LIFE08 NAT/S/000264 MOTH – Seashore inventory

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Field manager

Sweden 41 000 000 ha Coast 2 400 km Seashore: 0,16% of total area





Life+ MOTH (2010-2014)

- Complementary
- Random sampling
- Two phase-design: interpretation
 + field visit
- Estimation of areal coverage, distribution and conservation status of terrestrial (less frequent) Natura 2000 habitats









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Two-phase sampling

MOTH terrestrial habitat inventory: A cluster of 200 grid-points (5 x 2.1 km)

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• First step: Aerial interpretation

- Manual classification of each grid point/line-intercept using aerial infra-red images.
- No help from ground data.
- The aim is to divide the grid points/intercepts into broad habitat Al-classes

Second step: Field survey

- A proportion is randomly selected from each Al-class. The proportion differs between classes.
- Selected plots are surveyed in the field. All plots all classified in the field and a number of status variables is measured.
- Analyses: Estimation of coverage and status.

MOTH Seashore

inventory:

Line-intercepts, of approx. 300 lines (5 x 2,5 km)







Before:	During data collection:	A
Images Manuals Equipment Protocols Databases Software	 <u>Terrestrial habitat</u> <u>inventory:</u> Phase-1: approx. 230 working days by 6-7 interpreters (Dec-Apr) Phase-2: 10 field teams, 14-16 weeks incl. training 	•
Principles for phase-2 selection Employing field staff	 <u>Seashore inventory</u>: Phase-1: approx. 60 working days by 2-3 interpreters (May-June) Phase-2: 4 field teams, 5-6 weeks incl. training 	•
	 <u>Support</u>: Throughout the surveys (phase-1, Dec-June + phase-2, May-Sept) 	

Afterwards:

- Datamanagement
- Qualitycontrol and assessment
- Analyses
- Reporting



Challenges: Defining the shoreline

Establishing the transect:

- Mean sea-level
- Mean high sea level
- Extreme-high level
- Aerosol influence
- Drift bank habitats
- Tidal effects
- Habitats connected upland seashores



Interpretation of all intercepts between lines and seashores:

Coast type (mainland, island, islet, shallows)

Shore-type (sediment/meadow-sand-gravel-boulder-rock/cliff)

Direction (vertically to the elevation)

Habitat upland? (Dune, fossile stony banks, sea cliffs, landupheaval forest)

Exploitation?

Buildings/roads/piers/jetties/ Landings/Dredged channels/ Beaches/marinas



Seashore-specific training course: 2-3 days early Aug

- Defining transect
- Habitat classification
- Species knowledge
- Calibration
- Experts and experianced field workers



Using vegetation/species as indicators:

Supra-/epilitoral | G

Deschampsia ceaspitosa

Deschampsia ceaspitosa

Betula, Alnus, Salix spp

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al | Geolitoral

Festuca rubra, Armeria maritima, Juncus gerardii, Glaux maritima, Triglochin maritimum, Puccinellia maritima

Festuca rubra, Armeria maritima, Juncus gerardii, Agrostis stolonifera, Eleocharis uniglumis

Salix spp, Myrica gale, Carex nigra, Calamagrostis neglecta, Carex aquatilis

Hydrolitoral

Salicornia, Armeria maritima, Juncus gerardii, Agrostis stolonifera, Eleocharis uniglumis

Phragmitis, Schoenoplectus tabernaemontani, Bolboschoenus maritimus

Eleocharis palustris, Schoenoplectus tabernaemontani, Eleocharis acicularis

West coast: Skagerrak, Kattegatt

Baltic sea

Bothnian bay





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Using zones as indicators:



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Using structures as indicators:





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Life+ MOTH Seashore inventory Results

Shore type (phase 1)	Total (km)	%	Exploited (km)	Exp. %
Rock	17 095	41,7%	1 109	6%
Boulder/gravel	11 018	26,9%	2 046	19%
Sand	3 313	8,1%	877	26%
Meadows/wetlands	6 191	15,1%	1 448	23%
Constructed*	3 357	8,2%	3 013	90%
Total Swedish seashore:	40 975 km		8 492 km	21%

*All constructed types are "exploited"

Exploitation: according to distance to roads, houses, power-lines etc





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Life+ MOTH Seashore inventory:

Results based on 100 PSU, 6915 line-intercepts and 466 field transects:

		<u>2012 data -> +2013 data</u>
	Seashore area:	63 000 ha -> 64 000 ha
<u>Code</u>		
1230	Veg. seacliffs	33 000 ha -> 24 200 ha
1330	Saline meadows	1 300 ha -> 1 500 ha
1630	Baltic meadows	7 800 ha -> 9 900 ha
9030	Land upheaval forests	16 100 ha -> 17 100 ha

(1640)	Sandy beaches	2 900 ha ->	3 400 ha
(2100)	Dune habitats	2 000 ha ->	4 800 ha





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Photographs

From each transect:

- •Upwards, downwards, left and right
- Transect ending
- •1 photo representative of the drift vegetation
- •As important as other data collected!







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Life+ MOTH General habitat inventory: Combining results Coverage versus accuracy of the estimation for sparse habitats



Boreal region: Estimates based on NILS (2008-2012) versus combined estimates of NILS and MOTH (2010-2012)

Continental region: Estimates based on NFI (2008-2012) versus combined estimates of NFI and MOTH (2010-2012)



Note: different scales on x-axis