



The comparison of two methods of monitoring wetland vegetation dynamics

**Nature reserve Ruda
(Třeboň basin, South Bohemia)**

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Vegetation changes:

- protected since 1950 (0,4 ha)
- today is protected 70,3 ha
- fen on iron-rich springs
- effected by peat mining in history and by influence of fishpond nutrient-rich water
- accelerated succession is now present



A) Repeating of vegetation mapping:

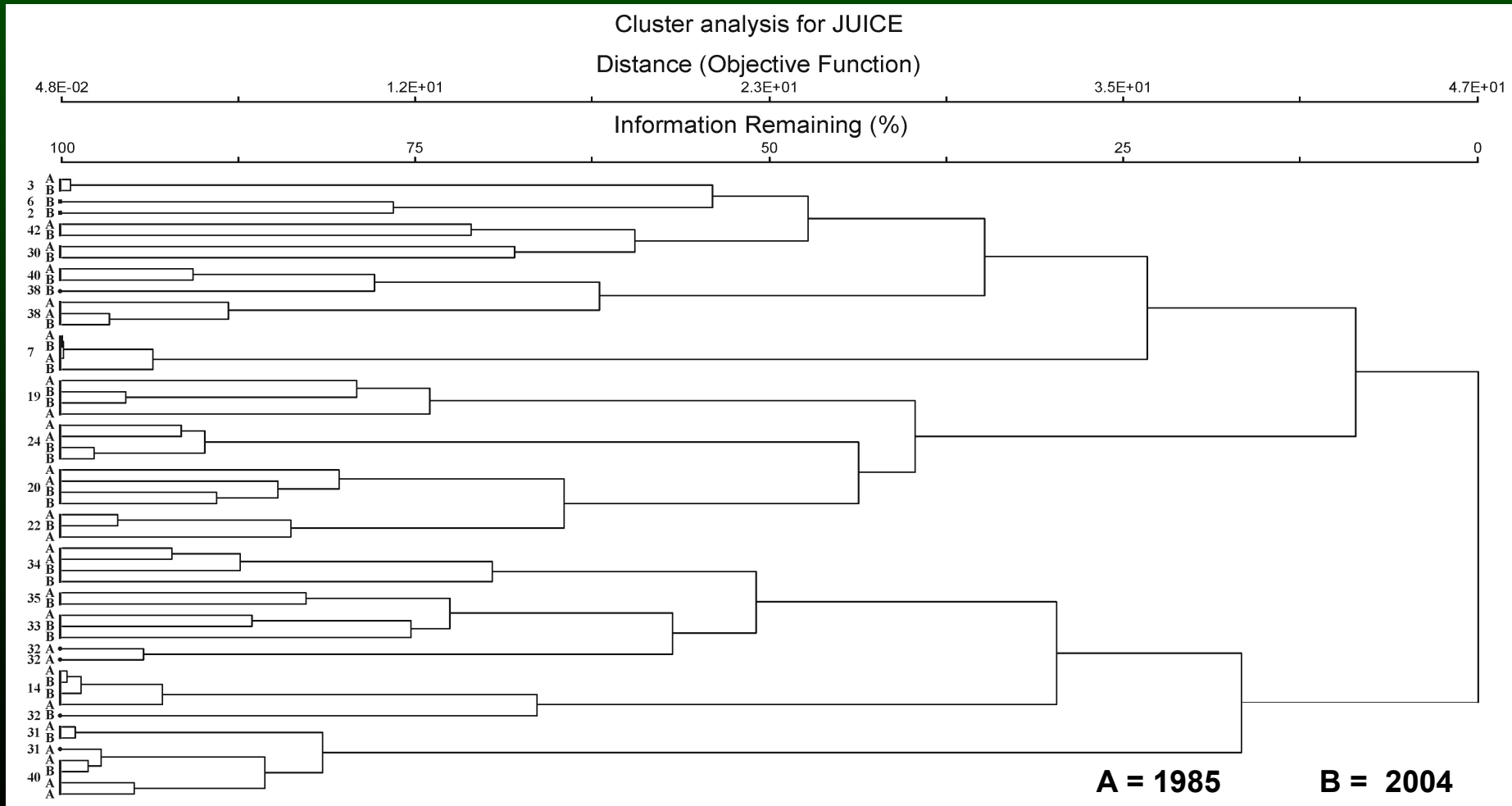
Definition of mapping units

- 1. There were from the 1985's mapping available:**
 - map 1:2000 (55 ha)**
 - precise description of vegetation mapping units including habitat description,**
 - for each unit one or two phytosociological relevés.**
- 2. During the season 2004:**
 - were collected relevés in vegetations that corresponded to description from 1985.**
- 3. The datasets from 1985 and 2004 were compared.**

