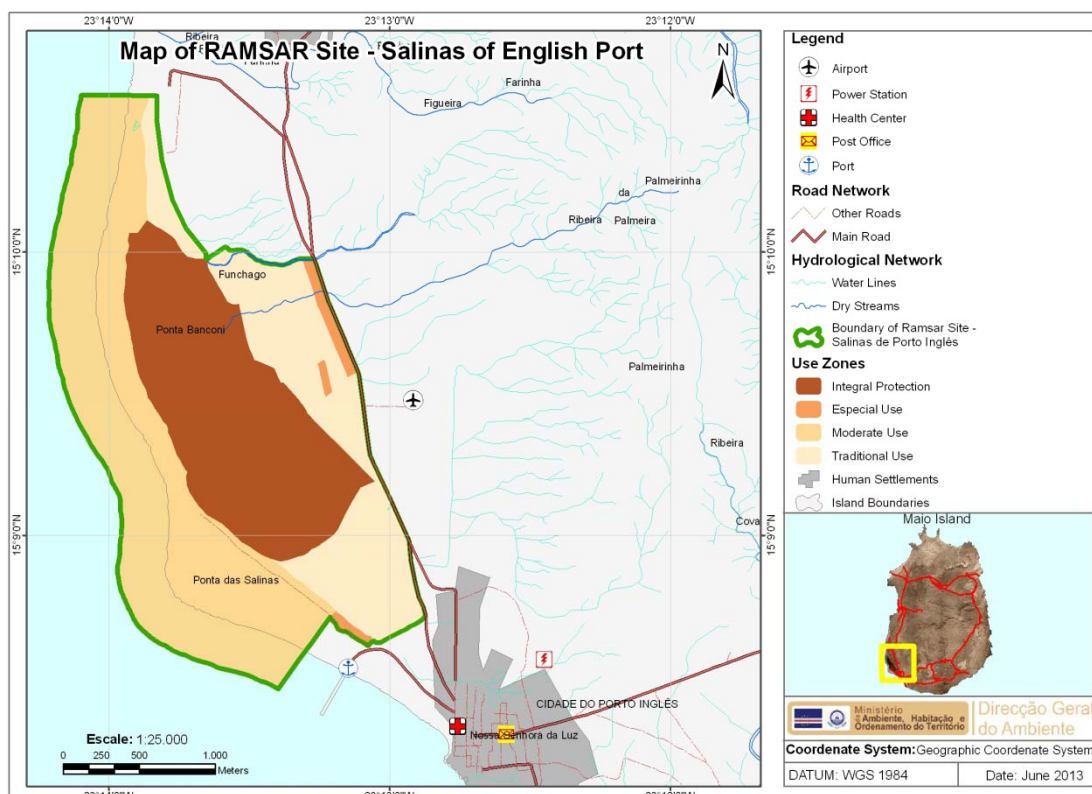
7. Map of site:

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): ;



Map of proposed new Ramsar site: Salinas de Porto Inglês.

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.

Salinas de Porto Inglês is bounded to the west by the sea, to the north by the community of Morro, to the east by the Morro-Cidade de Porto Inglês road, and to the south by the road that runs from the harbour to the Morro-Cidade do Porto Inglês road.

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.

Outer Limits:

Latitude: 15° 8' 27,60" N e 15° 10' 33,20" N

Longitude: 23° 12' 52,32" W e 23° 14' 12,80" W

Centre of the site:

Latitude: 15° 9' 16" N

Longitude: 23° 13' 33" W

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.

Salinas de Porto Inglês is located on the South West coast of the island of Maio that is located in the southeast of the Cape Verde archipelago, between N15° 07' to N15° 20' of Latitude and from W23° 05' to 23° 14' of longitude, and covers an area of 534.664 hectares (terrestrial area: 400.561 Hectares; marine area: 134.103 Hectares).

Salinas de Porto Inglês is under the administrative region of the Municipality of Maio island and it stretches from north of the Cidade do Porto Inglês, the capital of the island, to a hotel complex near the village of Morro. The Salinas de Porto Inglês is a flat site located at sea level. The west boundary is marked by a road that runs from the village of Morro and the Bela Vista Hotel Complex to Cidade do Porto Inglês. The distance between the southern border of Salinas de Porto Inglês and Cidade do Porto Inglês (administrative center of the island) is approximately 400 m in a straight line.

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

The elevation ranges from 3 to 12 meters over sea level.

