

# HARJUJEN KASVIT JA KASVILLISUUS

A photograph of a pine forest. The foreground is dominated by a rocky path covered in moss and fallen pine needles. The path leads towards a body of water, possibly a lake or a wide river, visible in the background. The trees are tall and thin, with dark trunks and green needles. The lighting is bright, suggesting a sunny day.

Jouko Rikkinen

Luonnontieteellinen keskusmuseo  
Bio- ja ympäristötieteellinen tiedekunta  
Helsingin yliopisto





## Jouko Rikkinen

Professor of Botany  
Professor, Botany and Mycology Unit  
Helsinki Institute of Sustainability Science (HELSUS)  
Teachers' Academy  
The Academic Outreach Network  
Viikki Plant Science Centre (ViPS)  
Lichens

Supervisor for doctoral programme, [Doctoral Programme in Plant Sciences](#)  
Supervisor for doctoral programme, [Doctoral Programme in Wildlife Biology](#)

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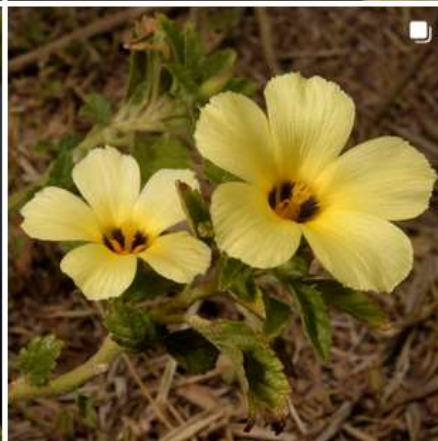
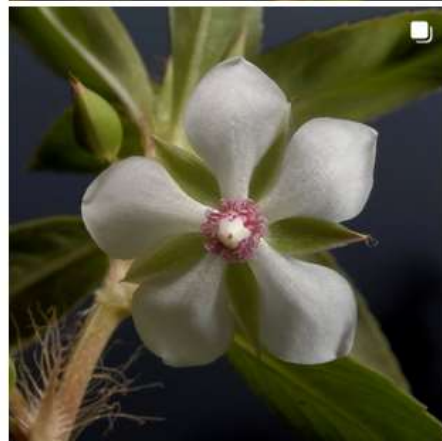
Jouko Rikkinen

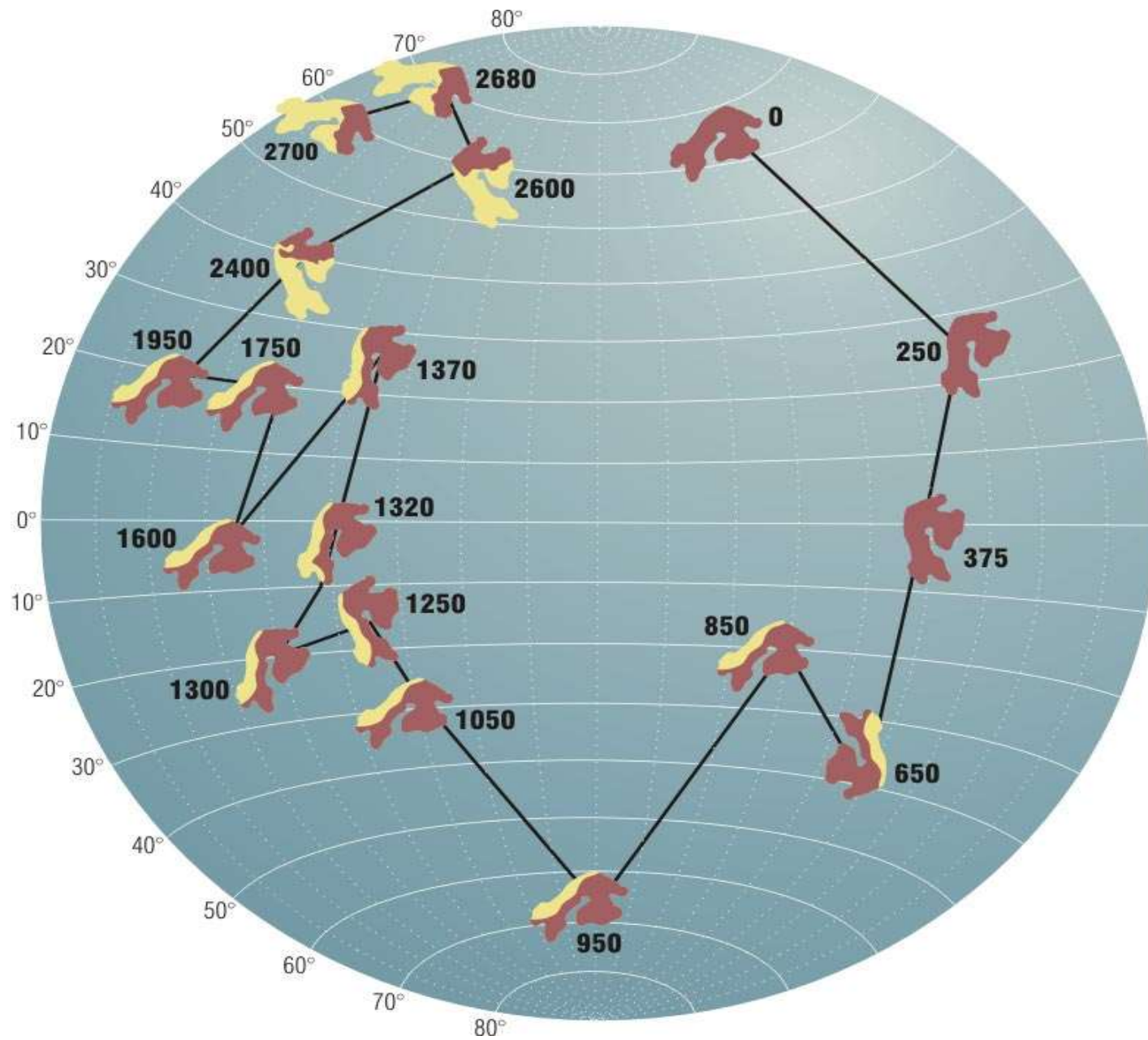
Nature enthusiast from Helsinki, Finland

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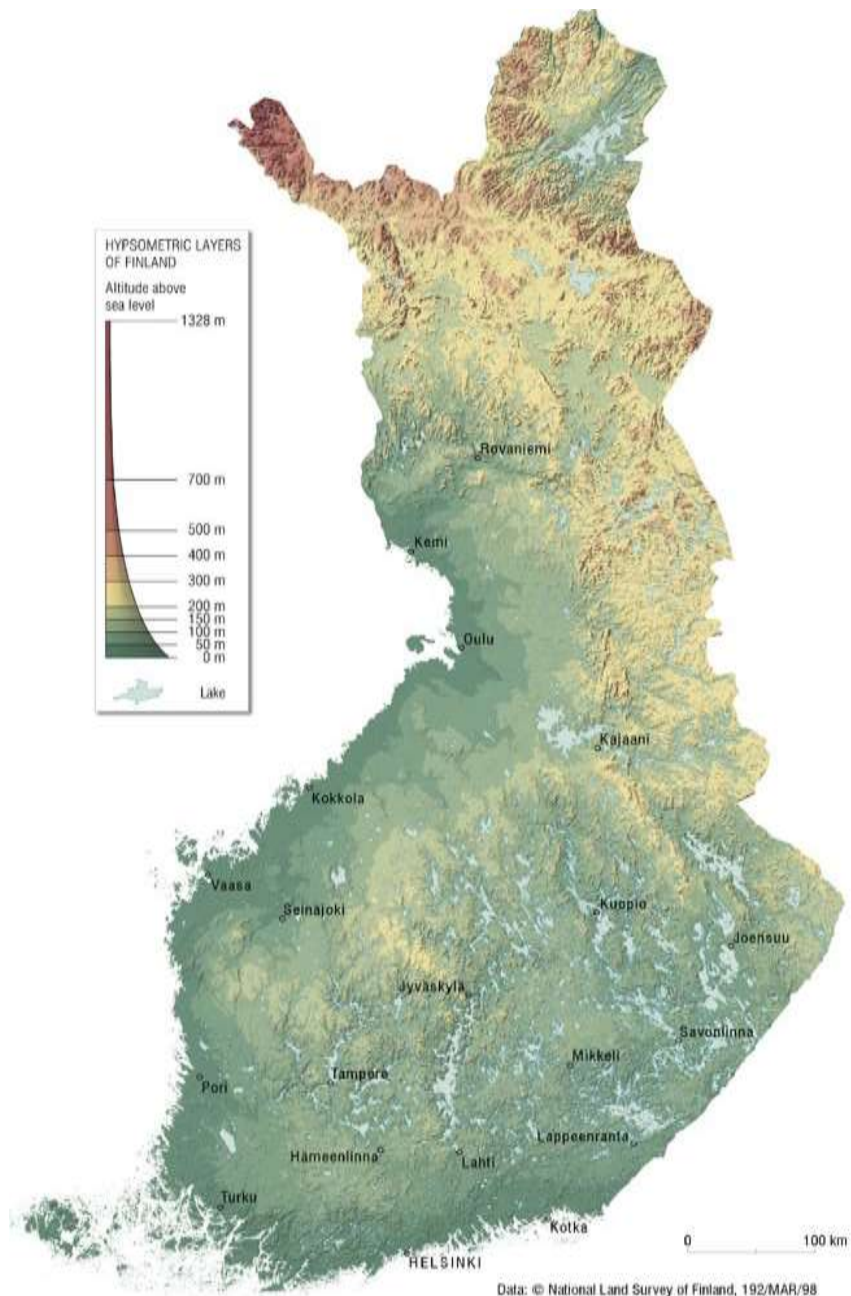




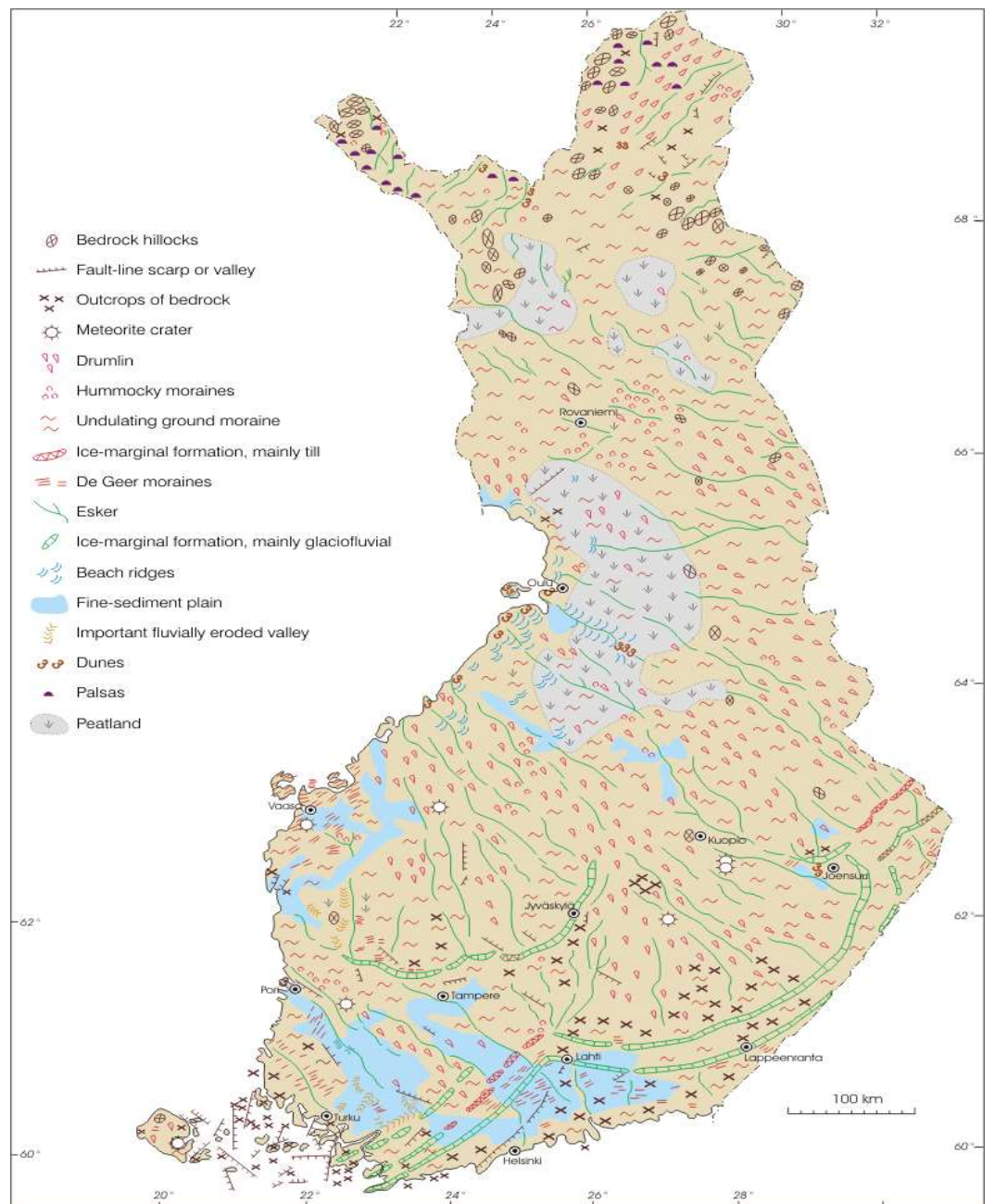








Data: © National Land Survey of Finland, 192/MAR/98





### Floristic provinces

Holarctic Kingdom/Circumboreal Region

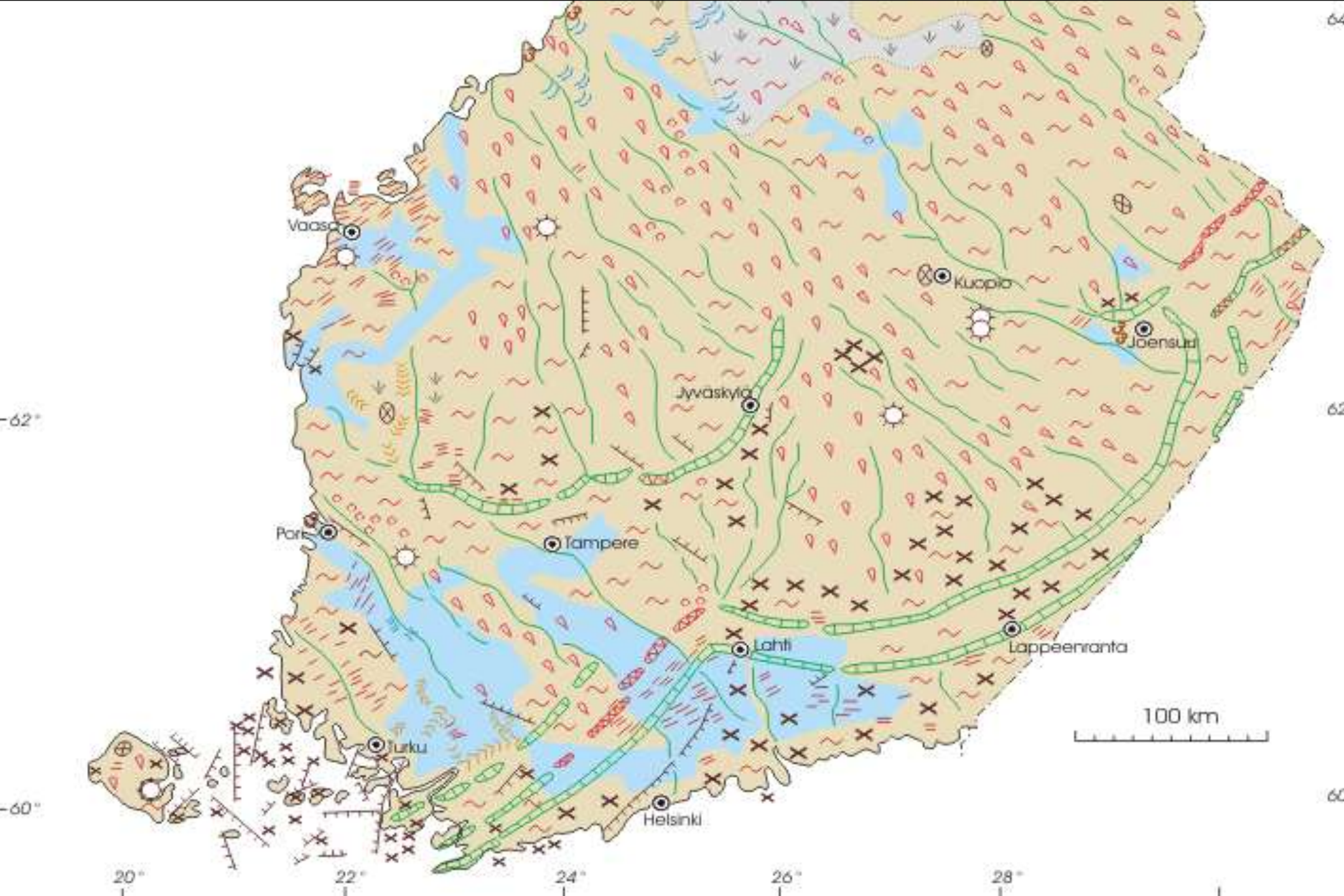
- Arctic Province** Long, cold winter and brief summer; characterized by dwarf willows, small birches, dwarf bilberry and bearberry and the mountain avens.
- Atlantic-European Province** Climate moderated by warm North Atlantic Drift; characterized by ivy, heather and the primrose *Primula scandinavica*.
- Northern European Province** Relatively new range of plants so few endemic species. Characteristic trees are conifers, e.g. pines and spruces.
- Central European Province** Continental European climate; plants of mountains farther south (Alps and Carpathians) found at this northern limit of the province.

























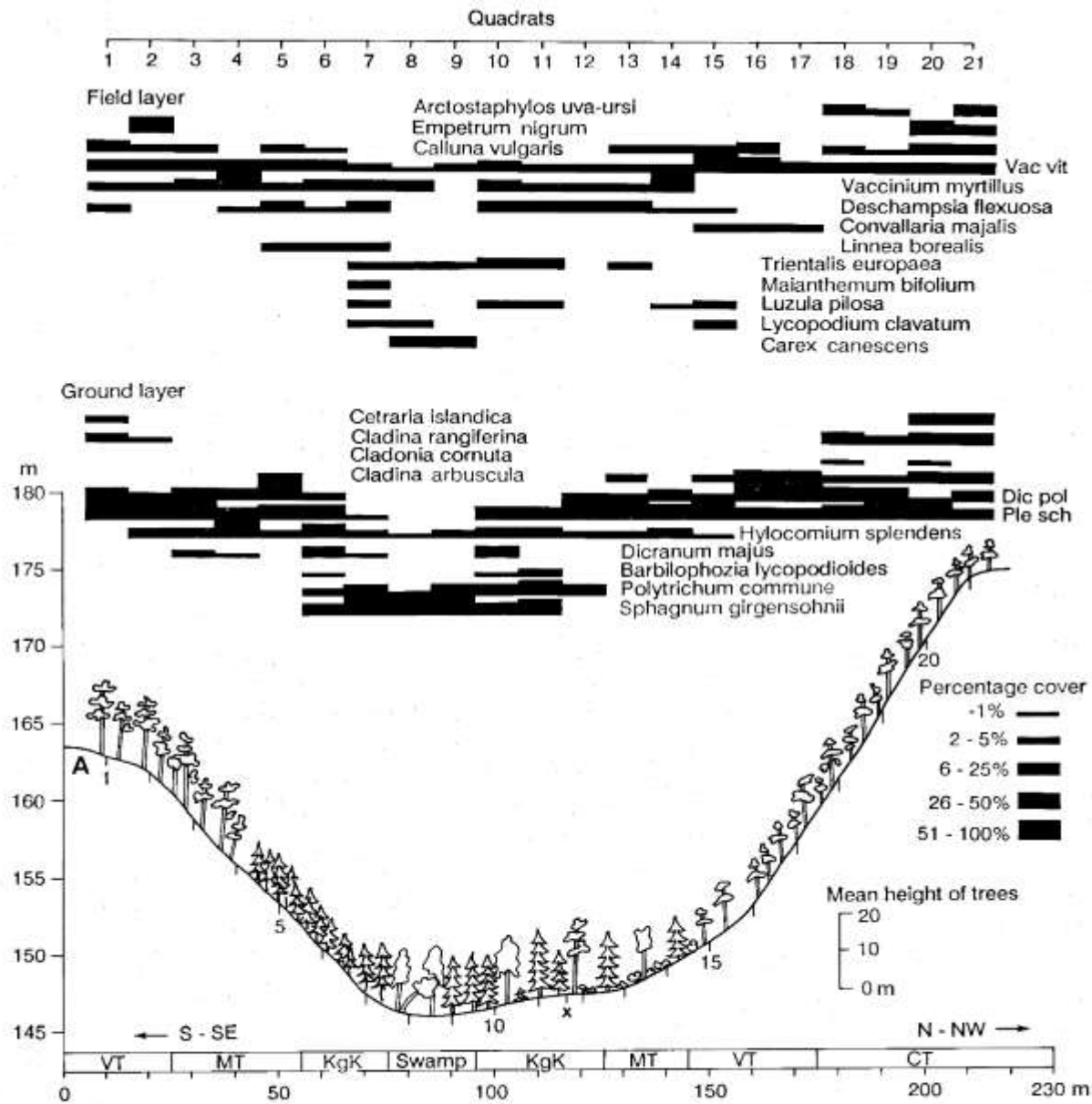
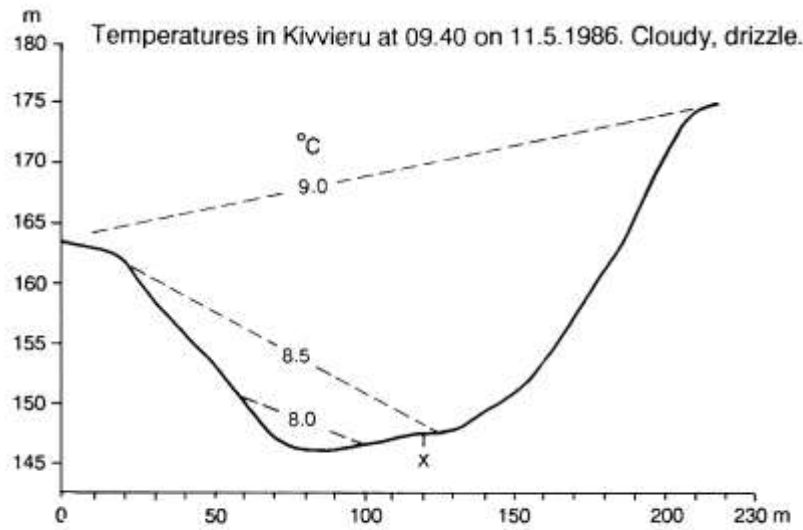
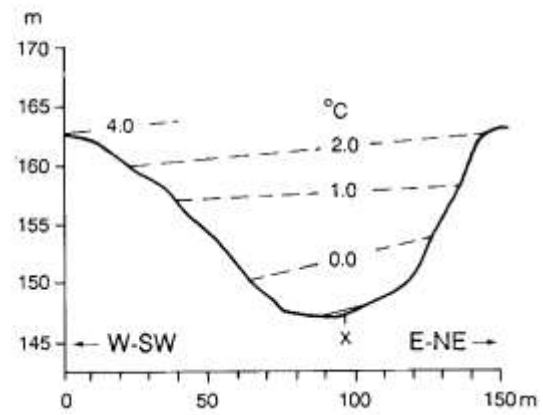
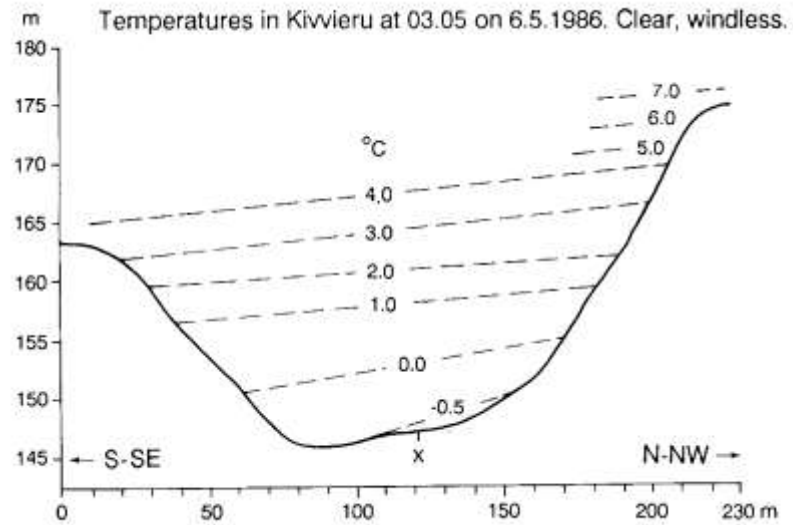
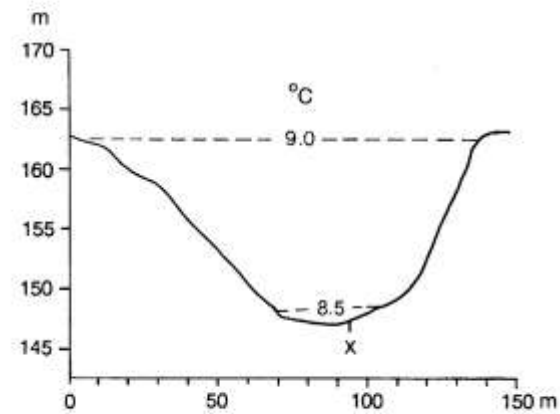


Fig. 15. Vegetation of Kivvieru on transect A—B (Fig. 6). X = point of intersection of the transects. Plant species: Vac vit = *Vaccinium vitis-idaea*, Dic pol = *Dicranum polysetum*, Ple sch = *Pleurozium schreberi*. Vegetation types: CT = *Calluna* type, VT = *Vaccinium* type, MT = *Myrtillus* type, KgK = thin peat spruce mire, Swamp = thin peat spruce mire with swamp effect.