A) Repeating of vegetation mapping:

Cluster analysis, 21 mapping units

power transformed, relativ Euclidean distance, Ward method



Spatial distribution of vegetation in 2004

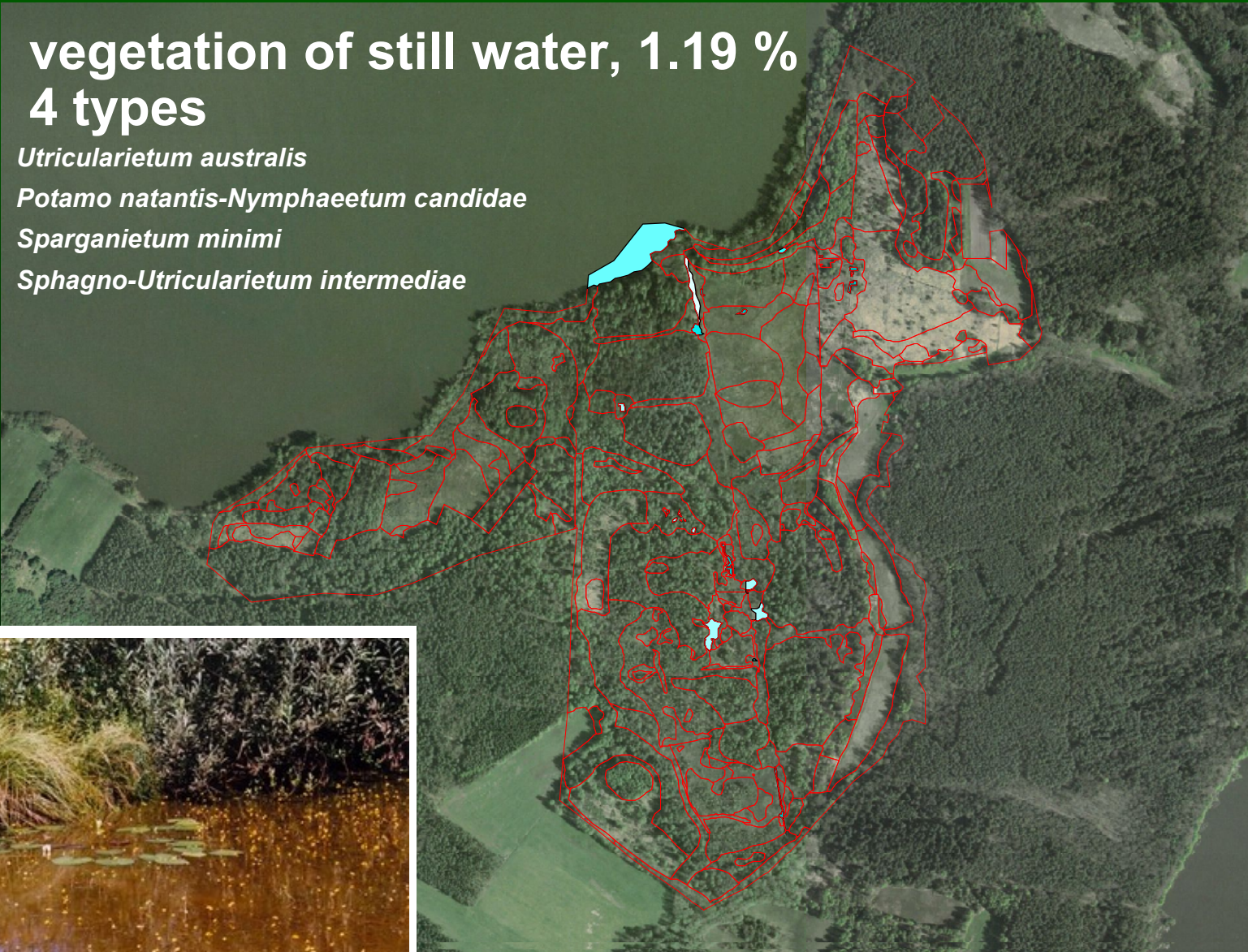
vegetation of still water, 1.19 %
4 types

