

Information Sheet on Ramsar Wetlands (RIS) – 2006 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 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.

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

Directorate General for Nature Conservation -
Ministry of Environment and Landscape Protection –
Via Capitan Bavastro 174 – I-00100 ROMA
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Designation date

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Site Reference Number

2. Date this sheet was completed/updated:

12 June 2006

3. Country:

Italy

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.

Lago di San Giuliano

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 boundary of the Ramsar site is similar to the border site SIC IT9220144 "Lago S. Giuliano e Timari" – (EU-Directive 92/43/CEE), but modified with a secure border (streets, channels, valley, etc).

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.

x = 16° 29' 14" East (centroid)

y = 40° 37' 40" North (centroid)

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.

South of Italy, Basilicata Region, Province of Matera, within the municipalities of Matera, Miglionico and Grottole

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

min 99 -average 180 - max 452 (m a.s.l.)

11. Area: (in hectares)

2,118

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 wetland is situated in a depression of the Bradano river basin; it originated after the spontaneous reversal to natural conditions of an artificial basin created after a dam was built across a former natural wetland. The stream section draining into the shallow lake is characterised by a remarkably well-preserved flora and fauna. The wetland itself has a highly fragmented coastline and a number of side channels; it is enclosed within two riparian typologies: towards Matera the landscape is rather flat and grades towards the wetland edge with a gentle cline, on the other side the landscape tends to roll, in places with steep overhanging terraces.

The riverine stretch of the protected area is characterised by a typical hygrophilous riparian woodland comprising mainly poplars (*Populus nigra*, *Populus alba*), willows (*Salix* sp.pl.) and, to a lesser extent, ash (*Fraxinus nigra*) and alder (*Alnus* sp.); the herbaceous layer comprises *Phragmites australis*, *Typha*, *Carex*, etc. A fringe of Alep pine (*Pinus halepensis*), cypress (*Cupressus sempervirens*) and eucalypt (*Eucalyptus* sp.) grows all around the lake and provides protection from erosional processes. Some areas are interested by small patches of surviving oak woodland (*Quercus pubescens*, *Quercus ilex*) always associated with other typical Mediterranean flora. The ravine constitutes a habitat of great interest as it hosts, within a terrain comprised between two rocky walls, hygrophilous as well as xerophilous species along a succession grading from the upper edge towards the bottom of the depression, down by the river side. A broad temporarily flooded meadow extends between the planted woodland and the lake edge. Here, the grass layer is constituted primarily by regularly grazed pioneer species; among these, we can find a number of wild orchids of amazing beauty.

Of remarkable floristic interest, situated on the rocky walls of the ravine, is *Campanula versicolor*, an endemism typical of the Apulian Murgia and of Lucania, which finds in the San Giuliano Oasis the western limit of its distribution range. A further rarity is *Anthemis hidruntina*, a rare composite commonly found only in restricted locations within southern Italy. Among the species which are more easily observable we note: the fragrant pea, *Atriplex*, *Pistacia lentiscus*, *Phyllirea* sp., *Rhamnus alaternus*, *Ferula* sp., *Smilax aspera*, *Scylla maritima*, and *Asphodelum*. Among the rarest, most endangered and biogeographically remarkable species/communities there are: *Atriplex halimus* and *Antheceus hidrutina* known only from the Sila Mountains in Calabria and from the surroundings of Otranto in Apulia. Further surveys are being conducted to describe the flora of the Oasis in greater detail.

Resident mammals include: *Meles meles*, *Hystrix cristata*, *Felis sylvestris* and *Martes foina*. The presence of *Lutra lutra* has been ascertained after a dedicated survey. This mammal is among the rarest in the country; its surviving population is reduced to some 100 individuals restricted to enclaves in Campania and in Basilicata.

Some of the most frequently spotted reptiles include: the common viper (*Vipera aspis*), *Natrix natrix*, *Coluber quadriglineatus*, *Elaphe longissima*, *Coluber viridiflavus*, Hermann's tortoise (*Testudo hermanni*) and the freshwater tortoise (*Emys orbicularis*).

The fish community of the Bradano river was profoundly altered by the building of the dam and by continued fish stocking carried out without scientific criteria. Currently there is a number of species, including mainly: bleak, carp, zander, trout, carassium and eel.

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: the area includes a near-natural wetland with sections where the habitat is characterised by a community dominated by *magnopotamion* and *hydrocarition*, typical of the Mediterranean biogeographical region.