Transect A-B in Fig.6.



Transect C-D in Fig.6.



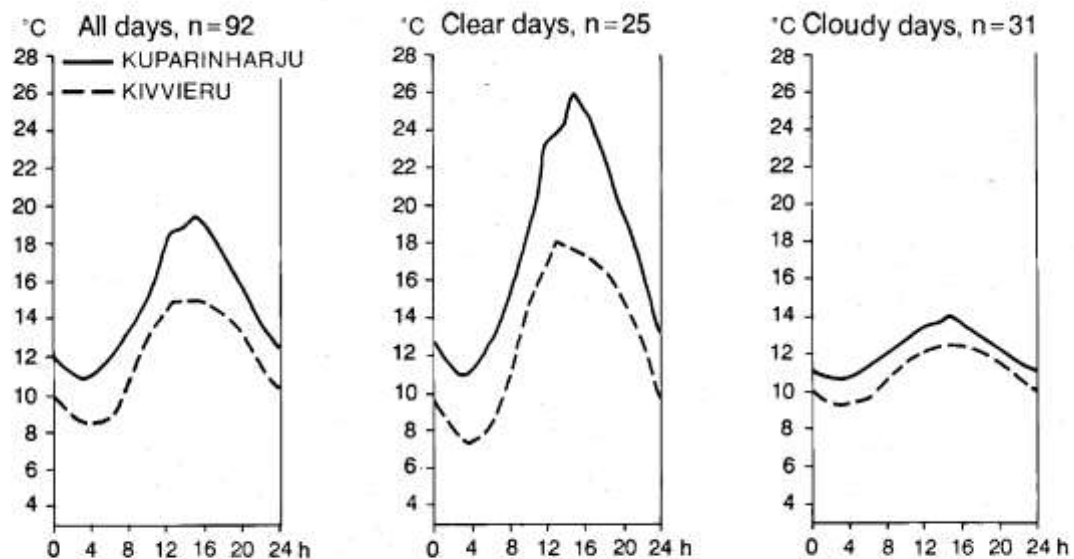
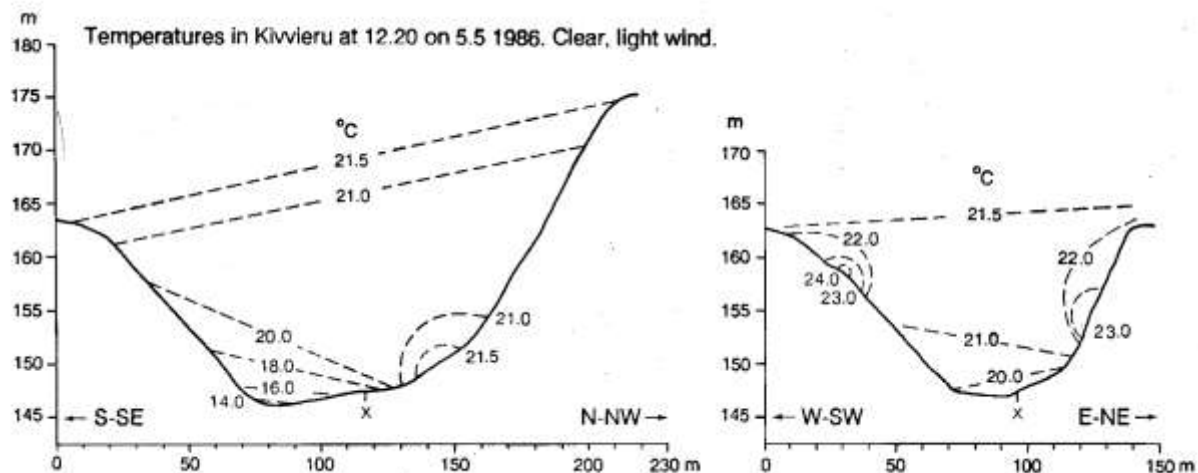


Fig. 11. Mean diurnal temperature patterns on the summit of the Kuparinharju esker and in the bottom of the Kivvieru kettle hole during the period 1. 6.—31. 8. 1986. All times are local times.





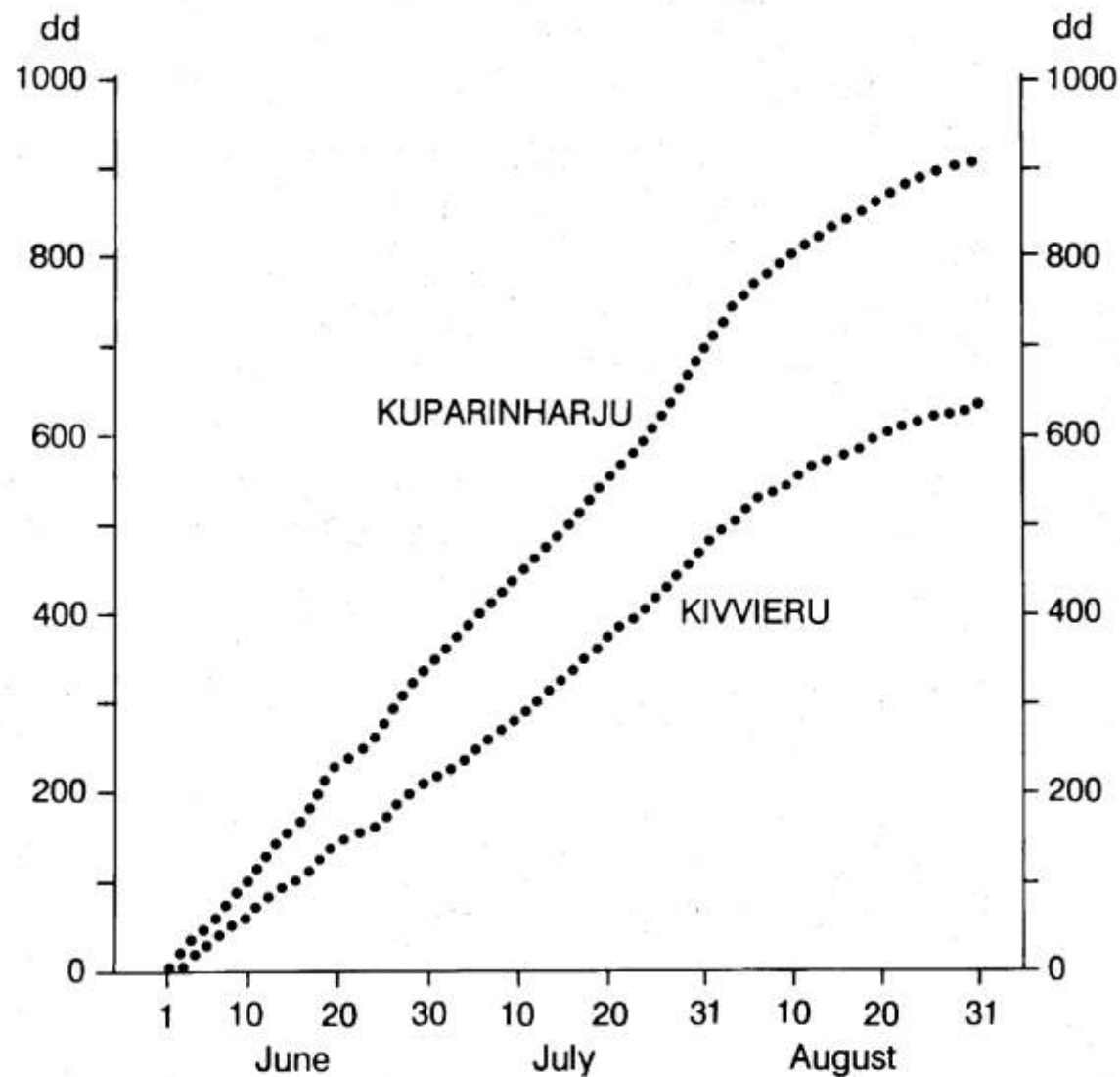


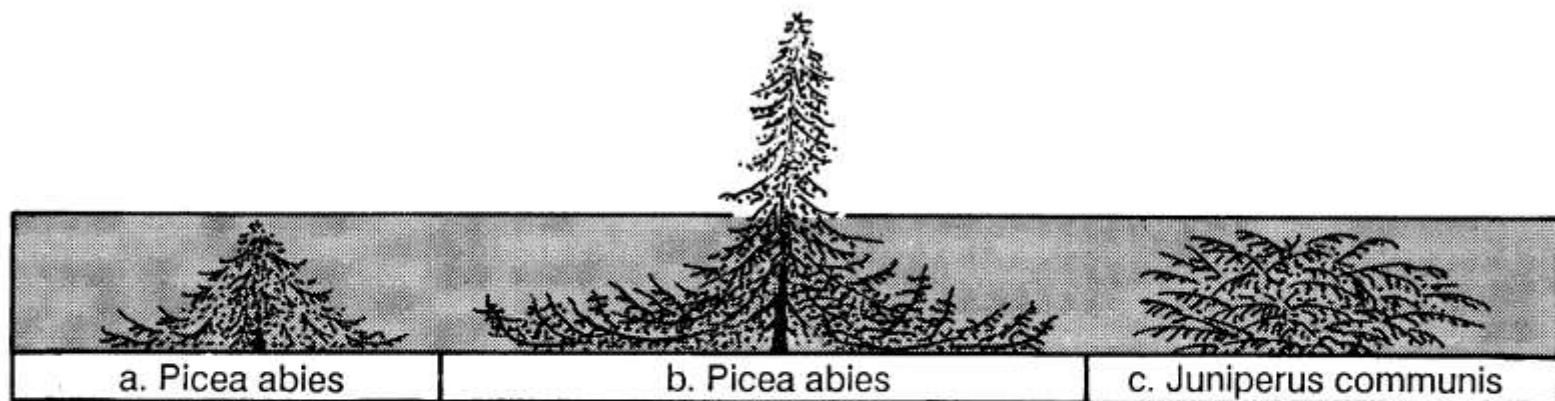
Fig. 13. Accumulation of the effective temperature sum (dd) on the summit of the Kuparinharju esker and in the bottom of the kettle hole of Kivvieru during the period 1. 6.—31. 8. 1986.



Table 12. Onset of plant growth and growth rhythm on the shaded slope of Kivvieru in summer 1986.

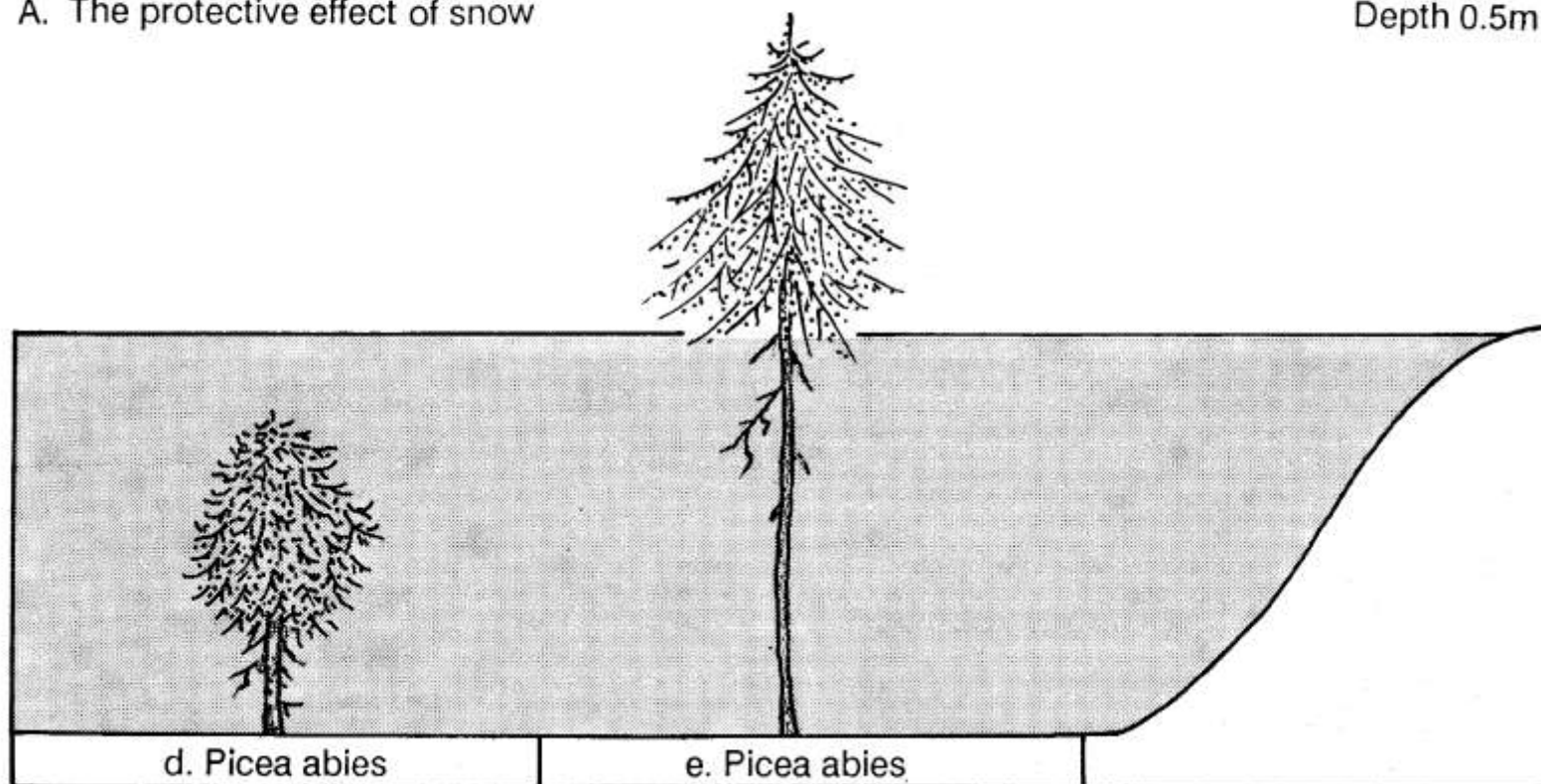
Date:		7.5.	12.5.	20.5.	10.6.	28.8.
<b>CALLUNA VULGARIS</b>						
Upper slope:	Mean growth (mm)	0.00	0.45	1.24	12.43	54.68
	% of total growth	0.00	0.82	2.29	22.73	100.00
Lower slope:	Mean growth (mm)	0.00	0.18	0.42	4.17	28.94
	% of total growth	0.00	0.63	1.46	14.41	100.00
<b>EMPETRUM NIGRUM</b>						
Upper slope:	Mean growth (mm)	0.00	0.47	2.35	19.65	42.55
	% of total growth	0.00	1.10	5.52	46.18	100.00
Lower slope:	Mean growth (mm)	0.00	0.22	1.08	7.63	42.68
	% of total growth	0.00	0.52	2.53	17.88	100.00
<b>JUNIPERUS COMMUNIS</b>						
Upper slope:	Mean growth (mm)	0.00	0.64	2.22	13.13	26.48
	% of total growth	0.00	2.42	8.38	49.58	100.00
Lower slope:	Mean growth (mm)	0.00	0.11	0.33	2.43	8.43
	% of total growth	0.00	1.30	3.92	28.83	100.00





A. The protective effect of snow

Depth 0.5m



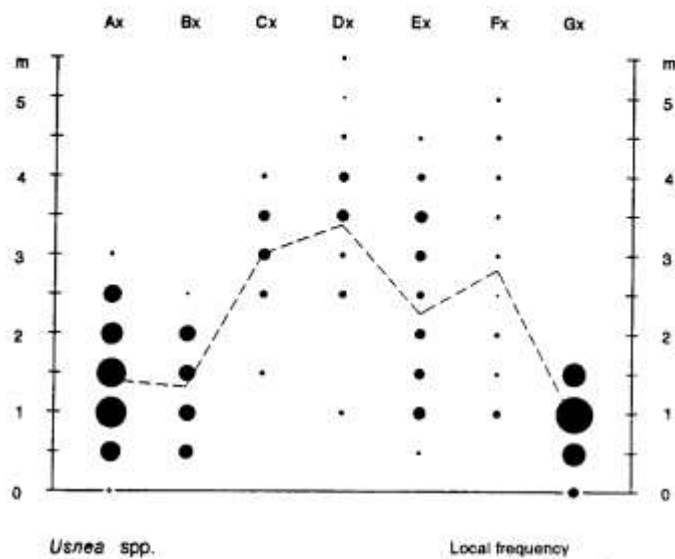
B. The damaging effect of a lake of cold air

Depth 1.5m

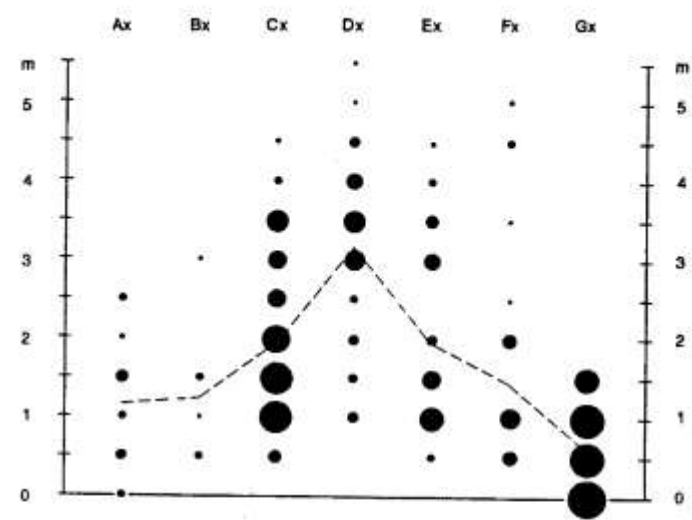
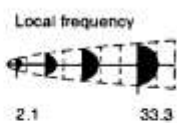




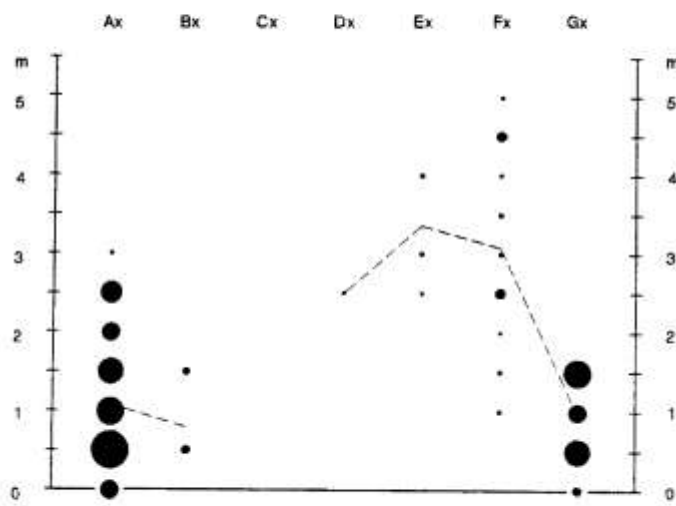
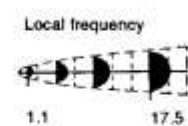




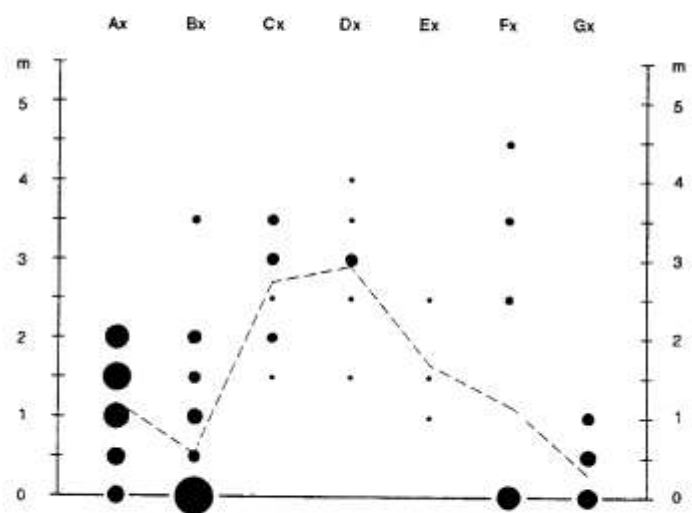
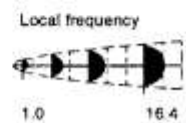
*Usnea* spp.



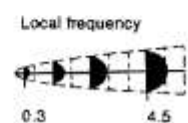
*Bryoria* spp.



