



Ramsar Information Sheet

Published on 13 July 2020

Update version, previously published on : 1 January 2012

Estonia

Lihula



Designation date	27 January 2010
Site number	1997
Coordinates	58°39'34"N 23°56'33"E
Area	6 620,00 ha

Color codes

Fields back-shaded in light blue relate to data and information required only for RIS updates.

Note that some fields concerning aspects of Part 3, the Ecological Character Description of the RIS (tinted in purple), are not expected to be completed as part of a standard RIS, but are included for completeness so as to provide the requested consistency between the RIS and the format of a 'full' Ecological Character Description, as adopted in Resolution X.15 (2008). If a Contracting Party does have information available that is relevant to these fields (for example from a national format Ecological Character Description) it may, if it wishes to, include information in these additional fields.

1 - Summary

Summary

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.

2 - Data & location

2.1 - Formal data

2.1.1 - Name and address of the compiler of this RIS

Compiler 1

Name	Kai Kimmel
Institution/agency	Estonian Wetland Society
Postal address	Suurküla21, Häädemeeste, 86001 Pärnumaa, Estonia
E-mail	kkimmel@hotmail.ee
Phone	+3725289685

Compiler 2

Name	Marika Kose
Institution/agency	Estonian Wetland Society
Postal address	Suurküla21, Häädemeeste, 86001 Pärnumaa, Estonia
E-mail	marika.kose@mail.ee
Phone	+37256561373

2.1.2 - Period of collection of data and information used to compile the RIS

From year	2012
To year	2019

2.1.3 - Name of the Ramsar Site

Official name (in English, French or Spanish)	Lihula
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2.1.4 - Changes to the boundaries and area of the Site since its designation or earlier update

(Update) A. Changes to Site boundary	Yes <input checked="" type="radio"/> No <input type="radio"/>
(Update) The boundary has been delineated more accurately	<input checked="" type="checkbox"/>
(Update) The boundary has been extended	<input type="checkbox"/>
(Update) The boundary has been restricted	<input type="checkbox"/>
(Update) B. Changes to Site area	No change to area

2.1.5 - Changes to the ecological character of the Site

(Update) 6b i. Has the ecological character of the Ramsar Site (including applicable Criteria) changed since the previous RIS?	No
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2.2 - Site location

2.2.1 - Defining the Site boundaries

b) Digital map/image
<1 file(s) uploaded>

Former maps	0
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Boundaries description

The boundary is the same as an existing protected area – the Lihula Landscape Reserve.
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2.2.2 - General location

a) In which large administrative region does the site lie?	Lääne and Pärnu County
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b) What is the nearest town or population centre?

2.2.3 - For wetlands on national boundaries only

a) Does the wetland extend onto the territory of one or more other countries? Yes No

b) Is the site adjacent to another designated Ramsar Site on the territory of another Contracting Party? Yes No

2.2.4 - Area of the Site

Official area, in hectares (ha):

Area, in hectares (ha) as calculated from GIS boundaries

2.2.5 - Biogeography

Biogeographic regions

Regionalisation scheme(s)	Biogeographic region
Marine Ecoregions of the World (MEOW)	2. terrestrial area Sarmatic mixed forests freshwater area Southern Baltic Lowlands temperate floodplain rivers and wetlands
EU biogeographic regionalization	1. Boreal

Other biogeographic regionalisation scheme

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

2: 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.

3 - Why is the Site important?

3.1 - Ramsar Criteria and their justification

- Criterion 1: Representative, rare or unique natural or near-natural wetland types

Hydrological services provided

The Lihula Ramsar site is significant for its landscapes, still in natural state. The Lihula Bog is a good representative of well preserved wetland. It is a young bog, typical to Western Estonia. It initiated about 5000–6000 years ago replacing a shallow coastal lagoon, after the retreat of the Ancylus Lake. The peat deposit is about 5-6 metres. The bog has been saved from major human activities, only in the beginning of 29th Century some ditches were dug by hand in bog margins, however, the bog has retained its original shape and hydrology. Lihula bog is also a starting point of several watercourses: the rivers Penijõgi, Rootsi jõgi ja Riisa oja or Kujjõgi rivers start from there. The bog is also an important water reservoir for local population, as most of the drinking water of Lihula town originates from Lihula bog.

