

# **Ramsar Information Sheet**

Published on 27 April 2023 Update version, previously published on : 1 January 2005

# **Finland** Lake Sysmäjärvi



Designation date 2 February 2004 Site number 1517 Coordinates 62°41'12"N 29°03'22"E Area 734,00 ha

https://rsis.ramsar.org/ris/1517 Created by RSIS V.1.6 on - 27 April 2023

# 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

Lake Sysmäjärvi is the most valuable of the North Karelian bird-lakes and among the ten most important wetlands in Finland. The high conservational value is due to the high diversity of breeding and migrating wetland bird species. The lake is characterized by extensive growths of Common Reed (Phragmites australis) and Water Horsetail (Equisetum fluviatile). The area includes ca. 690 ha of water and 22 small islands. Alluvial meadows and bush zones occur narrowly on shores. The lake is surrounded by a narrow forest zone and agricultural land. On the shores of Lake Sysmäjärvi there are also Stone Age dwelling sites, housepits, and pitfall traps.

# 2 - Data & location

# 2.1 - Formal data

2.1.1 - Name and address of the compiler of this RIS

#### Responsible compiler

Institution/agency Finnish Environment Institute (SYKE), Natural Environment Centre

Postal address PO Box 140 FI-00251

National Ramsar Administrative Authority

Institution/agency	Metsähallitus, Parks and Wildlife Finland
Postal address	PO Box 94 FI-01301 Vantaa Finland

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

From year	2010
To year	2017

#### 2.1.3 - Name of the Ramsar Site

Official name (in English, French or Spanish) Lake Sysmäjärvi Unofficial name (optional) Sysmäjärvi

Systillajaivi

2.1.4 - Changes to the boundaries and area of the Site since its designation or earlier update

<sup>(Update)</sup> A. Changes to Site boundary Yes O No (Opdate)</sup> B. Changes to Site area No change to area

<sup>(Update)</sup> For secretariat only: This update is an extension

#### 2.1.5 - Changes to the ecological character of the Site

<sup>(Update)</sup> 6b i. Has the ecological character of the Ramsar Site (including applicable Criteria) changed since the previous RIS?

(Update) Optional text box to provide further information

Wetland types and species, and ecosystem services have been reassessed according to current knowledge, but there are no changes to the ecological character.

## 2.2 - Site location

#### 2.2.1 - Defining the Site boundaries

b) Digital map/image <2 file(s) uploaded>

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Former maps 0

#### Boundaries description

The site follows the boundaries of the Natura 2000 site FI0700001 Sysmäjärvi SPA.

#### 2.2.2 - General location

a) In which large administrative region does	North Karelia
the site lie?	
b) What is the nearest town or population	Outokumpu / Liperi

#### 2.2.3 - For wetlands on national boundaries only

a) Does the wetland extend onto the territory of one or more other countries? Yes O  $_{\text{No}}$   $\textcircled{\textbf{0}}$ 

b) Is the site adjacent to another designated Ramsar Site on the territory of another Contracting Party? Yes O  $_{\rm No}$   $\textcircled{\mbox{e}}$ 

#### 2.2.4 - Area of the Site

Official area, in hectares (ha):	734
Area, in hectares (ha) as calculated from GIS boundaries	733.468

# 2.2.5 - Biogeography

Biogeographic regions	
Regionalisation scheme(s)	Biogeographic region
EU biogeographic regionalization	Boreal region
Other scheme (provide name below)	Southern boreal forest vegetation zone

#### Other biogeographic regionalisation scheme

Vegetation zones of Finland according to Ruuhijärvi et al. 2000.

# 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

Other reasons A representative example of a shallow freshwater lake in the EU Boreal region.

#### ☑ Criterion 2 : Rare species and threatened ecological communities

#### Criterion 4 : Support during critical life cycle stage or in adverse conditions

Optional text box to provide further The Site supports several bird species during their migratory and/or breeding periods.