*Pseudevernia furfuracea*



*Cetraria pinastri*















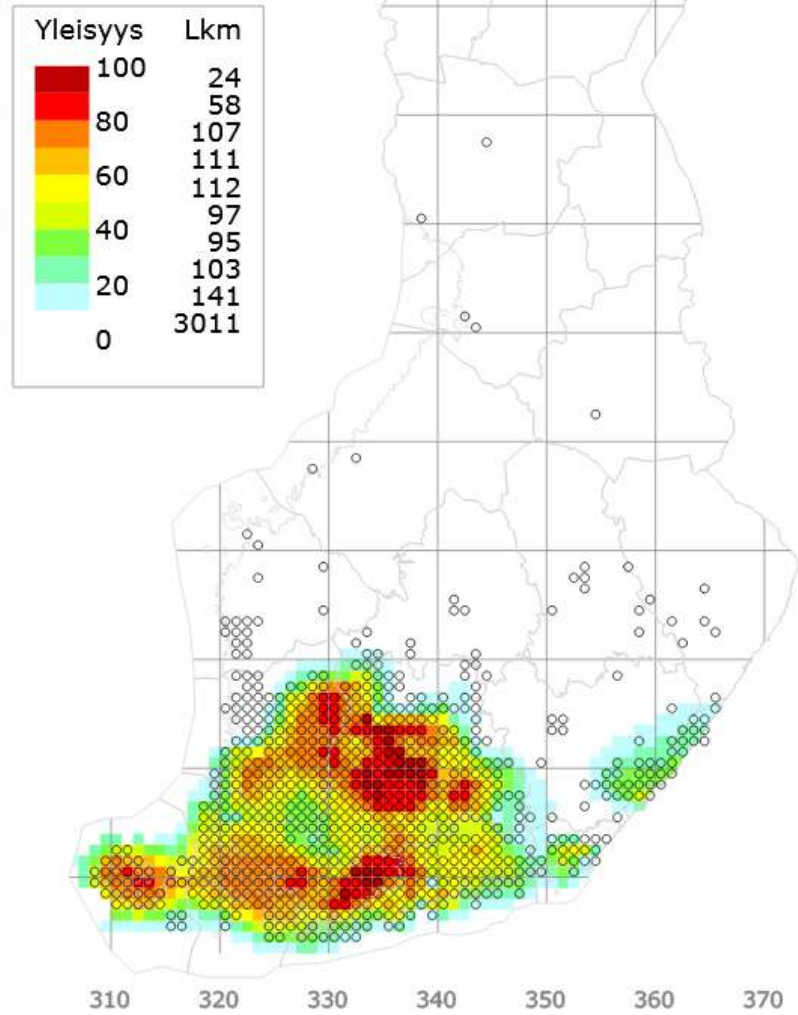






# Hepatica nobilis

## Kasviatlas 2020



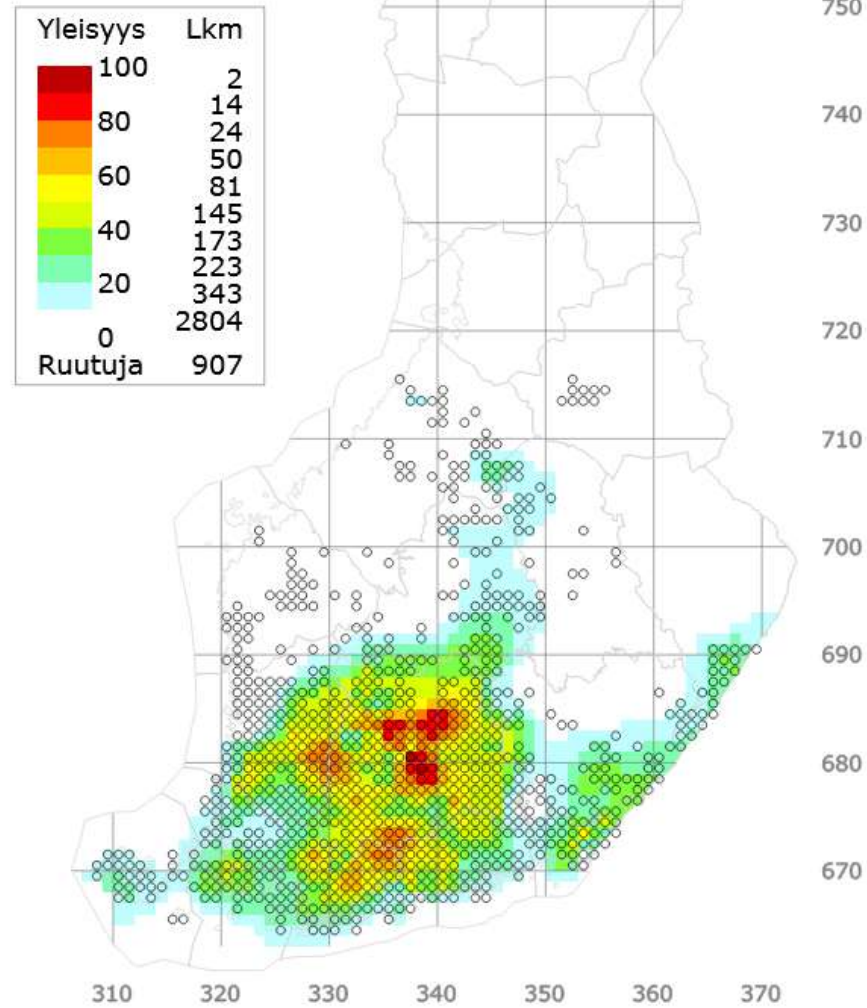
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680  
670





# Lathyrus vernus

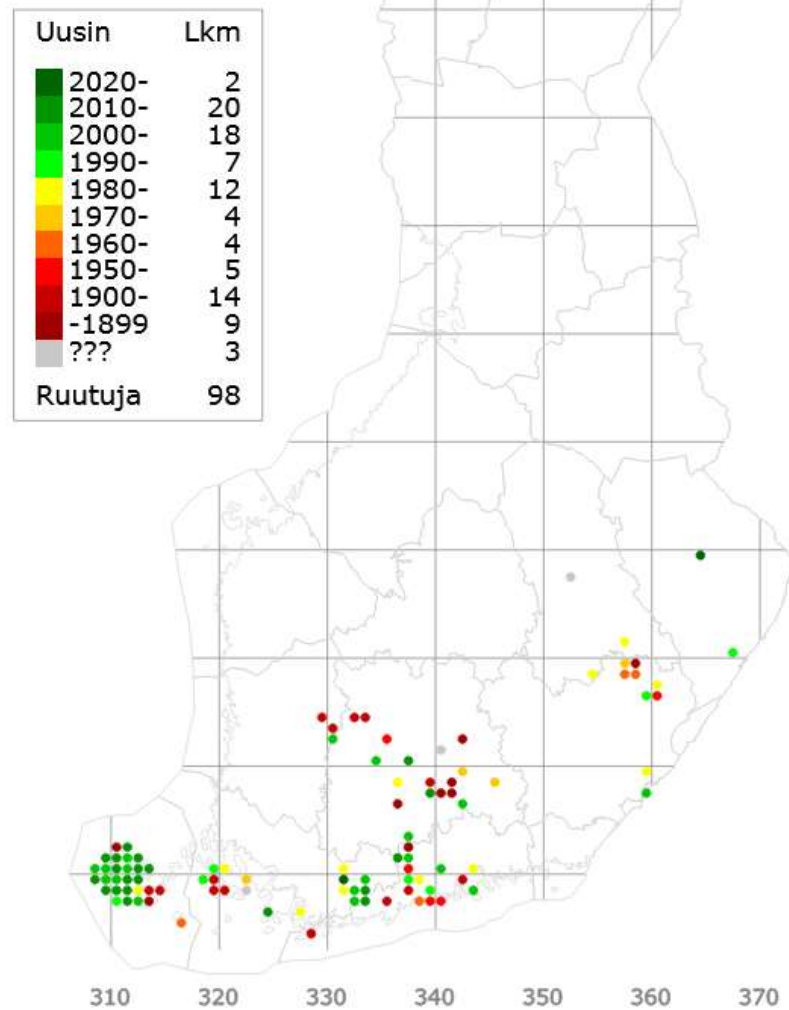
## Kasviatlas 2022





# Neottia nidus-avis

## Kasviatlas 2022

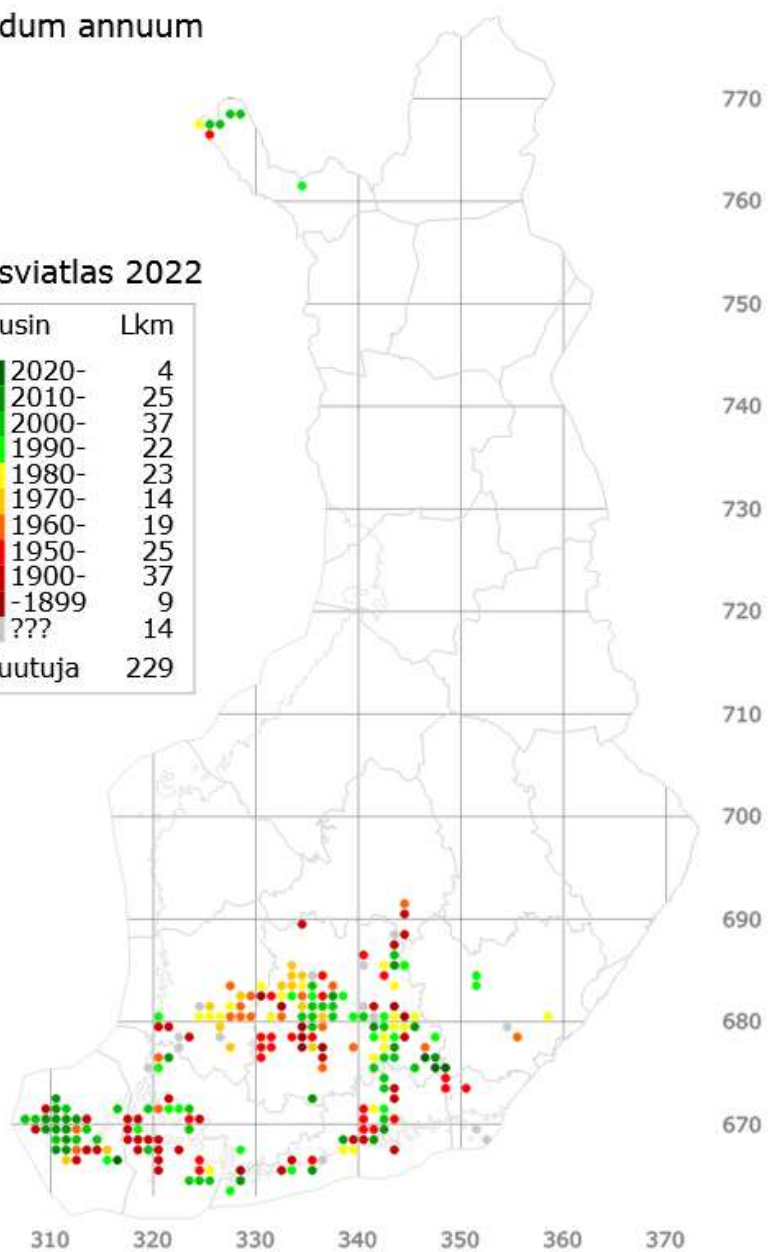




# Sedum annuum

## Kasviatlas 2022

Uusin	Lkm
2020-	4
2010-	25
2000-	37
1990-	22
1980-	23
1970-	14
1960-	19
1950-	25
1900-	37
-1899	9
???	14
Ruutuja	229

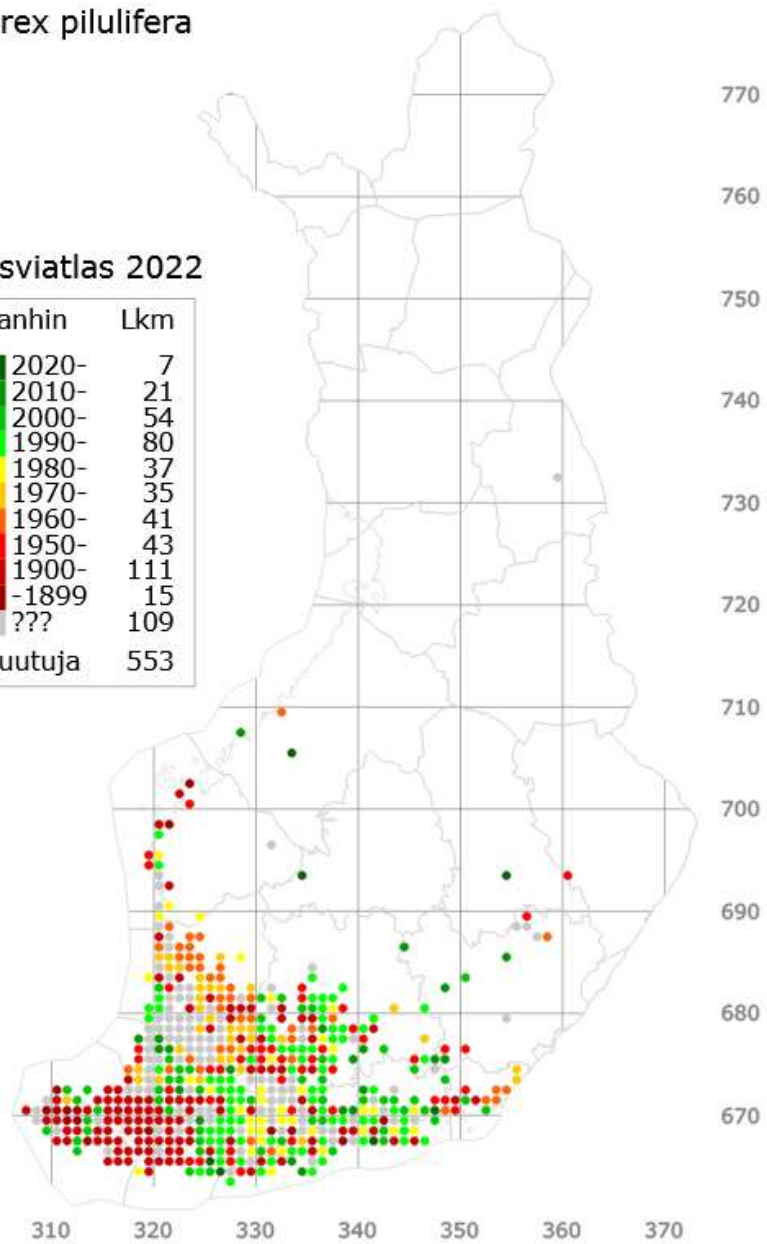




Carex pilulifera

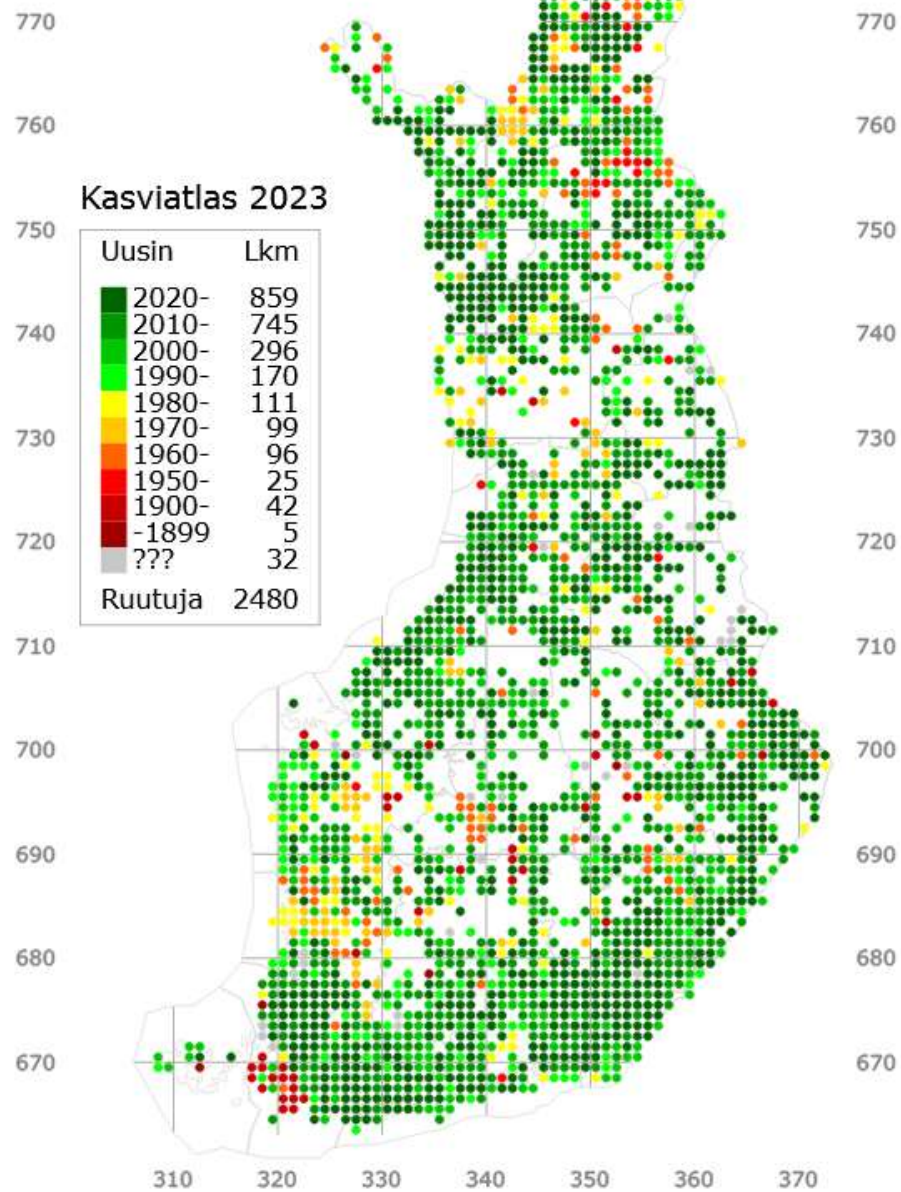
Kasviatlas 2022

Vanhin	Lkm
2020-	7
2010-	21
2000-	54
1990-	80
1980-	37
1970-	35
1960-	41
1950-	43
1900-	111
-1899	15
???	109
Ruutuja	553



