

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:

Estonian Wetland Society
Pärnu mnt 40, Häädemeeste, 86001 Pärnumaa, Estonia
Kai Kimmel (kimmel@hot.ee)

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Designation date

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Site Reference Number

2. Date this sheet was completed/updated:

January 2012

3. Country:

Estonia

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.

LIHULA

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 is the same as an existing protected area – the Lihula Landscape Reserve.

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.

58°39'N 23°56'E

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 located in western Estonia, in Lääne and Pärnu County, 30 km southeast of Haapsalu, 50 km northwest of Pärnu.

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

12 - 16 m above sea level

11. Area: (in hectares)

6620 ha

12. General overview of the site:

Provide a short paragraph giving a summary description of the principal ecological characteristics and importance of the wetland.

Lihula mire being a characteristic example of mires of the Baltic coast bog province is a large intact mire complex with open plateau bog surrounded by open and wooded fens. The site plays significant role in the hydrological balance of the region and provides habitat for specific flora and fauna, including rare and endangered species, as well refuges for threatened animals displaced from areas modified by human 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 is a good representative of a natural mire complex characteristic of the Boreal Biogeographical region. Wetland habitats listed in Annex I of the Habitat Directive are active raised bogs (*7110), transition mires and quaking bogs (7140), bog woodland (*91D0), Fennoscandian deciduous swamp woods (*9080). The wetland complex plays a substantial hydrological, biological and ecological role in the region and it is identified both as an IBA and Natura 2000 site as well as an International level Core area in the Pan European Ecological Network.

Criterion 2

The site supports an appreciable assemblage of rare, vulnerable and endangered species of birds, some of them occurring in great numbers or densities.

It supports bird species of EU conservation interest, listed on Annex I of the Council directive 79/409/EC: Golden Eagle *Aquila chrysaetos* (1 p), Montagu's Harrier *Circus pygargus* (5-10 p), Merlin *Falco columbarius*, Hazel Hen *Bonasa bonasia*, Black Grouse *Tetrao tetrix* (>20 lekking males), Capercaillie *Tetrao urogallus* (>5 lekking males), Common Crane *Grus grus* (>10 p), Golden Plover *Pluvialis apricaria* (70-100 p), Wood Sandpiper *Tringa glareola* (50-70 p), Dunlin *Calidris alpina shinzui* (5-10 p), White-backed Woodpecker *Dendrocopos leucotos*, Barred Warbler *Sylvia nisoria* and Red-backed Shrike *Lanius collurio*.

Some of the above mentioned species are also listed in the Red Data Book of Estonia. Golden Eagle and Willow Grouse *Lagopus lagopus* are highly endangered and strongly protected (I protection category) in Estonia.

Criterion 3

The site supports particular elements of biological diversity that are rare or particularly characteristic of the Boreal biogeographic region such as untouched naturally open raised bogs and peatland

forests, which contain a significant proportion of species (e.g. *Sphagnum* mosses) adapted to special environmental conditions of oligotrophic peatland environment.

The site is also of special value for maintaining the genetic and ecological diversity of the region as it is an important breeding place for a number of bird species (see justification of criterion 4).

The site supports populations of large mammals including Wolf *Canis lupus*, Lynx *Lynx lynx*, Brown Bear *Ursus arctos* and Elk *Alces alces*.

Criterion 4

The Lihula Mire is one of the most important breeding places in Estonia for Montagu's Harrier *Circus pygargus*, Golden Plover *Pluvialis apricaria*, Black-tailed Godwit *Limosa limosa*, Wood Sandpiper *Tringa glareola*, and Whimbrel *Numenius phaeopus*.

The site supports animal species at a critical stage in their life cycles: as key staging points (to eat and rest) for migrating cranes, geese (*Anser fabalis*, *A. albifrons*) and Ruff *Philomachus pugnax*, as well as refuge for large mammals (wolf, lynx). See also point 22.