Utricularietum australis

Potamo natantis-Nymphaeetum candidae

Sparganietum minimi

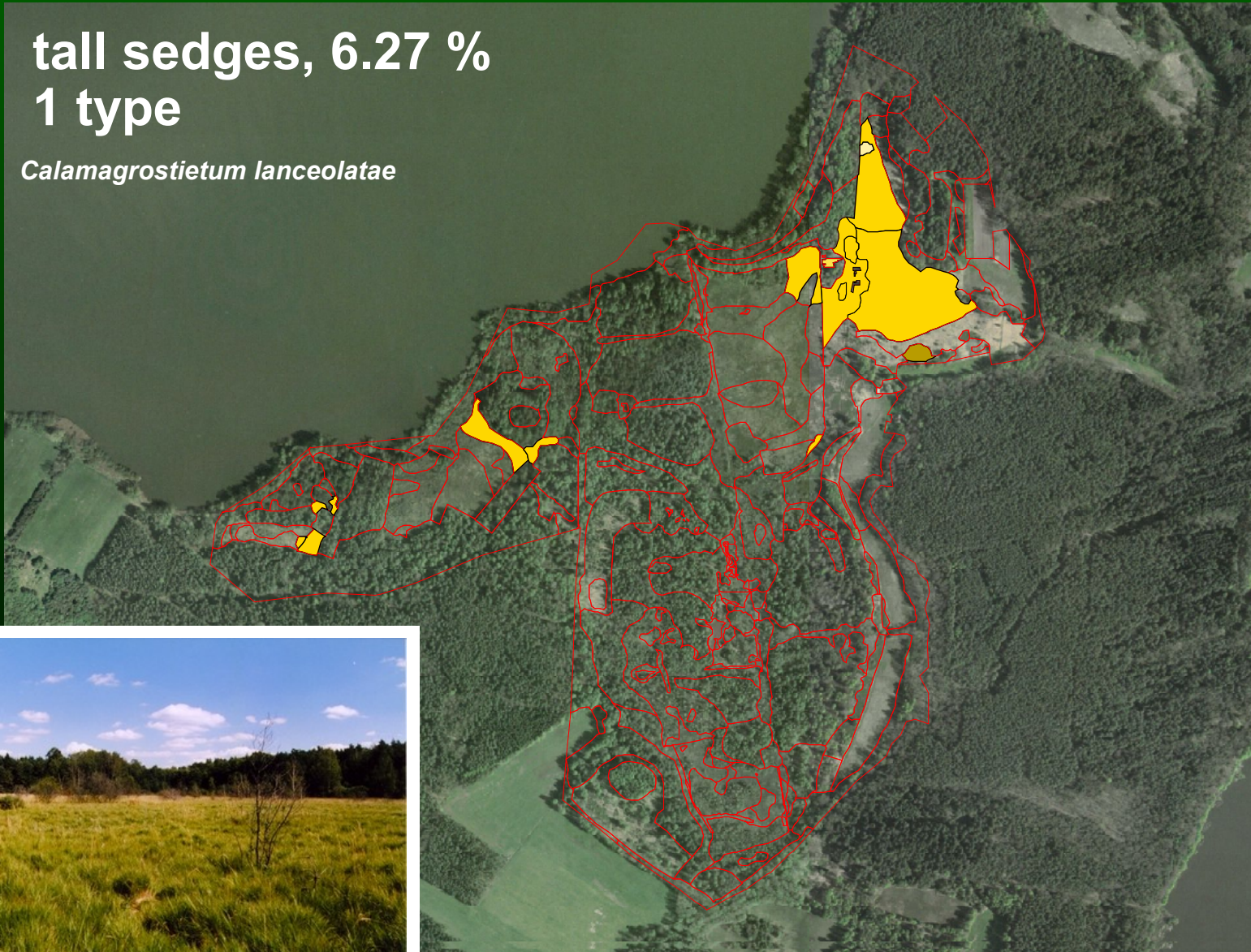
Sphagno-Utricularietum intermediae



Spatial distribution of vegetation in 2004

tall sedges, 6.27 %