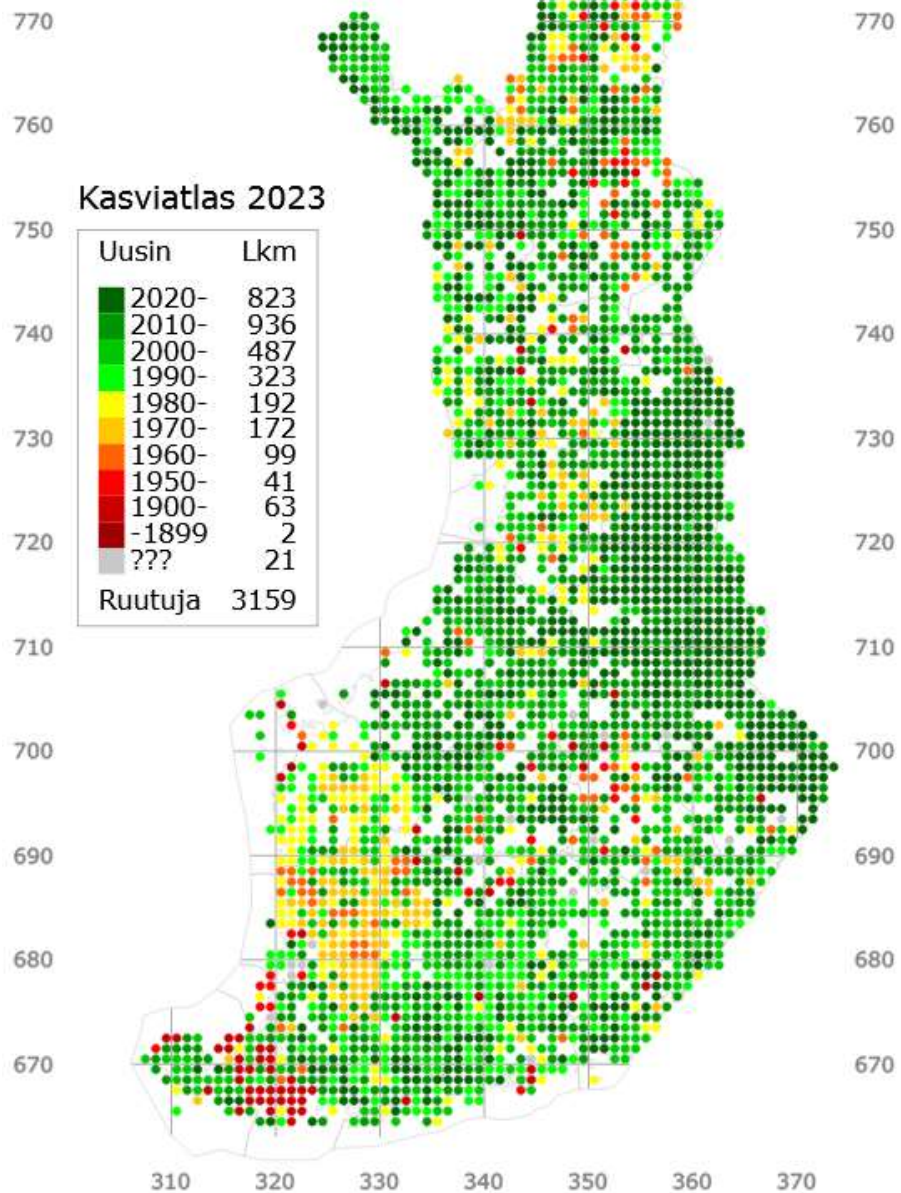


*Arctostaphylos uva-ursi*



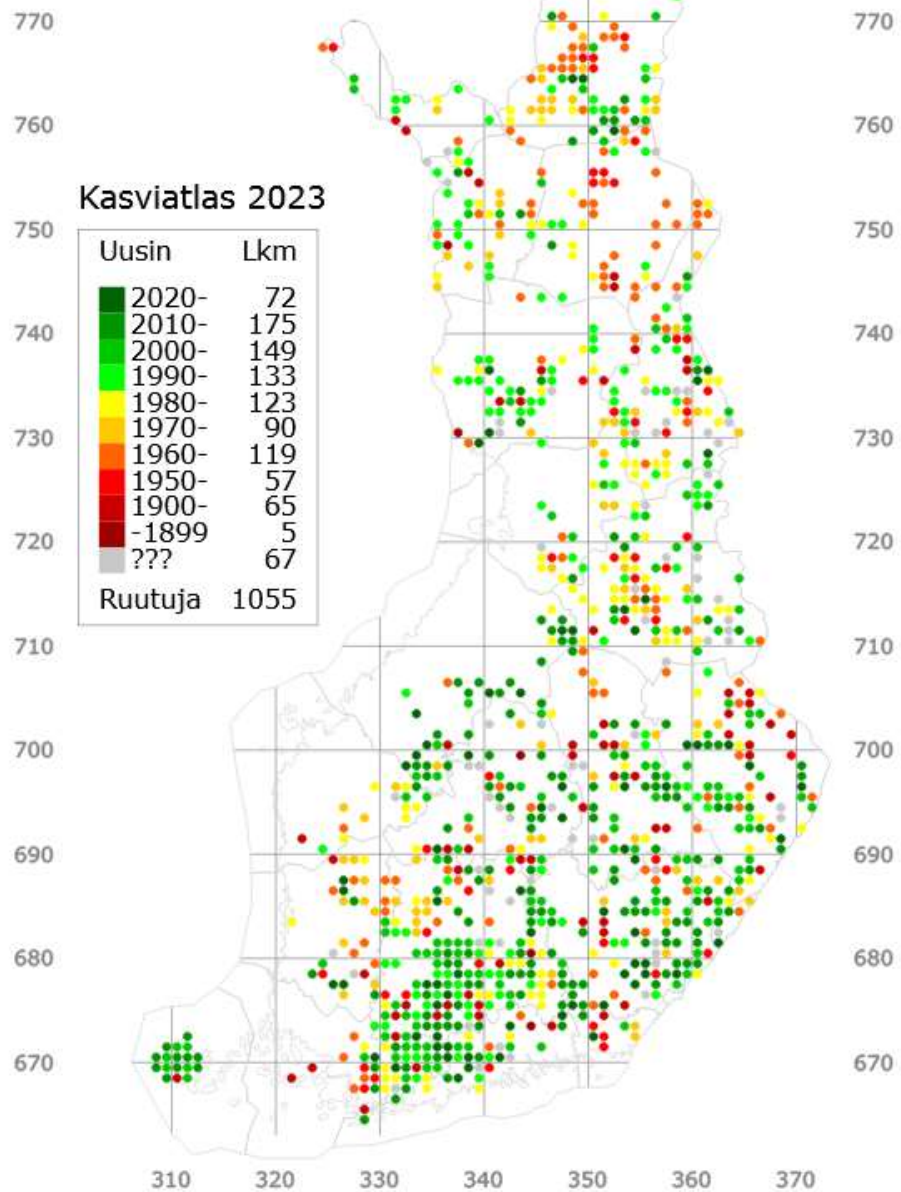


# Antennaria dioica





# *Equisetum hyemale*

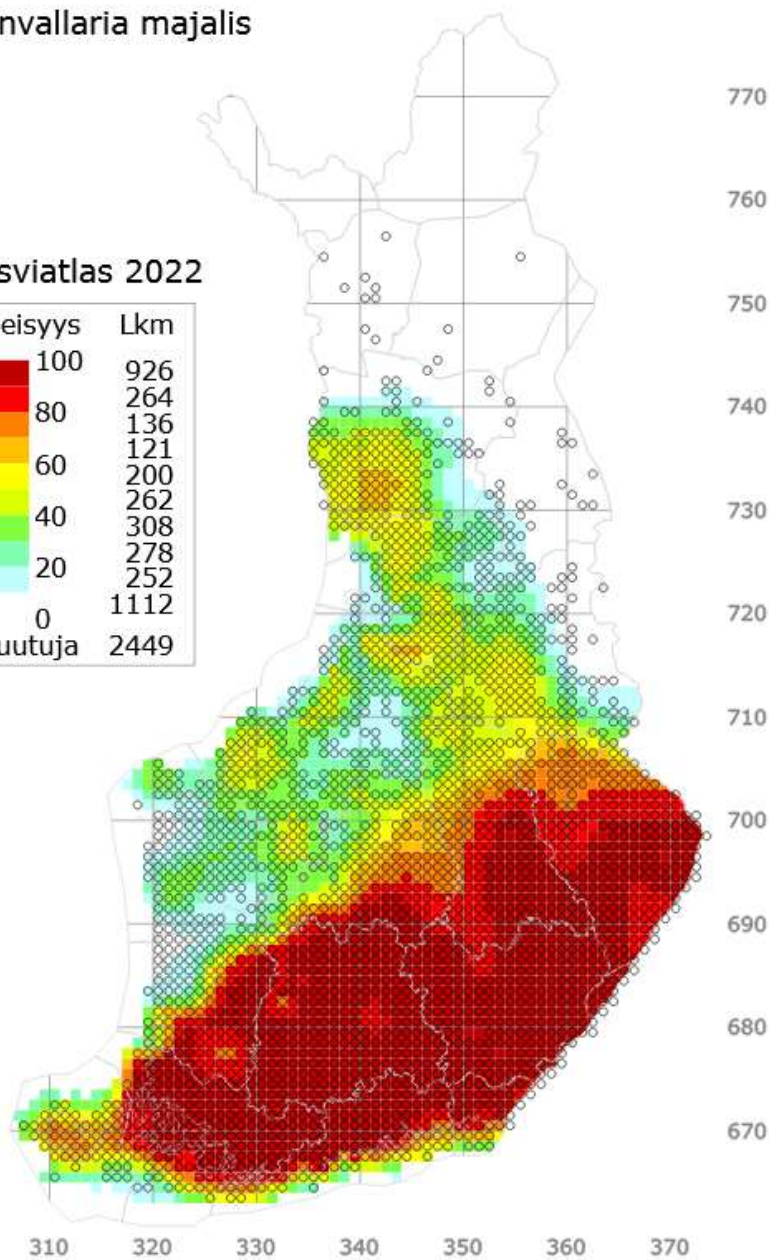




# Convallaria majalis

## Kasviatlas 2022

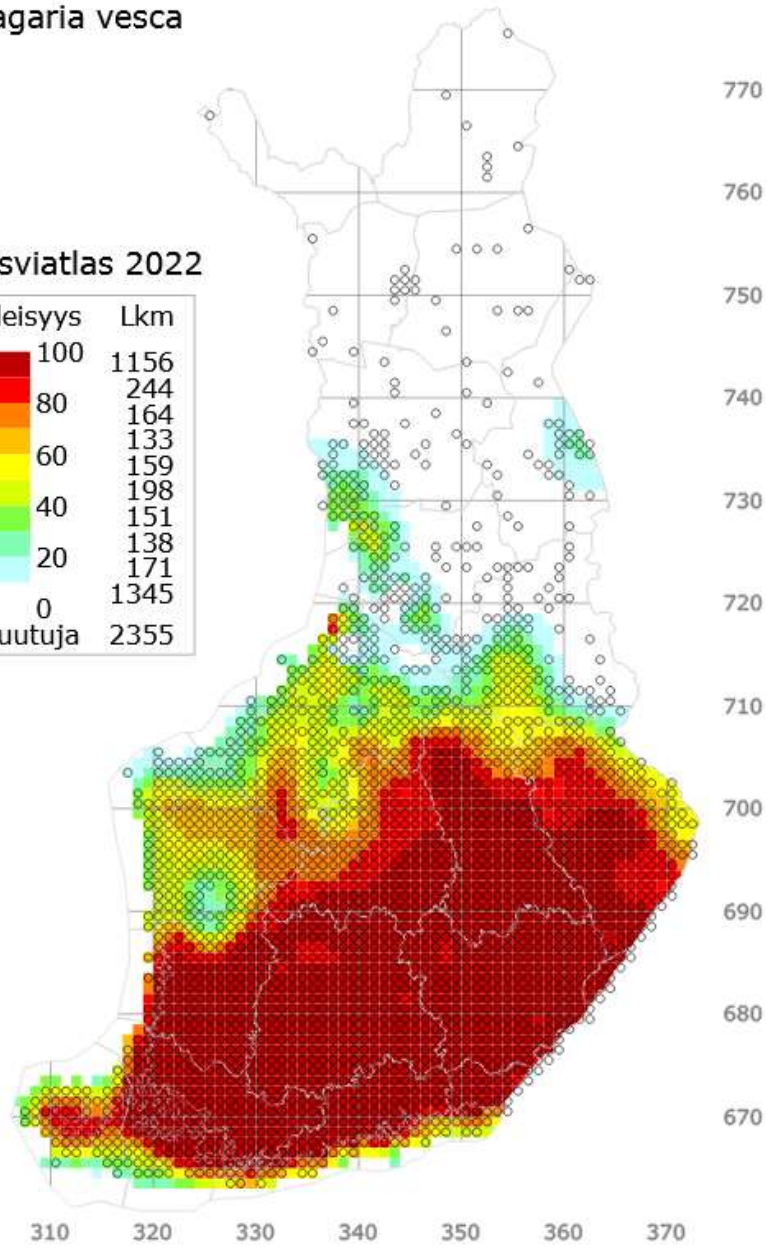
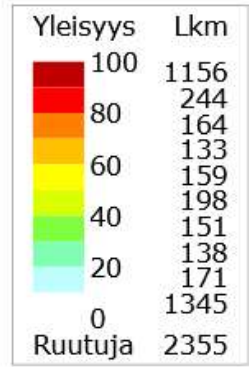
Yleisyys	Lkm
100	926
80	264
60	136
40	200
20	262
0	308
	278
	252
	1112
Ruutuja	2449





*Fragaria vesca*

Kasviatlas 2022

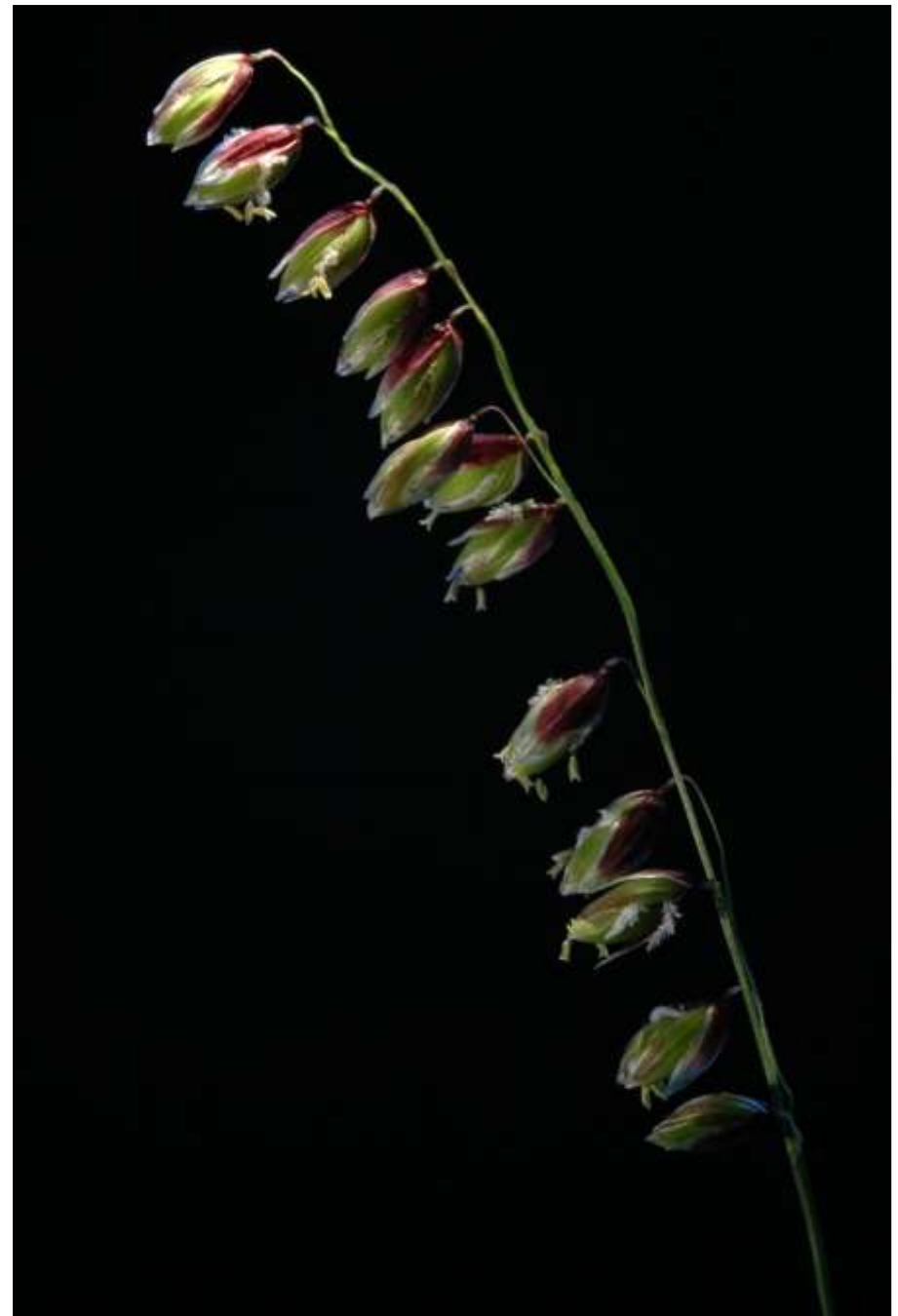
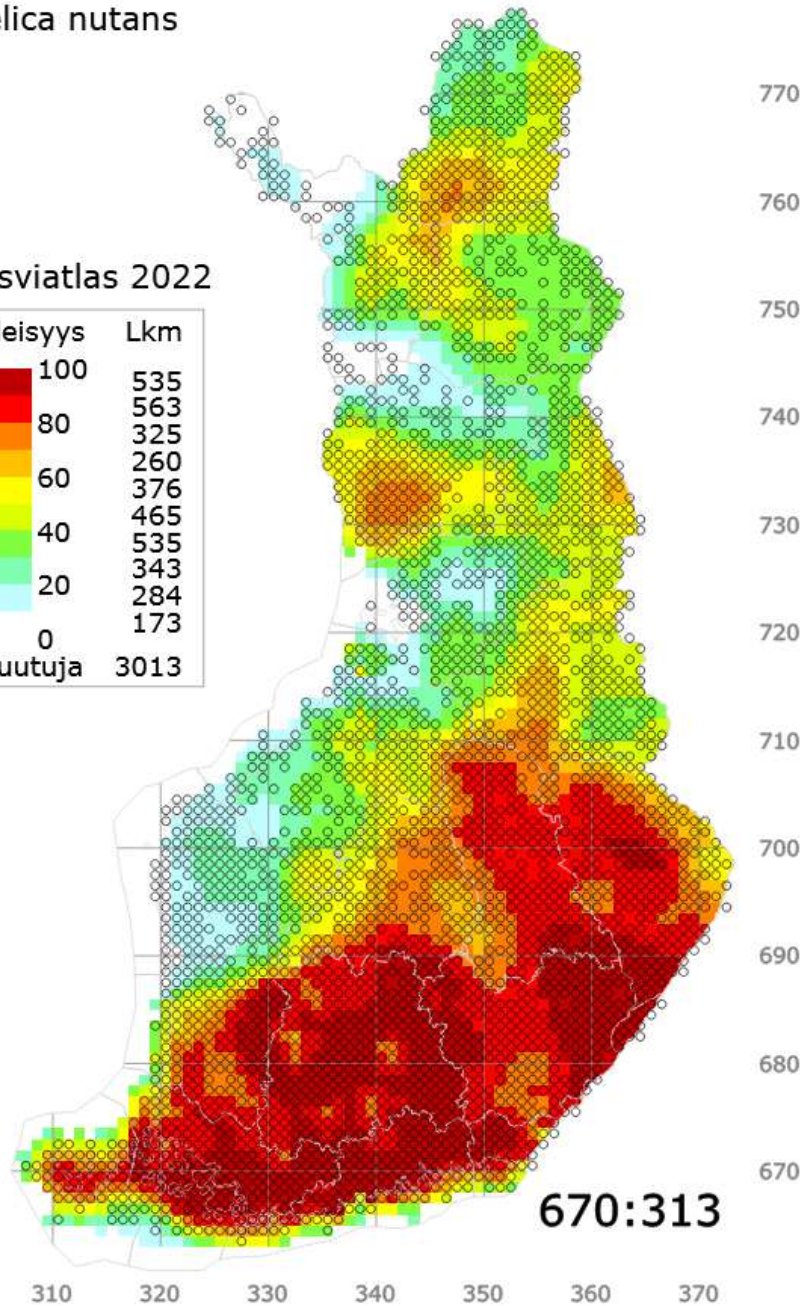




# Melica nutans

## Kasviatlas 2022

Yleisyys	Lkm
100	535
80	563
60	325
40	260
20	376
0	465
	535
	343
	284
	173
Ruutuja	3013

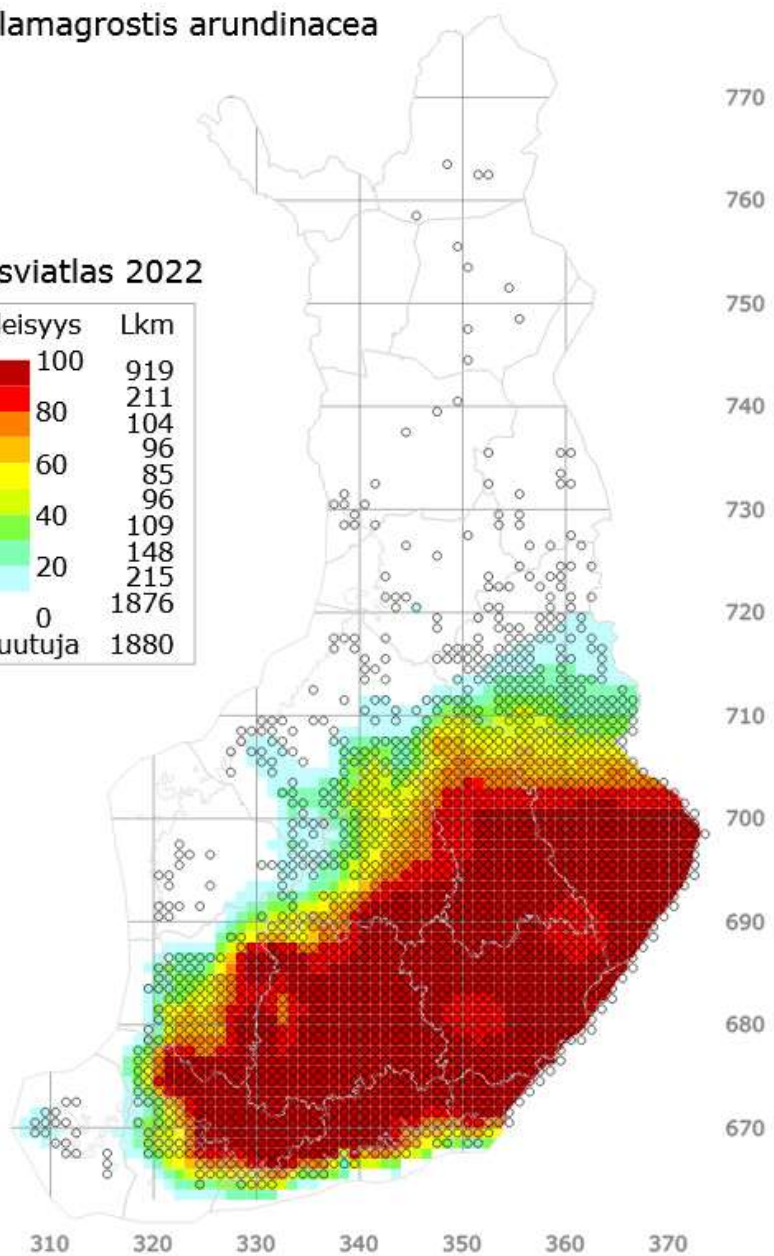




*Calamagrostis arundinacea*

Kasviatlas 2022

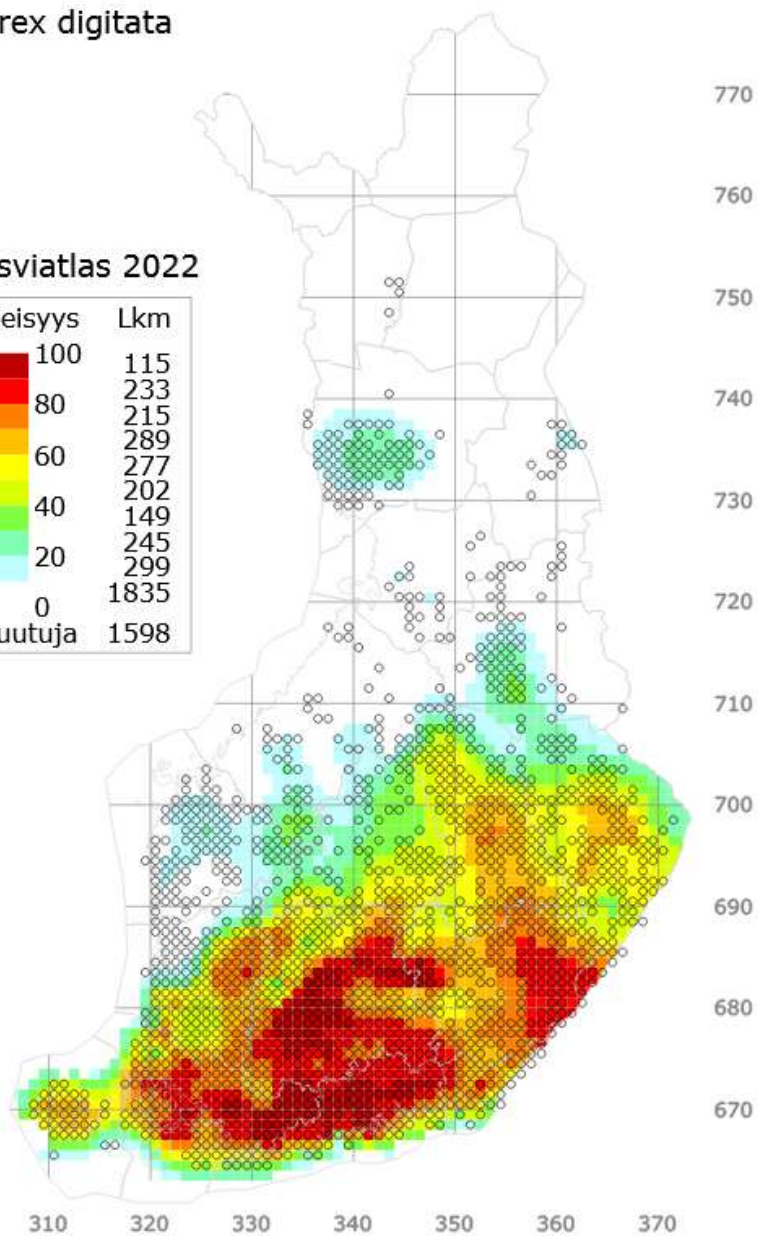
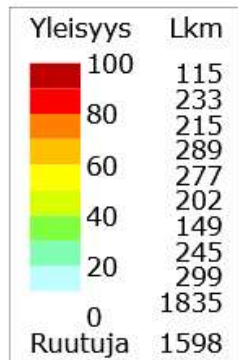
Yleisyys	Lkm
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80	211
60	104
40	96
20	85
0	96
Ruutuja	1880



