# 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.

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Designation date | Site Reference Number

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

Michael Andersson,
Länsstyrelsen i Örebro län,
S-701 86 Örebro, Sweden.
michael.andersson@lansstyrelsen.se

Jenny Lonnstad,
Naturvårdsverket (Swedish EPA),
S-106 48 Stockholm, Sweden.
jenny.lonnstad@naturvardsverket.se

**2. Date this sheet was completed:**

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.

Nittälven

**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** ❑

**7. Map of site:**

**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:**

The boundary of the Ramsar area follows in part existing nature reserves and in part boundaries of wetlands or the shorelines of waterbodies.

**8. Geographical coordinates** (latitude/longitude, in degrees and minutes):

Geographical coordinate approximately in the middle of the site: 59º55'N 14º48'E

**9. General location:**

The site is situated 30 km southwest of the municipality of Ludvika (population 25 600) and 75 km north of the city of Örebro (137 400) in south central Sweden. The site concerns three municipalities: Ludvika, Hällefors (7 000) and Ljusnarsberg (4 900). Ludvika municipality is situated in the southernmost part of the County and Province of Dalarna, and it covers only a very small part (25 hectares) of the Ramsar site. Hällefors and Ljusnarsberg municipalities belong to Örebro County and the Province of Västmanland.

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

Maximum elevation is 280 metres above sea level (in the north), minimum elevation 160 metres above sea level (in the south).

**11. Area:** (in hectares)

1 932 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 river Nittälven and its delta is one of the most natural catchment areas in Örebro County. The river Nittälven runs from the lake Stora Nitten in the north to lake Ljusnaren in the south. Its watercourse is about 40 kilometers long. The most upper part of the river is not part of the Ramsar site. Nordtjärnsälven, the largest tributary is also part of the Ramsar site.

The site is a vast coherent area with a high variation of large streams, small creeks mixed with wetlands and small ponds. The river is heterogeneous both in reference to the water and surrounding upland habitats. In its upper reaches there are many boulder-rich passages with rapids and cascades. In its lower reaches the river is less turbulent and meanders through a long stretch of old-growth forest before it reaches the mire landscape close to the outlet. Despite past rock removal efforts to facilitate log driving, todays numerous stretches of rapids and cascades make the river a natural watercourse.

The shores vary from boulder-rich to sandy overhanging brinks and to annually submerged marshes and swamp forests. In the southern parts of the site mires extend over a glaciofluvial delta. Several smaller wetlands and heterogeneous clusters of streams, wetlands and forests line the watercourse. Altogether the site is a very diverse wetland.

The wetlands are surrounded by coniferous forest. Deciduous trees are only found in small forest stands or as scattered clusters within the larger coniferous stands.

The bird life is rich with many nationally red-listed species and bird species listed in the EU Birds directive. Nittälven is situated north of the most evident biological limit in Sweden, *Limes norrlandicus*, where most southern plants and animals have their northern distribution border.

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**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 |
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**14. Justification for the application of each Criterion listed in 13 above:**

**Criterion 1:** The watercourses and wetlands of the site Nittälven contain a wide range of wetland habitats representative of the EU boreal region. The following Ramsar wetland types are the most important that have representative values at the site: permanent rivers (M), inland deltas (L), freshwater tree-dominated wetlands (Xf), forested and open peatlands (Xp and U). Several of the wetland types also contain a number of representative subtypes.

The area is also situated in a transition zone between northern and southern mire types (situated in the area where two subregions of the boreal meet, the boreal and the boreonemoral). The site is also on a transition zone between eastern and western mire flora in Sweden and a few western species occur. Human impact has been fairly gentle on the wetlands, which are natural or near-natural. The mires in the area have good possibilities to continue function as a carbon sink and storage.

**Criterion 2:** The site supports populations from several nationally red-listed species that are vulnerable, endangered or critically endangered (see below). Present deterioration of natural habitats is threatening many of these ecotone dependent species and habitats, land-to-water and wetland-to-forest alike.

The most important species for this criterion are bryophytes and lichens such as: *Evernia divaricata* (VU), *Platismatia norvegica* (VU), *Ramalina thrausta* (EN) and *Harpanthus scutatus* (VU).
Most of the species mentioned are dependent on the high humidity in old-growth forests (wet or seasonally flooded forest, but also forests that aren't wetlands but benefit from the humidity from the river and the mires. There are also curlew *Numenius arquata* (VU), and *Lutra lutra* (VU) at the site.