1 type

Calamagrostietum lanceolatae



Spatial distribution of vegetation in 2004

fen vegetation, 16.06 %

5 types

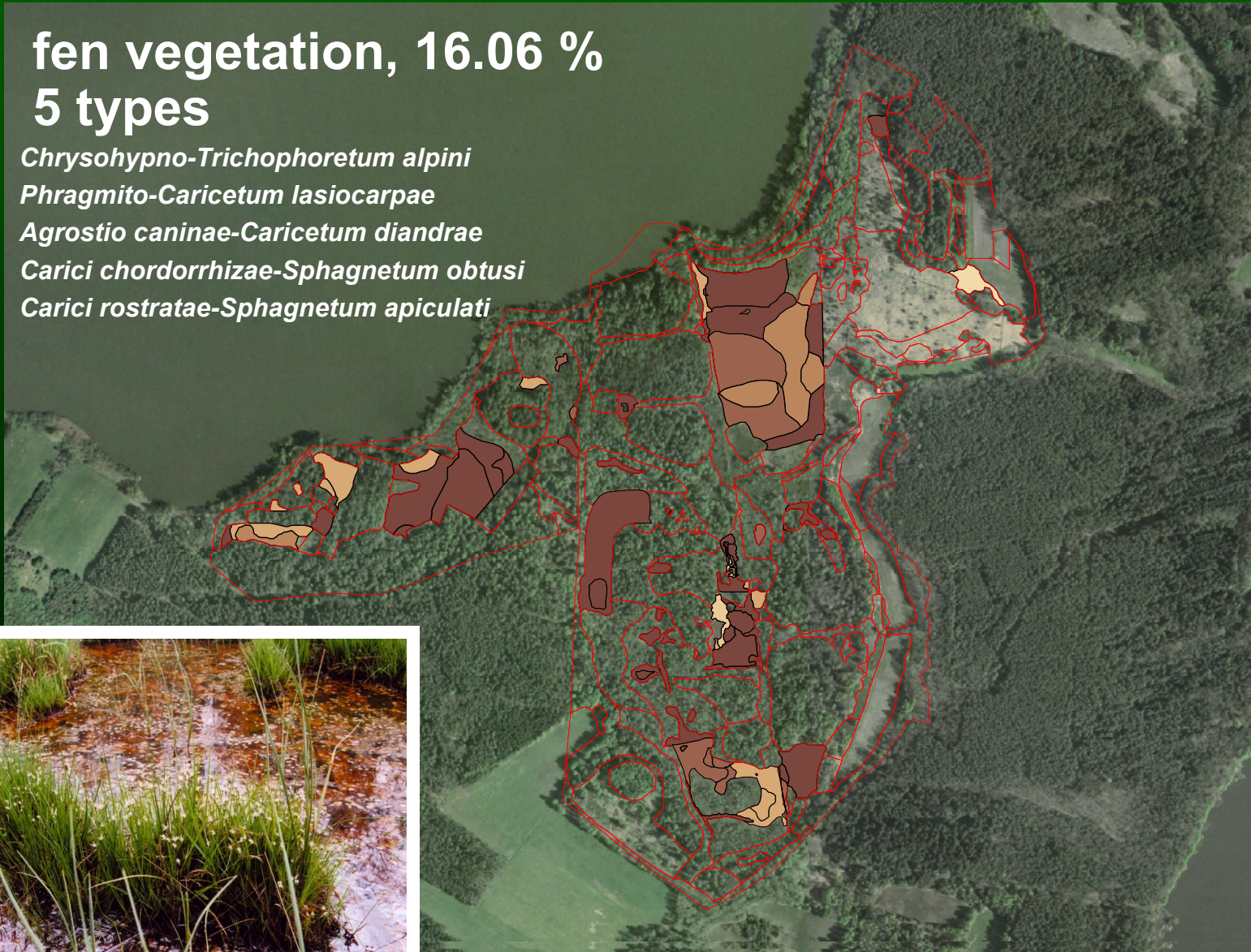
Chrysohypno-Trichophoretum alpini