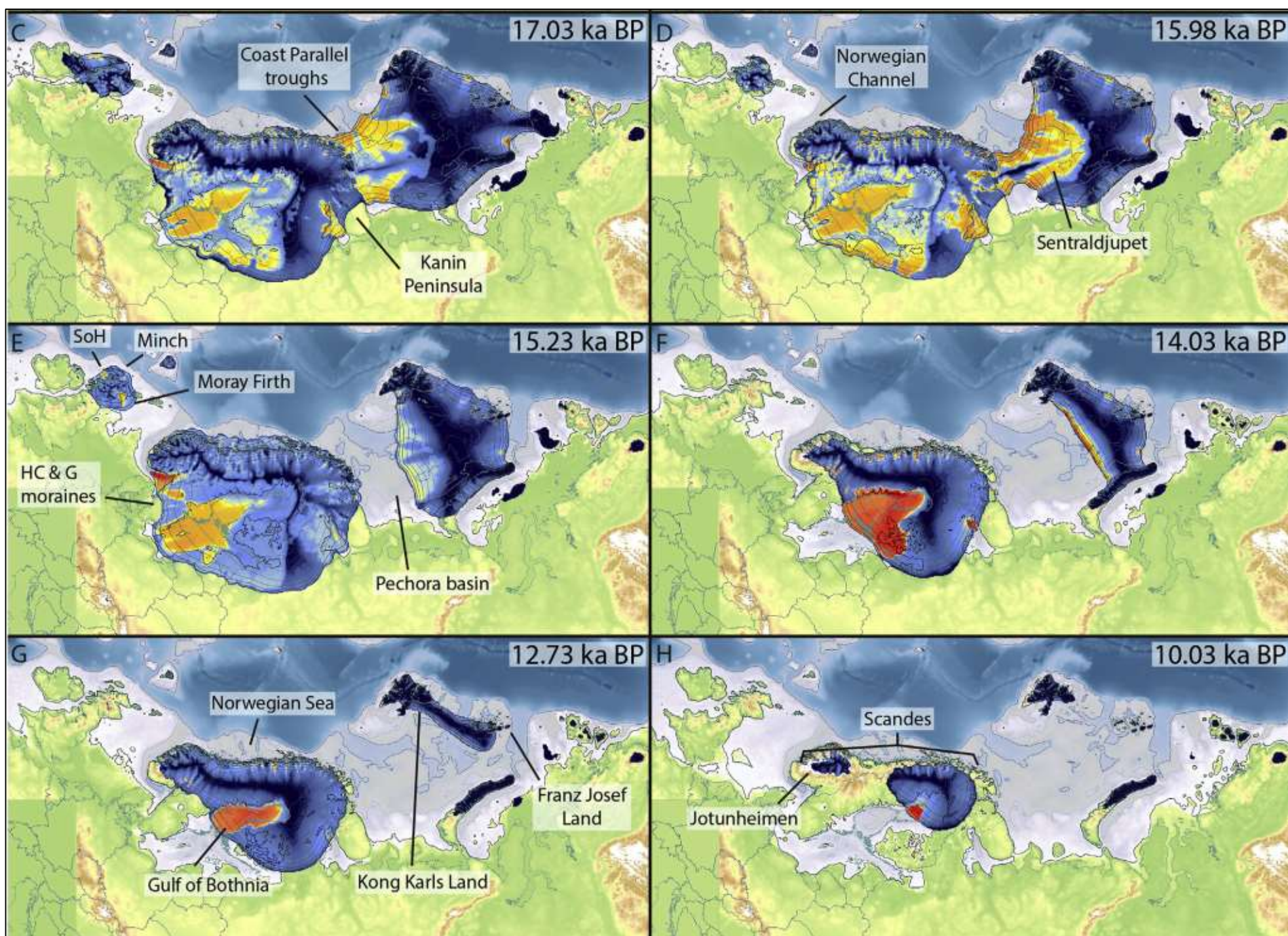


# Carex digitata

## Kasviatlas 2022

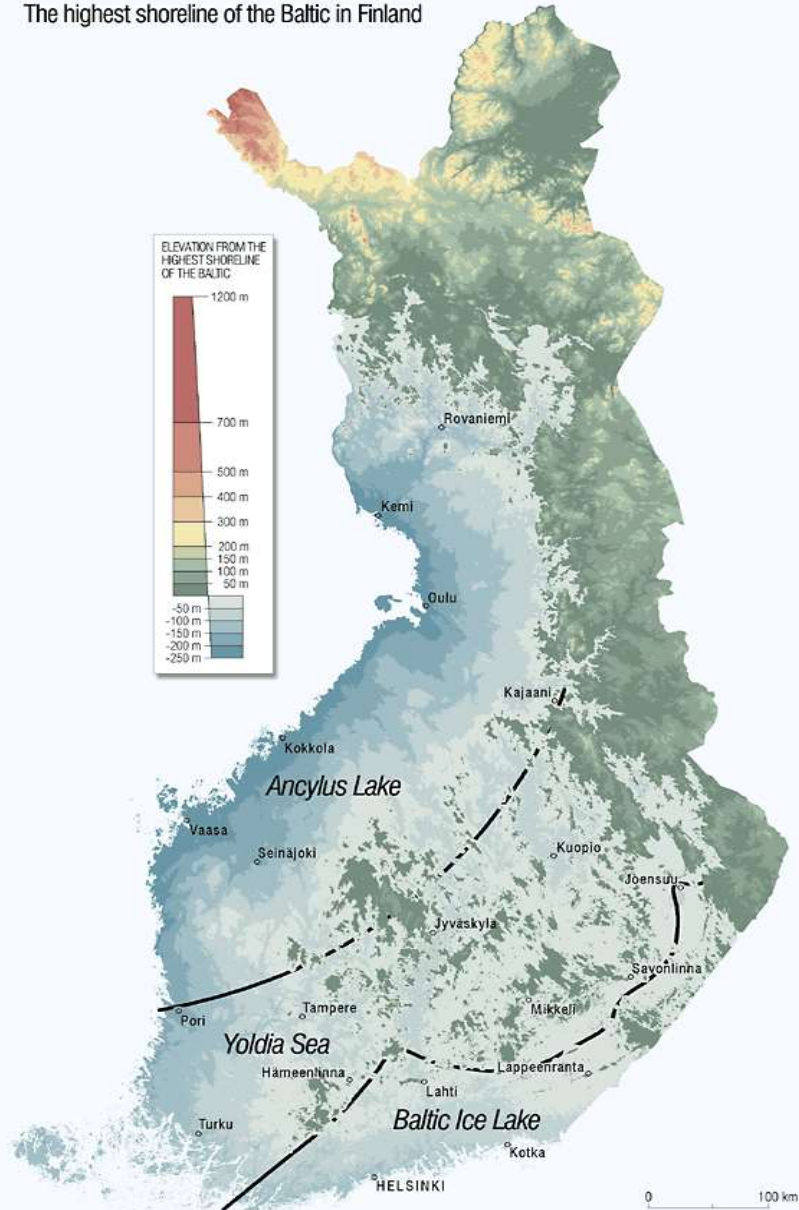




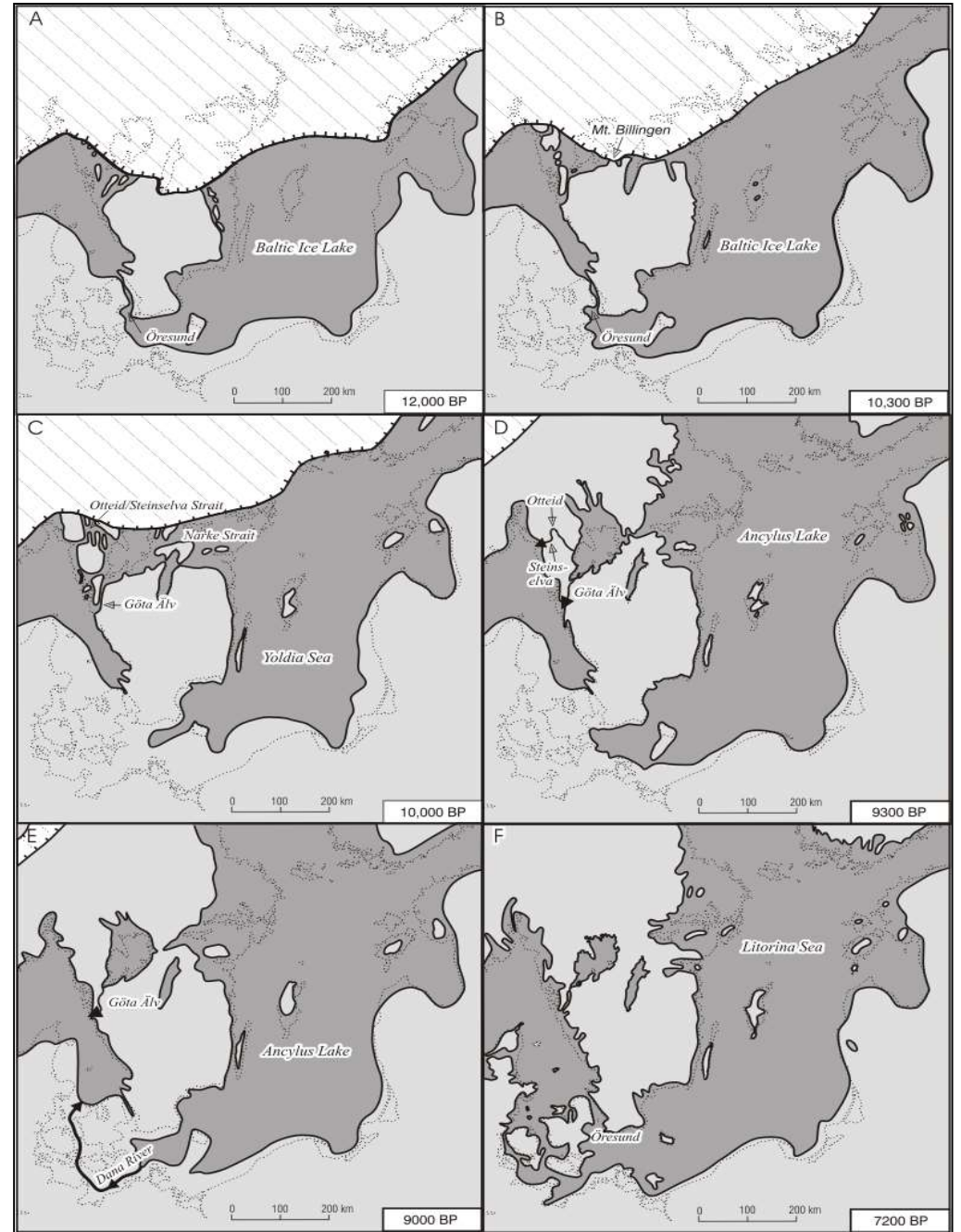




# The highest shoreline of the Baltic in Finland

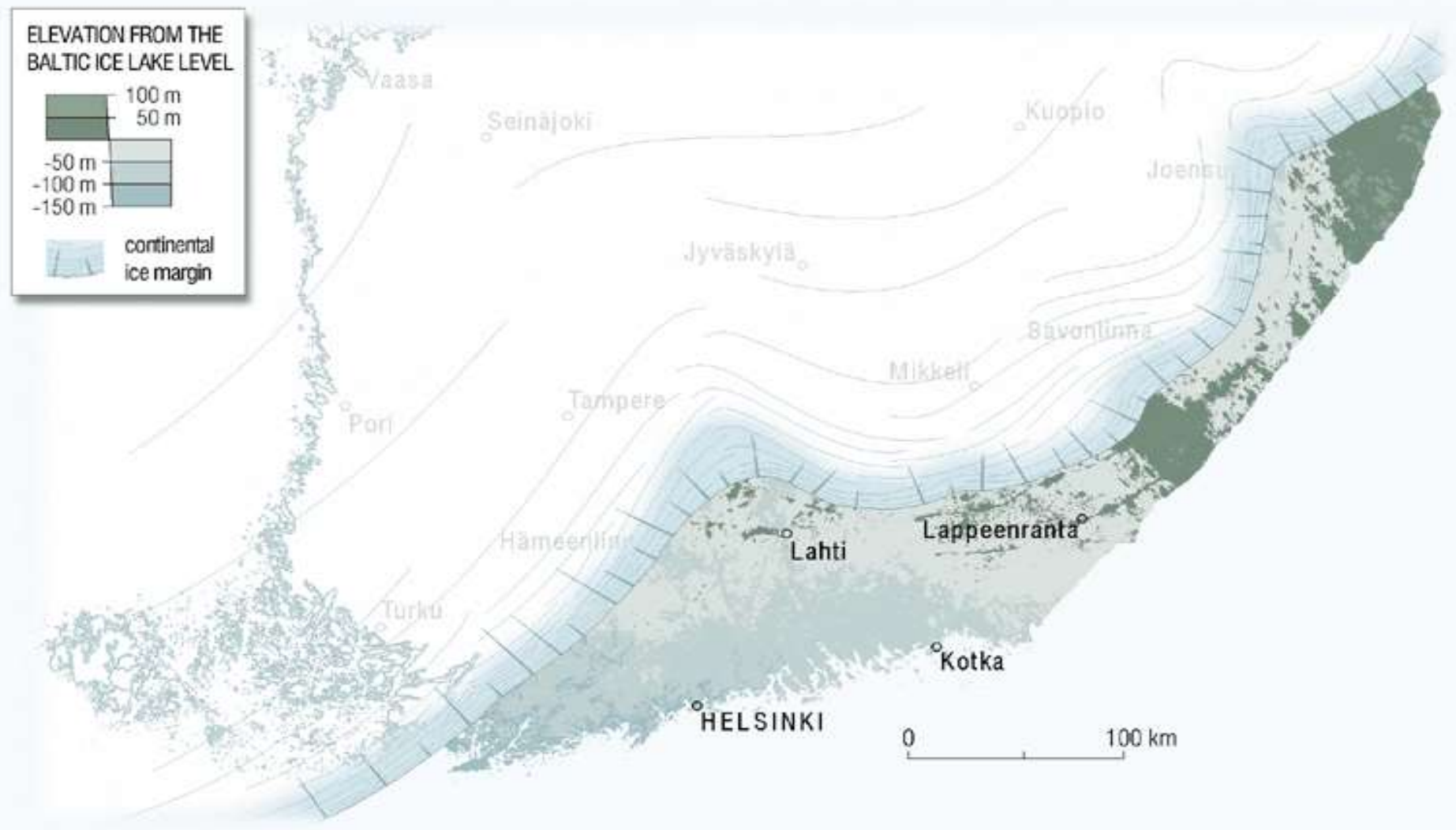


Data: © National Land Survey of Finland, 192/Mar/98





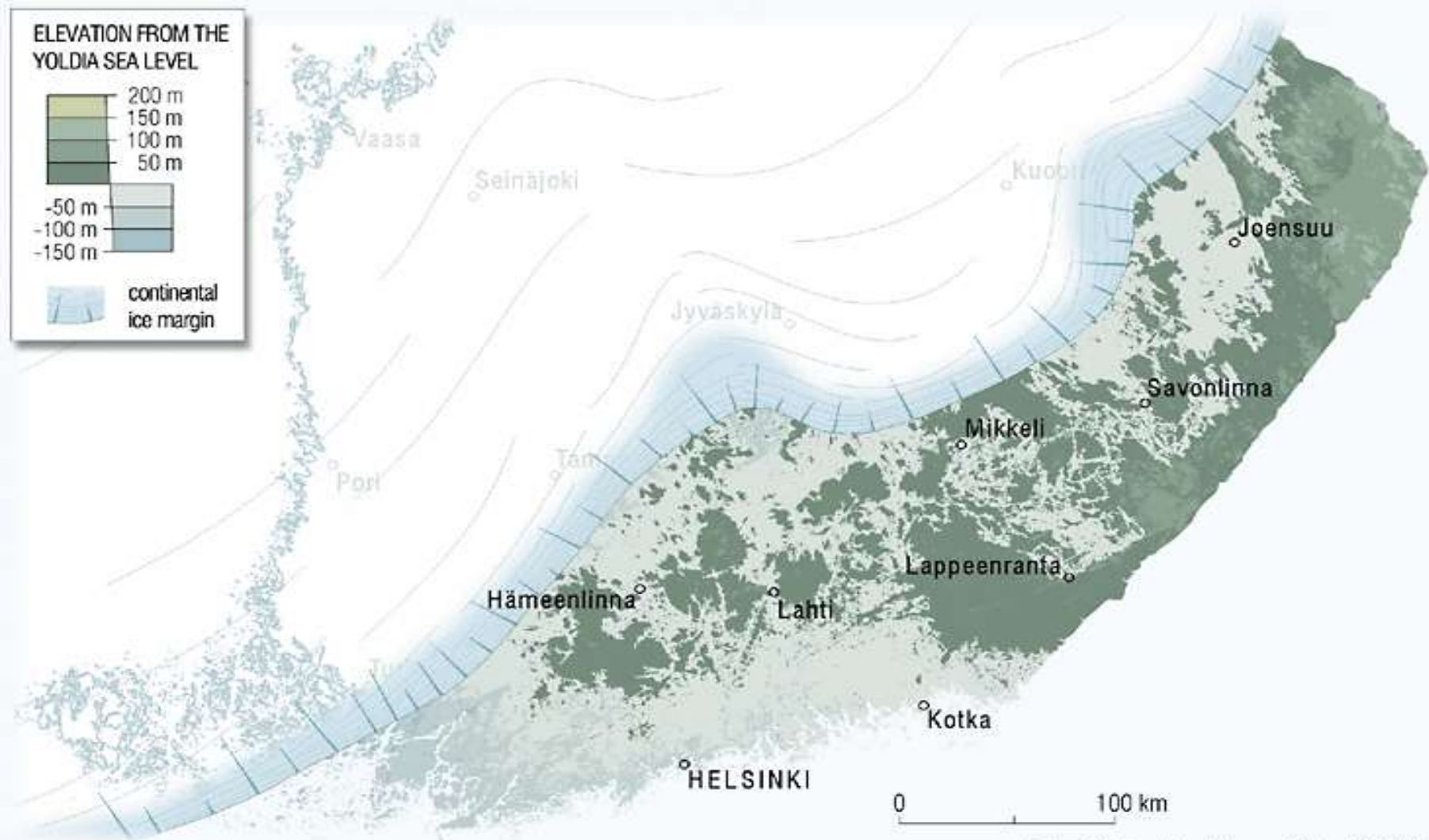
# Finland and the Baltic Ice Lake, ca. 10,300 BP



Data: © National Land Survey of Finland 192/Mar/98



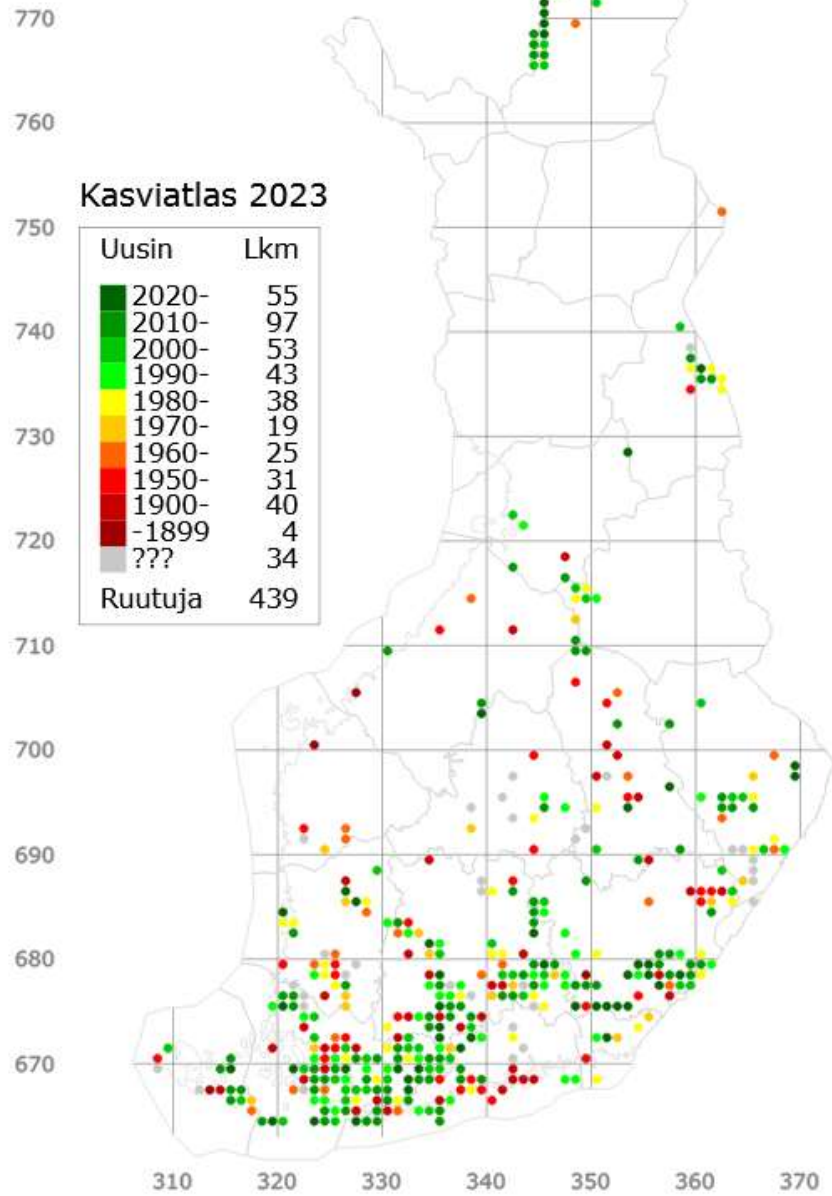
# Finland and the Yoldia Sea, ca. 10,000 BP



