Information Sheet on Ramsar Wetlands

Categories approved by Recommendation 4.7 of the Conference of the Contracting Parties.

NOTE: It is important that you read the accompanying *Explanatory Note and Guidelines* document before completing this form.

1. Date this sheet was completed/updated:

28.08.98

For office use only.

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19/09/80	7IT027
Designation date	Site Reference Number

2. Country:
Italy

3. Name of wetland:
Lago di Tovel

4. Geographical coordinates:
46° 15’ 42” North; 10° 57’ 11” East

5. Altitude: (average and/or max. & min.). min. 1,175 max.1,428 m a.s.l. **6. Area**: (in hectares) 37 ha

7. Overview: (general summary, in two or three sentences, of the wetland’s principal characterstics)
It is an Alpine lake whose characteristic reddish waters are unique at a world level. The presence and breeding of certain species of fauna threatened with extinction make it an area of natural importance as do the significant glacial remains which are to be found there. Invertebrates present in the area indicate the good quality of the water.

8. Wetland Type: (please circle the applicable codes for wetland types as listed in Annex I of the *Explanatory Note and Guidelines* document)

marine-coastal: A - B - C - D - E - F - G - H - I - J - K

inland: L - M - N - **O** - P - Q - R - Sp - Ss - Tp
Ts - U - Va - Vt - W - Xf - Xp - Y - Zg - Zk

man-made: 1 - 2 - 3 - 4 - 5 - 6 - 7 - 8 - 9

Please now rank these wetland types by listing them from the most to the least dominant:

9. Ramsar Criteria: (please circle the applicable criteria; see point 12, next page.)

1a - 1b - 1c - 1d / 2a - 2b - 2c - **2d** / 3a - 3b - 3c / 4a - 4b

Please specify the most significant criterion applicable to the site:

10. Map of site included? Please tick *yes* **- or -** ***no*** **X**

(Please refer to the *Explanatory Note and Guidelines* document for information regarding desirable map traits)

11. Name and address of the compiler of this form:
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Please provide additional ínformation on each of the following categories by attaching extra pages (please limit extra pages to no more than 10):

12. Justification of the criteria selected under poìnt 9, on previous page. (Please refer to Annex II in the *Explanatory Note and Guidelines* document)

The lake is characterised by the presence of *Woloszynskya coronata Thompson* algae which in the past has given the waters a reddish colouring during the summer months. This unique phenomena no longer occurs due to a reduction in the amount of algae present in the lake and criteria 2d has been selected for this reason. With regard to criteria 1a, it should be noted that the lake is in fact a representative example of an alpine type wetland.

13. General location: (include the nearest large town and its administrative region)

The area is situated in the north-east of the Trento Province, at approximately 15 km from the town of Cles. The lake is located in the Brenta group of the Dolomite mountains, in the centre of Valle di Tovel which lies to the side of the larger Valle di Non.

14. Physical features: (e.g. geology, geomorphology; origins - natural or artificial; hydrology; soil type; water quality; water depth; water permanence; fluctuation in water level; tidal variations; catchment area; downstream area; climate

Geology: Norico and Retico Dolomites.
Geomorphology: The lake is situated in a karstic zone and is subdivided into two basins: the larger running NE and the smaller SW.
Origin: Natural, glacial.
Hydrology: The main tributary is the Rio S. Maria di Flavona and the only superficial outlet is the Rio Tresenga which flows from the northern part of the lake. Underground outlets are present.
Type of substrata: Glacial detritus (sand, gravel, pebbles).
Water quality: oligotrophic.
Depth: 39 m (north-east basin).
Water permanence: The theoretical time of permanence is 32.7 days during the period June-August, in correspndence to the main outflow site.
Level fluctuation: Approximately 100 cm above the hydrometric datum (June-July) and 4-5 m below the datum in winter.
Catchment area: The entire Valle di Tovel is 98.2 km2.
Climate: Temperate continental-type. The maximum rainfall is in spring and autumn. The lake surface freezes in the winter (max. 70 cm).

15. Hydrological values: (groundwater recharge, flood control, sediment trapping, shoreline stabilisation etc.)

The lake is particularly important for its action as hydraulic "flywheel" recharging and maintaining the water table.

16. Ecological features: (main habitats and vegetation types)

The lake was formed by an alluvial barrier (i.e. glare) and it is completely bounded by calcareous detritus. It is an oligotrophic type lake with beds of Caracee algae. The Peridinee *Glenodinium sanguineum Marchesoni* lives in the alge and causes the unique reddish colouring of the waters during the summer months. The riparian vegetation is *Salix elaegnos*.