**Criterion 4:** The site supports populations of birds at a critical stage of their life cycle. The bird fauna is rich and representative of the wetlands of the boreal zone and contains several nationally red-listed species and species listed in the EU bird directive. In all about 90 bird species are nesting in the area most of them are dependent on wetland or the ecotones between water, wetlands and forest. (more details under point 22).

**Criterion 8:** The site supports nurseries and/or migratory routes for several fish species including trout *Salmo trutta* (several good reproduction sites in the upper part of the river and in the tributaries),

pike *Esox lucius*, roach *Rutilus rutilus*, perch *Perca fluviatilis*, burbot *Lota lota*, and minnow *Phoxinus phoxinus*.

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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):

**a) biogeographic region:**

The site is situated in the boreal region. According to the Nordic Council of Ministers the site is close to the border of the Middle boreal zone and the South boreal zone. According to the DMEER the site is close to border between Scandinavian and Russian taiga and Western European Broadleaved forests.

**b) biogeographic regionalisation scheme**:

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.

The Nordic Council of Ministers (1983, 1984) has presented a more detailed biogeographic regionalisation system, where the boreal zone is divided into seven sub-zones due to different specific features.

European Environment Agency (EEA). 2009. European Ecological regions (DMEER).

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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 river Nittälven runs through a wide and deep u-shaped glacial valley named after the river. The Nittälven valley is the widest and most acutely shaped in Örebro County. The northern half of the valley is surrounded by low mountains reaching 420-430 metres above sea level. The northern extent of the valley is very narrow (in Dalarna County) but widens towards the south. The width of the valley ranges from approximately 1 kilometre in the middle to around 2 kilometres at the southern end. The bedrock consists of metamorphic silicaceous rocks and extremely old granites, in some parts bisected by greenstone belts. The bedrock is bare from mineral soils only in the northern parts.

In the upper reaches of Nittälven, the river runs through a rocky valley. Nittälven passes the highest shoreline of the latest glaciation (HS) at about 180 metres above sea level. The mineral soils above HS consist of acid and boulder-rich, primary deposited till. Upstream the HS are evident supra aquatic glacial sediments, e.g. eskers. Below HS a floodplain follows, originally a glacial delta (Weichsel glaciation) deposited in the Yoldia Sea (8 000–7 000 BC) with large boulders, kettle ponds and distributary channels on the surface. The lower parts of river Nittälven meander through these sediments. The meandering has given rise to a large amount of oxbow lakes. Vast areas of the glacial delta are covered by non-forested mires and forested marshes. Adjacent to the river there is a narrow zone of seasonally inundated marshes and beyond that zone a somewhat wider area of intermittently inundated forests.

The river Nittälven has a varied course. In its upper reaches it is rich in rapids and cascades and has rapid-flowing water. The bottom of the valley is sloping substantially from the border between the two counties and downstream to below the HS. In the following course the river slows down and meanders through the surrounding sediments, but even here with short rapid stretches where the water runs over thresholds of rocks and stones. The slower parts of the watercourse are bordered to a great

extent by low and almost overhanging brinks. The water is rich in humus from the mires within the rivers drainage area and is therefore strongly brown-coloured.

The Nittälven has a clear, brown-coloured and slightly acidic (pH 5-6) water. It is an oligotrophic river system i.e. nutrient-poor with naturally very low phosphorus concentrations. The water flow of the river is not controlled by man. There are no dams or electrical power stations associated with the river system. As a result the water depth of the river varies greatly on a yearly basis. Measures of the water flow of river Nittälven has been performed continuously during 1984-2004 and the data are obtainable in weekly communications from the SMHI (Swedish Meteorological and Hydrological Institute). Mean annual flow is about 3,4 $m^3$ per second, but with great variations during a year, e.g. the highest and lowest water flows during 1980-2004 were 17,8 and 0,2 $m^3$ per second, respectively. A normal year the water flow is at its highest in spring, during the snowmelt. The timing of the spring flooding varies significantly from year to year, but typically happens from late March to early May. The water flow is approximately 10-20 times higher in this period than during the lowest water flow in summer and mid-winter. Strong rainfall during summer and autumn raises the water flow significantly and the flows can for short periods of time reach the same levels as the springtime flooding.