Data: © National Land Survey of Finland 192/Mar/98

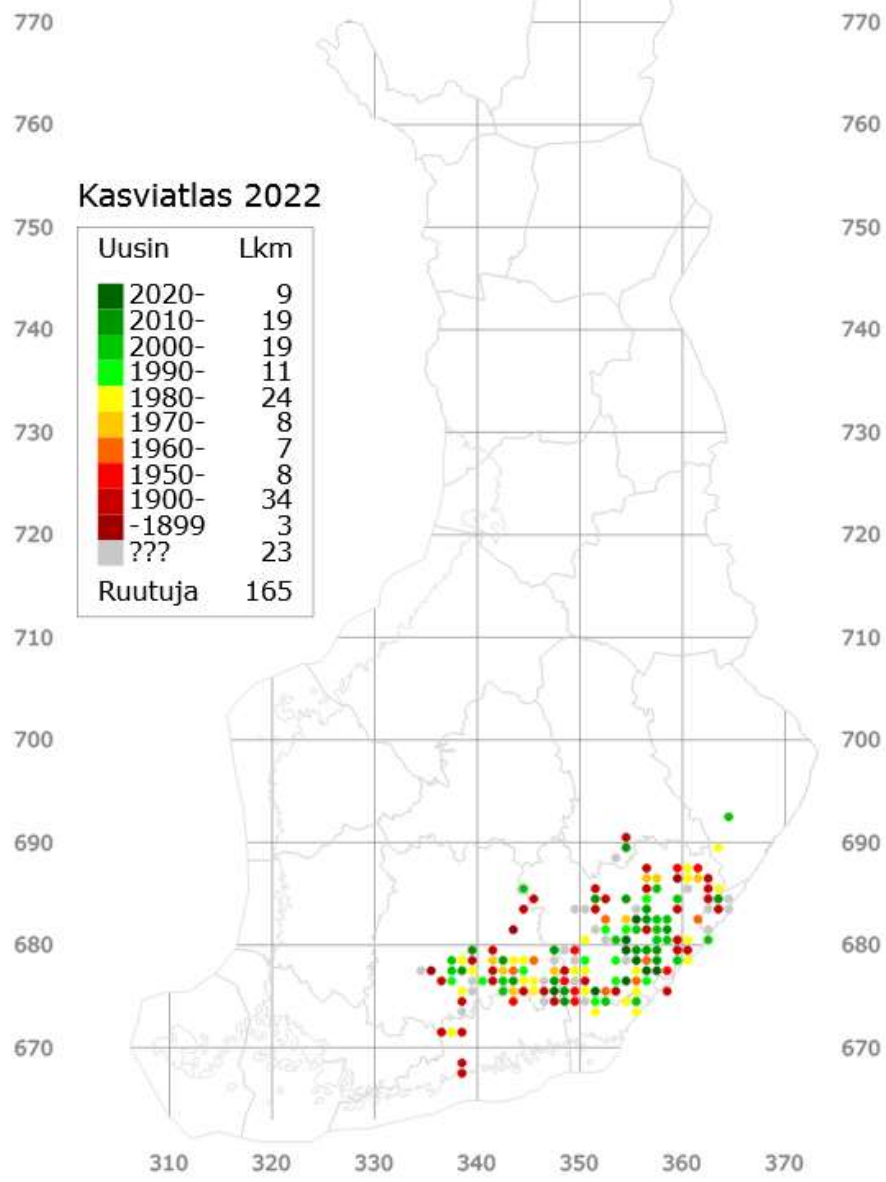


# Thymus serpyllum



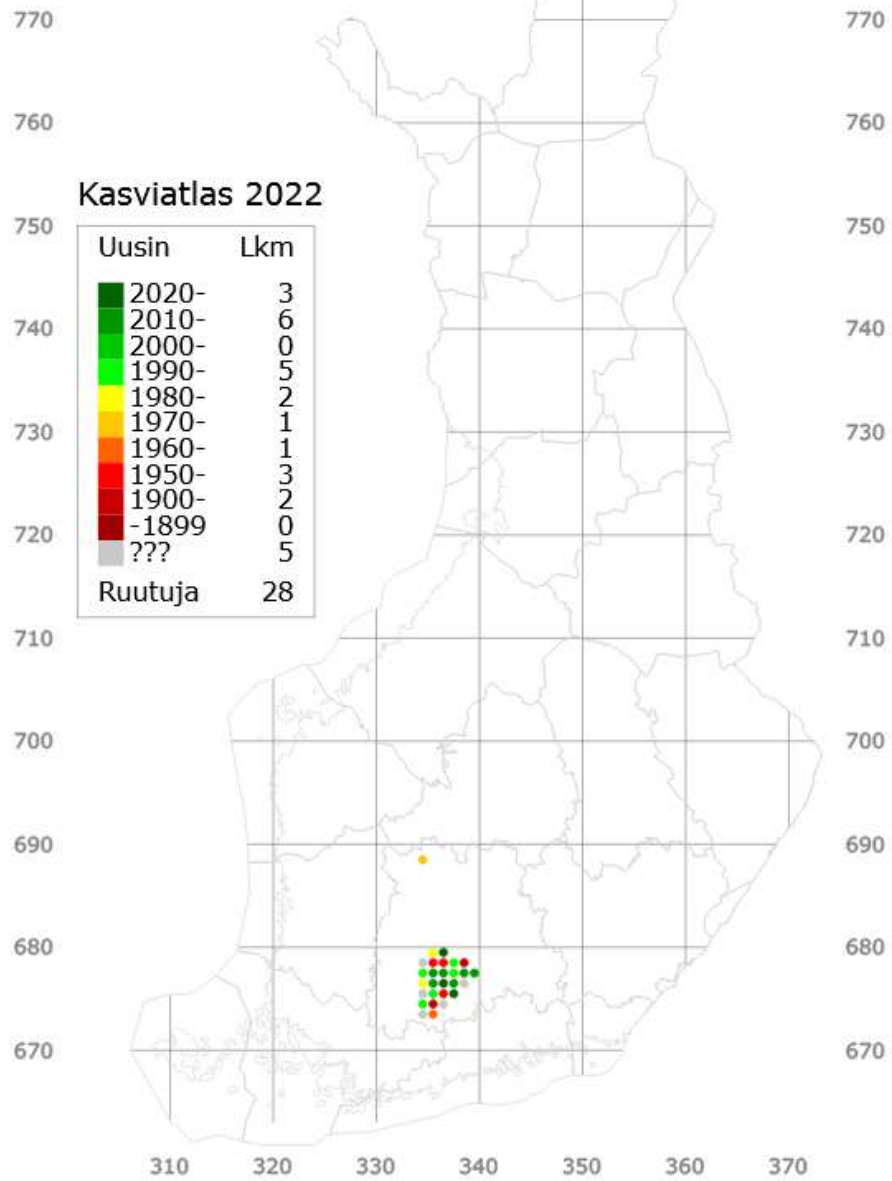


# Pulsatilla vernalis





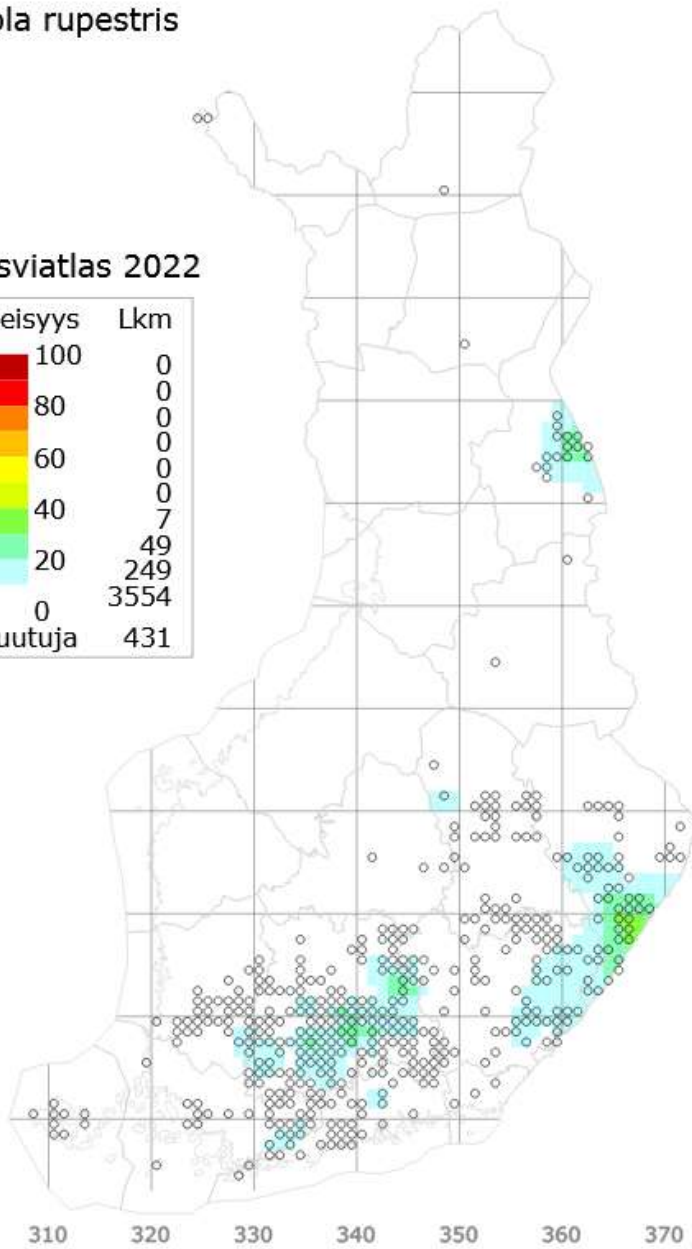
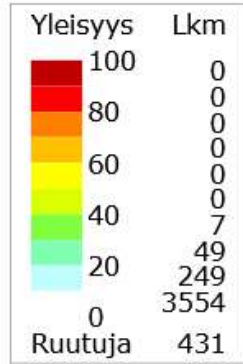
# Pulsatilla patens





