



Vulnerability assessment of ecosystem services
for climate change impacts and adaptation

ACTION 7: ASSESSMENT OF IMPACTS AND ADAPTATION MEASURES
FOR AGRICULTURAL PRODUCTION

Deliverable: DOCUMENTATION OF DATA (META-DATA)

22 June 2010

Introduction to the metadata

These metadata describe the long term data on which the climate change impact scenarios as well as adaptation scenarios are built. The data are derived from long term monitoring and mapping programmes by the Action 7 participating institutions and research groups (of the LAWA FinLTSER platform), as specified in the metadata.

The metadata are essential in documenting the actual data sources that are being used in the next steps of the project, and finally, in documenting the data for the final product of Action 7 (the web platform in which impacts and adaptation are demonstrated).

The data described include agricultural census from 1950's, land use, interview data on farmer's use of agricultural inputs, digitized maps, water quality, and monitoring of plant and butterfly species diversity.

As agreed at the VACCIA project level, the metadata are produced using Morpho Data Management Software (at: <http://knb.ecoinformatics.org/morphoportal.jsp>), which is free access and especially suited to ecological metadata description.

Samuli Sairanen from Action 8 and Pirjo Kuitunen from the University of Jyväskylä are acknowledged for guidance in adopting joint procedures for the metadata work at VACCIA level.

Helsinki 22 June 2010

Juha Helenius
VACCIA Action 7

Data Set Citation

University of Helsinki - Department of Agricultural Sciences, The Finnish National Archives Service, and Tike Information Centre of the Ministry of Agriculture and Forestry. **Agricultural census data from the Lepsämäenjoki watershed, 1910-2010.**

LAWA_LTSER.5.2

Metadata download: [Ecological Metadata Language \(EML\) File](#)

Data Set Owner(s):

Organization: **University of Helsinki - Department of Agricultural Sciences**

Address: P.O. Box 27,
Latokartanonkaari 5,
University of Helsinki, FI-00014 Finland

Web Address: <http://www.helsinki.fi/agriculturalsciences/>

Organization: **The Finnish National Archives Service**

Address: Rauhankatu 17,
PO BOX 258,
Helsinki, 00171 Finland

Phone: +358 9 228 521 (voice)

Phone: +358 9 176 302 (fax)

Email Address: kansallisarkisto@narc.fi

Organization: **Tike Information Centre of the Ministry of Agriculture and Forestry**

Address: Office Lapinlahdenkatu 1 B, Kamppi, Helsinki,
PO Box 310,
Government, FI-00023 Finland

Phone: +358 20 77 2005 (voice)

Phone: +358 20 77 21 204 (fax)

Email Address: info@mmmtike.fi

Web Address: <http://www.mmmmtike.fi/>

Associated Party:

Individual: **Torsti Schulz**

Organization: University of Helsinki - Department of Agricultural Sciences

Address: Latokartanonkaari 5,
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Email Address: torsti.schulz@helsinki.fi

Web Address: <http://www.mm.helsinki.fi/~tschulz/>

Role: Metadata Provider

Individual: **Hannu Holmström**

Organization: University of Helsinki - Department of Agricultural Sciences

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Web Address: <http://www.mm.helsinki.fi/~tschulz/>

Role: Processor

Abstract:

There is an ongoing effort to digitize and catalogue the data from Finnish agricultural censuses. The first agricultural census was conducted in 1910. The census collections include data on farm land use, production, animals, machinery, work force etc. The data included in each census varies as does the possibility to link a census form to a certain farm or location. Documentation about the methods of collecting the data and indicators of its accuracy are lacking.

Keywords:

Thesaurus: The Finnish General Upper Ontology YSO

- agriculture
- agricultural land
- agricultural production
- cultivated plants
- domestic animals
- farm workers
- farms
- machinery for agriculture
- statistics

Thesaurus: The Finnish Spatio-Temporal Ontology (SAPO)

- Espoo(1968-1919)
- Espoo(1920-1956)
- Espoo(1957-)
- Helsingin mlk(1906-1911)
- Helsingin mlk(1912-1919)
- Helsingin mlk(1920-1920)
- Helsingin mlk(1921-1921)
- Helsingin mlk(1922-1945)
- Helsingin mlk(1946-1953)
- Helsingin mlk(1954-1971)
- Nurmijärvi(1868-1917)
- Nurmijärvi(1918-1930)
- Nurmijärvi(1931-)
- Vantaa(1972-2008)
- Vantaa(2009-)
- Vihti(1867-)

License and Usage Rights:

A number of Finnish laws may restrict the use, collection or publishing of the data set or parts of the data. The use for scientific purposes is generally allowed, given that certain restrictions in the publication and collection of the data are observed.

