

## Ramsar Information Sheet

Transcript of the original document.

**1. Date this sheet was completed:** 01.06.1997

**2. Country:** Estonia

**3. Name of wetland:** **Puhtu-Laelatu-Nehatu Wetland Complex**  
(in Estonian: *Puhtu-Laelatu-Nehatu märgalade kompleks*)

**4. Geographical co-ordinates:** Puhtu-Laelatu wetland: 58°34'N 23°33'E  
Nehatu mire: 58°33'N 23°38'E

**5. Altitude:** 0-12 m above sea level; average 3.5 m

**6. Area:** Puhtu-Laelatu wetland: 4050 ha  
Nehatu Bog: 590 ha

### 7. Overview

The area consists of two parts: Puhtu-Laelatu wetland and Nehatu mire. The Puhtu-Laelatu wetland consists of a chain of shallow inland bays (lagoons), some open, some overgrown with reeds, some paludified. The coastal area is important for stop-over and transit migration of waterfowl. The areas in between represent extremely species-rich alvar, wooded meadow and pseudo-atlantic forest communities.

Nehatu mire: mire (peat 2.0 m) in the place of littorina lagoon (4,500 years ago). A mixture of open shallow lakes, mire, bog and bordering woodlands and wooded meadows. Roosting place for waterfowl, especially geese and common crane. Nesting biotope for marsh birds.

**8. Wetland type:** A B E H J M O Sp Tp U W

**9. Ramsar Criteria:** 1a, 2a, 2b, 2c, 3a, 3c, 4b

**10. Map of site included:** Yes

### 11. Name and address of compiler:

Peeter Vissak, Laheääre tee 7, EE3195 Virtsu, Läänemaa County, Estonia.

Lauri Lutsar, Estonian Fund for Nature, PO Box 245, Tartu EE2400, Estonia.

Margus Ots, Estonian Ornithological Society, PO Box 227, Tartu EE2400, Estonia

### 12. Justification of criteria selected under point 9:

1a - it is a particularly good representative example of a natural or near-natural wetland, characteristic of the appropriate biogeographical region.

2a - it supports an appreciable assemblage of rare, vulnerable or endangered species or subspecies of plant or animal, or an appreciable number of individuals of any one or more of these species.

2b - it is of special value for maintaining the genetic and ecological diversity of a region because of the quality and peculiarities of its flora and fauna.

2c - it is of special value as the habitat of plants or animals at a critical stage of their biological cycle.

3a - it regularly supports 20,000 waterfowl.

3c - it regularly supports > 1% of the individuals in a population of *Cygnus columbianus*, *Cygnus cygnus*, *Mergus albellus* and *Grus grus*.

4b - it is an important spawning ground for *Esox lucius*.

### 13. General location:

Läänemaa County; 40 km south of Haapsalu (13,800 inhabitants); 115 km southwest from Tallinn (427,000 inhabitants).

### 14. Physical features:

Puutu-Laelatu wetland: bedrock-Silurian limestone and dolomitized limestone soil-forming rocks - glacial and post-glacial deposits. An important factor is the neo-tectonic uplift of the earth's crust. Sod-gley soils 55%, sod-calcareous soils 32%, flooding saline soils 10%, littoral peaty soils 3%. 70% of the soils are moist, 20% moderate, 10% dry. Years average temperature 5.6°C, mean annual rainfall 500-550 mm, annual average sea surface water temperature 7°C, average salinity 5-6‰ (in lagoons 5‰). Absolute sea level amplitude = 230 cm (-109 to +121 cm by Kronstadt zero). Fluctuations: mean sea level with Easterly winds -17 cm, with Westerly winds +13 cm. Main winds: SW 19%, S 16%, W 12%. Mean annual wind speed 6-7 m/s.

Nehatu mire: the mire has limnic beginning from the paludification of a sea bay, formed after the littoral-transgression on the regress of the sea. Sapropel layers under the fen peat layer and the low-water swampy lakes on the territory of the marsh prove the limnic origin of the peatland.

### 15. Hydrological values:

Puutu-Laelatu wetland: A shallow coastal sea makes up 43% of the whole area, not including the lagoons. 14% of the area is flooded and/or with peaty coastal soils. Natural inflow is absent, two main drainage ditches with a total catchment area of 63 km<sup>2</sup> are active. For these waters rich in biogenic materials the lagoon system with its reed-beds acts as a sediment trap.

Nehatu mire: The catchment area is poorly studied. The outflow is into the sea. The bottom of the small relict lakes is full of calcium-rich grey mud as the inflow is negligible.