The Nittälven river valley has been relatively spared from adverse human affects. There are no settlements or buildings at all in the river valley. The river is not exploited for dams or hydroelectric power stations. Until the late 1950´s a dam for timber floating purposes was situated at the outlet of lake Lilla Nitten. The dam has tumbled, leaving behind a mere ½ meter threshold. The mires are almost untouched by peat cutting, but the mire Salbomossen is traversed by a railway.

**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 source of the river Nittälven is the Lake Stora Nitten in the county of Dalarna. From this lake the river runs about 40 km south as it discharges into the lake Ljusnaren. The catchment of the lake Ljusnaren has an area of about 290 $km^2$. Nittälven has many tributaries. Most of them are small forest streams, but some larger ones exist too, e.g. the river Nordtjärnsälven. Some tributaries do not discharge water during dry periods of the year, whereas some flow underground.

The land in the catchment area carries clear traces from the ice age. Within the delta area of the river there are several kettle holes, and a dried out waterfall in the outlet of a large glacial lake that was formed as the inland ice melted. The ice withdrew from south to north and about 10 000 years ago the Yoldia Sea reached through the valley up to the highest shoreline (HS) via a narrow bay.

The soil types constitute of glacially deposited till, glaciofluvial deposited sediments, fluvial sediments and peat. Till is the dominating soil type in the catchment area. The dominating vegetation in the catchment area is boreal coniferous forests and wetlands, predominantly peat mires.

The general climate of the area of the Nittälven river system is characteristic for the boreal region of the Scandinavian Peninsula. The area is in general snow covered during winter. The temperature in January is on average -6 C. The average temperature in July is 15 C. The precipitation is on average 800 mm/year.

**18. Hydrological values:**

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

The catchment of the river Nittälven is almost entirely unaffected by water regulations, which is unusual for rivers of this size in the boreal region of Sweden. The prevailing natural flood regime results in large variations in water discharge between high and low flow periods. Changes in water

discharge can sometimes be very rapid and often result in flooding. This natural interaction between the water biotopes and its surrounding land areas provides good conditions for a high biological diversity, especially in the shoreline areas that regularly are affected by flooding. Since the water in this area is very poor in nutrients, the flooding of land is also important for providing nutrients for the river. There are not any investigations about in what way the river and the tributaries contribute to hydrological ecosystem services. The site will probably contribute to sedimentation in slow-flowing parts. The peatlands store and sequestrates carbon.

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**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*.

**Inland:** **L** • **M** • **N** • **O** • P • Q • R • Sp • Ss • **Tp** **Ts** • **U** • Va •
Vt • **W** • **Xf** • **Xp** • Y • Zg • Zk(b)

**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.

U, Xp, M, Tp, O, Ts, Xf, L, N, W

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**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 Nittälven area contains a wide range of representative vegetation types and habitats typical of the boreal region. The bedrock and soils are overall acidic, with only very local alkaline influence. The humidity of the area is proportionately high. The vascular plant flora is consequently characteristically species poor for all main habitats and vegetation types. The cryptogam flora on the other hand is species-rich, typical for the boreal region.

*The wetlands*
A wide variety of wetland types are represented in the Nittälven area. They are dominated by plants adapted for nutrient poor conditions and acidic soils, such as *Sphagnum spp, Carex spp, Vaccinium spp, Salix spp. and Betula nana.* Habitats in the EU Habitats Directive present at the site are Natural dystrophic lakes and ponds (3160), Transition mires and quaking bogs (7140), Aapa mires (7310), Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) (6410), Northern boreal alluvial meadows (6450), Active raised bogs (7110), Fennoscandian mineral-rich springs and springfens (7160) and Alkaline fens (7230), Fennoscandian deciduous swamp woods (9080), Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) (91E0) and Bog woodlands (91D0). Another habitat type present is the "Brushwood of wet herb type (willow)" (Påhlsson 1995, no. 2.2.5.1; Löfgren & Andersson 2000, no. 37), located on the Nittälven delta close to the lakes Salbosjön and Ljusnaren. Nittälven represents one of the habitats southernmost localities.