Other reasons

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 : Rare species and threatened ecological communities

- Criterion 3 : Biological diversity

Justification

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 : Support during critical life cycle stage or in adverse conditions

3.2 - Plant species whose presence relates to the international importance of the site

Scientific name	Common name	Criterion 2	Criterion 3	Criterion 4	IUCN Red List	GTES Appendix I	Other status	Justification
<i>Cypripedium calceolus</i>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	LC	<input type="checkbox"/>	EU Habitat Directive, Annex II	
<i>Gymnadenia odoratissima</i>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	LC	<input type="checkbox"/>	WJ in Estonian Red list	Criterion 2: supporting the species, EN in Estonia

3.3 - Animal species whose presence relates to the international importance of the site

Phylum	Scientific name	Common name	Species qualifies under criterion				Species contributes under criterion				Pop. Size	Period of pop. Est.	% occurrence ¹⁾	IUCN Red List	CITES Appendix I	CMS Appendix I	Other Status	Justification
			2	4	6	9	3	5	7	8								
Birds																		
CHORDATA / AVES	<i>Aquila chrysaetos</i>	Golden Eagle	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1	2016		LC	<input type="checkbox"/>	<input type="checkbox"/>	Annex I of the Council directive 79/409/EC; highly endangered and strongly protected (I protection category) in Estonia.	1 p
CHORDATA / AVES	<i>Circus pygargus</i>	Montagu's Harrier	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8	2016		LC	<input type="checkbox"/>	<input type="checkbox"/>	Annex I of the Council directive 79/409/EC	(3-5 p) Criterion 4: Lihula Mre is one of the most important breeding places in Estonia for this species.
CHORDATA / AVES	<i>Grus grus</i>	Common Crane	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9	2016		LC	<input type="checkbox"/>	<input type="checkbox"/>	Annex I of the Council directive 79/409/EC	(<10 p)
CHORDATA / AVES	<i>Limosa limosa</i>	Black-tailed Godwit	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	87	2016		NT	<input type="checkbox"/>	<input type="checkbox"/>	In IUCN Red List, VU in Europe	87 breeding pairs, Mre is one of the most important breeding places in Estonia for this species.
CHORDATA / AVES	<i>Lyrurus tetrix</i>	Eurasian Black Grouse; Black Grouse	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	33	2016		LC	<input type="checkbox"/>	<input type="checkbox"/>	Annex I of the Council directive 79/409/EC	33> lekking males
CHORDATA / AVES	<i>Philomachus pugnax</i>	Ruff	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5	2016		LC	<input type="checkbox"/>	<input type="checkbox"/>		Criterion 4: The site supports animal species at a critical stage in their life cycles: as key staging points (to eat and rest)5 individuals for this migrating species.
CHORDATA / AVES	<i>Pluvialis apricaria</i>	European Golden Plover; European Golden-Plover	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	115	2016		LC	<input type="checkbox"/>	<input type="checkbox"/>	Annex I of the Council directive 79/409/EC	(100-120 p) Criterion 4: Lihula Mre is one of the most important breeding places in Estonia for this species.
CHORDATA / AVES	<i>Sylvia nisoria</i>	Barred Warbler	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1	2016		LC	<input type="checkbox"/>	<input type="checkbox"/>	Annex I of the Council directive 79/409/EC	1 breeding pair
CHORDATA / AVES	<i>Tringa glareola</i>	Wood Sandpiper	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	52	2016		LC	<input type="checkbox"/>	<input type="checkbox"/>	Annex I of the Council directive 79/409/EC	50-60 p Criterion 4: Lihula Mre is one of the most important breeding places in Estonia for this species.
CHORDATA / AVES	<i>Vanellus vanellus</i>	Northern Lapwing	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	147	2916		NT	<input type="checkbox"/>	<input type="checkbox"/>	In IUCN Red List, VU in Europe	140-160 bp. breeding pairs, Mre is important breeding places in Estonia for this species.
Others																		
CHORDATA / MAMMALIA	<i>Alces alces</i>	moose	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>		
CHORDATA / MAMMALIA	<i>Canis lupus</i>	Wolf	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input checked="" type="checkbox"/>	<input type="checkbox"/>		Criterion 4: refuge for large mammals
CHORDATA / MAMMALIA	<i>Lynx lynx</i>	Eurasian Lynx	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>		Criterion 4: refuge for large mammals
CHORDATA / MAMMALIA	<i>Ursus arctos</i>	Brown Bear; Grizzly Bear	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input checked="" type="checkbox"/>	<input type="checkbox"/>		

1) Percentage of the total biogeographic population at the site

3.4 - Ecological communities whose presence relates to the international importance of the site