11. Area: 534.7 hectares (terrestrial area: 400.6 Hectares; marine area: 134.1 Hectares)

12. General overview of the site:

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

The Salinas de Porto Inglês is composed of four major ecological habitats:

1. A lagoon basin where after the water evaporates and deposits layers of salt. The size of the lagoon changes within and between years: the largest extent is after rain in September and October. The lagoon receives water from 3 main sources:
 - a. Seawater enters the lagoon in March/April by flowing over the sand dunes that separate the lagoon from the Atlantic Ocean
 - b. Freshwater runoff after rain in September and October
 - c. Underground seepage of water from the sea and possibly from underground freshwater streams
2. Sand dunes separating the Salinas basin from the sea
3. Rocky semidesert area on the north-east side of salinas basin
4. Wooded area by acacia trees between the rocky semidesert and Morro – City of Maio road

The Salinas harbours breeding and migratory populations of birds.

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 2:

The site is important nesting site for the loggerhead turtles (*Caretta caretta*), listed as endangered on the IUCN Red-List of Threatened Species.

Criterion 3:

Salinas de Porto Inglês hosts important number of characteristic sand dunes and semi-desert species, very important in maintaining the biological diversity of the Macaronesian ecoregion. Some of these species include the Greater Hoopoe Lark (*Alaemon alaudipes*), the Black Crowned Sparrow Lark (*Eremopterix nigriceps*), the Bar-tailed Desert Lark (*Ammomanes cinturus*) and wetland species such as the Sanderling (*Calidris alba*), the Bar-tailed Godwit (*Limosa lapponica*).

Criterion 6:

The breeding populations of the Cream-coloured Courser (*Cursorius cursor excul*) is about 30-40 individuals that breeds inside the proposed Ramsar site (10 to 13% of global population of this subspecies - Wetlands International Waterbird Population Estimates 2011).

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:** Macaronesia

b) **biogeographic regionalisation scheme** (include reference citation): Tropical Atlantic, West African Transition (Ramsar COP10 DR 20)

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.

The most significant physical feature of the Salinas de Porto Inglês is large temporary floating brackish water surrounded by divers soil types. On the seaside there are sand dunes separating the lakes from the sea and north and east side surrounded by rocky semi desert characterized by small borders and fine dusty soil probably volcanic origin.

The Saline area can be considered as an area of flood deposits and sand dunes (salty basin), materials of sedimentary origin and eruptive loop. The soils are clay and have a crust of salt on the surface - are the type Solonetz and Solonchaks. The Salina area is formed by seepage from the sea forming puddles that due to the impermeability of the soil after evaporation, creates crusts of white crystalline salt, accumulated on the surface that will harden until it reaches its peak in the dry season. Calcareous sandstone formations of the Paleocene can be found. Soil salinity has values of electrical conductivity of the extract saturation above 4mmhos per cm at 25 ° C, the pH exceeds 8.5.

There is no available information about water quality. The maximum water depth is 1 meter. Water permanence is fluctuating. The site is not a tide lagoon.

The annual temperature average is around 24.2 ° C. The warmest months are August to October and the coldest range from January to February. The rainy season runs from July to October while the dry

season extends from March to June where the relative humidity reaches the minimum values. The values of annual rainfall for the Maio Island are on average 70 mm (data from the last 30 years).

17. Physical features of the catchment area:

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

On the north side of the Salinas de Porto Inglês there are acacias forests. Water runs off from the slope of the mountains.

The area has the characteristics of a salty basin with limestone soil type Solonetz Solonchaks and calcium.

The temperature data is the same as in the question 16.

18. Hydrological values:

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

The Salinas de Porto Inglês gets water from 4 main sources: rain waters (usually between August and October), sea (every year at high tide the sea is pushed over the sand dunes, and very huge amounts of sea water goes to the salinas), runoff water (after every rain the water runs off the mountains and washes a lot of sediments into the salinas) and underground water may also flow into the salina but the time and amount have not been investigated.

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.

Zone E - sandy islets; includes dune systems and humid dune slacks.

Zone J - brackish to saline lagoons with at least one relatively narrow connection to the sea.

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.

There are three main habitat and vegetation types identified in the Salinas de Porto Inglês: dune vegetation zone, rocky desert zone and coastal lagoon and salina zone.

