

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 (kkimmel@hotmail.ee)

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Designation date

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Site Reference Number

2. Date this sheet was completed/updated:

20 February 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.

Muraka

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 (Muraka Nature 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.

59°08'N 27°06'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 north-eastern Estonia, Ida-Viru County, 30 km southwest of the town Kohtla-Järve

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

51 - 57 m

11. Area: (in hectares)

13 980 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.

Large complex of three bogs together with fens and transition bogs and old-growth forests. Important as one of the few surviving extensive wilderness areas in north-eastern Estonia, the main industrial and most polluted part of the country. The species diversity is one of the highest of mires in Estonia.

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 natural mosaic wetland complex comprised by non-forested peatlands (bogs and fens), forested peatlands (peatswamp forests) and paludifying forests characteristic of the Boreal Biogeographical region. The site supports primeval forests (mainly boreal, sandy heath and bog types). It is one of the few extensive wilderness areas still preserved in north-east Estonia.

Wetland habitats occurring in Muraka Nature Reserve and listed in Annex I Habitat Directive are active raised bogs (*7110), transition mires and quaking bogs (7140), bog woodland (*91D0), Fennoscandian deciduous swamp woods (*9080), northern boreal alluvial meadows (6450), lakes (Hard oligo-mesotrophic waters with benthic vegetation of *Chara* spp. - 3140, Natural dystrophic lakes and ponds - 3160), rivers and streams (Water courses of plain to montane levels with the *Ranunculum fluitans* and *Callitriche-Batrachion* vegetation - 3260) and alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (91E0). 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.

Criterion 2

The site supports a big number of vulnerable and endangered species of EU and national conservation interest.

It supports following bird species listed on Annex I of Council directive 2009/147 EEC: Whooper Swan *Cygnus cygnus*, Marsh Harrier *Circus aeruginosus*, Hen harrier *Circus cyaneus*, Montagu's Harrier *Circus pygargus*, Golden eagle *Aquila chrysaetos*, Lesser-spotted Eagle *Aquila pomarina*, Peregrine Falcon *Falco peregrinus*, Hazel Hen *Bonasa bonasia*, Capercaillie *Tetrao urogallus*, Black Grouse *Tetrao tetrix*, Common Crane *Grus grus*, Corncrake *Crex crex*, European Golden Plover *Pluvialis apricaria*, Wood Sandpiper *Tringa glareola*, Eagle Owl *Bubo bubo*, Ural Owl *Strix uralensis*, Nightjar *Caprimulgus europaeus*, Grey-headed Woodpecker *Picus canus*, Black Woodpecker *Dryocopus martius*, White-backed Woodpecker *Dendrocopos leucotos*, Tree-toed Woodpecker *Picoides tridactylus*, Red-breasted Flycatcher *Ficedula parva* and Red-backed Shrike *Lanius collurio*.

Golden eagle, Lesser-spotted Eagle, Peregrine Falcon and Eagle Owl are strongly protected in Estonia (I category), also as Willow grouse *Lagopus lagopus*, Flying Squirrel *Pteromys volans* and Ghost Orchid *Epipogium aphyllum*.

See also justification of criterion 3 and points 21 and 22.

Criterion 3

The site supports populations of plant and animal species important for maintaining the biological diversity of the Boreal Biogeographical Region.

Plants: Yellow rockfoil *Saxifraga hirculus* (Annex II of EU Habitats Directive), European Bittercress *Cardamine bulbifera*, Small Enhancer's Nightshade *Circaea alpina*, Few-flowered Sedge *Carex pauciflora*, *Sphagnum* spp.

Birds: Jack Snipe *Lymnocyptes minimus* (one of the few breeding places in Estonia), Peregrine Falcon *Falco peregrinus* (one of the few places in Estonia where regularly seen), Whimbrel *Numenius phaeopus*, European Golden Plover *Pluvialis apricaria*, Greenshank *Tringa nebularia*, Wood Sandpiper *Tringa glareola*, Capercaillie *Tetrao urogallus*, etc.

