Problēmjautājumi saistībā ar DMB indikatorsugu izmantošanu dabisko meža biotopu atpazīšanā. Ķērpju piemērs

Problems related to the use of indicator species in the identification of natural forest habitats. Lichen case study

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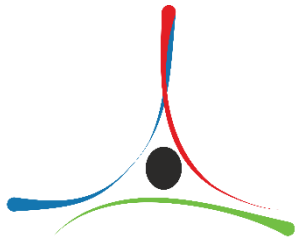

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Woodland Key Habitats and EU protected habitats

To determine EU protected habitats from managed forest sites in Latvia it was considered to use methods from Woodland Key Habitat inventories project that was carried out in the beginning of 2000's

These methods are based on searching for forest sites that contains structures, elements and «sensitive» (indicator) species, which are typical only for natural forests or forest sites, which had low level of unnatural disturbances in the past

Summary information

Present methodics for determination the European Union protected forest habitats in Latvia includes about **65** lichen species (total nr. of species in list – about **230**) that are employed as indicator species of natural forest habitats (Auniņš, et.al 2013).

Problems

- The meaning of indicator species
- The determination of species during field works
- Officially unknown species in Latvia
- Regional distribution of species
- Misleadings
- Lack of revisions in species lists

Meaning of indicator species

At the moment there is no information given about species preferences in Latvia, and the «meaning» of indicator species in habitat, that sometimes cause difficulties in determination of the forest habitat quality

Possible solution:

The description of specific preferences of indicator species

For example:
Indicators of long-term humidity in habitat

Arthonia leucopellaea

Arthonia vinosa

Bactrospora dryina

Letogium saturninum

Menegazzia terebtrata

Mycoblastus sanguinarius

Parmeliella triptophylla

Indicators of dead wood (CWD) volume, dacay stage continuity and diversity in habitat

Chaenotheca brachypoda

Cladonia parasitica

Icmadophila ericetorum

Chaenotheca gracilenta

Cyphelium sessile

Old-growth forest sites with high continuity and low level of unnatural disturbance

Arthonia byssacea

Chaenotheca chlorella

Lobaria pulmonaria

Sclerophora peronella

Usnea florida

Problems with species determination «in field»

The determination of species in field is often problematic without using special equipment or chemical reactions

Chaenotheca brunneola

Chaenotheca xyloxena

Examples:

Pertusaria hemisphaerica (C+y;K-;KC+y)

Ochrolechia androgyna

Possible solution:

More careful revision of lists with removal of problematic species

Current list includes species that still were not officialy found in Latvia or their presence in Latvia is still discussed among lichen specialists

Peltigera collina

Possible sollution:

To exclude species until official confirmation, to make revision of available herbarium material

Rarely used (or too rare) species

Hypogymnia vittata

Lobaria scrobiculata

Possible solution:

To exclude species that are extremely rare (has less than 5 founds during last 15 years).

Species that probably has regional distribution in Latvia

Pertusaria pertusa

Hypogymnia farinacea

Possible sollution:

Exclude species that are common in known distribution areal and extremely rare outside

