Information Sheet on Ramsar Wetlands (RIS) – 2009-2012 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:

FOR OFFICE USE ONLY.

DD MM YY

Designation date | Site Reference Number

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2. Date this sheet was completed/updated:

July 2013

3. Country:

Sweden

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.

Mellanljusnan

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:

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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** ☒.
Included in the GIS file for all Swedish Ramsar sites version 2013.

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 is the same as for the existing Natura 2000 sites:
SE0630101 Mellanljusnan Laforsen-Korskrogen
SE0630223 Mellanljusnan Korskrogen-Edeforsen
SE0630228 Borrsjön – Vikarsjön
SE0630176 Djupbäcken

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.

61°48'N 15°53'E (Central point)
61°56'N 15°30'E (NW-corner), 61°46'N 16°09'E (SE-corner)

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.

The site is situated near the middle part of Sweden, 300 km northwest of Stockholm. The area lies close to the town of Ljusdal (municipality population 18 900) in the county of Gävleborg (population 276 200).

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

From 110 meters to 185 meters above sea level.

11. Area: (in hectares)

1 136 hectares comprising of two areas:

1. Laforsen-Korskrogen: 1091 hectares,
2. Borrsjön – Vikarsjön: 45 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 site Mellanljusnan consists of a 50 kilometres long unexploited part of the river Ljusnan. Mellanljusnan is devoid of power stations and dams. Rapids and streaming parts are mixed with slowly moving waters. In the lower part of the site the river runs in a broad valley trough farmland areas surrounded by big forest cowered hills. The middle and upper parts is dominated of the forest landscape with dry pine forests on sandy glacial deposits. The landscape is dramatic as the river has eroded down to the bedrock trough 40 meter deep layers of glacial delta sediments. Along the river runs an esker and there are several other god examples of glacial landforms. The vegetation is of great interest since it includes several alpine plants otherwise absent from this region. Along the shores of the lakes Vikarsjön and Borrsjön there are several red listed aquatic plants. The river holds strong populations of grayling *Thymallus thymallus* and brown trout *Salmo trutta* and is very popular for fishing as well as other open-air activities.

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 site contains a representative example of a Permanent river (M) in the EU boreal region. The site contains one of few natural sections of near natural river systems in the region. The

section has not yet been exploited for hydroelectric power. Long near-natural sections of a river of this size are rare in the boreal region. The major part of the site is classified as Fennoscandian natural rivers (3210) according to the EU Habitats directive. There are also representative examples of "Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoeto-Nanojuncetea" (3130).

Criterion 2: The site supports populations of nationally red-listed species including freshwater pearl mussel *Margaritifera margaritifera* (EN) *Elatine orthosperma* (VU), *Carex heleonastes* (EN) and otter *Lutra lutra* (VU).

Criterion 8: The site is an important spawning and feeding ground for several fish species. There are strong population of brown trout *Salmo trutta*, grayling *Thymallus thymallus* and bullhead *Cottus gobio* at the site. They are first-class indicators of clean water and river habitats.

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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:

Boreal

b) biogeographic regionalisation scheme (include reference citation):

European Environment Agency 2003. Europe's environment: the third assessment, p 231. Environmental assessment report no 10. Luxembourg: Office for Official Publications of the European Communities

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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 bedrock is composed of crystalline rocks (e.g. granite, monzonite, and metamorphic equivalents), but the area is almost totally covered of glacial deposits. In the lower part of the river valley glacial outwash of gravel, sand and silt dominates. In the upper part coarse-grained glaciofluvial deposits cover most of the river valley. The Ljusnan esker stretches along the river but is partly covered by massive delta sediments. The delta deposits are over 22 km long and form a plain upper surface in which the river has eroded and created a 30-40 meter deep, narrow valley.

The river includes long sections with streams and rapids and the water level falls 75 meters without any manmade physical impact. But the water regime is unnatural.

The average temperature is + 3 C°. The average perception is 700 mm a year. Winters are snow-covered and summers are warm. Warmest month is July with an average temperature of + 14 C°. The vegetation period is 160 – 170 days.

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17. Physical features of the catchment area:
Describe the surface area, general geology and geomorphological features, general soil types, and climate (including climate type).

The catchment area of whole river Ljusnan is 24 520 km^2. More than 2/3 of the area influences Mellanljusnan. The hydrology in the natural riverbed is influenced by dams for hydroelectric power upstream the site. This has modified the natural flowing scheme. High water flows are now present in

winter. In spring and early summer much of the flood is reduced. The degree of (unnatural) regulation of the water flow is 25 % in the site.

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

The water regime is affected by dams outside the site, but the site itself is devoid of hydro-electrical installations. Natural processes as erosion and sedimentation take place. There are no investigations about the hydrological ecosystem services at the site, but this part of the river may have the possibility to reduce high flows further down streams. The site will probably contribute to water purification.

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.

M, O

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 main habitat is classified as the EU Habitat Directive habitat *"Fennoscandian natural rivers" (3210).* It is characterized by clear, nutrient poor water. The changing water levels and the natural erosion from running water create open eroded riverbanks with high biological diversity. Typical for Mellanljusnan is plant communities with particular influence of alpine plants mixed with lowland plants. Alpine plants as *Astragalus alpinus, Bartsia alpina, Viola biflora, Viscaria alpine* and *Equisetum variegatum* are characteristic. Many water insects depending of clean and oxygen rich water like species of *Trichoptera, Ephemeridae* and *Plecoptera* tribe in the water as well as freshwater pearl mussels *Margaritifera margaritifera,* brown trout *Salmo trutta,* grayling *Thymallus thymallus* and bullhead *Cottus gobio*. The otter *Lutra lutra* is well established in the area.