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:

A: Boreal Biogeographic region according to the EEA

B: terrestrial area Sarmatic mixed forests
freshwater area Southern Baltic Lowlands temperate floodplain rivers and wetlands

b) biogeographic regionalisation scheme (include reference citation):

A: EEA, European Environment Agency, http://www.eea.europa.eu/publications/report_2002_0524_154909

B: Olson, D. M., E. Dinerstein, E.D. Wikramanayake, N.D. Burgess, G.V.N. Powell, E.C. Underwood, J.A. D'amico, I. Itoua, H.E. Strand, J.C. Morrison, C.J. Loucks, T.F. Allnutt, T.H. Ricketts, Y. Kura, J.F. Lamoreux, W.W. Wettengel, P. Hedao, & K.R. Kassem. 2001. Terrestrial Ecoregions of the World: A New Map of Life on Earth. - *BioScience* 51:933-938.

Abell, R., Thieme, M. L., Revenga, C., Bryer, M., Kottelat, M., Bogutskaya, N., Coad, B., Mandrak, N., Contreras Balderas, S., Bussing, W., Stiassny, M., Skelton, P., Allen, G., Unmack, P., Naseka, A., Ng, R., Sindorf, N., Robertson, J., Armijo, E., Higgins, J., Heibel, T.J., Wikramanayake, E., Olson, D., Lopez, H. L., Reis, R. E., Lundberg, J.G., Sabaj Perez, M.H., Petry P., 2008, Freshwater Ecoregions of the World: A New Map of Biogeographic Units for Freshwater Biodiversity Conservation. - *BioScience* 58: 403-414.

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 wetland site is situated in the West-Estonian lowland. Sands and moraine sediments are overlain by peat layer. The depth of bog's peat layer reaches up to 5 – 6 m in western part of the mire, eastern part of the mire is covered by fen peat.

Average temperatures range from -5°C to a high of +17°C in July. The average rainfall is 745 mm and evaporation is 450 mm.

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 is approximately 3500 sq km (3210 sq km that of the River Kasari).

The bedrock is formed by Silurian and Ordovician limestones. The relief is mainly flat, enlivened by coastal formations, basement escarpments and river valleys. Loamy till and fluviolacustrine (laminated clay) plains dominate. There are also alvar areas with very thin Quaternary cover and peatlands. The soils are mainly Fluvisols, Gleysols and Clayey Gleysols, Eutric Histosols (fen areas) and Dystric Histosols (transition mires and bogs).

The climate is characterized by mean February temperature of - 5⁰ C and mean July temperature of 17⁰ C. The average rainfall is 700 mm, the number of days with snow cover 100-105.

Agricultural landscapes and several bigger and smaller villages are characteristic.

18. Hydrological values:

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

Lihula mire plays an important role in the recharge and discharge of groundwater, and maintenance of water quality in Kasari floodplain in nearby Matsalu Ramsar site.

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: Xp U, Xf, W, Tp, 9

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 western part of the mire system is an open bog with hummock-hollow complexes. Pine bog with dwarf shrubs occurs on the edges of bog massif. There are also extensive transitional mesotrophic wooded swamp areas in eastern part of the area. Open fens representative for Western-Estonia occur in southern part of the mire.

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 plant communities of mires are typical for West-Estonian bogs (Baltic Coast Bog Province). The moss layer consist mainly of *Spagnum fuscum*, *S. rubellum*, *S. balticum*, *S. magellanicum*. Dwarf shrub layer consists mainly *Calluna vulgaris*, *Andromeda polifolia*, *Empetrum nigrum*, *Oxycoccus palustris*, *Ledum palustre*, *Betula nana*. In the grass layer *Eriophorum vaginatum*, *Trichosporum caespitosum*, *Rhynchospora alba*, *Drosera anglica* and *D. rotundifolia* are common

Of rare and protected species Lady's Slipper *Cypripedium calceolus* (Annex II, Habitats Directive) is present.

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.*

Amongst a rich assemblage of breeding wetland birds found at the site are Black-tailed Godwit *Limosa limosa* (30-50 p), Curlew *Numenius arquata* (4-5 p), Whimbrel *Numenius phaeopus* (30-40 p), Lapwing *Vanellus vanellus* (50-70 p) and Redshank *Tringa totanus* (30-50 p).