Geographic Coverage:

Geographic Description: Lepsämäenjoki watershed, Southern Finland

Bounding Coordinates:
West: 24.47 degrees
East: 24.78 degrees
North: 60.5 degrees
South: 60.27 degrees

Temporal Coverage:

Date: 1910

Temporal Coverage:

Date: 1920

Temporal Coverage:

Begin: 1929

End: 1930

Temporal Coverage:

Date: 1941

Temporal Coverage:

Date: 1950

Temporal Coverage:

Date: 1959

Temporal Coverage:

Date: 1969

Temporal Coverage:

Date: 1990

Temporal Coverage:

Date: 2000

Temporal Coverage:

Date: 2010

Contact:

Individual: **Torsti Schulz**

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Email Address: torsti.schulz@helsinki.fi

Web Address: <http://www.mm.helsinki.fi/~tschulz/>

Access Control:

Auth System: knb

Order: allowFirst

Access Rules:

ALLOW: [read] public

Data Set Citation

National Land Survey of Finland, The National Library of Finland, and University of Helsinki - Department of Agricultural Sciences. **Basic Maps from the Lepsämäenjoki watershed, 1956-1958.**
LAWA_LTSER.4.2

Metadata download: [Ecological Metadata Language \(EML\) File](#)

Data Set Owner(s):

Organization: **National Land Survey of Finland**

Address: P.O. Box 84,
Helsinki, FIN-00521 Finland

Web Address: <http://www.nls.fi/>

Organization: **The National Library of Finland**

Address: PB 15,
Unioninkatu 36,
University of Helsinki, FI-00014 Finland

Phone: +358919123196 (voice)

Email Address: nl-service@helsinki.fi

Web Address: <http://www.nationallibrary.fi/>

Organization: **University of Helsinki - Department of Agricultural Sciences**

Address: P.O. Box 27,
Latokartanonkaari 5,
University of Helsinki, FI-00014 Finland

Web Address: <http://www.helsinki.fi/agriculturalsciences/>

Associated Party:

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Role: Processor

Individual: **Merja Laube-Pohto**

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Phone: +358152023449 (voice)

Email Address: merja.laube@helsinki.fi

Web Address: <http://www.nationallibrary.fi/services/palvelut/digitaalisettallenteet.html>

Role: Processor

Organization: **National Land Survey of Finland**

Address: P.O. Box 84,
Helsinki, FIN-00521 Finland

Web Address: <http://www.nls.fi/>

Role: Originator

Abstract:

The data set includes digitized versions of Finnish Basic Maps. These maps cover the Lepsämäenjoki watershed and surroundings. The maps date from 1956 to 1958. The data was gathered by the National Land Survey of Finland. Basic Maps have a scale of 1:20000 and show cadastral division, roads, buildings, waterways, cultivated areas, other topographic features and contour lines.

Keywords:

Thesaurus: The Finnish General Upper Ontology YSO

- maps
- water areas
- roads
- forest land
- land use
- cadastral systems
- topography
- municipalities
- agricultural land

Thesaurus: The Finnish Spatio-Temporal Ontology (SAPO)

- Espoo(1920-1956)
- Espoo(1957-)
- Helsingin mlk(1954-1965)
- Nurmijärvi(1931-)
- Pyhäjärvi Ul.(1932-1968)
- Tuusula(1951-1973)
- Vihti (1867-)

License and Usage Rights:

The copyright of the original maps is owned by the National Land Survey of Finland for 70 years. All copying, publishing and distribution of the maps is subject to licence. Original copies of the digitized maps are held by the National Library of Finland. The National Library of Finland has a licence to digitize and copy maps belonging to the National Land Survey of Finland. All use of the digitised maps and their derivatives is also subject to licence from the National Land Survey of Finland.