The area is characterised by three different habitats: the natural lake, the riparian fringe and, at the valley end, a large and peculiar gorge, dug by the river after centuries of erosion. Two main vegetation types can be found within the area: xerophilous vegetation on the upper side, hygrophilous vegetation in the lower side, linked by a 50 m long ravine.

Annex I of the Council Habitats Directive:

- 3150: Natural eutrophic lakes with Magnopotamoin
- 6220: Pseudo-steppe with grasses and annuals of the Thero-Brachypodietea.

Criterion 2: the area supports populations of species mentioned in Annex II and III of Directive 79/409/CEE and Annex II of Directive 92/43/CEE

Resident mammals include: *Meles meles*, *Hystrix cristata*, *Felis sylvestris* and *Mastes foina*. The presence of *Lutra lutra* has been ascertained after a dedicated survey. This mammal is among the rarest in the country; its surviving population is reduced to some 100 individuals restricted to enclaves in Campania and in Basilicata.

Species of fishes, amphibians, reptiles, mammals and birds localized in the site and mentioned in Annex II and III of Directive 79/409/CEE or Annex II of Directive 92/43/CEE

| Scientific name | Status | IUCN categ. | | 92/43/ CEE | Cite s | Bonn | Berna |
|------------------------|---------------------------|-------------|----------------------|------------|--------|------|-------|
| Fishes | | | | | | | |
| Alburnus albidus | Endemic | VU: A1ace | | x | | | x |
| Rutilus rubilio | Endemic | LR : nt | | x | | | x |
| Amphibians | | | | | | | |
| Bombina pachypus | Monotypic endemic species | LC | | x | | | x |
| Reptiles | | | | | | | |
| Testudo hermanni | | LR : nt | | x | x | | x |
| Vipera aspis | | LC | | | | | x |
| Natrix natrix | | LC | | | | | x |
| Elaphe quatuorlineata | | LR: nt | | x | | | x |
| Zamenis longissimus | | DD | | x | | | x |
| Hierophis viridiflavus | | LC | | x | | | x |
| Emys orbicularis | | LR : nt | | x | | | x |
| Mammals | | | | | | | |
| | | | Italian law n.157 92 | | | | |
| Hystrix cristata | | LC | x | x | | | |

| | | | | | | | |
|-------------------------------|-------------------|--------|---|------------------------|---|---|---|
| <i>Meles meles</i> | | LC | x | | | | x |
| <i>Martes foina</i> | | LC | x | | | | x |
| <i>Lutra lutra</i> | | NT | x | x | x | | x |
| <i>Felis silvestris</i> | | LC | x | x | x | | x |
| <i>Myotis capaccinii</i> | | VU A2c | x | x | | x | x |
| Birds | | | | 79/409/ CEE | | | |
| <i>Phalacrocorax pygmaeus</i> | M-W | LR: nt | x | x | | x | x |
| <i>Phalacrocorax carbo</i> | M-W | LC | x | | | | x |
| <i>Pelecanus onocrotalus</i> | M-W (1994, 1 ex.) | LC | x | x | | | x |
| <i>Ardea purpurea</i> | M | LC | x | x | | | x |
| <i>Ardeola ralloides</i> | M | LC | x | x | | | x |
| <i>Botaurus stellaris</i> | M-W | LC | x | x | | | x |
| <i>Ixobrychus minutus</i> | N-M | LC | x | x | | | x |
| <i>Nycticorax nycticorax</i> | M | EX | x | x | | | x |
| <i>Ciconia ciconia</i> | M | LC | x | x | | | x |
| <i>Platalea leucorodia</i> | M | LC | x | x | x | x | x |
| <i>Plegadis falcinellus</i> | M | LC | x | x | | | x |
| <i>Egretta alba</i> | W | LC | x | x | | | x |
| <i>Egretta garzetta</i> | M-W | LC | x | x | | | x |
| <i>Aythya nyroca</i> | M | NT | x | x | | x | x |
| <i>Tadorna ferruginea</i> | M | LC | x | x | | x | x |
| <i>Circus aeruginosus</i> | M | LC | x | x | x | x | x |
| <i>Circus pygargus</i> | M | LC | x | x | x | x | x |
| <i>Circus cyaneus</i> | M | LC | x | x | x | x | x |
| <i>Milvus migrans</i> | N-M | LC | x | x | x | x | x |
| <i>Milvus milvus</i> | N-M | EN | x | x | x | x | x |
| <i>Falco biarmicus</i> | M | LC | x | x | x | x | x |
| <i>Falco tinnunculus</i> | N-M-W | LC | x | x | x | x | x |
| <i>Buteo buteo</i> | M-W | LC | x | | x | x | x |
| <i>Pandion haliaetus</i> | M | LC | x | x | x | x | x |
| <i>Accipiter nisus</i> | M | LC | x | x | x | x | x |
| <i>Neophron percnopterus</i> | M | LC | x | x | x | x | x |
| <i>Grus grus</i> | M | LC | x | x | x | x | x |
| <i>Porzana porzana</i> | M-W | LC | x | x | | | x |
| <i>Chlidonias niger</i> | M | LC | x | x | | | x |
| <i>Chlidonias hybridus</i> | M | LC | x | x | | | x |
| <i>Gallinago media</i> | M | NT | x | x | | x | x |
| <i>Himantopus himantopus</i> | M | LC | x | x | | x | x |
| <i>Recurvirostra avosetta</i> | M | LC | x | x | | x | x |
| <i>Philomachus pugnax</i> | M | LC | | x | | x | x |
| <i>Alcedo atthis</i> | N-M-W | LC | x | x | | | x |
| <i>Athene noctua</i> | N-M-W | LC | x | | x | | x |
| <i>Asio otus</i> | M-W | LC | x | | x | | x |
| <i>Tyto alba</i> | N-M-W | END | x | | x | | x |
| <i>Otus scops</i> | N-M | END | x | | x | | x |
| <i>Bubo bubo</i> | N-W | LC | x | | x | | x |
| <i>Melanocorypha calandra</i> | N-M | LC | x | x | | | x |
| <i>Anthus campestris</i> | N-M | LC | x | x | | | x |
| <i>Lullula arborea</i> | N-M | LC | x | x | | | x |
| <i>Remiz pendulinus</i> | N-M-W | LC | x | | | | x |