Name of ecological community	Community qualifies under Criterion 2?	Description	Justification
Nordic alvar and precambrian calcareous flatrocks 6280*	<input checked="" type="checkbox"/>		Annex I EU Habitats Directive
Natural dystrophic lakes and ponds 3160	<input checked="" type="checkbox"/>		Annex I EU Habitats Directive
Fennoscandian wooded meadows 6530*	<input checked="" type="checkbox"/>		Annex I EU Habitats Directive
Lowland hay meadows (<i>Alopecurus pratensis</i> , <i>Sanguisorba officinalis</i>) 6510	<input checked="" type="checkbox"/>		Annex I EU Habitats Directive
Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels 6430	<input checked="" type="checkbox"/>		Annex I EU Habitats Directive
Molinia meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinia caerulea</i>) 6410	<input checked="" type="checkbox"/>		Annex I EU Habitats Directive
Active raised bogs 7110*	<input checked="" type="checkbox"/>		Annex I EU Habitats Directive
Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i>) 91E0*	<input checked="" type="checkbox"/>		Annex I EU Habitats Directive
Bog woodland 91D0*	<input checked="" type="checkbox"/>		Annex I EU Habitats Directive
Fennoscandian deciduous swamp woods 9080*	<input checked="" type="checkbox"/>		Annex I EU Habitats Directive
Fennoscandian hemiboreal natural old broad-leaved deciduous forests (<i>Quercus</i> , <i>Tilia</i> , <i>Acer</i> , <i>Fraxinus</i> or <i>Ulmus</i>) 9020*	<input checked="" type="checkbox"/>		Annex I EU Habitats Directive
Western taiga 9010*	<input checked="" type="checkbox"/>		Annex I EU Habitats Directive
Alkaline fens 7230	<input checked="" type="checkbox"/>		Annex I EU Habitats Directive
Calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davallianae</i> 7210*	<input checked="" type="checkbox"/>		Annex I EU Habitats Directive
Transition mires and quaking bogs 7140	<input checked="" type="checkbox"/>		Annex I EU Habitats Directive

4 - What is the Site like? (Ecological character description)

4.1 - Ecological character

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.

4.2 - What wetland type(s) are in the site?

Inland wetlands

Wetland types (code and name)	Local name	Ranking of extent (1: greatest - 4: least)	Area (ha) of wetland type	Justification of Criterion 1
Fresh water > Lakes and pools >> Tp: Permanent freshwater marshes/pools		4	0.9974	
Fresh water > Marshes on peat soils >> U: Permanent Non-forested peatlands		1	3506.022	Representative
Fresh water > Marshes on inorganic soils >> W: Shrub-dominated wetlands		3	97.2388	Representative
Fresh water > Marshes on inorganic soils >> Xf: Freshwater, tree-dominated wetlands		3	139.1628	Representative
Fresh water > Marshes on peat soils >> Xp: Permanent Forested peatlands		2	1680.009	Representative

Human-made wetlands

Wetland types (code and name)	Local name	Ranking of extent (1: greatest - 4: least)	Area (ha) of wetland type	Justification of Criterion 1
9: Canals and drainage channels or ditches		4	0.9765	

4.3 - Biological components

4.3.1 - Plant species

Other noteworthy plant species

Scientific name	Common name	Position in range / endemism / other
<i>Andromeda polifolia</i>		
<i>Betula nana</i>		
<i>Calluna vulgaris</i>		
<i>Dactylorhiza maculata</i>		
<i>Dactylorhiza russowii</i>		
<i>Drosera anglica</i>		
<i>Drosera rotundifolia</i>		
<i>Empetrum nigrum</i>		
<i>Epipactis palustris</i>		
<i>Eriophorum vaginatum</i>		
<i>Liparis loeselii</i>		
<i>Ophrys insectifera</i>		
<i>Pedicularis sceptrum-carolinum</i>		
<i>Rhynchospora alba</i>		
<i>Saussurea esthonica</i>		
<i>Sphagnum balticum</i>		
<i>Sphagnum fuscum</i>		
<i>Sphagnum magellanicum</i>		
<i>Sphagnum rubellum</i>		
<i>Vaccinium oxycoccos</i>		

4.3.2 - Animal species

Other noteworthy animal species

Phylum	Scientific name	Common name	Pop. size	Period of pop. est.	%occurrence	Position in range / endemism/other
CHORDATA/AVES	<i>Tringa totanus</i>	Common Redshank	50	2016		30-50 p
CHORDATA/AVES	<i>Numenius phaeopus</i>	Whimbrel	29	2016		

Optional text box to provide further information

The area also supports populations of *Dendrocopus leucotus*, *Lanius collurio*, *Lagopus lagopus*, *Falco columbianus* and *Tetrastes bonasia*.