Mammals: Flying Squirrel *Pteromys volans* (Annexes II and IV of EU Habitats Directive), Brown Bear *Ursus arctos*, Wolf *Canis lupus*, Lynx *Lynx Lynx*, Otter *Lutra lutra* (Annexes II and IV of EU Habitats Directive), Beaver *Castor fiber*.

Criterion 4

The site supports animal species at a critical stage in their life cycles. It is an important breeding area for Ruff *Philomachus pugnax* and Eurasian Eagle-owl *Bubo bubo*, and extremely important habitat for rare and endangered Flying Squirrel *Pteromys volans* (the species strongly protected in Estonia).

It is a refuge for animals with large habitat requirements, especially Wolf *Canis lupus* and Brown Bear *Ursus arctos*.

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. Wetzel, 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 site is of natural origin. Ordovician limestone bedrock is covered by moraine alluvial and lake sediments, and by peat deposition (min. 1-2 m, in average 5-7 m). Lower parts of the bogs are partly overflowed in April and in October-November. Mean annual precipitation 650 mm (of these, 3/4 during warm period). One relict lake (dystrophic, 30 ha); bog-pools (depth 1-3m) cover 10-40% of bog areas. Some temporary streams between different parts of bogs. Water originates mostly from precipitation.

Mean annual precipitation is 690 mm, permanent snow cover lasts in average 122 days. Mean July temperature is 16 C, mean January temperature is -7 C.

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 Muraka mire system is situated in the watershed of the Tagajõe, Pungerja and Ojamaa Rivers being a part of paludified inland lowland, the Alutaguse Lowland in the northern part of the Peipsi Basin. Watertight sediments and numerous terminal moraine and coastal formations have hindered the outflow of water and contributed paludification process. The region belongs to the East Baltic Geobotanical Subprovince and is referred to the regions of raised bogs and wetland forests. Pine forests on sandy and loamy Gleysols and bogs are most widespread. The region is used for forestry, small-scale agriculture and oil-shale mining.

Climate is transitional from sub-maritime to sub-continental type, with more continental features (relatively high parameters of rainfall and snowcover).

18. Hydrological values:

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

The site plays important role in the recharge and discharge of groundwater and maintenance of water quality. Together with surrounding areas acts as a buffer zone between the oil-shale basin and agricultural areas.

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 • Q • 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 Tp O

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 main habitats of the large flat area are raised bogs, transitional bogs and fens which are surrounded by extensive wet forests. Bogs make up 60% of the peatland area. These are mainly open grass-bogs and dwarf-shrub bogs, partly pine-bogs. Fens form 25% of the mire area, the remaining 15% are the transition bogs. Primeval forests occur among the surrounding forests (mainly boreal, sandy heath and bog types). There is one dystrophic relict lake and a number of bog-pools (1-3 m deep) covering 10-40% of the bog areas.

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.*

Characteristic flora of natural bogs of continental type (*Eriophorum* sp., *Ledum palustre*, *Calluna vulgaris*, *Chamaedaphne calyculata*, and *Sphagnum* spp.) additionally several species characteristic of bogs of maritime type (e.g. *Trichophorum caespitosum*). Fens are represented by *Carex* spp., *Phragmites australis*, *Menyanthes trifoliata* and *Equisetum* spp.

Several rare and endangered plant species grow on mineral "bog islands" and in fens such as Ghost Orchid *Epipogium aphyllum*, Yellow rockfoil *Saxifraga hirculus*, Few-flowered Sedge *Carex pauciflora*, Marsh Gentian *Gentiana pneumonanthe*, Bog Orchid *Hammarbya paludosa*, Lesser Twayblade *Listera cordata*, as well as some rare species of Fungi.