| | | | | | | | |
|---------------------|----------------|----|---|--|--|--|---|
| Pinicola enucleator | M (3 ex. 1992) | LC | x | | | | x |
|---------------------|----------------|----|---|--|--|--|---|

Criterion 3: the area supports populations of plant and animal species important for maintaining the biological diversity of the Mediterranean region.

Among the rarest, most endangered and biogeographically remarkable botanical species/communities there are: *Atriplex halimus* and *Anthecius hidrutina* known only from the Sila Mountains in Calabria and from the surroundings of Otranto in Apulia. Further surveys are being conducted to describe the flora of the Oasis in greater detail.

A recent entomological survey yielded information on a number of endemisms with reports of species considered rare at the national and at the European scale; some 316 species were counted: *Brachygluta angelinii* (Sabella) was new to science, two others (*Dinodes viridis* Ménetries and *Gasterocercus depressirostris* Fabricius) had not been reported in Italy before, many others were reported for the first time in southern Italy and in Basilicata.

Criterion 4: the area supports overwintering animal populations, in particular wildfowl.

The Oasis is also a very important resting and nesting site. During the breeding season and in winter, it is easy to spot *Phalacrocorax pygmaeus*, *Ixobrychus minutus*, *Botaurus stellaris*, *Nycticorax nycticorax*, *Ardeola ralloides*, *Egretta alba*, *Egretta garzetta*, *Ardea purpurea*, *Platalea leucorodia*, *Plegadis falcinellus*, *Ciconia ciconia*, *Aythya nyroca*, *Milvus milvus*, *Milvus migrans*, *Circus aeruginosus*, *Circus cyaneus*, *Circus pygargus*, *Porzana porzana*, *Grus grus*, *Chlidonias niger*, *Chlidonias hybridus*, *Gallinago media*, *Recurvirostra avosetta*, *Himantopus himantopus*, *Philomachus pugnax*, *Alcedo atthis*, *Anthus campestris*, *Lullula arborea*, *Melanocorypha calandria*. Daytime raptors include: *Milvus migrans*, *Milvus milvus*, *Buteo buteo*, *Falco tinnunculus*, *Circus aeruginosus*, *Pandion heliaetus*, *Falco biarmicus*, *Accipiter nisus* and *Neophron percnopterus*; among strigiforms: *Athene noctua*, *Asio otus*, *Tyto alba*, *Otus scops* and the rare *Bubo bubo*. Passeriforms include *Remiz pendulinus*, dwelling within the riparian zone, which became itself a symbol of the protected area.