Important are also the EU Habitat Directive habitat "*Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoeto-Nanojuncetea" (3130).* This is one of the few remaining and probably the best developed site for this vegetation in the river system. It holds a strong population of the threatened plants *Elatine orthosperma* and *Persicaria foliosa* and other red listed plants belonging to this threatened plant community

The site also presents good examples of streams, rapids, ravines, "nipor" (steep sandy brinks), stretches of smooth water, and other hydromorfologic and aquatic elements.

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 support several red-listed species such as *Botrychium multifidum* (NT), *B. lanceolatum* (VU), *B. boreale* (VU), *Elatine orthosperma* (VU), *Persicaria foliosa* (NT), *Lythrum portula* (NT), *Limosella aquatica* (NT), *Tillaea aquatica* (NT), *Carex heleonastes* (EN), *Pulsatilla vernalis* (EN) and *Sarcosoma globosum* (VU). Another plant of interest is *Goodyera repens*.

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*.

Red-listed species include freshwater pearl mussel - *Margaritifera margaritifera* (EN), depressed river mussel *Pseudanodonta complanata* (NT) and otter *Lutra lutra* (VU). Bird species like goldeneye *Bucephala clangula,* goosander *Mergus merganser,* common sandpiper *Tringa hypoleucos*, hazel hen *Bonasa bonasia* and dipper *Cinclus cinclus* are typical in the area.
The strong population off brown trout *Salmo trutta,* grayling *Thymallus thymallus* and bullhead *Cottus gobio* are a first-class indicator off clean water and river habitats.

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:

In the area are several archaeological sites and historical remnants stretching from catching pits from Stone Age to timber floating in the 20th century.

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:

Private and state-owned.

b) in the surrounding area:

Private owned

25. Current land (including water) use:

a) within the Ramsar site:

Forestry is the most important land use. Fishing and water rafting is popular recreation activities.

b) in the surroundings/catchment:

Forestry is the most important land use.

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:

A lot of the present and potential threats are regulated through the management plans and regulations for the nature reserves and the conservation plans for the Natura 2000 sites. The most severe threat is that the water flows are affected by regulations upstream.

b) in the surrounding area:

The unnatural regulation of the water regime for hydroelectric power purpose is the most severe problem affecting the biology in the river. Forestry can cause erosion and leakage off nutrients in the river, but is more of a potential than a current problem today.

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.

The whole area is included in the Natura 2000 network, divided on the four areas:
SE0630101 Mellanljusnan Laforsen-Korskrogen
SE0630223 Mellanljusnan Korskrogen-Edeforsen
SE0630228 Borrsjön – Vikarsjön
SE0630176 Djupbäcken

At present, one of the areas is protected as a nature reserve (Djupbäcken 4.4 hectares). The area also partially overlaps the borders of one nature reserve (Erik-Olssveden, 10.2 hectares) and one nature management area (Kläppaängarna, 186.6 hectares).

In the river-section Mellanljusnan, regulation of the water regime, building dams, conducting water etc is prohibited according to the Environmental Code. The whole site is listed as being of national importance for nature conservation and open air activities. That has to be considered when there are applications for permits for different sorts of exploitations in and close to the river and damages should be avoided.

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?:

There are approved management plans for the nature reserves Djupbäcken and Erik Olssveden and for the Nature 2000 sites, which are being implemented.

d) Describe any other current management practices:

There are measures done to support the populations of fish. There are also arrangements made for visitor along the river (footpaths and resting places). There is a general Environmental Code that includes fundamental provisions for the management of land and water areas. One of the provisions is about how areas of national interest due to their natural value should be taken care of when there are development plan and applications for permits etc under a large number of Acts are considered. Large parts of this Ramsar site have the status of being of national interest.

28. Conservation measures proposed but not yet implemented:
e.g. management plan in preparation; official proposal as a legally protected area, etc.

For the upper part of the river and the adjacent land, a 25 km long nature reserve is under preparation. Large part of the area has already been purchased or landowners have been compensated. There is a proposal to forbid drainage at the site that will strengthen the protection for the areas that aren't protected as nature reserves yet.

29. Current scientific research and facilities:
e.g., details of current research projects, including biodiversity monitoring; existence of a field research station, etc.

In 2008 the shore vegetation and the fish fauna has been surveyed.

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.

There are established nature trails, picnic areas and shelters for open-air activities along the river.

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

Since many years the area is popular for fishing and other outdoor activities. There are no current figures of the number of visitors, but the area is important for local tourism.

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

County Administrative Board of Gävleborg.

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.

County Administrative Board of Gävleborg, S-801 70 Gävle, Sweden
Tel. +46 26 17 10 00. E-mail: gavleborg@lansstyrelsen.se (to the registry).

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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.

Länsstyrelsen i Gävleborg, 2005. Bevarandeplan Natura 2000 för Djupbäcken SE0630176.
Länsstyrelsen i Gävleborg, 2006. Bevarandeplan Natura 2000 för Mellanljusnan Laforsen-Korskrogen SE0630101 och Mellanljusnan Korskrogen-Edeforsen SE0630223.
Länsstyrelsen i Gävleborg, 2006. Bevarandeplan Natura 2000 för Borrsjön – Vikarsjön SE0630228.
Gärdefors, U. (ed.) 2010. Rödlistade arter i Sverige 2010 - The 2010 Red List of Swedish Species. Artdatabanken, SLU, Uppsala.
Länsstyrelsen i Gävleborg, 1997. Värdefull natur i Gävleborg.