Most of the above mentioned wetland types are typical for the boreal region. South central Sweden and Örebro County is situated on a transition zone between northern and southern wetland types and also on a transition zone between eastern and western wetland types. This is also observed in the distribution of wetland plants, e.g. some *Sphagnum*-species, one being the western species *Sphagnum molle*. South central Sweden is therefore exceptionally rich in wetland types and wetland species representative of the boreal region (Gustafsson & Ahlén 1996, Naturvårdsverket 2007).

Mineral-rich springs, spring fens and alkaline fens are rare wetland types in the boreal region, due to an overall dominance of acidic bedrock. They are typically small in size but great contributors to the variation of habitats and species richness in the boreal forests of Scandinavia.

*The watercourses*
The river system of Nittälven has unique characteristics in its diversity of small creeks, large streams, wetlands, mires, meandering waterways and areas that are yearly flooded and re-flooded. The watercourses are largely unaffected by man. The vascular plant flora of the rivers, streams and creeks has a low diversity, which is typical of the nutrient poor, humic waters with low primary production. However, the areas relatively unaffected condition, continuation of intermixed wetland and forest habitats, variety of microhabitats, and high humidity has resulted in a high diversity of bryophyte and lichen species. Also the bird and insect faunas are rich in species.

*The forests*
The forests adjacent to watercourses and wetlands are dominated by pine and spruce, with small amounts of birch, aspen, rowan, sallow, grey alder and common alder. Deciduous trees are found especially in the seasonally/intermittently inundated forests along the rivers and streams and in forested marshes delimiting the mires. Forest habitats in the EU Habitats Directive present along the watercourses and wetlands in the area are Western taiga (9010), Fennoscandian herb-rich forests with Picea abies (9050), Coniferous forests on, or connected to glaciofluvial eskers (9060), Fennoscandian deciduous swamp woods (9080), Bog woodland (91D0), Residual alluvial forests (91E0). There is also an intermittently inundated herb-rich and conifer-dominated forest type of Norwegian spruce and Scots pine influenced by the water course. It grows on glaciofluvial and fluvial sediments (silt, sand) on the floodplain close to Nittälven.

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**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 harbours a significant amount of nationally red-listed bryophytes and lichens, among the lichens for example: *Bryoria nadvornikiana* (NT), *B. tortuosa* (NA), *Clauroxia chalybeioides* (NT), *Evernia divaricata* (VU), *Platismatia norvegica* (VU), *Ramalina thrausta* (EN) and *Usnea chaetophora* (EN) and among the bryophytes e.g. *Anastrophyllum hellerianum* (NT), *Anastrophyllum michauxii* (NT), *Harpanthus scutatus* (VU) and *Lophozia ascendens* (VU). Most of the species mentioned are dependent on the high humidity in old-growth forests which is the result of the proximity of a river or wetland. The rare lichen species *Micarea vulpinaris,* which grows only on seasonally inundated dead wood, occurs in Nittälven.

Biogeographically noteworthy are the flora elements from the south, north and west of Sweden. Northern species *Cicerbita alpina*, *Hylocomiastrum pyrenaicum*, western species *Polygonatum verticillatum*, *Dicranodontium denudatum* and *Platismatia norvegica*, and the southern *Tilia cordata* (Malmgren 1982) are all found here, on the outskirts of their respective natural range in Sweden.

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**22. Noteworthy fauna:**
Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 14. Justification for the application of the Criteria) indicating, e.g., which species/communities are unique, rare, endangered or biogeographically important, etc., including count data. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