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: Mediterranean

b) biogeographic regionalisation scheme (include reference citation):

European Councils Habitat Directive 92/43/EEC

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.

1. Non irrigated arable land
2. Permanently irrigated land
3. Annual crops associated with permanent crops
4. Land principally occupied by agriculture
5. Broad-leaved forest
6. Coniferous forest
7. Natural grassland
8. Bare rocks
9. Water courses

17. Physical features of the catchment area:

Describe the surface area, general geology and geomorphological features, general soil types, and climate (including climate type). Artificial basin, some 10 km² wide, situated in Basilicata, within Matera Province. It formed due to the damming of the Bradano River, just below its confluence with the Bilioso stream. The Bradano River

originates in the proximity of Mount Vulture; after 120 km it drains into the Jonium Sea, near Metaponto. The artificial dam was constructed between 1950 and 1957, cutting across the Bradano river itself. The basin geomorphology is characterised by a line of clayey hills slowly degrading towards the lake. Immediately below the dam, the Bradano River flows over an ancient calcareous substrate dating from the Cretaceous and forms a characteristic “gravina” (*ravine*), a sort of depression dug out from the rock by the erosive action of streamwater. Some 50 m separate the xerophilous vegetation at the top of the hill, from the hygrophilous vegetation at the bottom of the depression.

18. Hydrological values:

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

The Bradano is the northernmost river draining into the Jonium, in the Gulf of Taranto. Its drainage basin extends over the whole of central and western Basilicata including the provinces of Potenza and Matera. Its borders extend up to the Ofanto in the North-West, the Basento in the South and to the Murge formation in the East. Its length reaches 120 km and its surface covers 2,765 km², of which 2,010 are in Basilicata and 755 in Apulia.

Despite the size of its basin - the largest in Basilicata - at the river mouth average yearly discharge is very low (not far greater than 7 m³ s⁻¹). This is due to low rainfall over the catchment - the lowest in the region -, and to the impermeable nature of the substrate which prevents the formation of springs. Its water discharge coefficient of 2.67 l s⁻¹ km⁻² is among the lowest observed among all hydrological stations in the region. A number of dams have been built to regulate streamflow:

1. San Giuliano Dam, forming the reservoir which has been given the same name, was built between 1950 and 1957 for irrigation purposes and became operational in 1961;
2. Serra del Corvo Dam on Basentello River, along the border between Apulia and Basilicata;
3. Acerenza Dam on Bradano river;
4. Genoano Dam on Fiumarella stream.

San Giuliano Dam, one of the main water development schemes to be built by the Bradano and Metaponto Drainage Board, was created following the wave of economic *renaissance* which followed the Marshall Plan after WWII. The reservoir stems from San Giuliano gorge where the Bradano river suddenly shrinks into a rocky gully incising into the calcareous outcrops eroded by the river. Its overall surface extends to 1,000 ha, and it is included within the territories of the municipalities of Grottole, Matera e Miglionico. From 1976 the area was declared a regional nature oasis, in 1989 it became a WWF-Italy Oasis.

Reservoir features

| | |
|---|---------------------------------|
| Year of dam closure | 1955 |
| Status | Standard operational conditions |
| River | Bradano |
| Height of dam (m) | 38.3 |
| Volume (10 ⁶ m ³) | 107 |
| Max reservoir level (m a.s.l.) | 101.6 |
| Regulatory max reservoir level (m a.s.l.) | 100.25 |
| Regulatory volume (10 ⁶ m ³) | 90.13 |
| Type of dam | Massive gravity |
| Upstream drainage basin (km ²) | 1,631 |
| Main purpose | Irrigation |

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:

Inland: • O • P • Tp • W • Xf • Xp • Y • Zk(b)

Human-made: • 6 • 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.

| | |
|--|-----|
| O - permanent freshwater lake | 15% |
| P - seasonal/intermittent freshwater with floodplain lake | 20% |
| Tp - permanent freshwater marshes/pools | 10% |
| W – shrub-dominated swamps | 10% |
| Xf - freshwater, tree-dominated wetlands | 5% |
| Xp - forested peatlands; peatswamp forests | 5% |
| Y - Freshwater springs | 5% |
| Zk(b) - karst and other subterranean hydrological systems, inland | 4% |
| ZK(c) - Karst and other subterranean hydrological systems, human-made | 1% |
| 6 - Water storage areas | 20% |

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.

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.