Geographic Coverage:

Geographic Description: Lepsämä, Nuuksio, Ojakkala, Perttula, Selki, Seutula, Vihtijärvi - Southern Finland

West:	24.35773393	degrees
Bounding East:	24.90904499	degrees
Coordinates: North:	60.58736596	degrees
South:	60.23097033	degrees

Temporal Coverage:

Begin: 1956
End: 1958

Contact:

Individual: **Torsti Schulz**
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 Email Address: torsti.schulz@helsinki.fi
 Web Address: <http://www.mm.helsinki.fi/~tschulz/>

Methods Info:

Step 1:

Cartography

Description: Maps are based on aerial photographs and are supplemented by ground surveys. The details of the process might be available from the National Land Survey of Finland.

Step 2:

Digitization

Description:

The maps were digitized at the Microfilming and Conservation Centre of the National Library of Finland in 2009. The maps were colour scanned at 400 dpi and saved as tiff images.

Step 3:

Cropping

Description: Cropped copies of the maps were produced. The image canvas was reduced to the size of the actual map, removing the legend and all other extraneous parts of the original map.

Instrument(s): Image processing was done using GIMP. <http://www.gimp.org/>

Access Control:

Auth System: knb

Order: allowFirst

Access Rules:

ALLOW: [read] public

Data Set Citation

MTT Agrifood Research Finland. **Projected future changes in field use in a changing climate.**
LAWA_LTSER.1.2

Metadata download: [Ecological Metadata Language \(EML\) File](#)

Data Set Owner(s):

Organization: **MTT Agrifood Research Finland**
Address: Plant Production Research, E-Building,
Jokioinen, Kanta-Häme 31600 Finland
Web Address: <http://www.mtt.fi/>

Abstract:

Data include present and future estimated growing regions for each commonly grown and novel field crop as well as their yield potentials. All these for the past (30-years period centred on 1985) and future (30-years period centred on 2025, 2055 and 2055).

Keywords:

Thesaurus: The Finnish General Upper Ontology YSO

- climatic changes
- field cultivation
- land use
- barley
- oat
- wheat
- triticale
- rapeseed
- turnip rape
- pea
- maize

Thesaurus: The Agroforest Ontology (AFO)

- seed crops
- yield

- yield potential
- minor crops

Geographic Coverage:

Geographic Description: Finland

Bounding Coordinates: West: 21.0 degrees
East: 31.5 degrees
North: 70.0 degrees
South: 59.75 degrees

Temporal Coverage:

Begin: 1971
End: 2000

Temporal Coverage:

Begin: 2011
End: 2040

Temporal Coverage:

Begin: 2041
End: 2070

Temporal Coverage:

Begin: 2071
End: 2100

Taxonomic Coverage:

	Rank Name	Rank Value	Common Names
Taxon:	Kingdom	Plantae	
	Family	Brassicaceae	
	Species	Brassica rapa	turnip rape, field mustard, turnip mustard
Taxon:	Rank Name	Rank Value	Common Names
	Kingdom	Plantae	
	Family	Fabaceae	
Species	Pisum sativum	pea	
Taxon:	Rank Name	Rank Value	Common Names
	Kingdom	Plantae	
	Family	Poaceae	
Species	Avena sativa	oat	
Taxon:	Rank Name	Rank Value	Common Names
	Kingdom	Plantae	
	Family	Poaceae	
Species	Hordeum vulgare	barley	
Taxon:	Rank Name	Rank Value	Common Names
	Kingdom	Plantae	
	Family	Poaceae	
Species	Secale cereale	rye	
Taxon:	Rank Name	Rank Value	Common Names
	Kingdom	Plantae	
	Family	Poaceae	
Species	Triticum aestivum	common wheat, bread wheat	
Taxon:	Rank Name	Rank Value	Common Names
	Kingdom	Plantae	
	Family	Poaceae	
Species	Zea mays	maize, corn	
Taxon:	Rank Name	Rank Value	Common Names
	Kingdom	Plantae	
	Family	Poaceae	
Species	x Triticosecale	triticale	

Contact:

Individual: **Pirjo Peltonen-Sainio**
Organization: MTT Agrifood Research Finland
Position: professor
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Jokioinen, Kanta-Häme 31600 Finland
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Web Address: <http://www.mtt.fi/>

