

The Convention on Wetlands (Ramsar, Iran, 1971)

Montreux Record - Questionnaire

(as adopted by the Conference of the Contracting Parties in Resolution VI.1)

Section One

Information for assessing possible inclusion of a listed site in the Montreux Record

Essential items

- Name of site

Stagno di Cagliari

- Ramsar Criteria for listing the site as internationally important: 1,2,3,4,5

“Stagno di Cagliari” (including “Laguna di Santa Gilla”, “Stagno di Capoterra” and “Saline di Macchiareddu”) represents a typical humid environment of the Mediterranean bio-geographical region characterised by the presence of brackish, salt and freshwater, value of remarkable conservation due to its fauna and flora, coastal communities that inhabit this wetland includes traditional fishing lagoons, and the manufacturing of salt (see Management Plan Project Life Nature’96 “Gilia”).

“Stagno di Cagliari” is the final exutory of several river basins: the Flumini Mannu, Cixerri Riu, Riu Sa Nuxedda, Riu Sa Murta and Rio Saint Lucia, covering a total area of 2,404 sq km, accounting for approximately 10% of the island of Sardinia. The wetland is also part of the Gulf of Cagliari coastal ecosystems; the relationship between continental and waters strongly characterise the structure and functioning of the lemnic ecosystem (see Management Plan Project Life Nature’96 “Gilia”).

“Stagno di Cagliari” regularly hosts a significant number of breeding and / or migratory / guest species of a large number of animals and plants of conservation interest and Community as well as species included in national red lists. Among the most remarkable breeders/migratory/guest species of international importance we site *Phoenicopterus roseus*, while *Larus genei* represents the guild of international importance; irregularly quotas breeding of International Importance., important host species include *Pandion haliaetus*, *Himantopus himantopus*, *Recurvirostra avosetta*, *Burhinus oediconemus*, *Philomachus pugnax*. Criterion 2 is relevant for *Aphanius fasciatus*, a Cyprinodontidae, widespread in the pond and recently placed, in the 1996 IUCN Red List of Threatened Animals “(Baillie & Groombridge, 1996) in the category” Data Deficient. “

Among the invertebrate fauna, we should mention *Artemia salina* (Class. Crustacea, Subclass. Branchiopoda, Order-Anostraca), world a unique example of coexistence within the same site of two distinct biotypes: the partenogenetic

diploid automicic in “Stagno di Cagliari” and amphigonic diploid who lives in the nearby “Stagno di Quartu” state salt exploitation ponds (Stefani, 1973).

In neighbouring areas there are at least three plants endemic to Sardinia: *Limonium glomeratum*, *L. dubium*, *L. retirameum*. The area includes various paleo-endemic, endemic in sub-endemic rare species such as *Plagius flosculosus*, *Polygonum scoparium*, *Stachys glutinosa* and *Limonium densiflorum* (Todde, 1998).

“Stagno di Cagliari” regularly hosts a large number of breeding species: *Tachybaptus ruficollis*, *Podiceps cristatus*, *Ixobrychus minutus*, *Nycticorax nycticorax*, *Ardeola ralloides*, *Bubulcus ibis*, *Egretta garzetta*, *Ardea purpurea*, *Phoenicopterus roseus*, *Tadorna tadorna*, *A. Platyrrhynchus*, *Aythya ferina*, *Circus aeruginosus*, *Rallus aquaticus*, *Gallinula chloropus*, *Porphyrio porphyrio*, *Fulica atra*, *Himantopus himantopus*, *Recurvirostra avosetta*, *Burhinus oedipnemos*, *Charadrius dubius*, *C. Alexandrinus*, *Tringa totanus*, *Larus ridibundus*, *L. Genei*, *L. Michahellis*, *Sterna nilotica*, *S. Hirundo*, *S. Albifrons*. Among these, the main ones include: *Phoenicopterus roseus* (breeders and migratory / guests of International Importance) and *Larus genei* (with quotas migratory guests of international importance; irregularly breeders of international importance).

The brackish areas of “Stagno di Cagliari” host a significant population of *Aphanius fasciatus*, a small fish placed recently in the 1996 IUCN Red List of Threatened Animals “(Baillie & Groombridge, 1996) within the category” Data Deficient.