Phragmito-Caricetum lasiocarpae

Agrostio caninae-Caricetum diandrae

Carici chordorrhizae-Sphagnetum obtusi

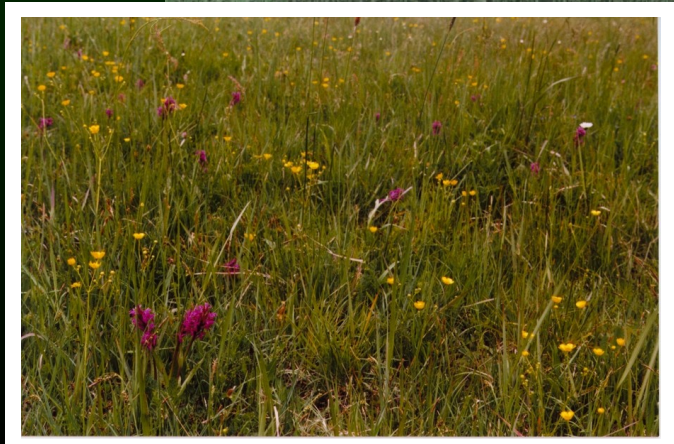
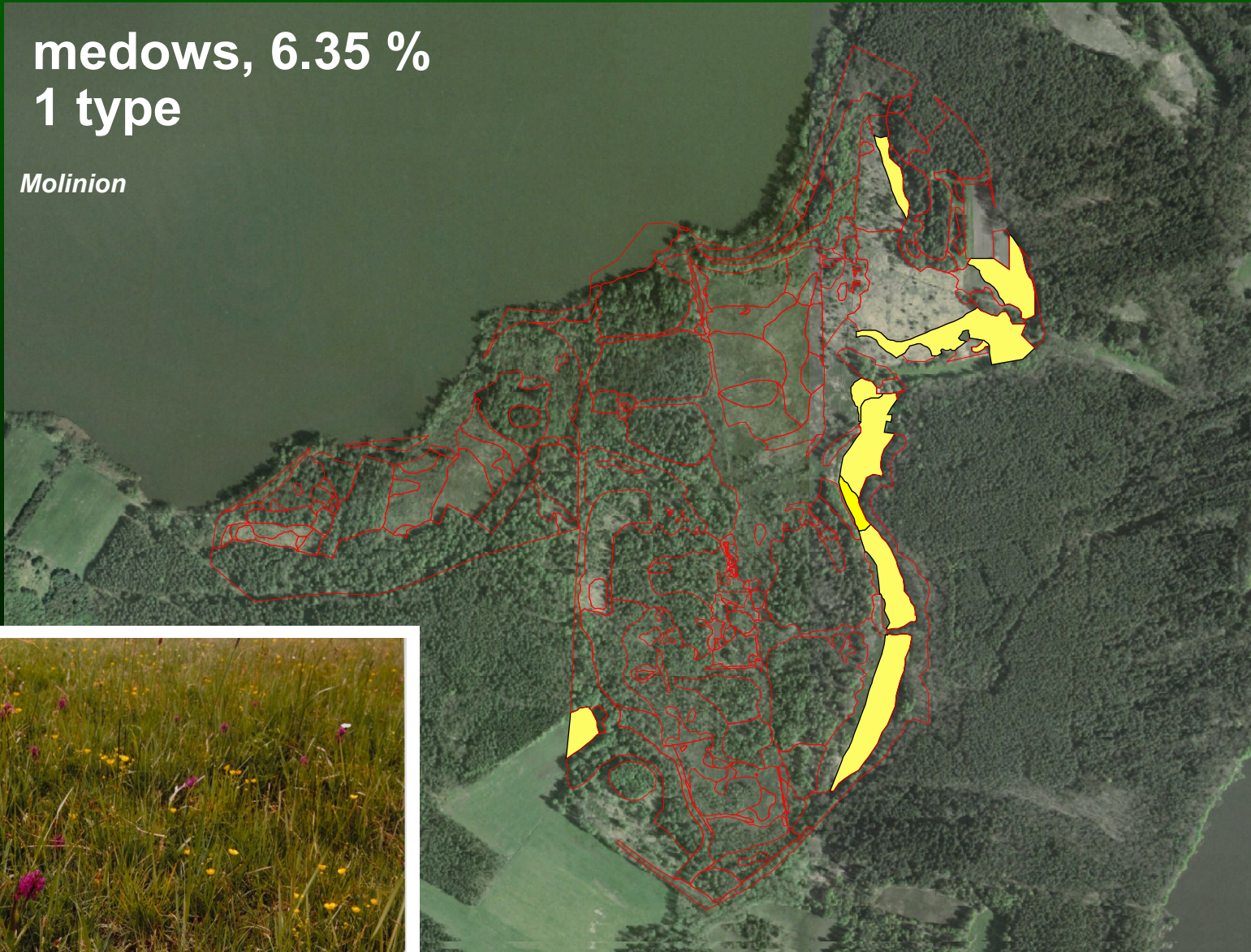
Carici rostratae-Sphagnetum apiculati