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

<no data available>

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

Phylum	Scientific name	Species qualifies under criterion 2 4 6 9	Speciescontributesunder criterion357	Pop. Size	Period of pop. Est.	% occurrence 1)	IUCN Red List	CITES Appendix I	CMS Appendix I	Other Status	Justification
Birds											
CHORDATA/ AVES	Acrocephalus arundinaceus	Rooo					LC			National Red List - VU	
CHORDATA/ AVES	Aegolius funereus	2000					LC			EU Birds Directive - Annex I	
CHORDATA/ AVES	Anas acuta						LC			National Red List - EN	The Site supports this species during migratory period.
CHORDATA/ AVES	Anas penelope	ØDDD					LC			National Red List - VU	
CHORDATA/ AVES	Anas querquedula	Rooo					LC			National Red List - EN	
CHORDATA/ AVES	Anser fabalis						LC			National Red List - VU	The Site supports this species during migratory period.
CHORDATA/ AVES	Anthus cervinus	R R D D					LC			National Red List - VU	The Site supports this species during migratory period.
CHORDATA/ AVES	Ardea cinerea						LC				The Site supports this species during migratory period.
CHORDATA/ AVES	Aythya ferina						VU			National Red List - EN	The Site supports this species during migratory period.
CHORDATA/ AVES	Aythya fuligula						LC			National Red List - EN	The Site supports this species during migratory period.
CHORDATA/ AVES	Aythya marila	R R C C					LC			National Red List - EN	The Site supports this species during migratory period.
CHORDATA/ AVES	Buteo buteo						LC			National Red List - VU	The Site supports this species during migratory and breeding period.

Phylum	Scientific name	Species qualifies und criterion 2 4 6	der o un 9 3	Spect contrib nder cr	ies outes iterion 7 8	Pop. Size	Period of pop. Est.	% occurrence 1)	IUCN Red List	CITES Appendix I	CMS Appendix I	Other Status	Justification
CHORDATA/ AVES	Calidris minuta								LC			National Red List - EN	The Site supports this species during migratory period.
CHORDATA/ AVES	Calidris temminckii	220							LC			National Red List - EN	The Site supports this species during migratory period.
CHORDATA/ AVES	Chlidonias niger	220							LC			National Red List - CR	The Site supports this species during migratory period.
CHORDATA/ AVES	Chroicocephalus ridibundus											National Red List - VU	The Site supports this species during migratory period.
CHORDATA/ AVES	Circus cyaneus	2 2 🗆							LC			National Red List - VU; EU Birds Directive - Annex I	The Site supports this species during migratory and breeding period.
CHORDATA/ AVES	Circus macrourus								NT			National Red List - EN; EU Birds Directive - Annex I	The Site supports this species during migratory period.
CHORDATA/ AVES	Circus pygargus	22D							LC			National Red List - EN; EU Birds Directive - Annex I	The Site supports this species during migratory period.
CHORDATA/ AVES	Cygnus columbianus bewickii	200										EU Birds Directive - Annex I	The Site supports this species during migratory period.
CHORDATA/ AVES	Cygnus cygnus	220							LC			EU Birds Directive - Annex I	The Site supports this species during migratory period.
CHORDATA/ AVES	Emberiza rustica								VU				The Site supports this species during migratory period.
CHORDATA/ AVES	Emberiza schoeniclus								LC			National Red List - VU	
CHORDATA/ AVES	Falco columbarius	2 2 🗆							LC			EU Birds Directive - Annex I	The Site supports this species during migratory and breeding period.
CHORDATA/ AVES	Falco peregrinus								LC	×		National Red List - VU; EU Birds Directive - Annex I	The Site supports this species during migratory period.
CHORDATA/ AVES	Falco tinnunculus								LC				The Site supports this species during migratory and breeding period.
CHORDATA/ AVES	Fulica atra								LC			National Red List - EN	
CHORDATA/ AVES	Gallinago media	22D							LC			National Red List - CR; EU Birds Directive - Annex I	The Site supports this species during migratory period.
CHORDATA/ AVES	Gallinula chloropus								LC			National Red List - VU	
CHORDATA/ AVES	Gavia arctica								LC			EU Birds Directive - Annex I	The Site supports this species during migratory period.
CHORDATA/ AVES	Gavia stellata								LC			EU Birds Directive - Annex I	The Site supports this species during migratory period.
CHORDATA/ AVES	Haliaeetus albicilla								LC	<b>V</b>	<b>V</b>	National Red List - VU; EU Birds Directive - Annex I	The Site supports this species during migratory period.
CHORDATA/ AVES	Hydrocoloeus minutus	220							LC			EU Birds Directive - Annex I	The Site supports this species during migratory period.
CHORDATA/ AVES	Hydroprogne caspia								LC			EU Birds Directive - Annex I	The Site supports this species during migratory period.
CHORDATA / AVES	Larus fuscus								LC			National Red List - EN	The Site supports this species during migratory period.
CHORDATA / AVES	Limicola falcinellus								LC				The Site supports this species during migratory period.
CHORDATA/ AVES	Limosa limosa								NT			National Red List - EN	The Site supports this species during migratory period.
CHORDATA/ AVES	Luscinia svecica								LC			EU Birds Directive - Annex I	The Site supports this species during migratory period.