Moreover, the current flora of “Stagno di Cagliari” consists of 477 taxa including sp. and subsp., divided into 288 genera and 69 families. Among these, there are nine endemic to S. Gilla lagoons system: *Limonium glomeratum*, *L. Dubium*, *L. Retirameum*, *Urtica atrovirens*, *Arum pictum*, *Plagius flosculosus*, *Polygonum scoparium*, *Stachys glutinosa* and *Ornithogalum corsicum*. The first three, namely those belonging to *Limonium* are endemic to Sardinia; their distribution is restricted exclusively salty coastal environments. In the “Stagno di Cagliari” *Limonium retirameum* is particularly rare, while the other two species are more frequently encountered especially in proximity of halophytes, where they sometimes occur in dense populations.

Urtica atrovirens and *Arum pictum* are quite common throughout Sardinia. Both species are related to the nitrophilous-ruderal environments and are frequently encountered particularly in the proximity of farms and pastures.

The least common of the remaining species in Sardinia is the *Plagius flosculosus* which is observed sporadically in “Stagno di Cagliari”, mainly in the North-West, usually along the canals.

Due to the high primary production rate in the first salt evaporation tanks and partially in the lagoon, to the strategic position it enjoys in the context of current migration and to protection (prohibition of hunting), “Stagno di Cagliari” is currently one of the most remarkable humid systems in southern Italy. At last overwintering water birds amounting to more than 20 species of aquatic birds of international importance (Baccetti et al., 2002; BirdLife International, 2004): *Phalacrocorax carbo*, *Ardea cinerea*, *Egretta garzetta*, *Tadorna tadorna*, *Anas penelope*, *Anas strepera*, *Anas crecca*, *Anas clypeata*, *Fulica atra*, *Recurvirostra avosetta*, *Vanellus vanellus*, *Pluvialis squatarola*, *Charadrius hiaticula*,

Charadrius alexandrinus, *Numenius arquata*, *Tringa erythropus*, *Tringa totanus*, *Calidris minute*, *Calidris alba*, *Larus michahellis*, *Larus genei*. It also includes a site of international importance (the most important of Italy) for the wintering of *Phoenicopterus roseus*. It is ultimately the most important site in Sardinia for the wintering of Waders.

“Stagno di Cagliari” provides a critical important habitat during the breeding season for many species of colonial water birds, especially *Phoenicopterus roseus*.

“Stagno di Cagliari” is currently one of the most important humid ecosystems of southern Italy especially for the overwintering of aquatic birds, with attendance fluctuating between 36,331 (year 2000) and 20,697 (year 1996), with an average of 27,672 (January 1993-2006), belonging to more than 50 species (APM & IVRAM, 1993-1999; RAS, 2005; data censuses conducted under the Project Life-Nature 2000, 2001, 2002; data censuses conducted by local authorities 2005-2006).

The Saline Contivecchi ponds are home to a significant proportion of *Aphanius fasciatus*, a small fish belong to the Cyprinodontidae, ranked (IUCN (2003) as Data Deficient worldwide, and included in Annex IV of Directive 92/43/EEC “Habitat” .

- Nature of the change in ecological character/potential for adverse change

On 04/07/1990 the wetland was included within the Montreux Record “N. 31T017 at the end of the fourth Conference of the Contracting Parties (Montreux, Switzerland 27/06-04/07/1990), as a result of reporting conducted by Italian authorities who had highlighted pollution and eutrophication problems in two Ramsar Sites:

- Santa Gilla, which also belongs to the complex referred as “Stagno di Cagliari”;
- Stagno di Molentargius;

The Italian government had allocated substantial funds for the rehabilitation of these wetlands, and for the time being requested the inclusion of these sites in the Montreux Record. “

- Reason(s) for adverse change, or potential adverse change, in ecological character

The main threats that led to the request for inclusion of the site in the Montreux Record “were:

- Within the site: the possible abandonment of salt production; excessive anthropogenic disturbance; increasing industrialization associated with the construction of new buildings and a new road, the use of water for domestic and industrial purposes.
- Within the neighbourhood the increase of industrialization and the construction of new buildings and new roads and the use of chemical fertilizers and agricultural pesticides.