### 16. Ecological features:

Puutu-Laelatu wetland:

- (a) Broad-leaved forest (*Quercus -Tilia-Acer-Fraxinus*);
- (b) Calciphilous species-rich wooded meadow (*Quercus-Betula, Seslerio-Filipenduletum, Scorzonero-Melampyretum*);
- (c) secondary *Corylus-Alnus* shrub;
- (d) epilittoral *Molienetum, Seslerio-Primuletum*;
- (e) epilittoral swampy *Caricetum panicea-nigrae*;
- (f) epilittoral *Juncetum gerardii*;
- (g) ameliorated and partly improved lagoons with *Caricetum elatae*;
- (h) lagoons and shore with *Phragmitetum australis* and *Carico-phragmitetum*.

Nehatu mire:

Initial bog-patches (*Sphagnum*, other mosses, *Calluna*). Fen with *Phragmites australis, Myrica gale, Cladium mariscus* (peat 0.4-1 m). Marshy wooded meadow and woods with *Betula pubescens*. Relict lakes with shallow water (<1 m).

### 17. Noteworthy flora:

Puutu-Laelatu wetland:

- (a) One of the best examples of coppice-type wooded meadow in North Europe;
- (b) Floristical richness - highest known numbers in northern Europe: 25 spp. per 10x10 cm; 42 spp per 20x20 cm; 68 spp. per 1m<sup>2</sup> of vascular plants in 7 persistent meadow communities;
- (c) species: *Cephalanthera rubra, C. longifolia, Cypripedium calceolus, Dactylorhiza ruthei, Ophrys insectifera, Coeloglossum viride, Palanthera chloranta, Orchis ustulata* (total of 23 spp. of orchids). *Tetragonolobus siliquosus, Onosis arvensis, Euphorbia palustris, Sanicula europaea, Laserpitium latifolium, Melampyrum cristatum, Viola persicifolia, Serratula tinctoria*.

Nehatu mire:

- (a) *Carex hostiana - Carex davalliana* community, *Epipactis palustris, Liparis loeselii, Malaxis paludosa*;
- (b) *Scoenus ferrugineus* community;
- (c) *Carex appropinquata* community;
- (d) *Cladium mariscus* community; *Myrica gale*.

### 18. Noteworthy fauna:

Puutu-Laelatu wetland:

Invertebrates: 2000 spp. (60 spp. first time for Estonia, some new spp. for science).

Birds: (a) transit migration of waterfowl and passerines; spring: *Gavia stellata et arctica* (62,600), *Aythya marila* (9,799), *Clangula hyemalis* (1,650,000), *Melanitta nigra* (192,000), *Melanitta fusca* (386,000) (Rusanen, 1995); (b) important stop-over site of waterfowl - *Aythya fuligula* (<6,000),

*Aythya marila* (< 550), *Somateria mollissima* (<4,000), *Cygnus cygnus* (<550), *Cygnus columbianus* (<250), *Mergus albellus* (<400); (c) rich nesting biotopes in broad-leaved forest and islets.

Nehatu mire is the roosting place of migrating waterfowl *Grus grus* (<2000), *Anser* spp. (<1500), *Anas* spp., nesting place of *Grus grus*, *Gallinula chloropus*, *Circus aeruginosus* etc. and moulting area for *Grus grus*.

#### **19. Social and cultural values:**

Puhtu-Laelatu wetland: (a) Specialised tourism in limited numbers (botany, ornithology, soft farming, history, archaeology); (b) semi-natural grasslands - pure fodder for cattle and sheep; (c) scientific research; (d) trail for training of biology students (international project); (e) project of developing a sustainable community (renewable energy, historical settlement, soft farming). Nehatu mire: Social value represents the historically mutual co-existence between rural communities and the surroundings.

#### **20. Land tenure/ownership of:**

a) site: Puhtu-Laelatu wetland: Private and municipally owned land with restricted (= traditional) use; nature preserves are state-owned. Nehatu mire: legally private; state ownership will be applied for according to the Act on Land Reform.

b) surrounding area: private land.

#### **21. Current land use/principal human activities:**

Puhtu-Laelatu wetland: a) site: 43 detached houses, mainly summer-cottages and some private farms. Fishing, kitchen gardens, sheep, cattle and grain crops. Pastures, meadows and some fields.

b) Surroundings/catchment: Small-scale agriculture, forestry and fishery.

Nehatu mire: a) site: Extensive mowing in marginal wooded meadow patches, otherwise minimal. b) Surroundings/catchment: Extensive agriculture and forestry.

#### **22. Factors adversely affecting the site's ecological character, including changes in land use and development projects:**

Puhtu-Laelatu wetland: a) site: Eutrophication due to fertilisers and wastes from fishery (fats), pollution by fuel and some other industrial wastes. Cutting of wood, reed and hay is moderate. Some traditional semi-natural (= semi-cultural) landscapes suffer from under-usage and overgrowing with shrubs.

b) Surroundings/catchment: Eutrophication (fertilisers, fishery remainders) and oil pollution.