Endangered and strongly protected (I category) birds include Willow Grouse *Lagopus lagopus*.

Lihula mire is very important as a resting station for wetland birds that breed further north (*Philomachus pugnax*, *Anser fabalis*, *A. albifrons*).

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:

Lihula Mire area is important for the traditional berry-picking (*Oxycoccus palustris* and *Rubus chamaemorus*) and small-scale hunting.

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: mainly state land with only small patches of private ownership

b) in the surrounding area: mainly private land

25. Current land (including water) use:

a) within the Ramsar site: For local people, the site is important for gathering cranberries, cowberries and mushrooms

b) in the surroundings/catchment: Forestry intensity in surroundings is increased as well hunting pressure on the border areas of the nature reserve. Traditional low intensive agricultural use of land is decreased during recent decade and part of former agricultural land is abandoned.

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 intensification of forestry, effect of existing drainage of surrounding areas, abandonment of semi-natural meadows;
- b) in the surrounding area: The surrounding areas require moderate agricultural activity to maintain suitable feeding habitats for birds and large mammals. Increasing frequency of visits to the wetland, illegal and unsustainable hunting in surroundings, increasing forestry activities close to the protected area, abandonment of agricultural land (important as feeding place for staging geese and cranes).

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.

Lihula Landscape Reserve was established in 1998. The boundary of the protected area coincides the boundary of the Ramsar site.

The wetland is identified as part of an IBA (Tuhu-Kesu) and Natura 2000 site (SCI, with the same boundaries and part of SPA Tuhu-Kesu) as well as an International level Core area in the Pan European Ecological Network.

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?:

The management plan has been drafted and will be approved in 2012.

d) Describe any other current management practices:

28. Conservation measures proposed but not yet implemented:

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

29. Current scientific research and facilities:

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

In 1990 the peat deposit of the Lihula mire was studied by Estonian Geological Survey. Present research activities focus on the breeding bird censuses as the site is included into the list of state monitoring stations for mire birds.

Research facilities and accommodation are located in nearby Matsalu National Park.

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 very good excursions facilities and environmental education opportunities in nearby Matsalu National Park. There are plans to develop a bog nature trail in northern edge of the Lihula mire.

Since 2009 the visiting management is the responsibility of the State Forest Management Centre.

31. Current recreation and tourism:

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

There are no facilities (nature trails) for tourists at moment in Lihula site.

32. Jurisdiction:

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

Territorial: Lihula Parish of Lääne County and Koonga Parish of Pärnu County.

Functional: Environmental Board under the Ministry of Environment (Narva mnt 7a, 15172 Tallinn, ESTONIA)

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.

Environmental Board, Hiiu-Lääne-Saare Region. Penijõe, 90305, Lihula Parish, Estonia.

Ms Kaja Lotman, director of the Hiiu-Lääne-Saare Region of Environmental Board, kaja.lotman@keskkonnaamet.ee, phone: +372 472 4223

34. Bibliographical references:

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

Kalamees, A. (ed.) 2000. Important Bird Areas in Estonia. – Eesti Loodusfoto, Tartu, 114 pp.

Leivits, A., Klein, A., Kuus, A., Soppe, A., Vilbaste, E. 1999. The breeding bird fauna of Lihula bog and Kiive fen in 1998. – *Linnurada* 1999, 1: 21-25.

Lõhmus, A., Kalamees, A., Kuus, A., Kuresoo, A., Leito, A., Leivits, A., Luigujõe, L., Ojaste, I., Volke, V. 2001. Bird species of conservation concern in the Estonian protected areas and important bird areas. *Hirundo Supplementum* 4: 37-167.

Orru, M. 1995. Estonian mires. Eesti Geoloogiakeskus, Tallinn, 240 pp (in Estonian).

Please return to: **Ramsar Convention Secretariat, Rue Mauverney 28, CH-1196 Gland, Switzerland**

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