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.*

Breeding bird fauna in wetland habitats is represented by Whimbrel *Numenius phaeopus* (30-70 pairs), European Golden Plover *Pluvialis apricaria* (70-100 pairs), Common Crane *Grus grus* (20-30 pairs), Greenshank *Tringa nebularia* (20-30 pairs), Wood Sandpiper *Tringa glareola* (50-80 pairs), Black-tailed Godwit *Limosa limosa* (15-20 pairs), Willow Grouse *Lagopus lagopus* (10-15 pairs), Common Teal *Anas crecca* (20-30 pairs), Golden Eagle *Aquila chrysaetos* (1 pair), Jack Snipe *Lymnocyptes minimus* (2-5 pairs), Capercaillie *Tetrao urogallus* (20-30 pairs), Black Grouse *Tetrao tetrix* (50-80 lekking males), and also Lesser Spotted Eagle *Aquila pomarina*, Merlin *Falco columbarius* (0-1p), Hen harrier *Circus cyaneus* (1-2p), Montagu's Harrier *Circus pygargus* (3-5p) and Dunlin *Calidris alpina schinzii* (0-2p). Characteristic species in the old-growth forests of mineral "bog islands" are: Capercaillie, Ural Owl *Strix uralensis*, Pygmy Owl *Glaucidium passerinum*, Nightjar *Caprimulgus europaeus*, Black Woodpecker *Dryocopus martius*, Grey-headed Woodpecker *Picus canus*, White-backed Woodpecker *Dendrocopos leucotos*, Tree-toed Woodpecker *Picus tridactylus*, and Red-breasted Flycatcher *Ficedula parva*.

Mammals live mainly in marginal parts of the area and include Brown Bear *Ursus arctos*, Wolf *Canis lupus*, Lynx *Lynx lynx* and Flying Squirrel *Pteromys volans*, and also Beaver *Castor fiber* and Otter *Lutra lutra*.

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:

Muraka is an important area for seasonal traditional berry-picking, potentially also for small-scale nature tourism.

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: nearly entirely (approx. 98%) state owned land, some small areas are privately owned

b) in the surrounding area: state and private land

25. Current land (including water) use:

a) within the Ramsar site: No inhabitants. Mires are used for picking of berries (*Oxycoccus palustris* in autumn and *Rubus chamaemorus* in summer) and for small-scale hiking.

b) in the surroundings/catchment: forestry, agriculture, oil-shale mining (in 15 km and further).

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 alkaline pollution from electric power stations within 40-60 km (near Narva) is reduced significantly in recent years due to filters but accumulated pollution can still cause changes in normal paludification process; pollution from oil-shale chemical industry (within 30 km, in Kohtla-Järve and Kiviõli). Potential threat is intensification of forestry and illegal clearcuttings.

b) in the surrounding area: changes in hydrologic regime influenced by neighbouring oil-shale mines; increase of pollution by oil-shale mining and industry.

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.

Ratva Bog Strict nature Reserve was founded in 1938. The Muraka Botanical-Zoological Reserve was established in 1957 (8300 ha) and was enlarged to the Muraka Mire Reserve in 1981 (12,274 ha). In 1997 Muraka Nature Reserve was founded (13,059 ha) and the protection rules were approved. In 2007 new protection rules were approved and the area of the reserve was extended to 13 980 ha

Amelioration, land improvement, peat digging and in most of the area forest management are prohibited.

Muraka area is identified as an Important Bird Area. Muraka nature reserve has been designated as Natura 2000 area: both a SCI and a SPA (in the same borders as the Ramsar site).

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?
Management plan (2011-2013) for the wetland area is implemented in 2010.

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.

There is no field research station. In the frame of the state monitoring program mire breeding bird community studies are carried out regularly (the last census in 2006), also eagles and endangered plant species (*Epipogium aphyllum*) are monitored. There is also the monitoring plot in Heinassaare primeval forest (especially Fungi).

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.

In the wetland area there are no nature trails and visitors' centre. A book and leaflets introducing the wetland (in estonian and english) were published in 2001.

31. Current recreation and tourism:

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

The wilderness area is not suitable for recreation. Local guides provide small-scale hiking trips, also the area is seasonally visited by berry-pickers. Since 2009 the visiting management is the responsibility of the State Forest Management Centre.

32. Jurisdiction:

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

Territorial: Ida-Viru County, 4 local municipalities: Iisaku, Maidla, Mäetaguse and Tudulinna.

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, Viru Region (Pargi 15, 41537 Jõhvi, Estonia)

Mr. Jaak Jürgenson jaak.jurgenson@keskkonnaamet.ee, director of the Viru Region of Environmental Board

34. Bibliographical references:

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

Leito, T. 2001. Muraka raba (Muraka mire). 48 p. (in estonian and english).

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 p.

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

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