17. Noteworthy flora: (indicating, e.g.,which species/communities are unique, rare, endangered or biogeographically important,etc.)

The area surrounding the lake is covered by a typical vegetation of *Fagus Abies* which rises to 1,600 m within Valle di Tovel. The area is characterised almost exclusively by the presence of *Picea abies* conifer trees, with some *Pinus sylvestris, Abies alba* and *Larix decidua*. There are also some groups and individual broad-leaved species: mainly, *Fagus sylvatica, Acer pseudoplantanus* and *Betula pendula.* As well as these, there are *Sorbus aucuparia, Laburnum alpium* and *Salix caprea*. In the shrub layer there are *Sorbus aria, Corylus avellana, Lonicera alpigena* and *Rubus sp*.. *Ranunculus eradicatus* is also present.

The shrub layer increases in the shady areas with small water courses. It is then possible to find, in some cases, the rare *Cystpteris montana* and *Polipodiacee*, such as *Phegopteris dryopteris*, as well as a thick layer of moss.

Along the routes of the small streams which run into the lake there is a hydric vegetation typical of wetlands with a prevalence of alder and willow.

On the fans the vegetation is formed by scattered clumps of *Pinus mugo, Picea abies, Betula alba, Salix sp*..

A particular type of vegetation has grown on large areas of rocky slopes formed after the glacial retreat which is commonly called "marocche". There are few trees (occasional larch and some Norway spruce and birch), whilst it is almost entirely covered by *Pino mugo* under which *Rhododendrum hirsutum* grows.

The lake is particulaly important because of the presence of the endemic single-cell *Peridinee* algae *Glenodineum sanguinem* (now known as *Woloszynskya coronata Thompson*) which gives a reddish colour to the water.

18. Noteworthy fauna: (indicating, e.g.,which species are unique, rare, endangered, abundant or biogeographically important; include count data, etc.)

Rana temporaria, Austropotamobius pallipes, Martes martes, Phoxinus phoxinus, Salvelinus alpinus, Accipiter gentilis, Aegolius funereus, Bonasa bonasia, Dryocopus martius, Glaucidium passerinum, Muscicapa striata.

19. Social and cultural values: (e.g. fisheries production, forestry, religious importance, archaeological site etc.)

The lake is of great cultural importance for the reddish colouring of the waters in the summer. The area is a great tourist attraction for the beauty of the countryside.

20. Land tenure/ownership of: (a) site (b) surrounding area

Almost the entire area is public property.

21. Current land use: (a) site (b) surroundings/catchment

The forestland around the lake is exploited according to management plans which are drawn up every 10 years and approved by the Provincial Administration Authorities. There are a few privately owned houses near the shores of the lake and also a small hotel.

22. Factors (past, present or potential) adversely affecting the site's ecological character, including changes in land use and development projects: (a) at the site (b) around the site

The area is very vunerable as a result of the increased presence of man which has developed over the last 20 years (roads, houses, visitors to the lake). However, it should be noted that the sewers do not discharge into the lake.
The precise cause for the disappearance of the reddish colouring of the lake waters has not yet been found and research is underway.

23. Conservation measures taken: (national category and legal status of protected areas - including any boundary changes which have been made: management practices; whether an officially approved management plan exists and whether it has been implemented)
The area falls within the territory of the Adamello-Brenta Natural Park which has a specific "Park Plan". The Plan foresees specific measures for the conservation of Lago di Tovel.
The area has been defined as a biotope of Provincial interest in accordance with Regulation L.P. 14/86.
The area has also been inserted in the Official List of Protected Areas and in the list of Important European Sites in the Bioitaly Programme.

24. Conservation measures proposed but not yet implemented: (e.g. management plan in preparation; officially proposed as a protected area etc.)

25. Current scientific research and facilities: (e.g. details of current projects; existence of field station etc.)
Lago di Tovel has always been and still is an important site for research into the *Glenodineum sanguineum* algae which gives a particular reddish colouring to the lake waters. The disappearance of the phenomena has increased the interest since it is very important to learn the exact reason in order, if possible, to restore the original conditions.
Research is currently in progress by the Tridentino Museum of Natural Science, which by placing large containers in the lake aims to create a laboratory situation within the lake environment.

26. Current conservation education: (e.g.visitors centre, hides, information booklet, facilities for school visits etc.)
There is a visitors' centre which offers the opportunity to learn about all the various aspects of the entire Tovel valley. Particular reference is made to the presence of the last examples of Brown Bear (Ursus arctos) in the Alps, who find their last refuge in the valley, and to the peculiarities of the lake including the disappearance of the reddish phenomena.
The management plan for the Park pays particular attention to the control of tourism and to incresing the environmental awareness of the visitors.