Access Control:

Auth System: knb
Order: allowFirst

Access Rules:

ALLOW: [read] public

Data Set Citation

Finnish Environment Institute. **Interview data on agricultural measures and practices, Finland, 1995-2006.**

LAWA_LTSER.3.3

Metadata download: [Ecological Metadata Language \(EML\) File](#)

Data Set Owner(s):

Organization: **Finnish Environment Institute**

Address: P.O. Box 140,
Mechelininkatu 34 A,
Helsinki, Uusimaa 00251 Finland

Web Address: <http://www.environment.fi/syke/>

Abstract:

Interview data on farmers' annual cultivation practices. Collected as a part of the Monitoring Programme of Agri-Environmental Support Scheme in Finland.

Keywords:

Thesaurus: The Finnish General Upper Ontology YSO

- farmers
- interviews
- cultivation
- cultivation methods
- agriculture
- environmental programmes

License and Usage Rights:

The data has been declared confidential.

Geographic Coverage:

Geographic Description: Lepsämäenjoki, Finland

Bounding Coordinates: West: 24.754 degrees
East: 24.754 degrees
North: 60.344 degrees
South: 60.344 degrees

Geographic Coverage:

Geographic Description: Yläneenjoki, Finland

Bounding Coordinates: West: 22.414 degrees
East: 22.414 degrees
North: 60.87 degrees
South: 60.87 degrees

Geographic Coverage:

Geographic Description: Savijoki, Finland

Bounding Coordinates: West: 22.471 degrees
East: 22.471 degrees
North: 60.498 degrees
South: 60.498 degrees

Geographic Coverage:

Geographic Description: Lestijoki, Finland

Bounding West: 23.679 degrees
East: 23.679 degrees
Coordinates: North: 64.042 degrees
South: 64.042 degrees

Temporal Coverage:

Begin: 1995
End: 2006

Taxonomic Coverage:

	Rank Name	Rank Value	Common Names
Taxon:	Family	Hominidae	
	Species	Homo sapiens	human

Contact:

Individual: **Juha Grönroos**
Organization: Finnish Environment Institute
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Mechelininkatu 34 A,
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Email Address: juha.gronroos@ymparisto.fi
Web Address: <http://www.environment.fi/syke/>

Access Control:

Auth System: knb
Order: allowFirst

Access Rules:

ALLOW: [read] public

Data Set Citation

Finnish Environment Institute and Centres for Economic Development, Transport and the Environment. **Water quality data from Lepsämäenjoki, (1977-) 1996-2010.**
LAWA_LTSER.6.2

Metadata download: [Ecological Metadata Language \(EML\) File](#)

Data Set Owner(s):

Organization: **Finnish Environment Institute**

Address: P.O. Box 140,
Mechelininkatu 34 A,
Helsinki, Uusimaa 00251 Finland

Web Address: <http://www.environment.fi/syke/>

Organization: **Centres for Economic Development, Transport and the Environment**

Address: Asemapäällikönkatu 14, 00520 Helsinki,
Helsinki, Uusimaa 00520 Finland

Web Address: <http://www.ely-keskus.fi/uusimaa>

Abstract:

Water quality data has been collected from the lower course of the river Lepsämä (observation post Lepsämäenjoki 2,6) systematically since 1996. Older water quality data has been collected at other observation posts along the river (including Lepsämäenjoki 3,7, 1977-1995). At Lepsämäenjoki 16,9 water quality data has been measured since 2000. The data has been collected in joint observation efforts of the river Vantaa and measurements organized by the environmental administration. Additionally data on benthos in the river Lepsämä has been collected.

Keywords:

Thesaurus: The Finnish General Upper Ontology (YSO)

- water quality
- catchment areas
- measurement
- river
- benthos

License and Usage Rights:

The data is available in public and free of charge at the OIVA - web service which is maintained by the Finnish environmental administration.