The wetland is situated in a depression of the Bradano river basin; it originated after the spontaneous reversal to natural conditions of an artificial basin created after a dam was built across a former natural wetland. The stream section draining into the shallow lake is characterised by a remarkably well-preserved flora and fauna. The wetland itself has a highly fragmented coastline and a number of side channels; it is enclosed within two riparian typologies: towards Matera the landscape is rather flat and grades towards the wetland edge with a gentle cline, on the other side the landscape tends to roll, in places with steep overhanging terraces.

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.*

The area is characterised by three different habitats: the natural lake, the riparian fringe and, at the valley end, a large and peculiar gorge, dug by the river after centuries of erosion. Two main vegetation types can be found within the area: xerophilous vegetation on the upper side, hygrophilous vegetation in the lower side, linked by a 50 m long ravine.

The main species found in the marshland area are: *Salix alba*, *Salix fragilis*, *Salix purpurea*, *Alnus cordata*, *Populus spp.*, *Tamerix gallica*, *Crataegus oxyacantha*, *Prunus spinosa* and *Spartium junceum*. Where the river drains into the lake, there is a noticeable presence of *Pinus halepensis*, *Cupressus sempervirens* and *Rosmarinus officinalis*. As in other rare and specialised types of wetlands from central Italy, the site is characterized by the presence of: *Alisma lanceolatum*, *Alisma plantago-aquatica*, *Cyperus glaber*, *Eleocharis palustris*, *Lythrum salicaria*, *Myriophyllum spicatum*, *Polygonum amphibium*, *Schoenoplectus lacustris*, *Sparganium erectum*, *Veronica anagallis-aquatica*, *Veronica beccabunga*, *Potamogeton* spp. The characteristic vegetation is dominated by the presence of *Phragmitetum communis*, *Typhetum angustifoliae*, *Scirpetum lacustris*, *Potamogetoretum lucentis* (with *Potamogeton coloratus*, *Potamogeton crispus*, *Potamogeton lucens*, *Potamogeton natans*, *Potamogeton pectinatus* and *Potamogeton pectinatus*); helophytic flora, bushy and tree vegetation of *Salix alba*, *Salix fragilis*, *Salix purpurea*, *Alnus cordata*

and *Populus* sp. pl.; marshlands with *Carex otrubae*, *Carex pseudocyperus*, *Juncus bufonius*, *Juncus conglomeratus*, and *Juncus subnodulosus*; rare or localized species include: *Alisma lanceolatum*, *Alisma plantago-aquatica*, *Cyperus glaber*, *Eleocharis palustris*, *Helodea canadensis*, *Salcerella* (*Lytbrum salicaria*), *Myriophyllum spicatum*, *Polygonum amphibium*, *Schoenoplectus lacustris*, *Sparganium erectum*, *Veronica anagallis-aquatica* and *Veronica beccabunga*.

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.*

The area is a very important resting and nesting site for a number of species, many of which are relevant in terms of European-scale conservation attempts.

The area is known to host species listed in Annex I of Bird Directive 79/409/CEE: *Phalacrocorax pygmaeus*, *Ixobrychus minutus*, *Botaurus stellaris*, *Nycticorax nycticorax*, *Ardeola ralloides*, *Egretta alba*, *Egretta garzetta*, *Ardea purpurea*, *Platalea leucorodia*, *Plegadis falcinellus*, *Ciconia ciconia*, *Aythya nyroca*, *Milvus milvus*, *Milvus migrans*, *Circus aeruginosus*, *Circus cyaneus*, *Circus pygargus*, *Porzana porzana*, *Grus grus*, *Chlidonias niger*, *Chlidonias hybridus*, *Gallinago media*, *Recurvirostra avosetta*, *Himantopus himantopus*, *Philomachus pugnax*, *Alcedo atthis*, *Anthus campestris*, *Lullula arborea*, *Melanocorypha calandra*. It is an important site also for: *Phalacrocorax carbo sinensis*, *Anas penelope*, *Anas strepera*, *Anas crecca*, *Anas platyrhynchos*, *Anas clypeata*, *Aythya ferina*, *Tadorna tadorna*, *Fulica atra* and *Acrocephalus arundinaceus*.