27. Current recreation and tourism: (state if wetland is used for recreation/tourism; indicate type and frequency/intensity)

28. Jurisdiction: (territorial e.g. state/region and functional e.g. Dept of Agriculture/Dept. of Environment etc.)
The area is managed directly by the Adamello Brenta Nature Reserve.

29. Management authority: (name and address of local body directly responsible for managing the wetland)

30. Bibliographical references: (scientific/technical only)
FLORA

- Marchesoni V., 1959 – *La Val di Tovel e il Lago Rosso*. Natura Alpina, 10: 3-36.

HABITAT

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- Marchesoni V., 1959 – *La Val di Tovel e il Lago Rosso*. Natura Alpina, 10: 3-36.
- Gruppo Conservazione Natura Società Botanica Italiana, 1971 – *Censimento dei biotipi di rilevante interesse vegetazionle meritevoli di conservazione in Italia*. (Census of the biotopes of notable vegetational interest, worthy of conservation in Italy). Camerino, Savini-Mercuri (scheda 5-20).
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FAUNA – BIRDS

- Caldonazzi M., Pedrini P., Zanghellini S., Barbieri F., 1994 - *Gli Uccelli del Parco Adamello Brenta*. (The birdlife in the Adamello Brenta Nature Reserve). n.8. Strembo (TN).
- Marsilli A., 1994 – *I Tetraonidi nel Gruppo di Brenta. Sintesi su distribuzione, biologia ed ecologia*. (Tetraonidi in the Brenta group. Summary of distribution, biology and ecology). Tesi di laurea.
- Pedrini P., 1992 – *L'aquila reale in Provincia di Trento: status, ecologia e biologia riproduttiva*. (The golden eagle in Trento Province: status, ecology and reproductive biology): In Ferrari C., Zoanetti R., (a cura di). Atti del Convegno: "Nuovi contributi di ricerca su: aquila reale, gallo cedrone, cotumice alpina, marmotta alpina". PAT Dipartimento al Territorio, Ambiente e Foreste 83-130.
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FAUNA – MAMMALS

- Prigione C., Pedrini P., Volcan G. 1993. *Indagine sulla distribuzione ed ecologia dei Mustelidi nel Parco Adamello Brenta, con particolare riferimento alla Martora (Martes martes) e alla Faina (Martes foina)*. (Studies into the distribution and ecology of *Mustelidi* in Adamello Brenta Reserve, with particular reference to *Martes martes* and *Martes foina*). Dattiloscritto, Parco Adamello Brenta.
- Ragni B., Possenti M., 1989 – *Il ritorna della lince (Lynx lynx) in Italia*. (The return of *Lynx lynx* to Italy). In Atti del II Sem. Ital. Cens. Faunist. Vert., Brescia 1989.
- Flaim S. (a cura di) 1990 – *Incontri con il Parco*. (Encounters with the Park). Parco Adamello Brenta pp159.
- Osti P., 1991 – *L'orso bruno nel Trentino (Ursus arctos L.): distribuzione, ecologia e protezione della specie*. (*Ursus arctos L.* in Trentino: distribution, ecology and protection of the species). Illustazioni di G. Perini, elab. Datti E. Cetto. Edizioni Arca, Trento.
- Osti F., 1991 – *Attuale consistenza e distribuzione dell'Orso bruno (Ursus arctos) delle Alpi*. (Present population and distribution of *Ursus arctos* in the Alps). In Atti del II Sem. Ital. Cens. Faunist. Vert., Brescia 1989.
- Schoder W., 1992 – *Piano recupero dell'orso bruno*. (Plan for recovery of *Ursus arctos*). Parco Adamello Brenta. Dattiloscritto.

FAUNA – AMPHIBIANS and REPTILES

- Barbieri F., Caldonazzi M., Pedrini P., Zanghellini S 1994 – *Gli Anfibi ed i Rettili del Parco Adamello Brenta*. Riconoscimento, distribuzione, habitat, abitudini. (Amphibians and reptiles in the Adamello Brenta Park. Identification, distribution, habitat and habits). Parco Adamello Brenta, Trento.

FAUNA – FISH

- Maiolini B., Betti L., Dorigoni E., Franceschini A., Grigolli E., 1993 – *Le acque del Parco Adamello Brenta. Aspetti biologici dei laghi e dei torrenti del Parco*. (The waters of Adamello Brenta Park: Biological aspects of the lakes and torrents in the Park). Parco Documenti n.4 pp.88.

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