Additional items which may be included

- Date Information Sheet on Ramsar Wetlands submitted
1999
- Date and source of Information Sheet updates (e.g. National Reports, national wetland inventory, specific survey)
July 2006 (All.2: R.I.S. - new version)
- Benefits and values derived from the site
- Extent to which values and benefits derived from the site have decreased or changed
- Monitoring programme in place at the site, if any (technique(s), objectives, and nature of data and information gathered)
- Assessment procedures in place, if any (how is the information obtained from the monitoring programme used)
- Ameliorative and restoration measures in place or planned (if any) so far
- List of attachments provided by the Contracting Party (if applicable)
- List of attachments provided by the Ramsar Bureau (if applicable)

Section Two

Information for assessing possible removal of a listed site from the Montreux Record

- Success of ameliorative, restoration or maintenance measures (describe if different from those covered in Section One of this questionnaire)

“Stagno di Cagliari” was granted a co-financing under Life Nature’96, called “Gilia”, managed by the four municipalities of Assemini, Cagliari, Capoterra and Elmas under the leadership of the City of Cagliari. Various activities aimed sustainable management and for the establishment of an institutional entity, called “Intercommunal Office for the management of the SPA Stagno di Cagliari, developed out of an association between the four communes cited, administratively competent over in the entire territory, for the promotion of integrated ecosystem management. Several auctorities were carried out for the recovery of the natural lagoon ecosystem, including measures to encourage the environmentally friendly use of actions of wetland and the careful ecological monitoring of ecosystem health and of natural resources, with particular attention to aquatic bird life.

As part of Life-Nature Project “GILIA”, “Stagno di S. Gilla” has been studied from a botanical point of view in order to characterise the vegetation aspect of the lagoon ecosystem, with the help of existing bibliographic material and data collected during the numerous investigations carried out (Annex 3);

The “Ufficio Intercomunale” updated the wetland management plan and simultaneously increased monitoring activities and environmental education initiatives undertaken under the Life-Nature Project (Annex 4). It also formulated proposals for intervention to achieve sustainable management with a request to access funds under in the European Framework Programme 2000-2006. These proposals are aimed at the pursuit of sustainable wetlands management by strengthening the monitoring centre, environmental education, and by other addressing the promotion of local development aimed at integrating tourism and lagoon fisheries with the needs of nature resource conservation.

- Proposed monitoring and assessment procedures (describe if different from those in Section One of this questionnaire)

In order to consider the possible inclusion of Santa Gilla lagoon and Capoterra ponds within the “Sito di Bonifica di Interesse Nazionale Sulcis-Iglesiente-Guspinese” contaminated site of national interest, as decided during the “Conferenza dei servizi decisoria” 26.05.2005, meeting of local and national management authorities, the authorities conducted an environmental investigation aimed at checking the state of environmental health potential targets of contamination.

- Extent to which the ecological character, benefits and values of the site have been restored or maintained (provide details)

The monitoring plan is run from by the Sardinian Regional Agency for Environmental Protection (ARPAS), in accordance with the provisions dictated by the National Research Centre for Marine Sciences (ICRAM). On behalf of the President of the Autonomous Region of Sardinia, ARPAS, in collaboration with “Progemisa”, drafted the monitoring plan involving study, sampling and analysis structures belonging to the newly established network of ARPAS laboratories (department territorial of Cagliari-Territorial Department of Oristano, Zooprofilactic Institute of Sardinia, Sassari)

The first results of the environmental study, which is an anticipation of the chemical analyses performed on the organisms (*Bivalvia* and fish) were integrated by the final report, in order to correlate data on organisms with those derived from previously sediments analysis (Annexes 5, 6, 6A).

- Rationale for removing the site from the Montreux Record (refer to Guidelines for operation of the Montreux Record, together with Section One of this questionnaire)

As a justification of the results obtained through the activities described above, we transmit an update of the Ramsar identification criteria for wetlands of international importance, listed in Annex 1 and the form “Information Sheet on Ramsar Wetlands (RIS) - 2006 -2008 version “adopted by COP8 (Conference of the Contracting Parties) Valencia, 2002 designed to provide data for a detailed long term analysis of S. Gilla wetland (Annex 2).