The bird fauna is rich and representative of the wetlands of the boreal zone and contains several nationally red-listed species and species listed in the EU bird directive (marked: *). In all about 90

bird species are nesting in the area (Länsstyrelsen 1980). Ten species of birds nest along shores, e.g. grey wagtail *Motacilla cinerea*, dipper *Cinclus cinclus*, teal *Anas crecca*, goosander *Mergus merganser*, black-throated diver *Gavia arctica** and common sandpiper *Tringa hypoleucos*. The largest mire in the area is Römyren. It is the most important mire for nesting waders in the County (Sandgren 1982) with seven nesting species, e.g. greenshank *Tringa nebularia**, golden plover *Pluvialis apricaria** and curlew *Numenius arquata* (VU). Furthermore the mire harbours the largest lek (mating arena) for black grouse *Tetrao tetrix** in the county, with 60 displaying males. Other nesting birds more or less associated with the wetlands are e.g. osprey *Pandion haliaetus**, hobby *Falco subbuteo*, honey buzzard *Pernis apivorus** (VU), crane *Grus grus**, yellow wagtail *Motacilla f. flava* and its northern subspecies *M. f. thunbergi*, red-backed shrike *Lanius collurio**, ural owl *Strix uralensis**, Tengmalm´s owl *Aegolius funereus**, pygmy owl *Glaucidium passerinum**, lesser spotted woodpecker *Dendrocopos minor* (NT), grey headed woodpecker *Picus canus**, three-toed woodpecker *Picoides tridactylus** (NT), wryneck *Jynx torquilla* (NT), hazel hen *Bonasia bonasia** and nightjar *Caprimulgus europaeus** (NT). Rare guest during the nesting season are the northern bird species hawk owl *Surnia ulula**. All of the species mentioned are dependent on wetland or the ecotones between water, wetlands and forest.

The otter *Lutra lutra** (VU) is an intermittent guest in river Nittälven. A good population of beaver *Castor fiber* inhabits the lower reaches of the river.

The trout *Salmo trutta* is common in the water system. In the river Nittälven trout abundance is generally low. This is part due to the naturally nutrient poor conditions of the environment, but also because the bottom substrate in some locations is unsuitable for trout. However, in the upper reaches of the river Nittälven there are sites well suited for trout reproduction (Mossberg och Nyberg 1972, Calluna 2006) and several tributaries offer good environments for trout reproduction and growth, for example the river Nordtjärnsälven. Other fish species also encountered in the water system are pike *Esox lucius*, roach *Rutilus rutilus*, perch *Perca fluviatilis*, burbot *Lota lota*, and minnow *Phoxinus phoxinus*.

In the river Nittälven there are many benthic fauna species adapted for acidic conditions and organic loading. The river Nordtjärnsälven has a more diverse fauna than other rivers and creeks in the catchment area, and has more sensitive benthic fauna species. In the river Nittälven the waterbeetle *Normandia nitens* and the caddi *Semblis phalaenoides* (NT) have been encountered. Both species indicate significant conservation values in running water on a national scale (Artdatabanken 2006, Gärdenfors 2005, Berglind et al. 1999, Degerman et al. 1994).

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**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:

*Historical land use:*
Nittälven is situated in a very sparsely populated part of southern Sweden. The area was colonised in the late 16$^{th}$ century by Finnish immigrants. They managed the forests with slash-and-burn-cultivation. Today the traces of the Finnish immigrants are few, only local names remain. For example Niitty, the first part in Nittälven is Finnish for hay meadow. Along the river there are seasonally inundated marshes with *Carex*-vegetation, which where mowed for hay during the period 1600-1900. This was practiced along most of the river. The extent of the hay-meadows is documented on maps from the 1860´s. Only one small hay-meadow is still mowed today by a local society. The remains of the mowing are scarce today, only a few barns are preserved. When the barns lost their function for storage of hay, many of them were burnt for charcoal. Charcoal burning has been extensive and wide-spread in the forests of south central Sweden since the medieval until the First World War. The sites

of charcoal stacks are easy to find. It is a very common type of historical remains in the forest in the Nittälven area. The river has also been used for log driving during 1770-1957. So far 43 historical remains from this era have been recorded (Roslund-Forenius 2007). Mining had a minor importance in the vicinity of the Ramsar site during the period 1600-1920. A couple of areas with mine shafts and heaps of leftover rocks bear witness of this. The rivers and streams were used as power sources for the mining. The water power was also used in two mills. By the river Nordtjärnsälven the remains of an old mill can be seen.

*Historical/archaeological significance:*
According to local perception the historical remains from log driving were built as early as in the 18th century. In that case these remains are among the oldest in Sweden. Other historical land-use remains are typical of the early industrial region of Bergslagen.