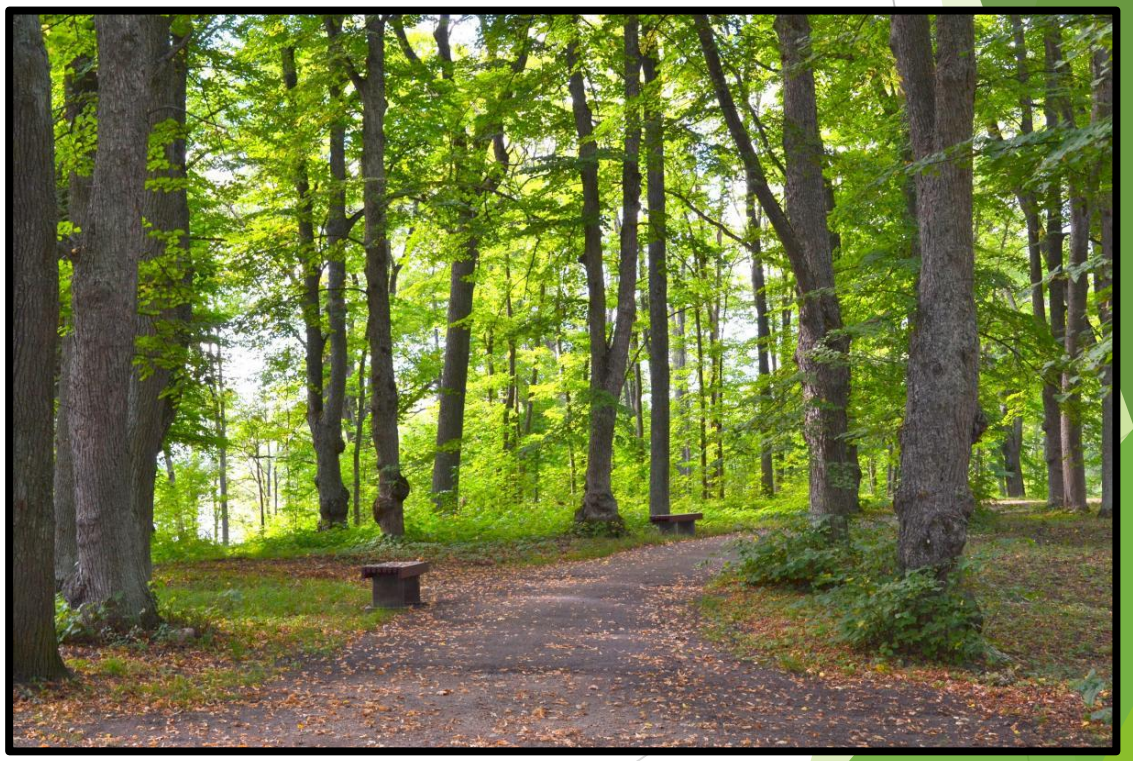
Misleadings:

Collema spp. - include several pioneer species; the generas can be found even in disturbed and human made habitats

Collema tenax

Sclerophora sp.

Sclerophora sp. – *Sclerophora pallida*! *S.pallida* can be found in parks and alleys of the Baltics more frequent than in natural forest habitats



Cetrelia olivetorum s.lat

Cetrelia olivetorum s.lat – species complex that needs inventory

Possible sollution: To determine, which species from generas are indicators and which are not!

Species that probably can be used as indicator species

Carbonicola antracophila – «Evidence» of oldgrowth forest sites that were affected by intensive forest fires in past.

Chaenotheca cinerea – Oldgrowth forest species (in all countries where it is known)

Cladonia norvegica – Deadwood continuity indicator in forest site

Microcalicium disseminatum – Indicator of forest site continuity (in Latvia was found in old parklands and fennoscandian wooded meadows and pastures

M. arenarium – Indicator of active proceses continuity in oldgrowth boreal forest sites (needs more studies on species distribution)

Conclusions!

Potential changes in the indicator species list

Phlyctis agelaea	*Arthonia spadicea*	*Arthonia byssacea*	*Usnea florida*
Pertusaria hemisphaerica	*Arthonia leucopellea*	*Arthonia cinereopruinosa ?*	*Biatora sphaeroides*
Pertusaria flavida	*Acrocordia gemmata*	*Arthonia cinnabarina*	*Chaenotheca chlorella*
Peltigera collina	*Icmadophila ericetorum*	*Bacidia rosella*	*Cladonia parasitica*
Parmelia acetabulum	*Bactrospora spp.*	*Buellia violaceofusca*	*Cliostomum corrugatum*
Mycoblastus sanguinarius	*Alectoria sarmentosa*	*Caloplaca lucifuga*	*Cyphelium sessile*
Lecidea botryosa	*Calicium adspersum*	*Cetrelia spp.*	*Leptogium lichenoides*
Lecanactis abietina	*Chaenotheca phaeocephala*	*Cybebe gracilenta*	*Letogium saturninum*
Hypogymnia farinacea	*Collema spp. ?*	*Evernia divaricata*	*Chaenotheca cinerea*
Chaenotheca brachypoda	*Lobaria pulmonaria*	*Evernia mesomorpha*	*Carbonicola anthracophila*
Ramalina thrausta	*Menegazzia terebrata*	*Gyalecta ulmi*	*Cladonia norvegica*
Graphis scripta	*Nephroma spp.*	*Hypogymnia vittata*	*Microcalicium disseminatum*
Buellia alboatra	*Parmeliella triptophylla*	*Leptogium cyanescens*	*...*
Bacidia rubella	*Sclerophora spp.*	*Lobaria scrobiculata*	
Arthonia vinosa	*Thelotrema lepadinum*	*Opegrapha vermicellifera*	

Species that probably can be added to the indicator species list.

Examples:

Carbonicola anthracophila (Photo: Mika Bendicsby (Phd. Thesis))

Cladonia norvegica

Thank you for attention!