A further recognition of remarkable importance Santa Gilla pond resulted from its designation as a Special Protection Area under Directive 79/409/EEC on the

conservation of wild birds (SPAs code: Santa Gilla ITB044003) as well as from its proposed designation as a Site of Community Importance under the Directive 92/43/EEC on the conservation of natural habitats and wild flora and fauna (SCI code: Santa Gilla ITB040023).

Due to the recent recognition of its great value to wildlife, the wetland was included in the list of sites important for bird life in Europe under the IBA Program (Important Bird Areas) coordinated by BirdLife International and in Italy by Italian Bird Protection League (LIPU) (code name and IBA: Ponds of Cagliari: 188). Currently, the site is a Permanent Oasis for the Protection of Wildlife under Sardinian Regional Law N. 23/1998 (permanent hunting ban). Regional law on protected areas (Law 31/1989) provides for the establishment of a Natural Reserve of 5,674 ha. Pollution and eutrophication caused the abandonment of professional fishing.

Laguna Santa Gilla was subject to intense monitoring by the “Presidi Multizonali di Prevenzione”(PMP) of the “Azienda Sanitaria Locale” (Local Health Authority) N. 8 of Cagliari. This monitoring provided encouraging results in the sense that, while showing the presence of pollutants in sediments, their concentrations was found to be generally below the thresholds established by law and there was no evidence of heavy metal bioaccumulation in bivalve of commercial interest.

“Stagno di Cagliari” is currently one of the most important wetland ecosystems of southern Italy. It is remarkable mainly for the overwintering of aquatic birds (particularly waterfowl and waders) with an attendance fluctuating between 36,331 workers in 2000 and 20,697 workers in 1996, (on average 27,672 individuals, January 1993-2006) belonging to more than 50 species (APM & IVRAM, 1993-1999; RAS, 2005; data censuses conducted under the Life-Nature Project 2000, 2001, 2002; data censuses conducted by local authorities 2005-2006) (Annex 7).

- List of further attachments (if applicable)

Annex

1 – **Stagno di Cagliari** – *Criteri Ramsar di identificazione per le Zone umide rappresentative o uniche*

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

3 - **Comuni di Cagliari, Assemini, Elmas, Capoterra** (Di Gregorio F., Cau A, Schenk H, Bacigalupo E & Carboni D.), s.d., *Gli aspetti vegetazionali del sistema lagunare S. Gilla*. Pp. 1-74

4 - **Comune di Cagliari** (Malavasi P., Campisi S., Muru M.F., Nissardi S., Zucca C., Pani F. & Sanna R.) 2006, *Piano di Gestione del pSIC ITB040023 “Stagno di Cagliari, Saline di Macchiarreddu, Laguna di Santa Gilla*. Pp. 1-286.

4 – idem: 13 maps annexed

5 - **Azienda Regionale per la Protezione dell’Ambiente della Sardegna-ARPAS, 2006**, *Piano di monitoraggio ambientale della Laguna di Santa Gilla e dello Stagno di Capoterra – Fase I – Campionatura ed analisi dei sedimenti*. Pp. 1-13.

6 - Azienda Regionale per la Protezione dell'Ambiente della Sardegna-ARPAS, 2007, *Piano di monitoraggio ambientale della Laguna di Santa Gilla e dello Stagno di Capoterra – Relazione conclusiva*. Pp. 1-13.

6A - Azienda Regionale per la Protezione dell'Ambiente della Sardegna-ARPAS, 2007, *Piano di monitoraggio ambientale della Laguna di Santa Gilla e dello Stagno di Capoterra – Relazione conclusiva – Allegato I.* Pp. 1-14.

Alia Bibliography

Gruppo di lavoro interdisciplinare sullo stato delle conoscenze scientifiche e linee metodologiche in merito alla realizzazione di una campagna di monitoraggio atta alla verifica della necessità di inserimento della laguna di Santa Gilla nel S.I.N. Sulcis-Iglesiente-Guspinese, s.d., *Indicazioni in merito allo stato delle conoscenze scientifiche e linee metodologiche in merito alla realizzazione di una campagna di monitoraggio atta alla verifica della necessità di inserimento della laguna di Santa Gilla nel S.I.N. del Sulcis-Iglesiente e Guspinese*. Pp. 1-18

Regione Autonoma della Sardegna-Assessorato della Difesa dell'Ambiente, s.d., *Relazione Santa Gilla*. Pp. 1-4.

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