Phylum	Scientific name	Species qualifies unde criterion 2 4 6 9	Species r contributes under criterio 3 5 7 8	Pop. Size	Period of pop. Est.	% occurrence 1)	IUCN Red List	CITES Appendix I	CMS Appendix I	Other Status	Justification
CHORDATA/ AVES	Melanitta fusca	ØØOC		כ			VU			National Red List - EN	The Site supports this species during migratory period.
CHORDATA/ AVES	Melanitta nigra			כ			LC				The Site supports this species during migratory period.
CHORDATA/ AVES	Mergellus albellus	RRDC		כ			LC			EU Birds Directive - Annex I	The Site supports this species during migratory period.
CHORDATA / AVES	Mergus serrator	Rooc		כ			LC			National Red List - EN	
CHORDATA/ AVES	Milvus migrans			כ			LC			National Red List - CR	The Site supports this species during migratory period.
CHORDATA/ AVES	Motacilla flava			כ			LC				The Site supports this species during migratory period.
CHORDATA/ AVES	Pandion haliaetus	RRDC		כ			LC			EU Birds Directive - Annex I	The Site supports this species during migratory period.
CHORDATA/ AVES	Pernis apivorus			כ			LC			National Red List - EN; EU Birds Directive - Annex I	The Site supports this species during migratory and breeding period.
CHORDATA/ AVES	Phalaropus Iobatus	RBOC		כ			LC			National Red List - VU; EU Birds Directive - Annex I	The Site supports this species during migratory period.
CHORDATA/ AVES	Philomachus pugnax	RBOC		כ			LC			National Red List - CR; EU Birds Directive - Annex I	The Site supports this species during migratory period.
CHORDATA/ AVES	Podiceps grisegena			כ			LC				The Site supports this species during migratory period.
CHORDATA/ AVES	Sterna hirundo	ROOC		כ			LC			EU Birds Directive - Annex I	
CHORDATA/ AVES	Tringa erythropus			כ			LC				The Site supports this species during migratory period.
CHORDATA/ AVES	Tringa glareola	RBOC		כ			LC			EU Birds Directive - Annex I	The Site supports this species during migratory period.
CHORDATA/ AVES	Tringa totanus	RBOC		כ			LC			National Red List - VU	The Site supports this species during migratory period.
CHORDATA/ AVES	Xenus cinereus	ØØOC		כ			LC			National Red List - CR; EU Birds Directive - Annex I	The Site supports this species during migratory period.

1) Percentage of the total biogeographic population at the site

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

<no data available>

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

# 4.1 - Ecological character

Sysmäjärvi is a lake characterized by extensive growths of Common Reed (Phragmites australis) and Water Horsetail (Equisetum fluviatile). The area includes ca. 690 ha of water and 22 small islands and narrow strips of alluvial meadows and bush zones on the shoreline. The lake is surrounded by a narrow forest zone and agricultural land. The high conservational value of the site is especially due to the high diversity of breeding and migrating wetland bird species.

# 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 >> O: Permanent freshwater lakes		1		Representative

# 4.3 - Biological components

#### 4.3.1 - Plant species

<no data available>

#### 4.3.2 - Animal species

Invasive alien animal species	6		
Phylum	Scientific name	Impacts	Changes at RIS update
CHORDATA/MAMMALIA	Neovison vison	Actual (minor impacts)	No change
CHORDATA/MAMMALIA	Nyctereutes procyonoides	Actual (minor impacts)	No change

# 4.4 - Physical components

#### 4.4.1 - Climate

Climatic region	Subregion
D: Moist Mid-Latitude climate with cold winters	Dfc: Subarctic (Severe winter, no dry season, cool summer)

#### 4.4.2 - Geomorphic setting

85	a) Minimum elevation above sea level (in metres)
90	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 $\square$	
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.

Sysmäjärvi is located in the middle part of the Vuoksi River Basin.

#### 4.4.3 - Soil

( <sup>Update)</sup> Changes at RIS update No change 💿 Increase 🔿 Decrease 🔿 Unknown 🔿
Organic 🗹
<sup>(Update)</sup> Changes at RIS update No change Increase O Decrease O Unknown O
No available information
Are soil types subject to change as a result of changing hydrological conditions (e.g., increased salinity or acidification)?
Please provide further information on the soil (optional)
Mainly silt and clay with littoral and glacifluvial gravel and sand and peat.

# 4.4.4 - Water regime

Presence?	Changes at RIS update
Usually permanent water present	
Usually seasonal, ephemeral or intermittent water present	

Source of water that maintains character of the site				
Presence?	Changes at RIS update			
Water inputs from surface water		No change		

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

Depth of water: 1.65 m on average, maximum 5 m. Water-level high in spring because of melting snow.