In terms of structural diversity, the vegetation in the dune vegetation zone could generally be described as low lying scrub with scattered acacia trees and many species being rhizomatous ground cover plants. The substrate in this area is mainly sand and mud. It is the transition zone, where the

beach meets the salt marsh. The substrate in rocky desert zone is very dry, dusty and rocky. Between the walled area and the road there are mainly acacia tree species, which had spread from a plantation to the north east of the salinas site. In the transition zone from the dry rocky desert, to the wet area there is greater diversity of plant species. Coastal lagoon and salina zone is generally devoid of vegetation; consisting of wet mud and the body of water that formed the salina. The low species richness and abundance of this area may be due to the high moisture and salinity levels of this zone.

Five orders of bird species were recorded, with Charadriiformes and Passeriformes being the most abundant. Passeriformes are fairly well distributed throughout the site, with the greatest proportion of species of this order found in the rocky desert zone. The Black Crowned Sparrow Lark *Eremptix nigriceps* and the Bar Tailed Desert Lark *Ammomanes cinturus* are the most abundant passerine found in the dune vegetation. The Greater Hoopoe Lark *Alaemon alaudipes* is fairly widely distributed throughout the rocky desert range. The nine recorded Charadriiform species are mainly located at the coastal edge of the salinas. Charadriiforms are insectivorous wading and desert-dwelling species and this distribution reflects the high food source at this site. The most abundant Charadriiform species are the Kentish Plover *Charadrius alexandrius* and the Sanderling *Calidris alba*. There is a resident population of Kentish Plovers existing on Maio. The other recorded Charadriiformes are migratory species that visit the salina to feed.

Cursorius cursor excul and others steppe birds as *Eremopterix nigriceps*, *Ammomanes cinctures*, *Alaemon alaudipes*, *Corvus ruficollis* can be found at Salinas de Porto Inglês site. Among the shorebirds can be highlighted: *Calidris alba*, *Arenaria interpres*, *Actitis macularius*, *Charadrius hiaticula*, *Numenius phaeopus*, *Himantopus himantopus*, *Tringa nebularia* and *Pluvialis squatarola*. Visitants species from Palearctic occasionally observed: *Limosa limosa*, *Gallinago gallinago*, *Glareola pratincola*, *Sterna sp.*, *Larus spp.*, etc.

Reptiles were mainly recorded in the rocky desert habitat though there was a gecko species *Tarentola rudis maioensis* recorded in the dunes. All the recorded species are endemic to Cape Verde and the two gecko species; *Tarentola rudis maioensis* and *Mabuya spinalis maioensis* are endemic to Maio. The presence of a stone wall and abundance of rocks and invertebrates makes the rocky desert zone an ideal habitat for these species.

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.*

Phytosociologically, the plant diversity was found to be generally low, though the most diverse community was the dune vegetation. However, once the plant species have all been identified it will be possible to assess the phytogeographical value.

The climate is typical of arid areas and has vegetation consisting of groups of *Zygophyllum waterlotii*, *Z. Fontanesii*, *Frankenia ericifolia*, *Heliotropium ramosissimum*, *Scleorocephalus arabicus*, *Tragus recemosus* (Bocconi Martine. Faustino Chanda, 2008), *Cyperus bulbosus* and *Sporobolus minutes*. (Castanheira Diniz A., Cardoso de Matos G, 1988). The area is also temporarily used as pastureland.

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.*

10 to 13% of global population of the Cream-coloured Courser *Cursorius cursor excul* breed inside the Salinas de Porto Inglês. The site has also the largest population of Kentish Plover *Charadrius*

alexandrinus in the Atlantic Ocean, 150-300 individuals. Recent genetic analysis using 21 microsatellites markers showed that Cape Verdean Kentish Plover are genetically different of Kentish Plover from Macaronesia and from the rest of Africa (Küpper *et al.*, 2012, Molecular Ecology). Since the Cape Verdean population is genetically different from all the other *Charadrius alexandrinus* population, this represents 50% of global population. Currently there is a paper in preparation which describes the Cape Verdean breeders as a different subspecies (Székely *et al.* in preparation).

All the recorded species of reptiles are endemic to Cape Verde and the two gecko species *Tarentola rudis maioensis* and *Mabuya spinalis maioensis* are endemic to Maio.

Salinas de Porto Inglês is also an important nesting site for the endangered loggerhead turtle *Caretta caretta*.