*Viola rupestris*

Kasviatlas 2022



770

760

750

740

730

720

710

700

690

680

670

310

320

330

340

350

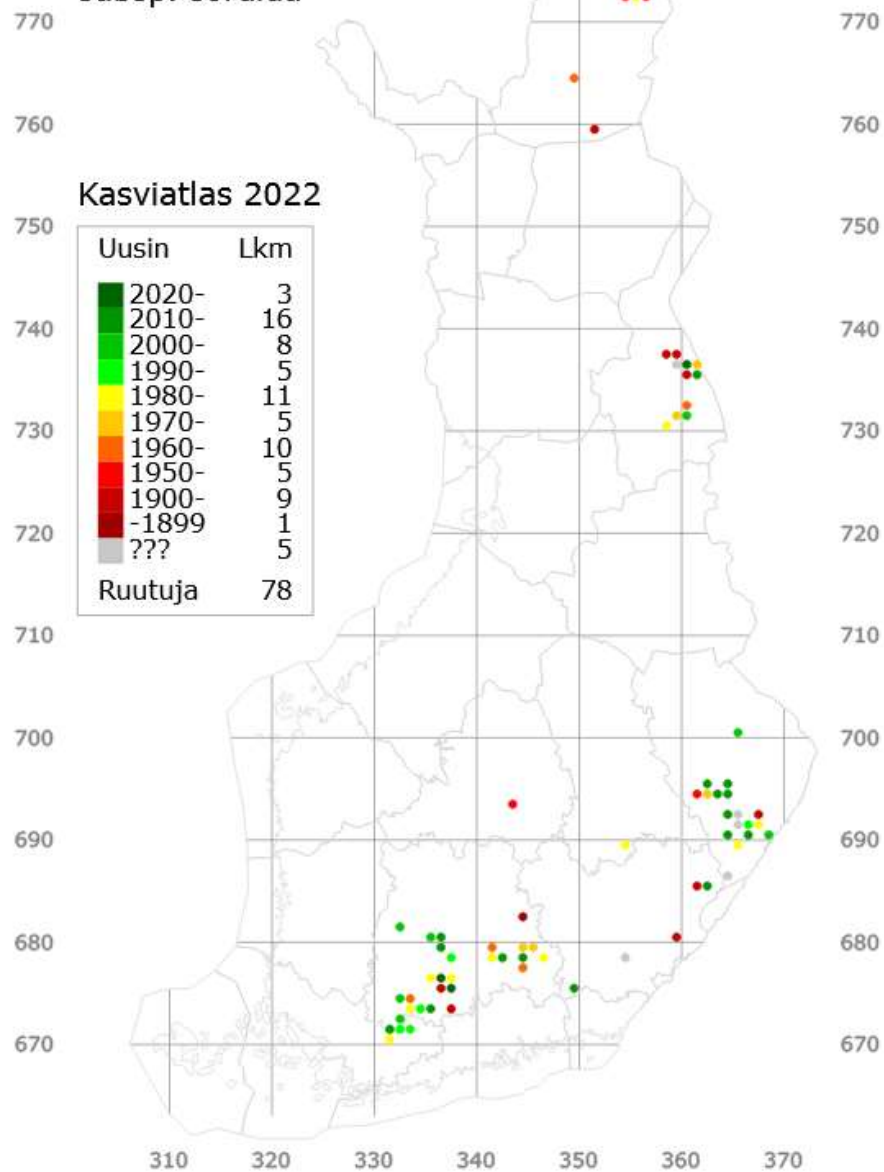
360

370



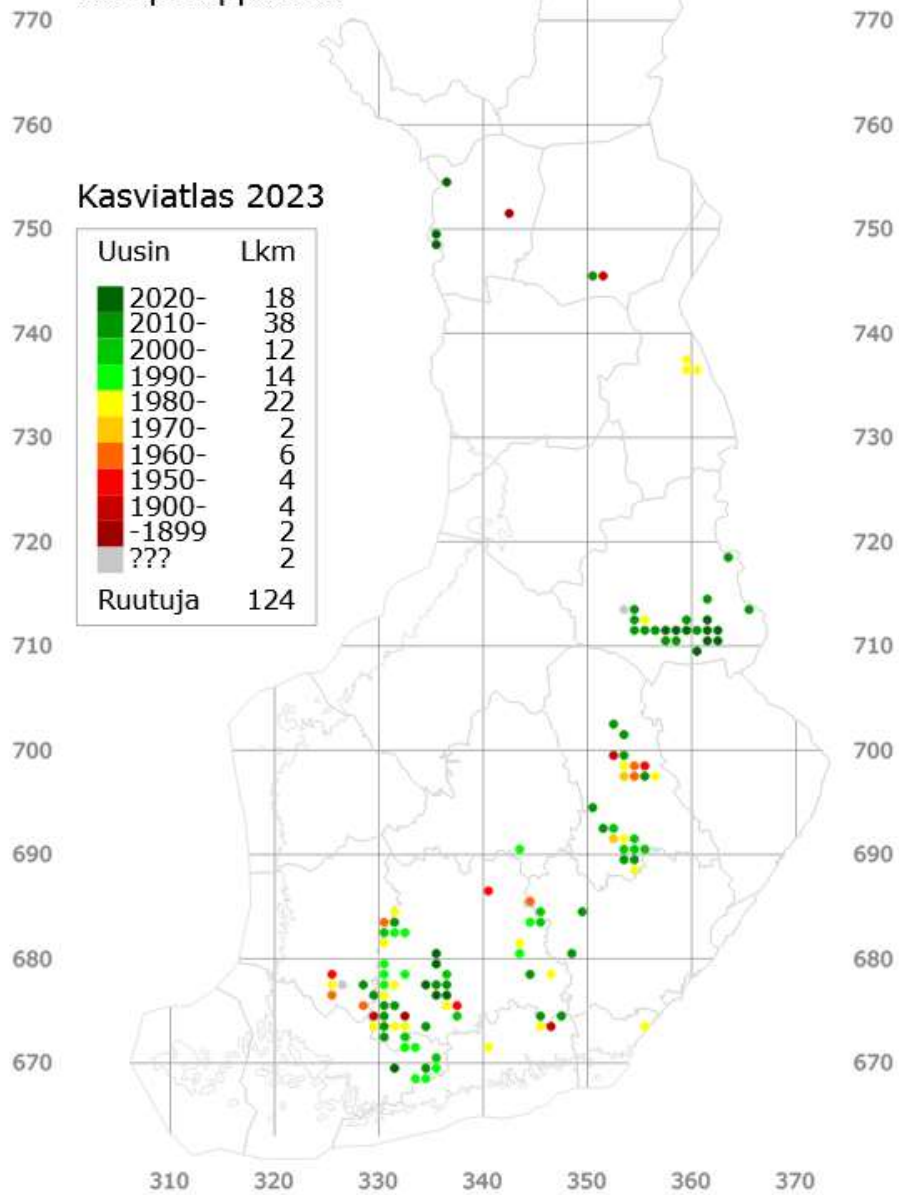


*Oxytropis campestris*  
subsp. *sordida*



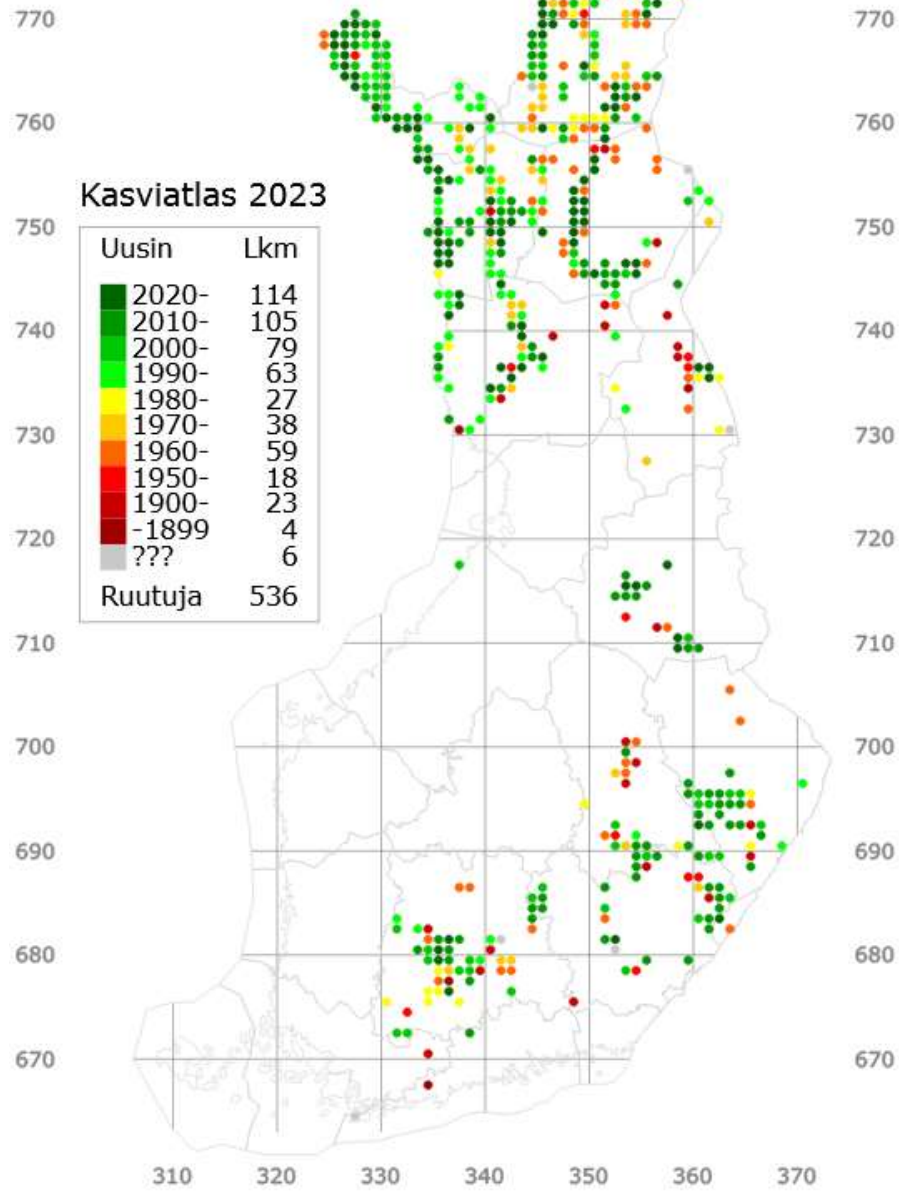


*Anthyllis vulneraria*  
subsp. *lapponica*



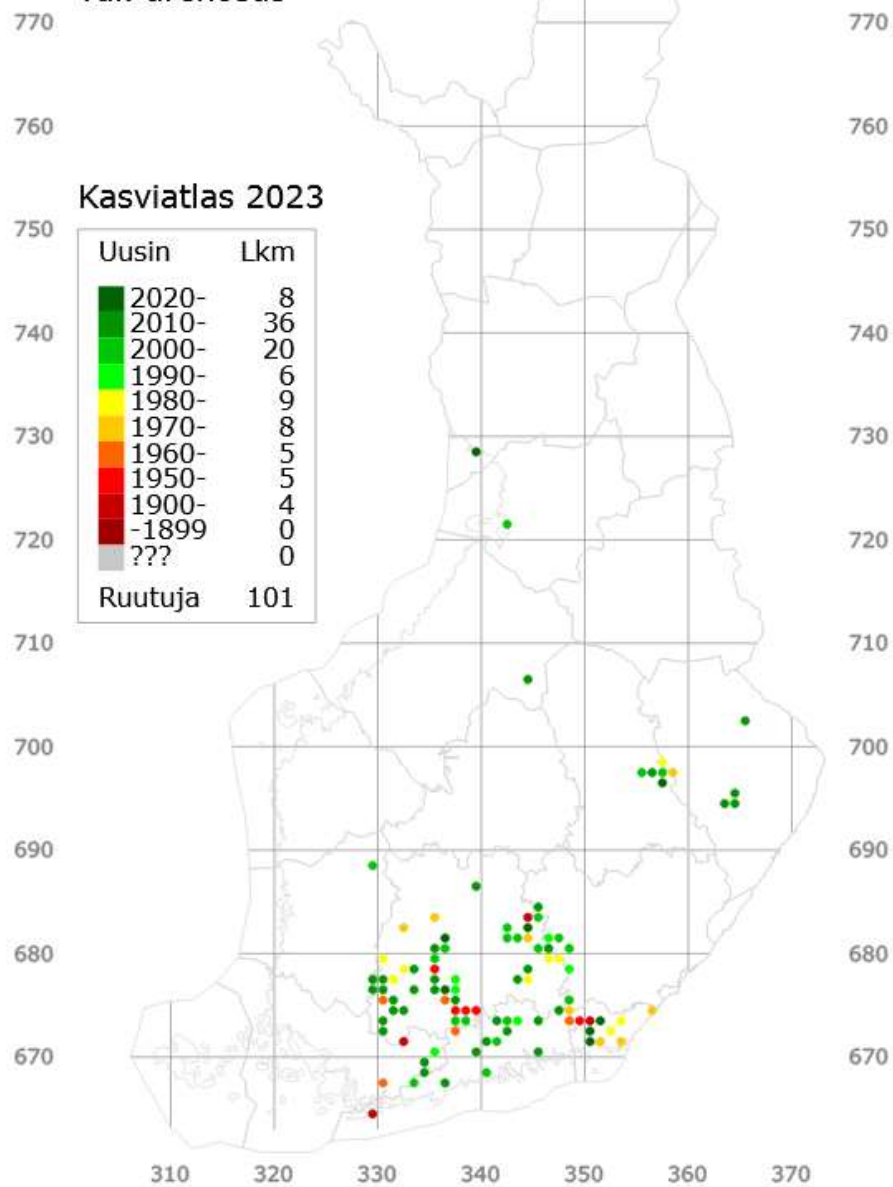


# Astragalus alpinus

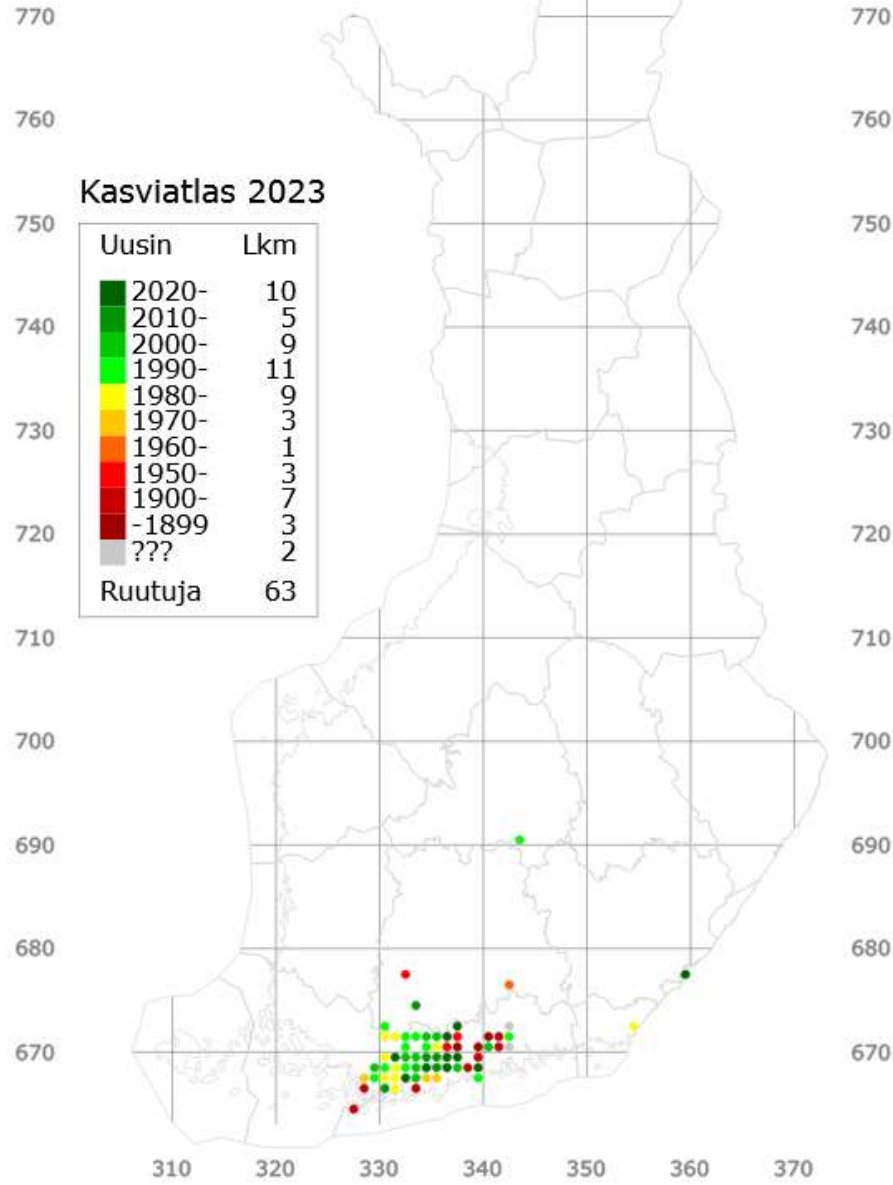




*Lotus corniculatus*  
var. *arenosus*

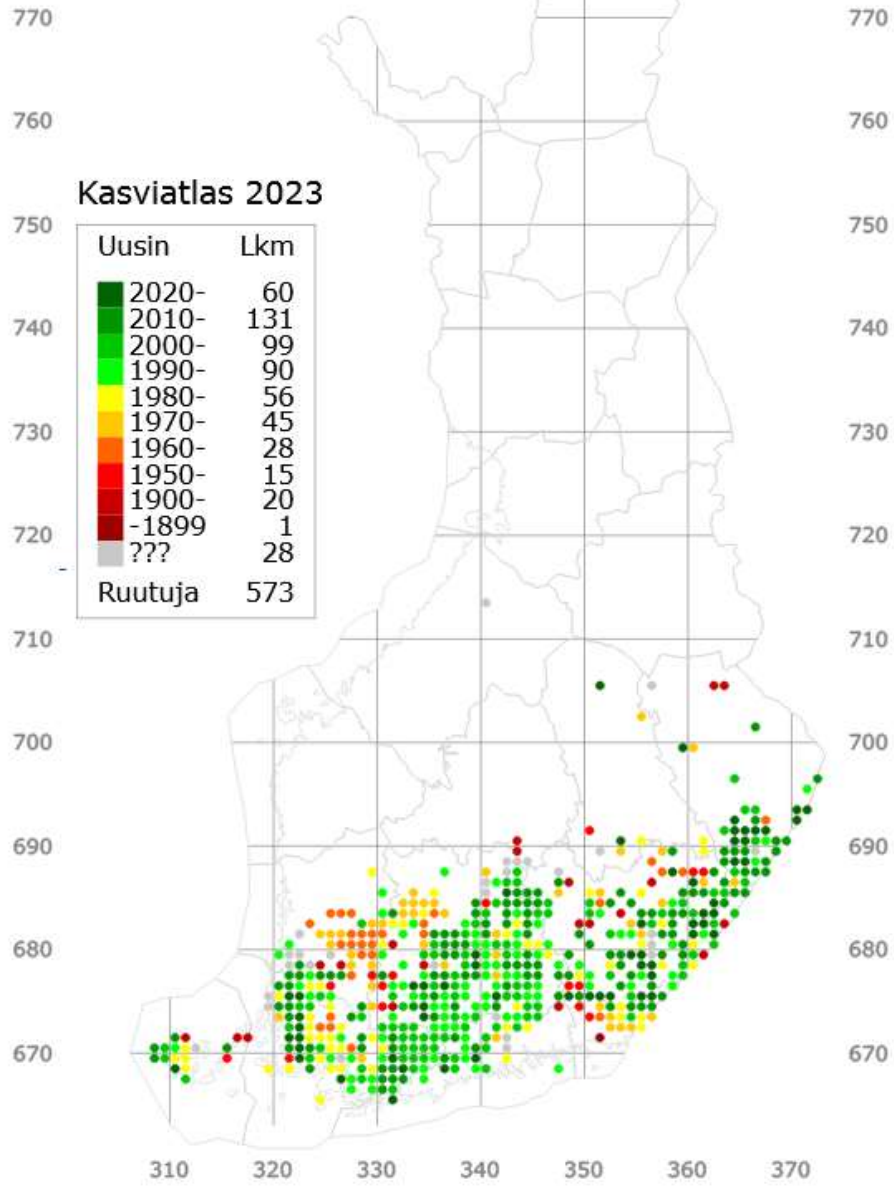


# Scorzonera humilis

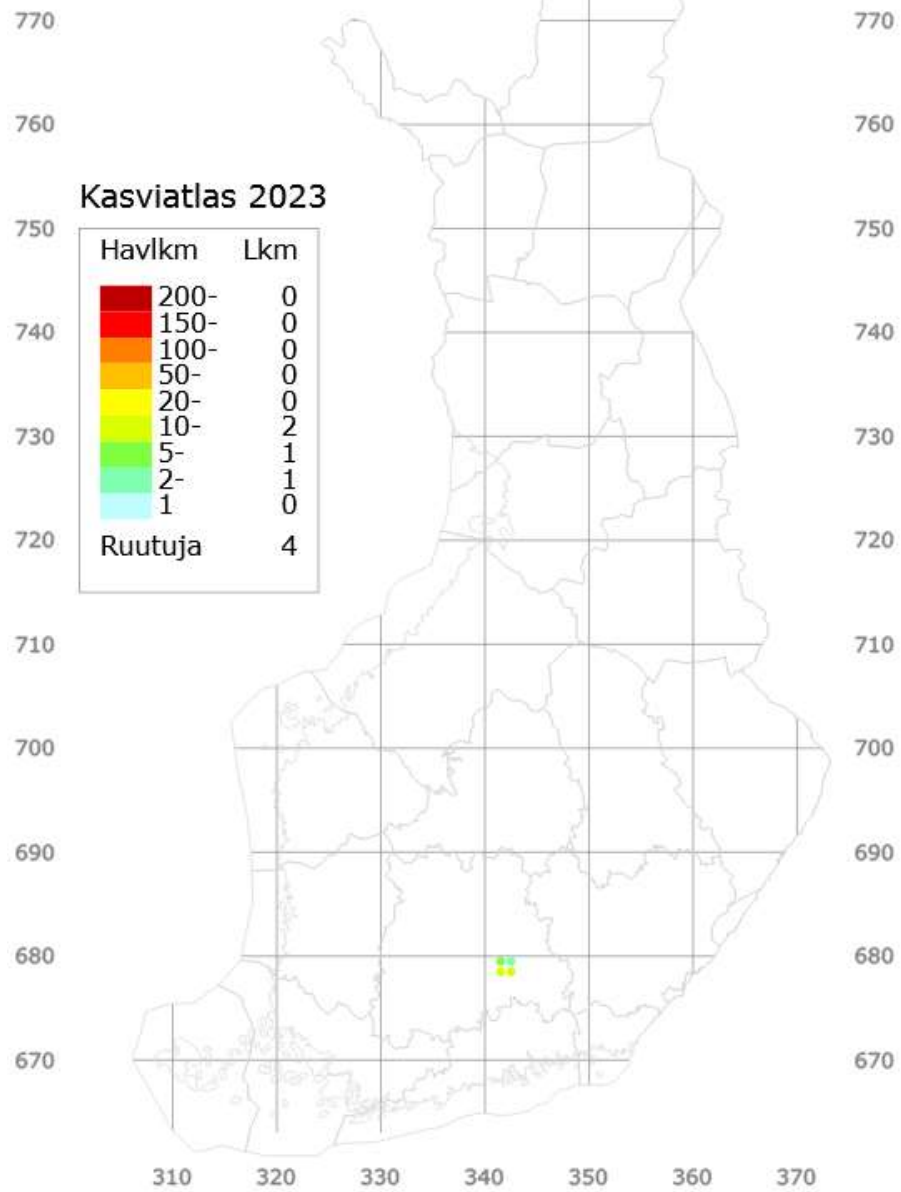




# Hypochaeris maculata

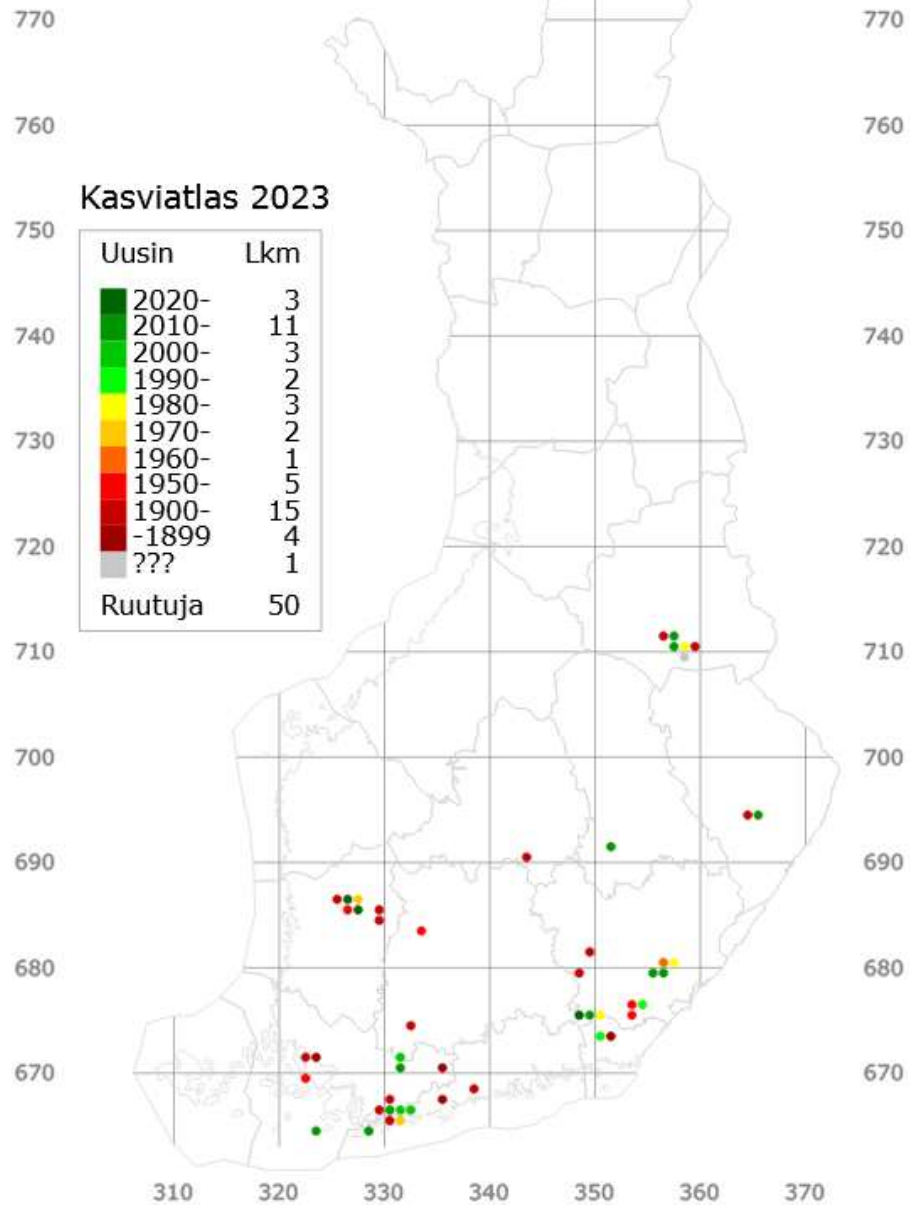


# Anemone trifolia

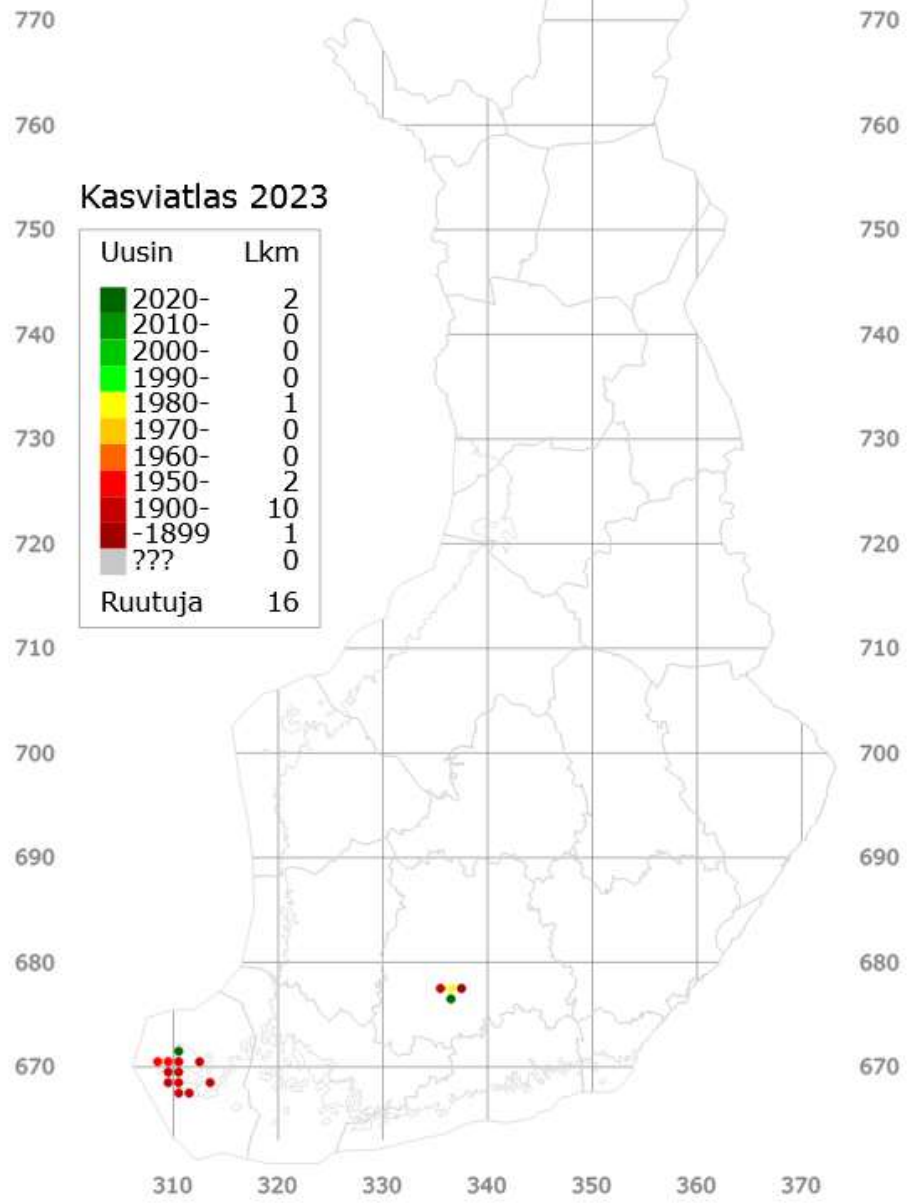




# Dianthus arenarius

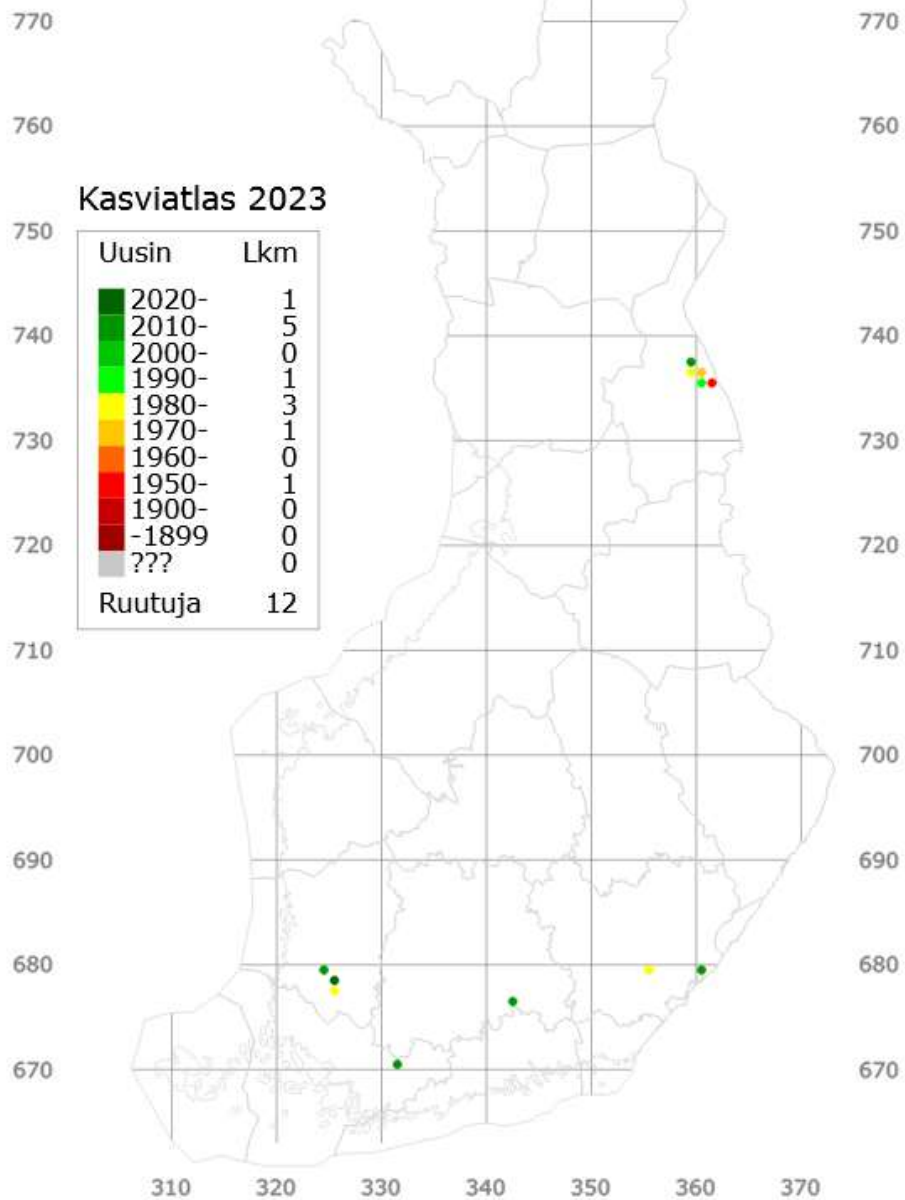


# Crepis praemorsa

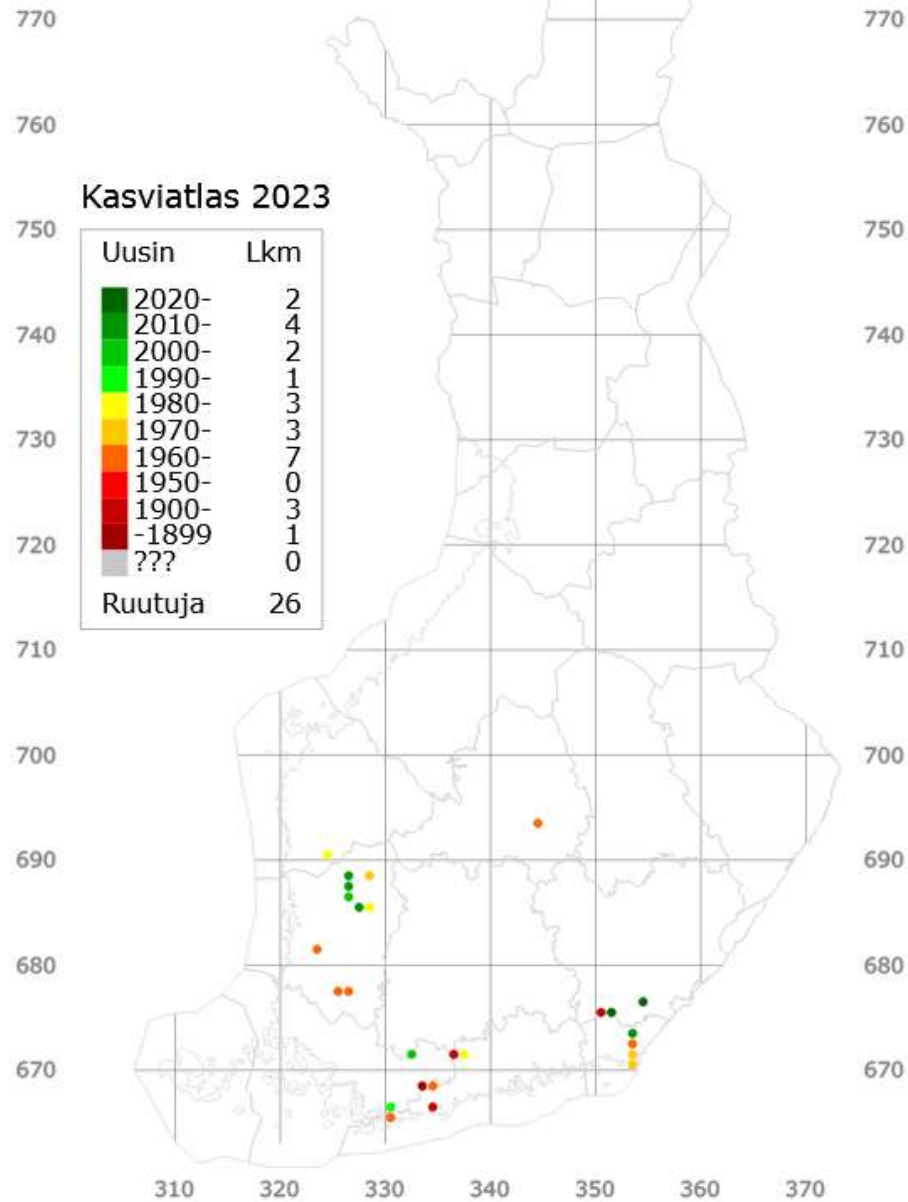




# Gypsophila fastigiata

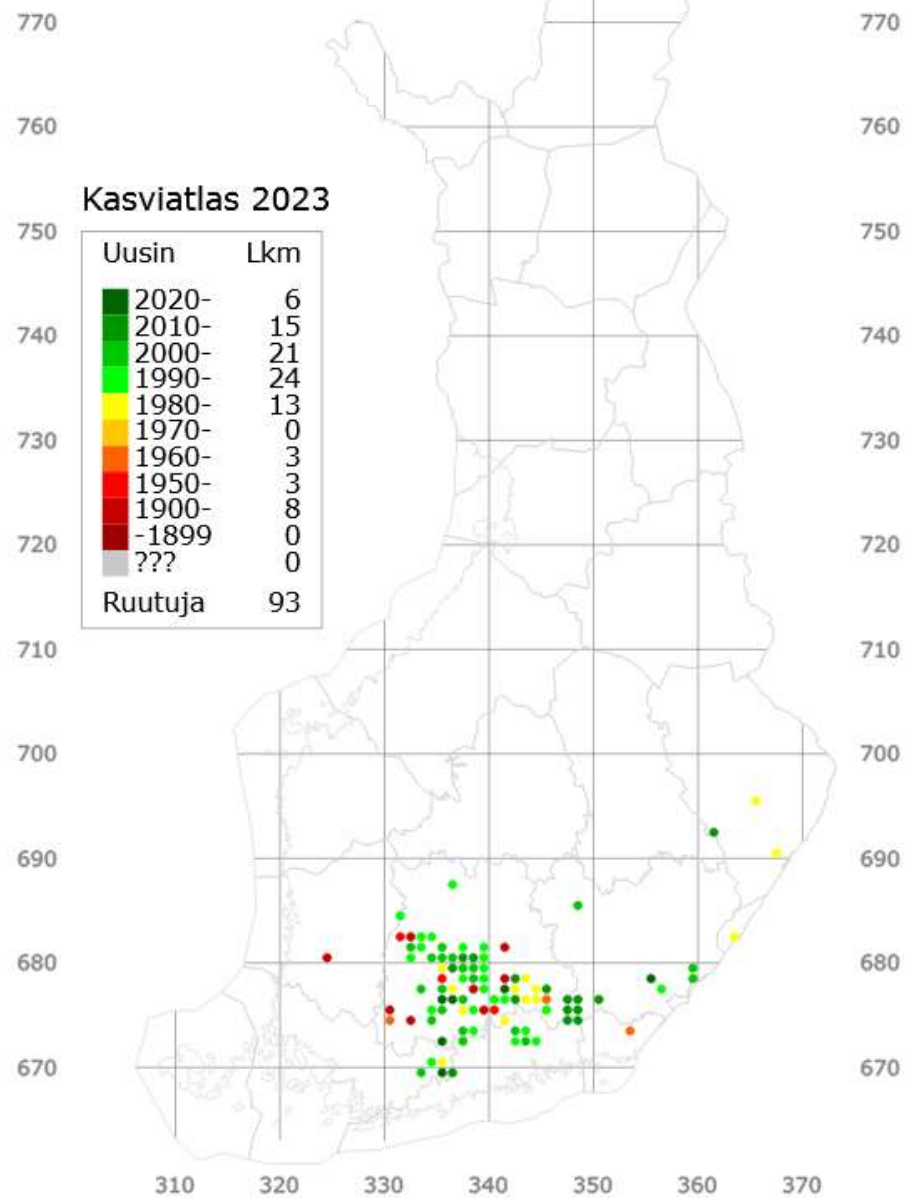


# Diphasiastrum tristachyum



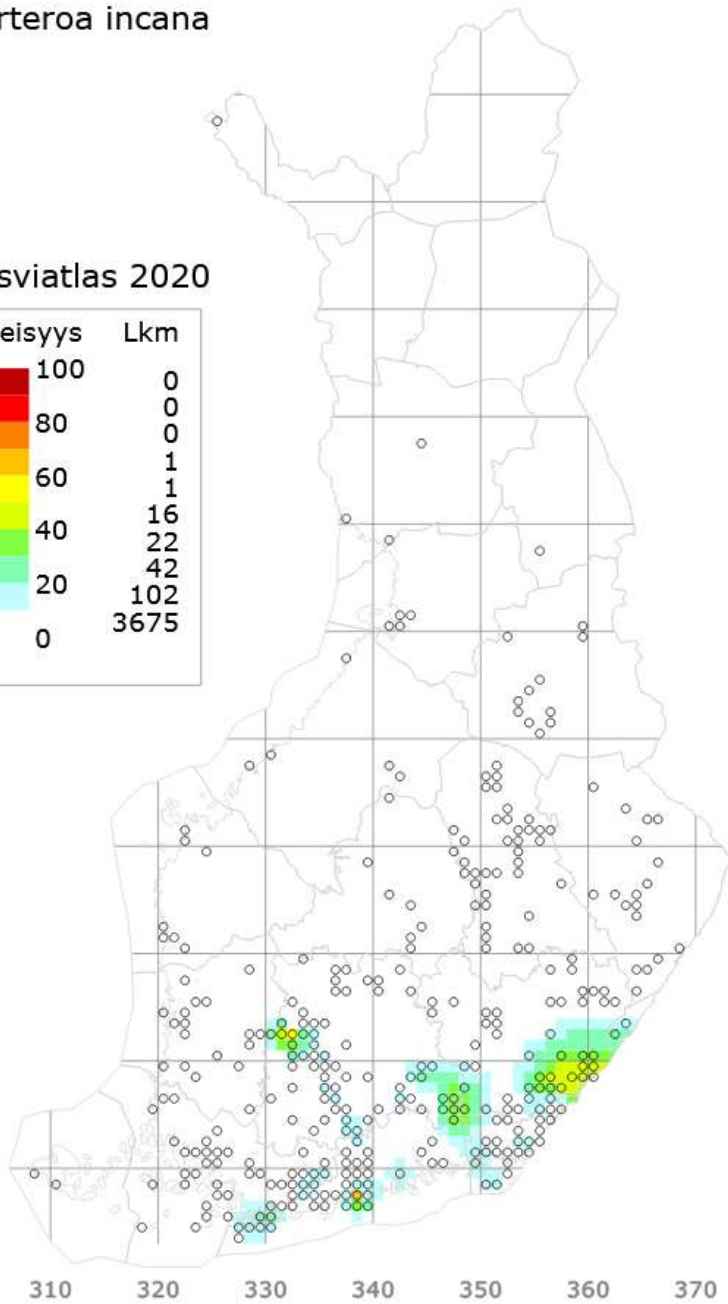