It hosts species listed in Annex II of Directive 92/43/CEE: *Bombina variegata* and *Triturus carnifex*, as well as species listed in Annex 2 and 3 of the Bern Convention and Annex 2/I Directive 79/409/CEE: *Emys orbicularis*, *Lacerta agilis*, *Lacerta viridis*, *Podarcis muralis*, *Lacerta sicula*, *Coluber viridiflavus*, *Elaphe quatuorlineata*, *Natrix natrix*, *Triturus vulgaris*, *Triturus italicus*, *Bufo bufo*, *Bufo viridis*, *Rana esculenta*, *Rana ridibunda*, *Rana temporaria*, *Hyla arborea* and *Hyla intermedia*.

Other birds frequently seen include: *Oenanthe hispanica*, *Monticola solitarius*, *Oriolus oriolus*, *Lanius senator*, *Coracias garrulus*, *Corvus corax* and *Emberiza melanocephala*. In 1991, *Pinicola enucleator* was observed, a species typical of arctic coniferous forests which had not been seen in Italy for about 100 years; this was only the seventh time that this species has been spotted in the country. One further historical record for the area concerns the spotting of *Pelecanus onocrotalus* which over-wintered in the area between 1994 and 1995. This represents the only report of such an event in Italy. Other rare events of over-wintering in the area concern *Phoenicopterus ruber*, *Spatula clypeata* and *Recurvirostra avosetta* (winter 2000-2001).

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 region which comprises San Giuliano Lake is included within the communes of Grottole and Miglionico. Grottole is a small urban centre located on top of a hill, at 481 m a.s.l. Its name derives from the Latin *Cryptulae* (cavities), whose etymology refers to the numerous little caves which can be found at the village basement, especially in the area called “Grotte”. The administrative surface of the metropolitan county council extends up to 11,588 ha, including woods, intensively farmed hills and a highly fertile plain. The village extends over two river basins (Bradano and Basento), two temporary streams (Basentello and Bilioso) and three small streams (Cupolo, Rovivo and Acquaviva). The history attached to this little town is very ancient as is testified by remains of pre-historic settlements, as well as by those of Greek and Roman descent. It has been part of the VII Metapontine Region, colonised by the Greeks between the XIII and the XII century B.C., known to be the most important of the eight regions which used to form the Magna Graecia. Under Roman times, the community was given the status of “Municipium”. In 851, when the Longobards divided Italy into 36 counties, the territory of Grottole was included within the county of Salerno under the dominion of Sikinulf, prince of Salerno, who built the core centre of the medieval castle. Throughout the century a number of lords and families struggled against one another competing for the ownership of Grottole county. Between 1434 and 1500, the county

of Grottole became property of the Orsini-Del Balzo and Zurlo-Piscitelli families, while between 1547 and 1639 it remained in the ownership of the lords Sanchez De Luna De Aragona.

Later on, the area was under the ownership of the families Caracciolo from Melissano, Spinelli from San Giorgio and finally, after 1738, by the Sanseverino from Bisignano. Only in 1847, after the death of Luigi IV Sanseverino of Bisignano, Grottole was freed from the rule of the last medieval lord. According to existing reports, it seems that in a past as remote as year 1010 A.D., Grottole reached as many as 13,000 inhabitants which by 1100 reduced to 9,075 and furthermore down to 4,221 in 1133, following the loss of many men during the desperate resistance to Roger the Norman. The war lord took Grottole by cheat after a siege which lasted four days and pillaged it. From 1271 onwards, the residents of Grottole were again seriously affected by catastrophes and epidemics, among which malaria, famine and a devastating land slide which caused the loss of a portion of the residential area. These events caused a reduction in the resident population, to the extent that in 1493, Grottole hosted only 1,290 inhabitants. During the XV century, inhabitants were barely above 1000; during the next century the population rose to over 2,500, and increased again in 1600, despite famine and widespread disease. The XVIII century saw a strong demographic decrease due to the heavy tax levies imposed upon its inhabitants, such that in 1783 the resident population had decreased back to 2,010 individuals. The steady but extremely slow demographic increase witnessed by the XX century reached a peak in 1960, when Grottole counted 3,832 inhabitants. Since then a slow but continuous emigration flow induced a steady decrease in the local population, which reached 1,694 in 1999.

Miglionico, in proximity of San Giuliano Lake, stands on the top of a hill along the Bradano/Basento watershed. Its origins are remote, as testified by the graves and by the ancient pottery found in this location, belonging to the VI and to the IV centuries B.C. The city was equipped with defensive structures by the Byzantians and then by the Normans. Under the dominion of the Aragona, Miglionico became famous because the town castle belonging to the Sanseverino, became the meeting place of all the kingdom's noblemen which rebelled to Ferdinand I of Aragona, King of Naples. They congregated to simulate their devotion to the King while waiting for the Pope's support. The conspiracy materialised on the 1st of October 1481. After that date, the castle was nicknamed the place of "bad advice".