*Current socio-economic values:*
Today the Nittälven area is mainly used for forestry and outdoor recreation. Canoeing in spring and early summer is the biggest recreational activity. The tourism value is high and can be further developed. The nature reserves in the area attract many visitors throughout the entire year. Moose-hunting is an important activity during late autumn and winter. Angling is most common in the summer, but to a quite limited extent.

**24. Land tenure/ownership:**

a) within the Ramsar site:

The major landowner is the joint-stock forestry company Bergvik Skog AB (owns 90% of the area). The other land-owners are the joint-stock mining company Boliden Mineral AB, the State-owned forestry company Sveaskog AB, the State through the Swedish Environmental Protection Agency (Swedish EPA) and outside the nature reserves five private owners. Within the existing nature reserves there are about 10 private landowners, with provisions concerning the management of land, forest and water.

b) in the surrounding area:

As above.

**25. Current land (including water) use:**

a) within the Ramsar site:

Forestry, moose-hunting, angling, canoeing, hiking and other similar recreational outdoor activities.

b) in the surroundings/catchment:

As above except canoeing.

**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:

Forestry using clear-cutting, fertilizing and draining by ditching pose an ongoing threat in areas where forestry practices are still unregulated. Most of the wetland-dependent species listed in this sheet would disappear from the area if the old forests surrounding the watercourses and wetlands were to be clear-cut.

b) in the surrounding area:

Besides ongoing forestry, a potential threat is leakage of metalliferous water from mining waste products from the former mines in Yxsjöberg, 1.7 kilometres northeast of the northern parts of river Nittälven. Off-road driving with motorized vehicles constitutes a growing problem. In spite of the fact that is prohibited by Swedish law.

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**27. Conservation measures taken:**
**a)** List national and/or international category and legal status of protected areas, including boundary relationships with the Ramsar site:

Along river Nittälven there are six legally protected areas/Natura 2000 sites and one additional Natura 2000 site:

Nature Reserve Nittälven
Nature Reserve Övre Nittälvsdalen (also Natura 2000: SCI, SE0240107)
Nature Reserve Brattforsen (also Natura 2000: SCI, SE0240093)
Nature Reserve Mördarheden
Nature Reserve Nittälvsbrännan (also Natura 2000: SCI, SE0240117)
Nature Reserve Kaljoxadalen (parts Natura 2000: SCI, SE0240160)
Römyren (Natura 2000: SCI, SPA, SE0240042).

**b)** If appropriate, list the IUCN (1994) protected areas category/ies which apply to the site (tick the box or boxes as appropriate):
All the above mentioned areas correspond with IUCN category Ib, except Römyren which remains to be protected.

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

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

For all of the above mentioned legally protected areas within the Ramsar site management plans have been approved and are being implemented.

**d)** Describe any other current management practices:

Where forestry still is unregulated, some negative effects on biological life of the rivers and wetlands are likely to occur. The Environmental Code 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.

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

The area still unprotected within the Nittälven Ramsar site has been proposed by the County Administrative Board of Örebro to become legally protected as a nature reserve. The County Administrative Boards´ plan is to regulate forestry practices within a wider area surrounding the rivers and wetlands, also outside the Ramsar site. The negotiation with the major land-owner has been initiated. There is also a proposal to forbid drainage at the site that will strengthen the protection for the areas that aren't protected as nature reserves yet.

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

The County Administrative Board has been surveying the benthic fauna, the fish stock and the contents of metals etc in river Nittälven since the 1960´s. Inventories covering forest habitats, birds, lichen flora and wood-inhabiting fungi have also taken place. The surveys are possible to follow up in the future. The limnic habitats were thoroughly mapped in 2006.

**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.

The nature reserves in the area have marked hiking trails, information boards, and cabins equipped for overnight stays. People planning to visit the nature reserves or canoe on the river Nittälven can gather information via the County Administrative Boards website. By the mire Römyren there is a hut (hiding-place) for bird-watching.

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

The Nittälven area is popular among outdoor and wilderness enthusiasts alike. Canoeing on Nittälven is a particularly popular activity in the spring and early summer. There are no visitor counters in the area, but the annual total is estimated to be around 10 000 people. Bird watching, hunting, angling and hiking are other important activities. The howling of the local wolf pack is the latest attraction.