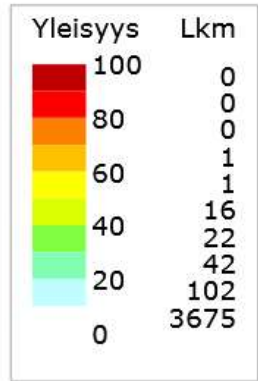


Carex pallidula



# Berteroa incana

## Kasviatlas 2020



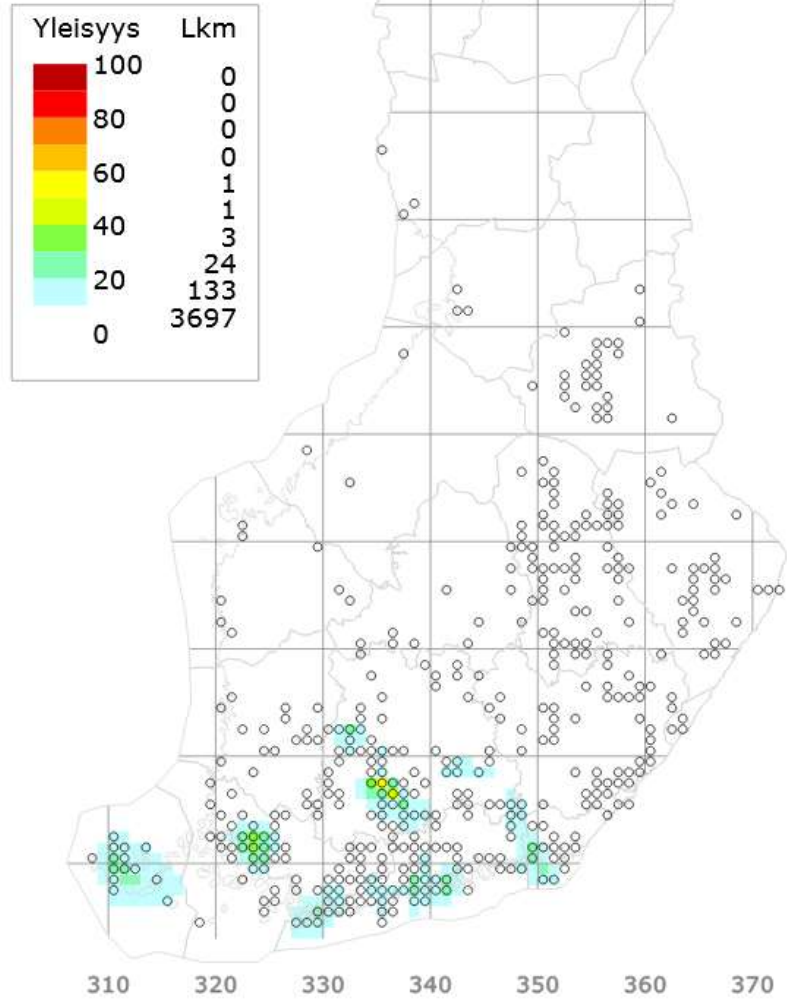
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# Bunias orientalis

## Kasviatlas 2020

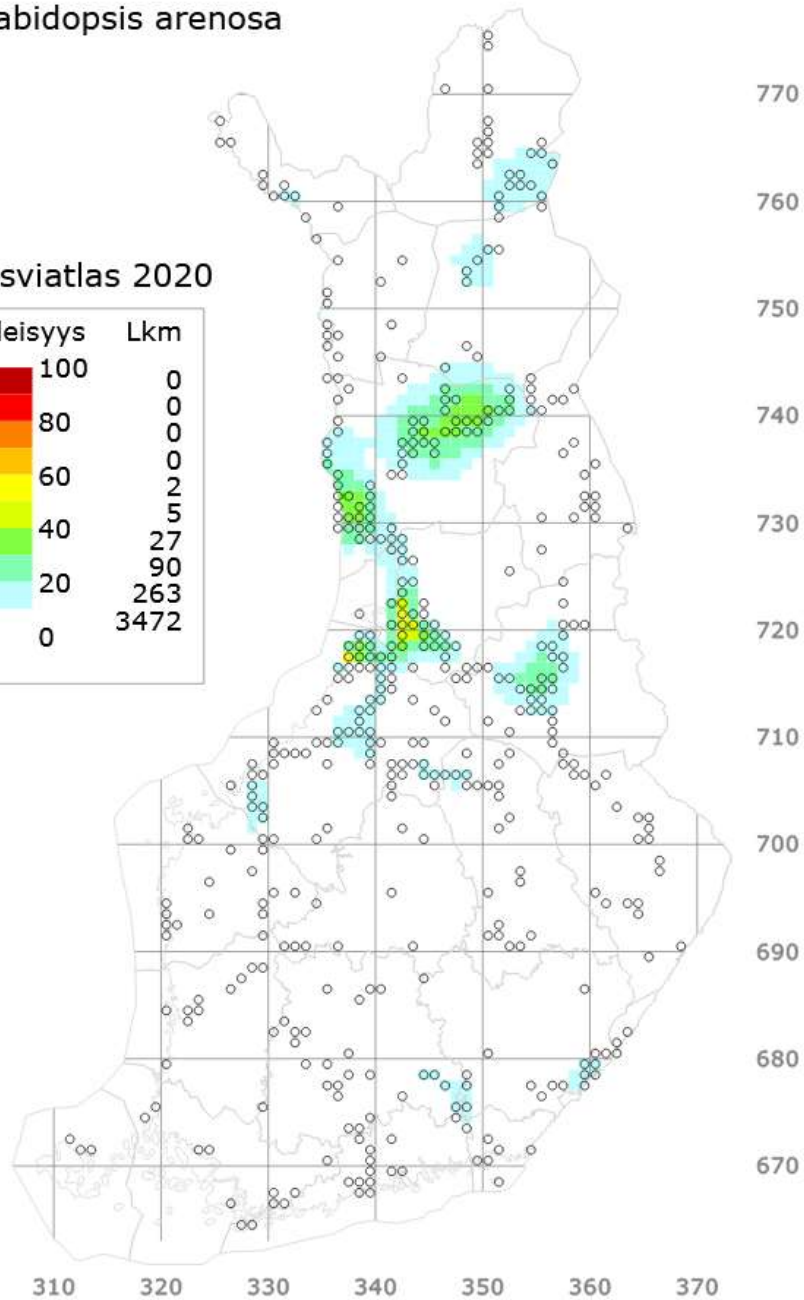
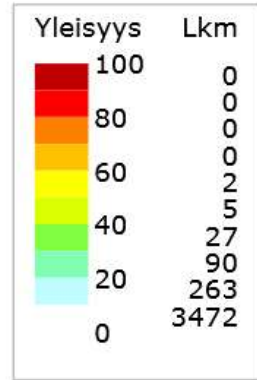


770  
760  
750  
740  
730  
720  
710  
700  
690  
680  
670



*Arabis arenosa*

Kasviatlas 2020

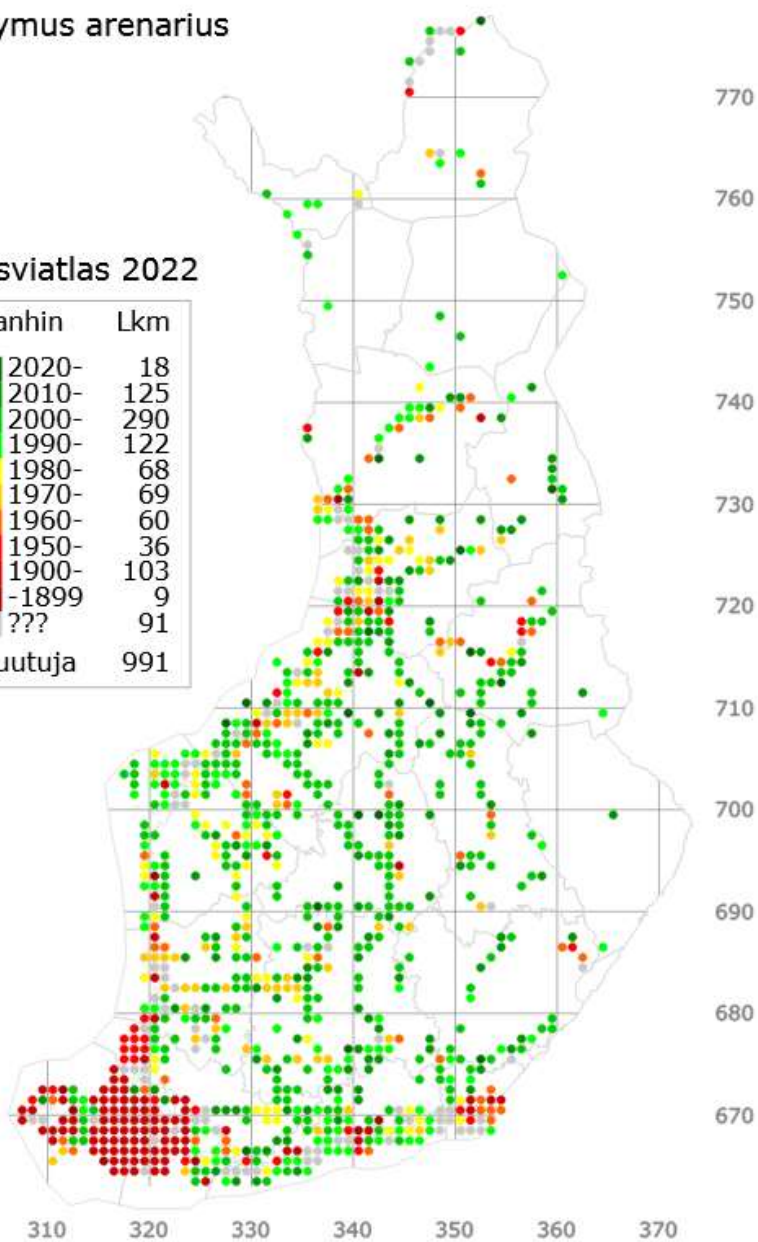




# Leymus arenarius

## Kasviatlas 2022

Vanhin	Lkm
2020-	18
2010-	125
2000-	290
1990-	122
1980-	68
1970-	69
1960-	60
1950-	36
1900-	103
-1899	9
???	91
Ruutuja	991

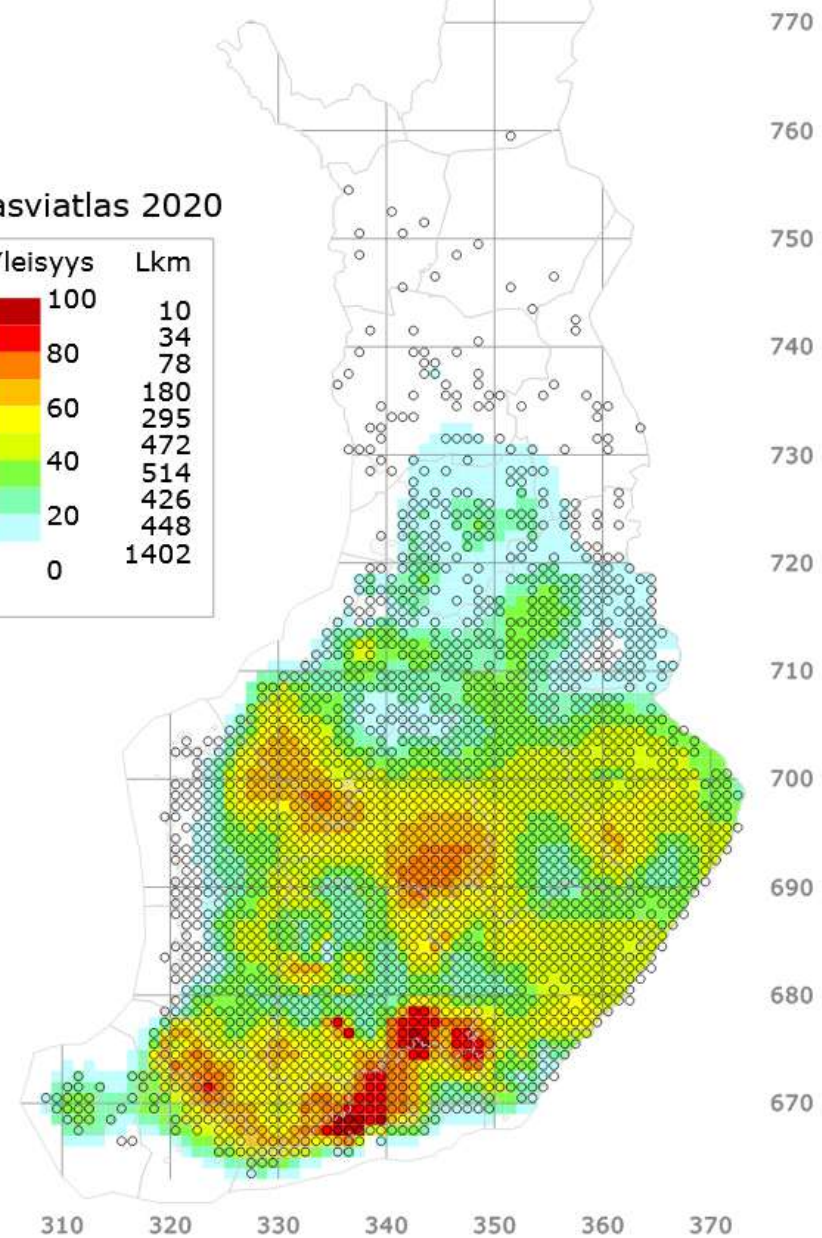
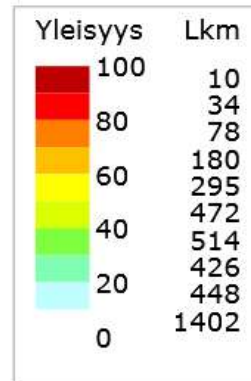






Lupinus polyphyllus

Kasviatlas 2020



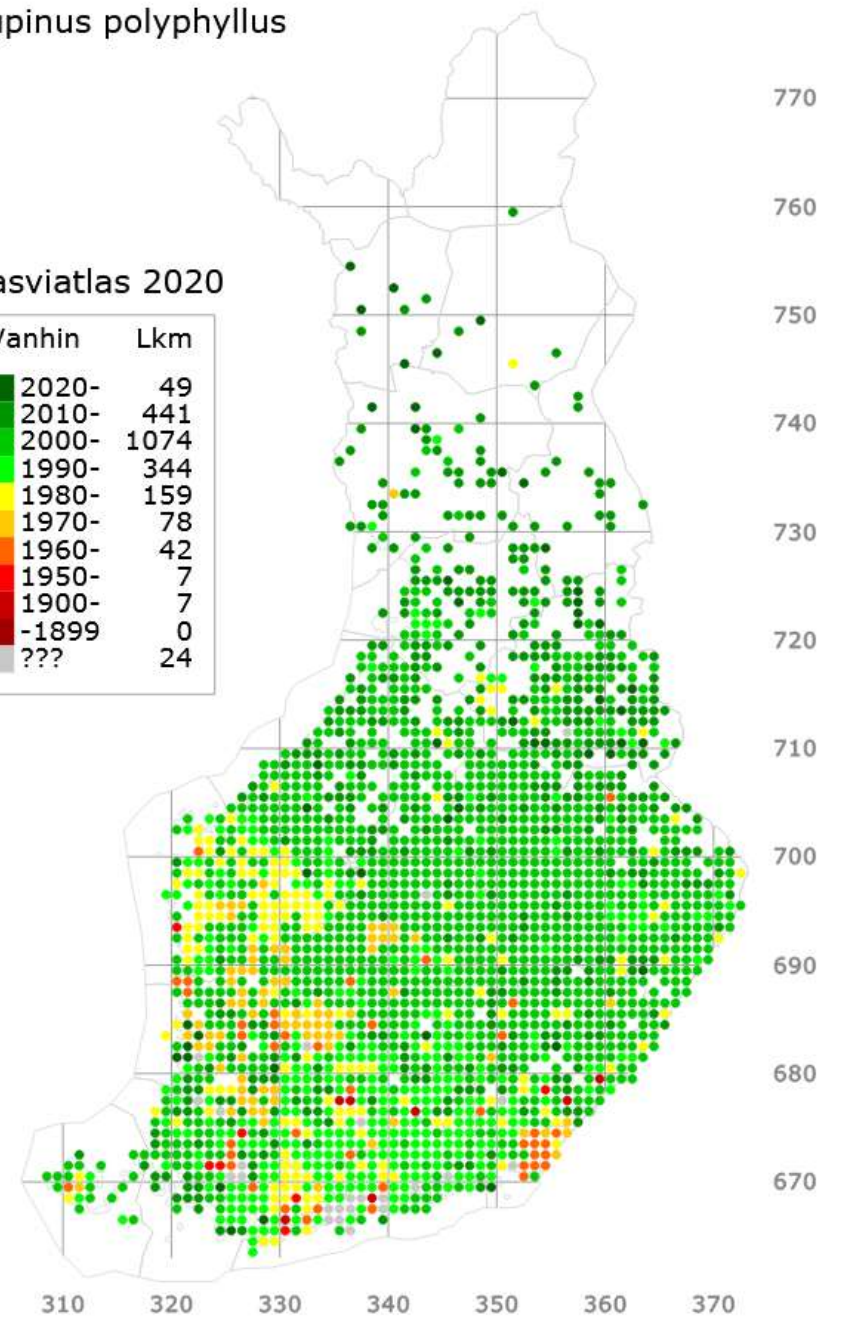




# Lupinus polyphyllus

## Kasviatlas 2020

Vanhin	Lkm
2020-	49
2010-	441
2000-	1074
1990-	344
1980-	159
1970-	78
1960-	42
1950-	7
1900-	7
-1899	0
???	24







Kiitos!