#### 4.4.5 - Sediment regime

Sediment regime unknown 🗵

#### 4.4.6 - Water pH

Unknown 🗹

#### 4.4.7 - Water salinity

Fresh (<0.5 g/l) 🗹

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

Unknown 🗖

#### 4.4.8 - Dissolved or suspended nutrients in water

Eutrophic 🗹	
<sup>(Update)</sup> Changes at RIS update No change <sup> O</sup> Increase O Decrease O Unknown O	
Please provide further information on dissolved or suspended nutrients (optional):	
General water quality poor. Eutrophic.	

#### 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 site itself:	i) broadly similar O ii) significantly different 💿
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:	
Mainly agricultural landscape, the town of Outokumpu lies	less than 2 km from the site.

# 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
	Storage and delivery of	
Maintenance of hydrological	water as part of water	Low
regimes	supply systems for	LOW
	agriculture and industry	

#### **Cultural Services**

Ecosystem service	Examples	Importance/Extent/Significance
Recreation and tourism	Recreational hunting and fishing	
Recreation and tourism	Picnics, outings, touring	
Recreation and tourism	Nature observation and nature-based tourism	
Scientific and educational	Important knowledge systems, importance for research (scientific reference area or site)	
Scientific and educational	Major scientific study site	

#### Supporting Services

Ecosystem service	Examples	Importance/Extent/Significance
Biodiversity	Supports a variety of all life forms including plants, animals and microorganizms, the genes they contain, and the ecosystems of which they form a part	Low

#### Other ecosystem service(s) not included above:

#### Significant values include birdwatching.

Have studies or assessments been made of the economic valuation of ecosystem services provided by this Ramsar Site? Yes O No O 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  $\hfill\square$ 

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			
Other public ownership	s.				
Private ownership					
Category	Within the Ramsar Site	In the surrounding area			
Other types of private/individual owner(s)	V	×			

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

The site is mostly privately owned, some very small estates of state-owned land are found on the islands and shoreline.

#### 5.1.2 - Management authority

Please list the local office / offices of any agency or organization responsible for	North Karelia Centre for Economic Development, Transport and the Environment
Provide the name and/or title of the person or people with responsibility for the wetland:	Mr. Mika Pirinen, Nature conservation expert
Postal address:	P.O. box 69 80101 Joensuu Finland

E-mail address: mika.pirinen@ely-keskus.fi

# 5.2 - Ecological character threats and responses (Management)

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

#### Water regulation

or

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Salinisation			×			

Energy production and mining						
Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Mining and quarrying					<b>X</b>	

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			×			
Fishing and harvesting aquatic resources			×			

Human intrusions and disturbance

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Unspecified/others			×			

#### Natural system modifications

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Dams and water management/use			×			
Vegetation clearance/ land conversion			×			
Unspecified/others			s de la constancia de l			

#### Invasive and other problematic species and genes

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Invasive non-native/ alien species			×.			

Pollution

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Household sewage, urban waste water			×.		×	
Industrial and military effluents			×.		×	
Agricultural and forestry effluents			V		×	
Unspecified			×		×	

#### Please describe any other threats (optional):

Hunting of waterfowl is intensive in autumn. The persecution of gulls has affected negatively on the bird populations since the 1980s. Fishing in spring affects negatively on breeding of waterfowl. Regulation of water-level in spring disturb breeding of birds. The lake is continuously overgrowing and the populations of breeding waterfowl have declined by 40 % in 1983–99. The amount of heavy metals and salt has still increased in the 1990s. Some plant species favoring unpolluted waters have disappeared during the last ten years. Discharges from sewage plants, mining industries and agricultural land pollute the waters. Especially the waters of River Lahdenjoki contain high loads of nutrients. American Mink (Mustela vison) and Raccoon Dog (Nyctereutes procyonoides) may cause damage to the breeding of birds.

#### 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	Sysmäjärvi SPA	http://natura2000.eea.europa.eu/ Natura2000/SDF.aspx?site=Fl07000 01	whole

#### National legal designations

Designation type	Name of area	Online information url	Overlap with Ramsar Site
Private Protected Area			partly
Waterfowl Habitat Conservation Programme			whole

#### Non-statutory designations

Designation type	Name of area	Online information url	Overlap with Ramsar Site
Important Bird Area	Outokumpu wetlands	http://datazone.birdlife.org/sit e/factsheet/outokumpu-wetlands-i ba- finland	whole

#### 5.2.3 - IUCN protected areas categories (2008)

- la Strict Nature Reserve 🗵
- Ib Wilderness Area: protected area managed mainly for wilderness protection
  - Il 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

# Measures Status Legal protection Implemented Habitat Measures Status

Measures	Status
Catchment management initiatives/controls	Proposed
Habitat manipulation/enhancement	Partially implemented

#### Species

How is the Site managed?, S5 - Page 2

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Measures	Status
Control of invasive alien animals	Partially implemented

#### Other:

The lake is included in the Natura 2000 Network, designated as SPA and in the Waterfowl Habitats Conservation Programme. Private protected areas cover 690 ha.