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

Mainly the County Administrative Board of Örebro, the northernmost section (nature reserve Nittälven) also the County Administrative Board of Dalarna.

**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 Örebro, Stortorget 22, S-701 86 Örebro
Tel. +46 19 19 30 00. E-mail: orebro@lansstyrelsen.se (to the registry).

County Administrative Board of Dalarna, S-791 84 Falun
Tel. +46 23 810 00. E-mail: dalarna@lansstyrelsen.se (to the registry).

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

Andersson, M., 2000. Naturvärdesinventering av skogarna i Hjulsjö socken. Miljöförvaltningen, Hällefors kommun.
Artdatabanken, 2006. Internet-information on Semblis phalaenoides.
Backéus, I. (ed.), 1978. Skyddsvärda myrar i Örebro län. Länsstyrelsen i Örebro län.
Berglind, S-Å., Eliasson, C., Engblom, E. & Lingdell, P-E. 1999. Naturligt sällsynta, hotade eller förbisedda? Nattsländorna Semblis phalaenoides och S. atrata i Sverige. Ent. Tidskr. 120(1-2): 1-16.
Calluna AB, 2006. Biotopkartering av Nittälven samt förslag till utökade skyddszoner och provtagning av bottenfauna och fisk. Opublicerad rapport.

Degerman, E., Fernholm, B. och Lingdell, P-E. 1994. Bottenfauna och fisk i sjöar och vattendrag. Naturvårdsverket, rapport nr 4345.
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.
Gustafsson, L. & Ahlén, I. (ed.) 1996. Växter och djur. Sveriges Nationalatlas, SNA Förlag, Stockholm.
Gärdenfors, U. (ed.) 2010. Rödlistade arter i Sverige 2010 - The 2010 Red List of Swedish Species. Artdatabanken, SLU, Uppsala.
Hermansson, J-O., 2006. Inventering av lavar i Nittälvsområdet. Bergslagens Miljö- och byggförvaltning. Opublicerad rapport.
Länsstyrelsen, 1980. Bird census report from the Nittälven area. Unpublished material.
Länsstyrelsen, 1984. Naturvårdsöversikt Örebro län. Publ.nr: 1985:5
Länsstyrelsen, 1998. Våtmarker i Örebro län - norra delen. Publ.nr: 1998:9
Löfgren, R. & Andersson, L. 2000. Sydsvenska lövskogar och andra lövbärande marker. Naturvårdsverket, rapport nr: 5081, Stockholm.
Löfgren, R. & Henriksson, S. 2004. Skyddsvärda statliga skogar – Dalarnas, Gävleborgs och Västernorrlands län. Naturvårdsverket, Stockholm.
Löfroth, M. (ed.) 1997. Svenska naturtyper I det europeiska nätverket Natura 2000. Naturvårdsverkets förlag, Stockholm.
Malmgren, U. 1982. Västmanlands flora. SBT-förlaget, Lund
Naturvårdsverket, 2007. Myrskyddsplan för Sverige. Huvudrapport over revidering. Rapport nr: 5667, Stockholm.
Nordic Council of Ministers, 1983. Representative Types of Nature in the Nordic Countries.
Nordiska Ministerrådet (Nordic Council of Ministers), 1984. Naturgeografisk regionindelning av Norden.
Påhlsson, I., 1972. Naturvårdsinventering i Nittälvsdalen. Länsstyrelsen i Örebro län.
Påhlsson, L., 1994. Vegetationstyper i Norden. Nordic Council of Ministers, TemaNord 1994:665
Roslund-Forenius, Y., 2007. Kulturinventering av flottningslämningar vid Nittälven 2007. Länsstyrelsen i Örebro län (rapportmanuskript i Länsstyrelsens arkiv).
Sandgren, L., 1982. Fågelmyrar i Örebro län. Länsstyrelsen i Örebro län.
Store, K. 2007. Nittälven-Nordtjärnsälven – Naturvärdesinventering av skog. Länsstyrelsen i Örebro län (rapportmanuskript).
Ursberg, K., 1976a. Översiktlig naturinventering av Ljusnarsbergs kommun. Länsstyrelsen i Örebro län.
Ursberg, K., 1976b. Översiktlig naturinventering av Hällefors kommun. Länsstyrelsen i Örebro län.

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