Between the 10th and the 11th century, the territory belonged to the count of Andria, while during the XII century it came under the ownership of Fulco, who fought for the revenge of Basilicata. In 1504 it passed under Ettore Fieramosca; following him came the Pignatelli, the Caracciolo and finally the Rivertera of Salandra. In 1860, Miglionico distinguished itself for having taken part to the *Risorgimento* (litt. *re-birthing*) political events. Among the most remarkable monuments of Miglionico, stands out the Norman-Swedish castle, characterised by a square basement and by six cylindrical and square towers which underwent a number of changes throughout the ages. The Mother church of Saint Mary Major stands out in People's Square; it was designed by Niccolò from Melissano, with a renaissance porch and a square-base roman bell-tower decorated with the figures of the saints. In its interior, some few 1500 paintings are kept, as well as wooden statues from 1700, and a polychrome altar dating from the 16th century. St. Francis's church is just behind the city council. It stands next to a small convent with a roman bell-tower containing a majestic polittikos by Cima from Conegliano from 1499, formed by 18 planks of wood under a baroque frame portraying Gabriel, the Announcement, the saints Bernardino, Catherine, Chiara, Gennaro, Peter, Paul, Anthony, the Madonna with the Infant, and 5 Franciscan martyrs.

The main crop in the region is represented by cereals, with marginal sections devoted to olives, vineyards, vegetable gardens and orchards. Around the lake there are old farms breeding mainly sheep and cattle. Several countryside tourism enterprises have burgeoned in this area, based upon the delivery of typical local products of agriculture and animal husbandry.

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: public/private

b) in the surrounding area: public/private

25. Current land (including water) use:

a) within the Ramsar site:

- Non irrigated arable land
- Permanently irrigated land
- Annual crops associated with permanent crops
- Land principally occupied by agriculture
- Broad-leaved forest
- Coniferous forest
- Natural grassland
- Bare rocks
- Water courses

b) in the surroundings/catchment:

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:

The fish community of the Bradano river was profoundly altered by the building of the dam and by continued fish stocking carried out without scientific criteria.

Changes in the water flow patter due to climatic instability and changes in river morphology

b) in the surrounding area:

Three more dam constructions in the 1950ies had an influence on the hydrological regime of the area.

Changes in morphology due to anthropogenic alteration of stream morphology and reduction of incoming discharge due to climatic instability

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.

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?:

Management plan is in progress by WWF Italy.

d) Describe any other current management practices:

- 1) Protected Area “Wildlife Protected Oasis” established by Basilicata Region-Presidential Decree n. 1137/06.09.1976;
- 2) Regional Nature Reserve: Regional Law n. 39/2000;
- 3) Important Bird Area (IBA);
- 4) SIC IT9220144 “Lago S. Giuliano e Timari” – (EU-Directive 92/43/CEE).

28. Conservation measures proposed but not yet implemented:

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

There are the measures drifting by Eu Directive 92/43/CEE (SIC IT9220144 “Lago S. Giuliano e Timari”)and by Regional Law n.39/2000.

29. Current scientific research and facilities:

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

Monitoring of bird populations in the wetland; monitoring of the status of the qualitative elements supporting biological status will be undertaken by WWF.

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.

Conservation education is part of a major WWF programme within the “San Giuliano” Regional Nature Reserve. Educational facilities have developed over the past 10 years to address the public at large, school groups as well as educators that use “San Giuliano” as an outdoor learning site.

The educational project developed to address three main themes:

1. Wetland discovery

This programme illustrates and describes the main features related to the history of the Oasis, the development of nature protection initiatives, the main contemporary environmental and landscape features. The programme starts at the visitors' centre where the first information is distributed, to gain an understanding of the general scope of establishing a nature reserve, the way visitors should behave while moving within it, the significance that reserves represent for nature conservation and for mankind at large. After this first stop, the party is taken back to the bus and driven around the reserve to illustrate its key characteristics. This short “travel” will be interrupted by a couple of stops to observe nature in some detail and gain a direct experience of the site.

Should the season, the weather and the conditions of the terrain allow us to, we plan to undertake some short and easy walks to reach observation points situated in particularly advantageous panoramic spots, where we shall be able to appreciate the most relevant features of the wetland and of the riparian vegetation. The guide will dispose of a pair of powerful binoculars and of identification keys which will enable the public to recognise extant wildlife. If we shall be careful and silent enough, there is bound to be plenty of surprises.