4.4 - Physical components

4.4.1 - Climate

Climatic region	Subregion
D: Moist Mid-Latitude climate with cold winters	Dfb: Humid continental (Humid with severe winter, no dry season, warm summer)

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

4.4.2 - Geomorphic setting

a) Minimum elevation above sea level (in metres)

a) Maximum elevation above sea level (in metres)

- Entire river basin
- Upper part of river basin
- Middle part of river basin
- Lower part of river basin
- More than one river basin
- Not in river basin
- Coastal

Please name the river basin or basins. If the site lies in a sub-basin, please also name the larger river basin. For a coastal/marine site, please name the sea or ocean.

River Kasari

4.4.3 - Soil

Organic

(Update) Changes at RIS update No change Increase Decrease Unknown

No available information

Are soil types subject to change as a result of changing hydrological conditions (e.g., increased salinity or acidification)? Yes No

Please provide further information on the soil (optional)

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.

4.4.4 - Water regime

Water permanence

Presence?	Changes at RIS update
Usually permanent water present	

Source of water that maintains character of the site

Presence?	Predominant water source	Changes at RIS update
Water inputs from groundwater	<input type="checkbox"/>	No change
Water inputs from rainfall / snowfall	<input checked="" type="checkbox"/>	No change
Water inputs from surface water	<input type="checkbox"/>	No change

Water destination

Presence?	Changes at RIS update
Feeds groundwater	No change

Stability of water regime

Presence?	Changes at RIS update
Water levels largely stable	No change

Please add any comments on the water regime and its determinants (if relevant). Use this box to explain sites with complex hydrology.

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.

4.4.5 - Sediment regime

Sediment regime unknown

4.4.6 - Water pH

Acid (pH<5.5)

(Update) Changes at RIS update No change Increase Decrease Unknown

Circumneutral (pH: 5.5-7.4)

(Update) Changes at RIS update No change Increase Decrease Unknown

Unknown

Please provide further information on pH (optional):

pH in raised bogs is lower than 5,5. Other pH is neutral.

4.4.7 - Water salinity

Unknown

4.4.8 - Dissolved or suspended nutrients in water

Oligotrophic

(Update) Changes at RIS update No change Increase Decrease Unknown

Unknown

4.4.9 - Features of the surrounding area which may affect the Site

Please describe whether, and if so how, the landscape and ecological characteristics in the area surrounding the Ramsar Site differ from the i) broadly similar ii) significantly different site itself:

Surrounding area has greater urbanisation or development

Surrounding area has higher human population density

Surrounding area has more intensive agricultural use

Surrounding area has significantly different land cover or habitat types

Please describe other ways in which the surrounding area is different:

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.

4.5 - Ecosystem services

4.5.1 - Ecosystem services/benefits

Provisioning Services

Ecosystem service	Examples	Importance/Extent/Significance
Food for humans	Sustenance for humans (e.g., fish, molluscs, grains)	Medium

Regulating Services

Ecosystem service	Examples	Importance/Extent/Significance
Maintenance of hydrological regimes	Groundwater recharge and discharge	High
Pollution control and detoxification	Water purification/waste treatment or dilution	Medium
Climate regulation	Regulation of greenhouse gases, temperature, precipitation and other climatic processes	High
Hazard reduction	Flood control, flood storage	Medium

Cultural Services

Ecosystem service	Examples	Importance/Extent/Significance
Recreation and tourism	Recreational hunting and fishing	Low
Spiritual and inspirational	Cultural heritage (historical and archaeological)	Medium
Scientific and educational	Important knowledge systems, importance for research (scientific reference area or site)	Medium
Scientific and educational	Long-term monitoring site	Medium

Supporting Services

Ecosystem service	Examples	Importance/Extent/Significance
Biodiversity	Supports a variety of all life forms including plants, animals and microorganisms, the genes they contain, and the ecosystems of which they form a part	High
Soil formation	Accumulation of organic matter	High
Nutrient cycling	Carbon storage/sequestration	High
Pollination	Support for pollinators	Medium

Other ecosystem service(s) not included above:

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.

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

For local people, the site is important for gathering cranberries, cowberries and mushrooms

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.