Development project includes system analysis and modelling of equilibrally developed area with scattered industry and agriculture.

Nehatu mire: a) at the site: Potential main threat is amelioration, disturbing lake and mire communities.

Development project is concerned with the sustainable development of the whole area. b) in the surroundings/catchment: the main threat is lack of management of the semi-natural communities causing overgrowing with shrubs and successions in floristical composition.

#### **23. Conservation measures taken:**

Puhtu-Laelatu wetland: For the first time, part of the area was taken under protection in 1939 as Puhtulaid Nature Reserve. The protected area was expanded to 4900 ha with the establishment of Virtsu-Laelatu-Puhtu Botanical-Zoological Reserve on 6 April 1959. Current borders were established on 24 September 1979 (3609 ha) and the current status (legal body under jurisdiction of Estonian Ministry of Environment) confirmed 22 January 1991. Legally confirmed protection rules and interim set of management prescriptions exist. Major restrictions are connected with agricultural use. Designated IBA - Suur Väin Straits (contains the Puhtu-Laelatu wetland complex); proposed IBA categories in 1996: A4, B1.

Nehatu mire: Nehatu Botanical-Zoological Reserve (410 ha) was established on 11 July 1957. Forest management (except sanitary cuttings), amelioration, land improvement, peat digging and hunting are prohibited.

#### **24. Conservation measures proposed but not yet implemented:**

Puhtu-Laelatu wetland: (a) a 40 ha area of very well preserved wooded meadows and its surroundings is proposed to be a "scientific reserve" with intensive investigations and a specially controlled regime; (b) a complex of activities has been raised to treat the area as a monument of historical "way of life" and to preserve the semi-natural ecosystems as an achievement of rural culture. The main goal is to

turn the area into a natural laboratory - a demonstration and study area, consisting of ecological, historical and economical fields.

Nehatu mire: The area is proposed to be enlarged to 690 ha. It is planned to unite with Virtsu-Laelatu-Puhtu Nature Reserve. Nehatu Mire is proposed IBA (in 1996); categories B1.

#### **25. Current scientific and research facilities:**

Puhtu-Laelatu wetland: 1. Ornithology - studies of migration of Arctic waterfowl. 2. Botany - computerised raster mapping, botanical experiments; restoration of overgrown rich calciferous grassland; the role of VA mycorrhiza as an organising force of plant community - pilot experiment to test different fungicides; restoration of the overgrown rich alvar grassland in Sillukse. 3. Two biological stations and a bird tower.

Nehatu mire: Counts of roosting, nesting and moulting *Grus grus*. Planned botanical and landscape monitoring.

#### **26. Current conservation education:**

Puhtu-Laelatu wetland: Virtsu Society of Nature Education - mainly nature school for local children; some international programs (air pollution monitoring).

Nehatu mire: Special visitors to Laelatu Biological Station, scientific tourism (up to 5 groups per summer).

#### **27. Current recreation and tourism:**

Puhtu-Laelatu wetland: Specialised excursions to nature reserve, angling and boating.

Nehatu mire: absent.

#### **28. Jurisdiction:**

Hanila Commune, Hanila, Läänemaa County, EE3194

Ministry of Environment, Department of Nature Conservation, Tompuiestee 24, EE0100, Tallinn, Estonia

#### **29. Management authority:**

Matsalu Nature Reserve, EE3190 Lihula, Läänemaa County, Estonia

#### **30. Bibliographical references:**

Autorite kollektiiv, 1970. Puhtu laiu selgrootud. - Lääne-Eesti rannikualade loodus, lk. 164-200. Tallinn.

Jõgi, A. 1970. Bird Fauna in the Environment of Puhtu. In: Lääne-Eesti rannikualade loodus, pp. 205-225. Tallinn. (in Estonian with English summary).

Krall, H. and Pork, K., 1970. Laelatu puisniit. - Lääne-Eesti rannikualade loodus, lk. 124-127. Tallinn.

Lilleleht, V. 1976. On the breeding population of the maritime islets of the Virtsu-Laelatu-Puhtu protection zone in 1953-1975. - Loodevaatlusi, 1975, 1, pp. 101-121. (in Estonian with English summary).

Rusanen, P. 1995. Observations of arctic waterfowl migration from Puhtu, on the western coast of Estonia in May 1992. - IWRB Seaduck Bulletin 5: pp. 14-18.

Renno, J., 1958. Lääne-Eesti Madalsoode linnustiku maastikuseostest ja populatsiooni-dünaamikast. - Ornitoloogiline kogumik I. Tartu.

Trass, H., 1970. Nehatu soo. - Lääne -Eesti rannikualade loodus. Tallinn.