2. Woodland and Mediterranean scrub (*macchia*)

This programme aims at highlighting the relevance of the woodland and of the *macchia* in nature's balance, illustrating the functions carried out by the two types of ecosystem. During this outing, the programme will stress the main differences between a “poor” and a “rich” woodland, introducing relevant concepts

such as biodiversity and environmental health. Hands-on activities will include vegetation surveys and identification of the extant flora. Teaching materials and lecturing will be designed to introduce in a simple and intuitive way “scientific” concepts and methods such as: measurements, observations on plant morphology, basic soil analysis, observations on the soil micro-fauna, etc. The woodland will become an open-air laboratory to boost the development of activities during which pupils will test their sensorial and practical abilities exploring their surroundings and becoming involved in recreational activities. Such programme will be repeated 3-4 times a year (autumn, winter, early spring, late spring) to appreciate seasonal changes. Every time, activities and games will be selected to fit the opportunities which are most suitable to the seasonal conditions encountered. For example, in winter a bird shelter will be set to be visited later in the spring. One more exercise could consist in burying something underground to come back later and observe the action of decomposition which will have transformed the object in a natural resource for the woodland. Such simple field studies and observations will enable pupils to understand basic woodland functions and respect the integrity of the ecosystem.

3. Nature under the lens

Within the visitors’ centre, pupils will be introduced to the world of nature; a magnifying lens or a stereo-microscope can be great help. Pupils will become acquainted with the microstructure of a bird feathers to be introduced to the secrets of flight. They will observe and contrast the reticulated structure of a leaf and of a butterfly wing; they will open an owl’s ball to discover what the bird eats. Samples will be taken from a pond or simply from a pool to discover what “strange” organisms hide within it as a key to understand the basis of wetland biodiversity. A demonstration will be set up to show how to collect and preserve dry leaves and how to assemble a small herbarium. Observing the skull of small mammals under the microscope will demonstrate how feeding habits relate to dentition. Specific lectures will be dedicated to the direct observation of small animals, temporary visitors of the Oasis. This activity will include the set up of a little demonstration hut made of wood, glass and cardboard, that will be decorated with a number of preserved specimens provided with explanatory notes. Team workshops will provide the opportunity to conduct simple observations and unveil nature’s secrets by approaching them with a new perspective and a new wisdom.

31. Current recreation and tourism:

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

The artificial creation of the small lake has attracted, from the early years onwards, a large number of aquatic bird species. The local WWF branch (Matera) felt the urge to undertake a number of surveys finalised at identifying conservation priorities and management measures, designed to support its naturalness. By promoting knowledge about the role of this wetland within the local community, the NGO gradually managed to halt a number of infrastructural projects and public works which were going to affect the integrity of the area. After years of struggle, finally in 1976 San Giuliano Lake became a Wildlife Protection Oasis. As from 1977, the area is under a special normative regime to protect its scenery. After 1991, the portion of the area which includes the Bradano ravine became part of the “Regional Park of the Materano scenic mountain churches”. The area extends for some 1000 ha, it belongs to the government and is managed under lease by the Bradano and Metaponto Drainage Board. In 1989, WWF-Italy obtained permission to manage the area, after signing a specific convention with the Drainage Board. By including the area within the WWF Oasis and Reserves system, a number of initiatives have emerged concerning restoration projects, the design of site-seeing tracks, wildlife look-out points and stations for the observation and study of aquatic life forms. A visitors’ centre was built after refurbishing the ancient Zagarella Farm. This site soon became the logistical fieldwork operations centre; it includes a conference hall equipped with a projector for environmental education purposes as well as a small laboratory for the detailed observation and study of specimens collected within the protected area.

32. Jurisdiction:

Include territorial, e.g. state/region, and functional/sectoral, e.g. Dept of Agriculture/Dept. of Environment, etc. Basilicata Region, Province of Matera, municipalities of Grottole, Matera and Miglionico.

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.

The site is under government ownership and is leased by the Bradano and Metaponto Drainage Board. In 1989, the Board delegated WWF-Italy to manage the area. Within the framework set by regional law n. 28/94, issued by the Basilicata regional authority, a specific norm n°39/2000 was issued to establish a "Dedicated Nature Reserve", within the scope of strengthening conservation initiatives within the entire area.

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

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