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:

The site is of economic importance to the island of Maio, owing to traditional salt extraction activities that originate from the 16th and 17th centuries and it has developed priceless socio-cultural values. Today more than 70 women derive their livelihood through the exploitation of salt, this activity is sustainable and this prevents the area from being abandoned, which would have consequences on the ecosystem itself. The history of the island of Maio is linked to the activities performed in the Salinas. Today an Italian religious sect uses the coast for their daily meditation and encounter with nature.

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?

No

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: State-owned and private-owned

b) in the surrounding area: Municipality-owned and private-owned

25. Current land (including water) use:

a) within the Ramsar site:

Salt extraction, livestock grazing, scientific research and small-scale recreation/tourism

b) in the surroundings/catchment:

Livestock, grazing, port activities and tourist infrastructures (all these activities occur on average 150 meters from the Salinas de Porto de Inglês).

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: Not applicable

b) in the surrounding area: The Salinas Beach Resort construction has been started in 2008, currently unfinished and expected to accommodate 500 people. The possible future construction of other buildings (tourism structures and houses) in the surrounding area may have a negative impact on the Salinas, as it will increase the number of people in the site. Urgent actions need to regulate the access of the people to the Salinas.

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.

Salinas de Porto Inglês is legally protected since 2003 (Decree-Law nº 3/2003). The site is classified as a "Paisagem Protegida" (Protected Landscape).

b) If appropriate, list the IUCN (1994) protected areas category/ies which apply to the site (tick the box or boxes as appropriate): Not applicable

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

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

Currently under development, to be finalised soon.

d) Describe any other current management practices:

Not applicable

28. Conservation measures proposed but not yet implemented:

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

Management plan is currently under development and should be finalised soon.

Although the Ramsar site boundary was approved by the Administrative Authority, the protected area boundary (the site is also classified as a protected landscape) was also updated and needs to be approved by the Minister's Council in order to be published on the official bulletin.

29. Current scientific research and facilities:

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

Bird populations are monitored in the Salinas de Porto Inglês since 2010 by Maio Biodiversity Foundation. Nesting data of loggerhead turtles (*Caretta caretta*) is also collected.

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.

Public awareness campaign has been carried out by Maio Biodiversity Foundation in 2012 funded by Rufford Foundation Small Projects Grant. Other public awareness campaigns were done in the past by the Directorate General of Environment and there are plans to continue these activities in a regular basis. Information booklets were also produced.

Salinas de Porto Inglês has a great potential to have a visitors' centre and the Directorate General of Environment and the Maio Biodiversity Foundation are seeking funding to conduct this activity.

31. Current recreation and tourism:

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

Currently infrequent use by locals and residents of Maio but this may change when the Salinas Beach Resort goes operational.

32. Jurisdiction:

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

Territorial jurisdiction: Cidade de Porto Inglês, island of Maio, Cape Verde.

Functional jurisdiction: Directorate General of Environment/Ministry of Environment, Housing and Land Planning.

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.

Coleing, Amelia (2009) Biodiversity Conservation in Maio, Cape Verde, using Geographic Information Systems (GIS) as a Tool. Unpublished MSc dissertation, University of Exeter

Fletcher, I., Mateos-Herrero, J. & Székely, T. (2010) Breeding ecology and conservation of Kentish Plovers *Charadrius alexandrinus* in Maio, Cape Verde. Unpublished fieldwork report, University of Bath

Küpper C, Edwards S, Kosztolányi A *et al.* (2012) High gene flow on a continental scale in the polyandrous Kentish plover *Charadrius alexandrinus*. *Molecular Ecology*

Nagle, H.E. (2009) Biodiversity mapping in the Cape Verde Islands using field surveys, specimen collection and GIS. Unpublished MSc dissertation, University of Exeter

Ribeiro, Eusa (2011), Monitorização das aves nas Salinas do Porto Inglês. Unpublished diploma thesis, Uni-cv/Mindelo

Saxon, Andy (2011) Using species distribution models to facilitate systematic conservation planning on Maio, Republic of Cape Verde. Unpublished MSc dissertation, University of Bath

Székely, T., P.L. Suárez & C.J. Hazevoet, 2009. Bird diversity on the Island of Maio, Republic of Cape Verde. Report presented to the Câmara Municipal de Maio. 15 pp.

Wadham, S. (2011) Literature Survey of Biodiversity Conservation in Maio, Cape Verde. University of Bath

Wetlands International Waterbird Population Estimates (2011).

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