Clearing of thickets was carried out in a small area in 1998.

Management in an EU Life project has been done at Lake Sysmäjärvi in 2005–06. The project included restoration of meadows, removing of aquatic plants and intensifying the removal of predatory mammals (Raccoon Dog and American Mink).

The conservation of the Natura 2000 site will be carried out under the Nature Conservation Act and Water Act.

A preliminary restoration plan was drafted in 1991 and 1994. Plans include dredging, raising the median water-level to reduce the effects of rank growth and restoring the meadows in some areas.

Additional information:

Also the possibility to raise water-level is under examination. Dredging is not included since the sediments contain heavy metals. The management and land use plan was published in 2009.

#### 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 O No O site?

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

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

Two birdwatching towers have been constructed.

#### 5.2.6 - Planning for restoration

Is there a site-specific restoration plan? Yes, there is a plan

#### 5.2.7 - Monitoring implemented or proposed

Monitoring	Status
Birds	Implemented
Water quality	Implemented
Plant species	Implemented

The breeding bird fauna was surveyed in the 1970s, 1984, 1990 and 1999. The aquatic vegetation was surveyed in 1983 and 1992. The water quality is monitored.

The breeding bird fauna is under examination in 2005. The preliminary results show increase of some species of the EU Birds Directive Annex I, such as Whooper Swan (1 pair in the 1990s, 6 pairs in 2005) and Bittern (1 pair in the 1990s, 7 pairs in 2005) and also the population of Marsh Harrier (4 pairs) is comparatively strong. On the other hand the population of Black-backed Gull has nearly vanished. The lake has become more important to staging (spring) Whooper Swans, totaling 200 individuals on a single count in 2005.

# 6 - Additional material

## 6.1 - Additional reports and documents

#### 6.1.1 - Bibliographical references

Hottola, P. 1993. Lintuvesiohjelma puntarissa – Linnustoselvityksiä Pohjois-Karjalan lintujärvillä. Vesi- ja ympäristöhallituksen julkaisuja A 158. (English summary: Wetland Conservation Programme Evaluated – Breeding Bird Surveys in North Karelian Wetlands).

Hottola, P. & Ratilainen, M. 1994. Outokummun Sysmäjärven kunnostussuunnitelma. Pohjois-Karjalan vesi- ja ympäristöpiiri.

Hyvärinen, E., Juslén, A., Kemppainen, E., Uddström, A. & Liukko, U.-M. (eds.) 2019. The 2019 Red List of Finnish Species. Ympäristöministeriö & Suomen ympäristökeskus. Helsinki. 704 p.

Leivo, M. 2000. Suomen kansainvälisesti tärkeät lintualueet. Linnut-vuosikirja 1999. (English summary: Important Bird Areas in Finland).

Leivo, M., Asanti, T., Koskimies, P., Lammi, E., Lampolahti, J., Mikkola-Roos, M.& Virolainen, E. 2002. Suomen tärkeät lintualueet FINIBA. BirdLife Suomen julkaisuja 4, Suomen graafiset palvelut, Kuopio.

Venetvaara, J. 1992. Sysmäjärven vesikasvillisuus kesällä 1992. Pohjois-Karjalan vesi- ja ympäristöpiiri.

Working group on the need for forest protection in southern Finland and Ostrobothnia. Chairman Ruuhijärvi, R., Secretaries Kuusinen, M., Raunio, A. and Eisto, K. 2000. Forest protection in southern Finland and Ostrobothnia. The Finnish Environment 437. Ministry of the Environment.

#### 6.1.2 - Additional reports and documents

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

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

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

iv. relevant Article 3.2 reports <no file available>

v. site management plan

vi. other published literature

<no data available>

#### 6.1.3 - Photograph(s) of the Site

Please provide at least one photograph of the site:



An aerial view over the Sysmäjärvilake. (*Hannu Vallas*, 10-09-2012)

#### 6.1.4 - Designation letter and related data

Designation letter

<1 file(s) uploaded

Date of Designation 2004-02-02