Geographic Coverage:

Geographic Description: Lepsämäenjoki watershed, Southern Finland

Bounding Coordinates: West: 24.47 degrees
East: 24.78 degrees
North: 60.5 degrees
South: 60.27 degrees

Geographic Coverage:

Geographic Description: Lepsämäenjoki, observation post 2104900, Finland

Bounding Coordinates: West: 24.759 degrees
East: 24.759 degrees
North: 60.332 degrees
South: 60.332 degrees

Temporal Coverage:

Begin: 1977
End: 1995

Temporal Coverage:

Begin: 1996

End: 2010

Contact:

Organization: **Finnish Environment Institute**

Address: P.O. Box 140,
Mechelininkatu 34 A,
Helsinki, Uusimaa 00251 Finland

Web Address: <http://www.environment.fi/oiva/>

Access Control:

Auth System: knb

Order: allowFirst

Access Rules:

ALLOW: [read] public

Data Set Citation

University of Helsinki, Department of Agricultural Sciences. **Relative cover data on vascular plant species in the Lepsämäinjoki region, 2001-..**

LAWA_LTSER.3.1

Metadata download: [Ecological Metadata Language \(EML\) File](#)

Data Set Owner(s):

Organization: **University of Helsinki, Department of Agricultural Sciences**

Address: P.O. Box 27,
Latokartanonkaari 5-7,
Helsinki, Uusimaa 00014 University of Helsinki Finland

Web Address: <http://www.helsinki.fi/agriculturalsciences/>

Abstract:

Relative cover of vascular plant species has been monitored 2001, 2005, and 2007 onwards annually in the Lepsämäinjoki area. The data have been collected with the line transect method from five square kilometre landscape samples, from 12 transects of 50 m in length in semi-natural habitats next to agricultural fields. Each transect has been counted once per summer, during the month of July.

Keywords:

Thesaurus: The Finnish General Upper Ontology - YSO

- vascular plants
- seed plants
- population
- trends

Geographic Coverage:

Geographic Description: Lepsämä, Nurmijärvi, Finland

Bounding Coordinates: West: 24.63304 degrees
East: 24.65767304 degrees
North: 60.38345 degrees
South: 60.38345 degrees

Temporal Coverage:

Date: 2001

Temporal Coverage: Date: 2005

Temporal Coverage: Date: 2005

Temporal Coverage: Begin: 2007

End: 2010

Taxonomic Coverage:

	Rank Name	Rank Value	Common Names
Taxon:	Kingdom	Plantae	
	Group	Tracheobiota	Vascular plants

Contact:

Individual: **Juha Helenius**

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Position: professor

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Email Address: juha.helenius@helsinki.fi

Web Address: <http://www.helsinki.fi/agriculturalsciences/>

Access Control:

Auth System: knb

Order: allowFirst

Access Rules:

ALLOW: [read] public

Data Set Citation

Finnish Environment Institute. **Annual abundance data on butterfly and day-active moth species in the Lepsämäenjoki region, 2001-.**

LAWA_LTSER.2.2

Metadata download: [Ecological Metadata Language \(EML\) File](#)

Data Set Owner(s):

Organization: **Finnish Environment Institute**

Address: P.O. Box 140,
Mechelininkatu 34 A,
Helsinki, Uusimaa 00251 Finland

Web Address: <http://www.environment.fi/syke/>

Abstract:

Abundances of butterfly and day-active moth species have been monitored annually in Lepsämäenjoki area since 2001. The data has been collected with line transect method ('Pollard walk') from five sites, each with a 1 km transect. Each transect has been counted 7 times per summer, with ca. two week intervals.

Keywords:

Thesaurus: YSO - Yleinen suomalainen ontologia

- butterflies
- moths
- Lepidoptera
- population
- trends

Geographic Coverage:

Geographic Description: Lepsämä, Nurmijärvi, Finland

Bounding Coordinates: West: 24.63304 degrees
East: 24.65767304 degrees
North: 60.38345 degrees
South: 60.38345 degrees

Temporal Coverage:

Begin: 2001
End: 2010

Taxonomic Coverage:

	Rank Name	Rank Value	Common Names
Taxon:	Order	Lepidoptera	butterflies, moths

Contact:

Individual: **Janne Heliölä**
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Email Address: janne.heliola@ymparisto.fi
Web Address: <http://www.environment.fi/syke/>

Access Control:

Auth System: knb
Order: allowFirst

Access Rules:

ALLOW: [read] public