Within the site: 100

Outside the site: about 10 000

Have studies or assessments been made of the economic valuation of ecosystem services provided by this Ramsar Site? Yes No Unknown

4.5.2 - Social and cultural values

i) the site provides 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) the site has exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland

iii) the ecological character of the wetland depends on its interaction with local communities or indigenous peoples

iv) 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

<no data available>

4.6 - Ecological processes

<no data available>

5 - How is the Site managed? (Conservation and management)

5.1 - Land tenure and responsibilities (Managers)

5.1.1 - Land tenure/ownership

Public ownership

Category	Within the Ramsar Site	In the surrounding area
National/Federal government	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Private ownership

Category	Within the Ramsar Site	In the surrounding area
Other types of private/individual owner(s)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Provide further information on the land tenure / ownership regime (optional):

within the Ramsar site: mainly state land with only small patches of private ownership

in the surrounding area: mainly private land

5.1.2 - Management authority

Please list the local office / offices of any agency or organization responsible for managing the site:

Environmental Board, Western Region

Provide the name and title of the person or people with responsibility for the wetland:

Mr Sulev Vare, director of Western Region of Environmental Board

Postal address:

Roheline 64, 80010, Pärnu, Estonia

E-mail address:

sulev.vare@keskkonnaamet.ee

5.2 - Ecological character threats and responses (Management)

5.2.1 - Factors (actual or likely) adversely affecting the Site's ecological character

Water regulation

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Drainage	Medium impact	Medium impact	<input checked="" type="checkbox"/>	No change	<input type="checkbox"/>	No change

Biological resource use

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Hunting and collecting terrestrial animals	Medium impact	Medium impact	<input type="checkbox"/>	No change	<input checked="" type="checkbox"/>	No change
Unspecified	Medium impact	Medium impact	<input type="checkbox"/>	No change	<input checked="" type="checkbox"/>	No change
Logging and wood harvesting	Medium impact	Medium impact	<input checked="" type="checkbox"/>	No change	<input checked="" type="checkbox"/>	increase

Please describe any other threats (optional):

within the Ramsar site: the intensification of forestry, effect of existing drainage of surrounding areas, abandonment of semi-natural meadows;

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).

5.2.2 - Legal conservation status

Regional (international) legal designations

Designation type	Name of area	Online information url	Overlap with Ramsar Site
EU Natura 2000	Tuhu-Kesu		partly

National legal designations

Designation type	Name of area	Online information url	Overlap with Ramsar Site
Landscape Reserve	Lihula		whole

Non-statutory designations

Designation type	Name of area	Online information url	Overlap with Ramsar Site
Important Bird Area	Tuhu-Kesu		partly

5.2.3 - IUCN protected areas categories (2008)

- Ia Strict Nature Reserve
- Ib Wilderness Area: protected area managed mainly for wilderness protection
- II National Park: protected area managed mainly for ecosystem protection and recreation
- III Natural Monument: protected area managed mainly for conservation of specific natural features
- IV Habitat/Species Management Area: protected area managed mainly for conservation through management intervention
- V Protected Landscape/Seascape: protected area managed mainly for landscape/seascape conservation and recreation
- VI Managed Resource Protected Area: protected area managed mainly for the sustainable use of natural ecosystems

5.2.4 - Key conservation measures

Legal protection

Measures	Status
Legal protection	Implemented

5.2.5 - Management planning

Is there a site-specific management plan for the site? Yes

Has a management effectiveness assessment been undertaken for the site? Yes No

If the site is a formal transboundary site as indicated in section Data and location > Site location, are there shared management planning processes with another Contracting Party? Yes No

Please indicate if a Ramsar centre, other educational or visitor facility, or an educational or visitor programme is associated with the site:

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.

5.2.6 - Planning for restoration

Is there a site-specific restoration plan? No need identified

5.2.7 - Monitoring implemented or proposed

Monitoring	Status
Birds	Implemented

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.

6 - Additional material

6.1 - Additional reports and documents

6.1.1 - Bibliographical references

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

6.1.2 - Additional reports and documents

i. taxonomic lists of plant and animal species occurring in the site (see section 4.3)

<no file available>

ii. a detailed Ecological Character Description (ECD) (in a national format)

<no file available>

iii. a description of the site in a national or regional wetland inventory

<no file available>

iv. relevant Article 3.2 reports

<no file available>

v. site management plan

<1 file(s) uploaded>

vi. other published literature

<no file available>

6.1.3 - Photograph(s) of the Site

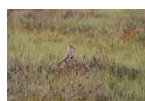
Please provide at least one photograph of the site:



Lihula Bog (Agu Leivits, Estonian Wetland Society, 2018)



Lihula Bog, pools and hollows (Agu Leivits, Estonian Wetland Society, 2018)



Lihula Bog, Pluvialis apricaria (Agu Leivits, Estonian Wetland Society, 2018)

6.1.4 - Designation letter and related data

Designation letter

<1 file(s) uploaded>

Date of Designation 2010-01-27