Spatial distribution of vegetation in 2004

medows, 6.35 %
1 type

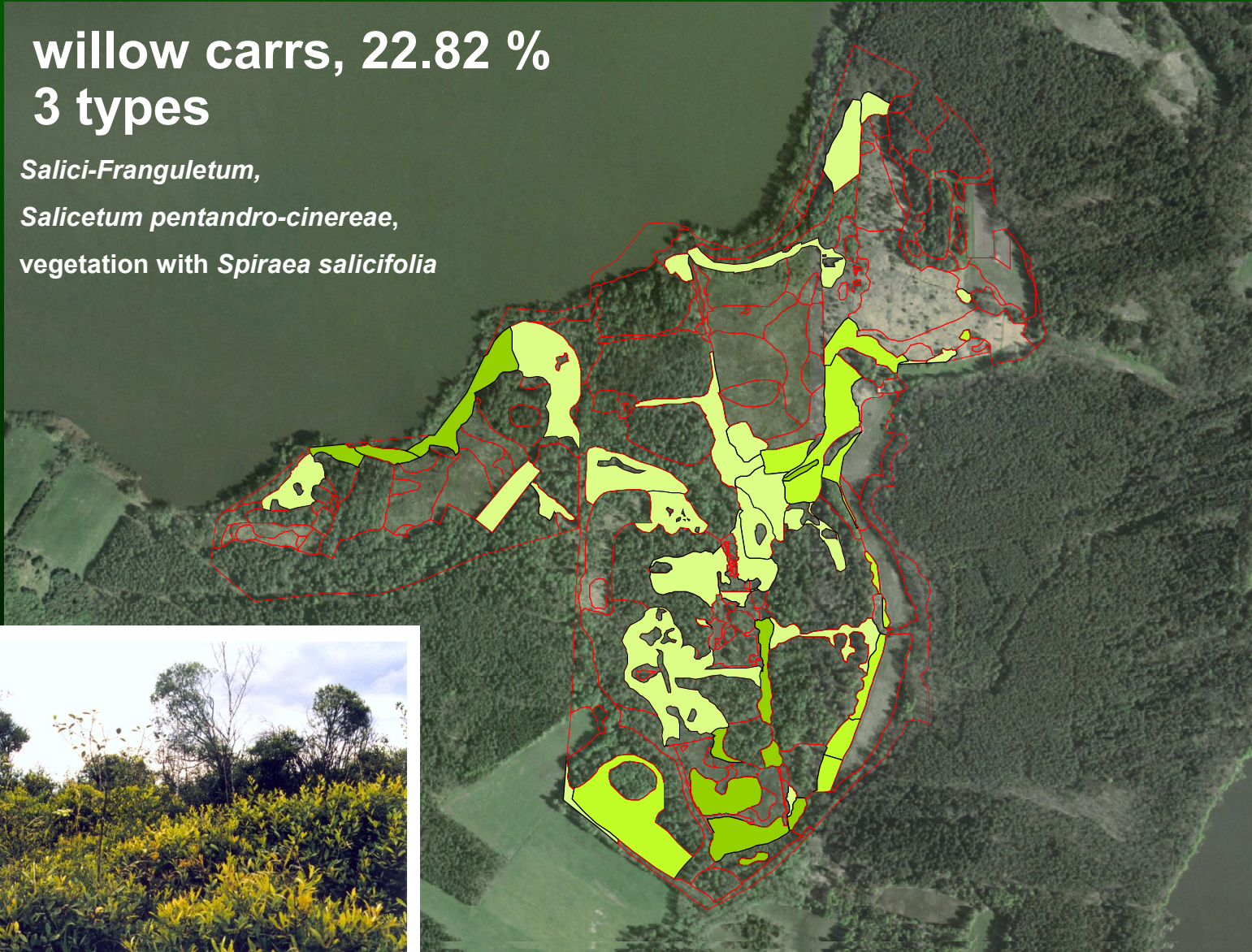
Molinion



Spatial distribution of vegetation in 2004

willow carrs, 22.82 %
3 types

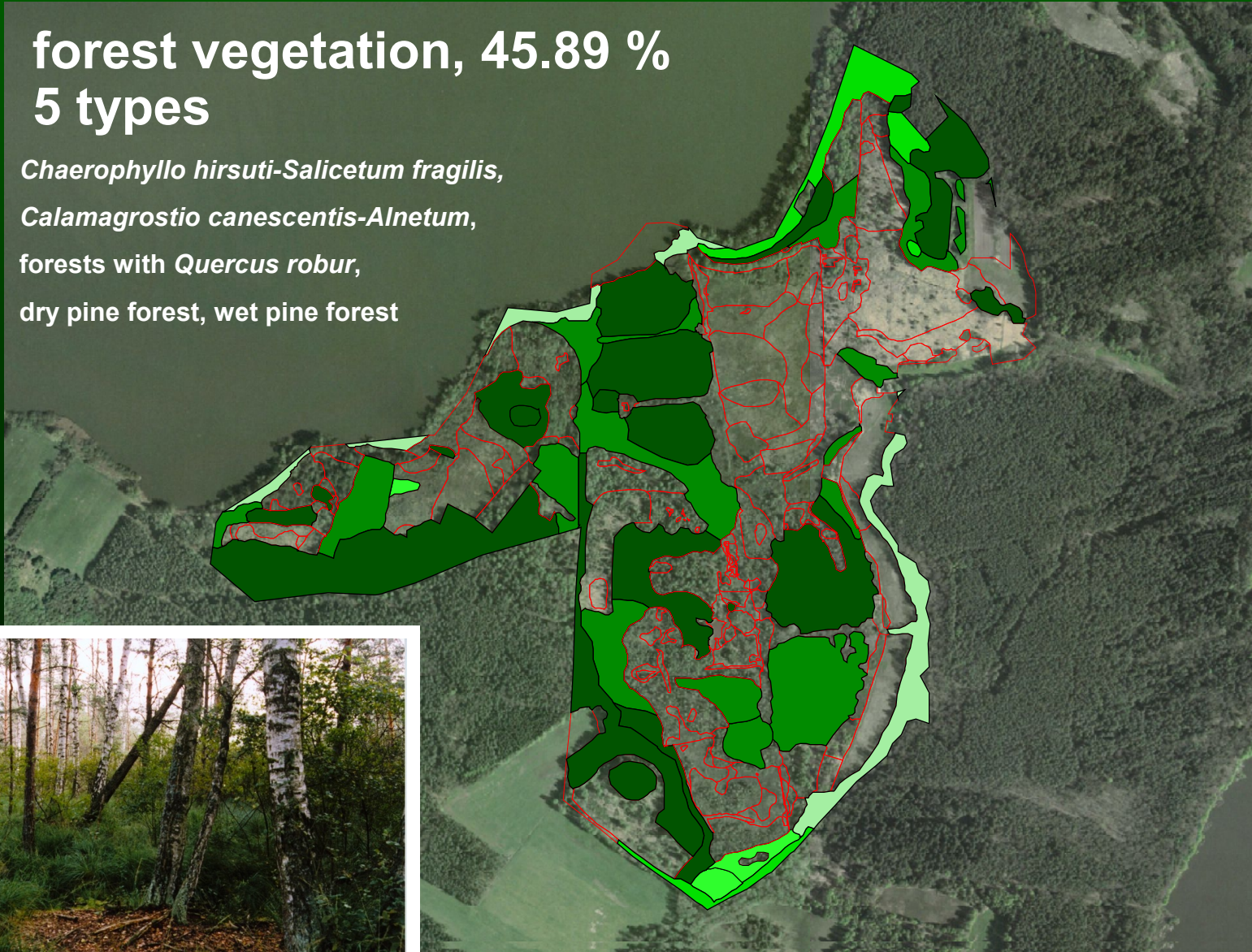
Salici-Franguletum,
Salicetum pentandro-cinereae,
vegetation with *Spiraea salicifolia*



Spatial distribution of vegetation in 2004

forest vegetation, 45.89 %
5 types

Chaerophyllo hirsuti-Salicetum fragilis,
Calamagrostio canescentis-Alnetum,
forests with *Quercus robur*,
dry pine forest, wet pine forest

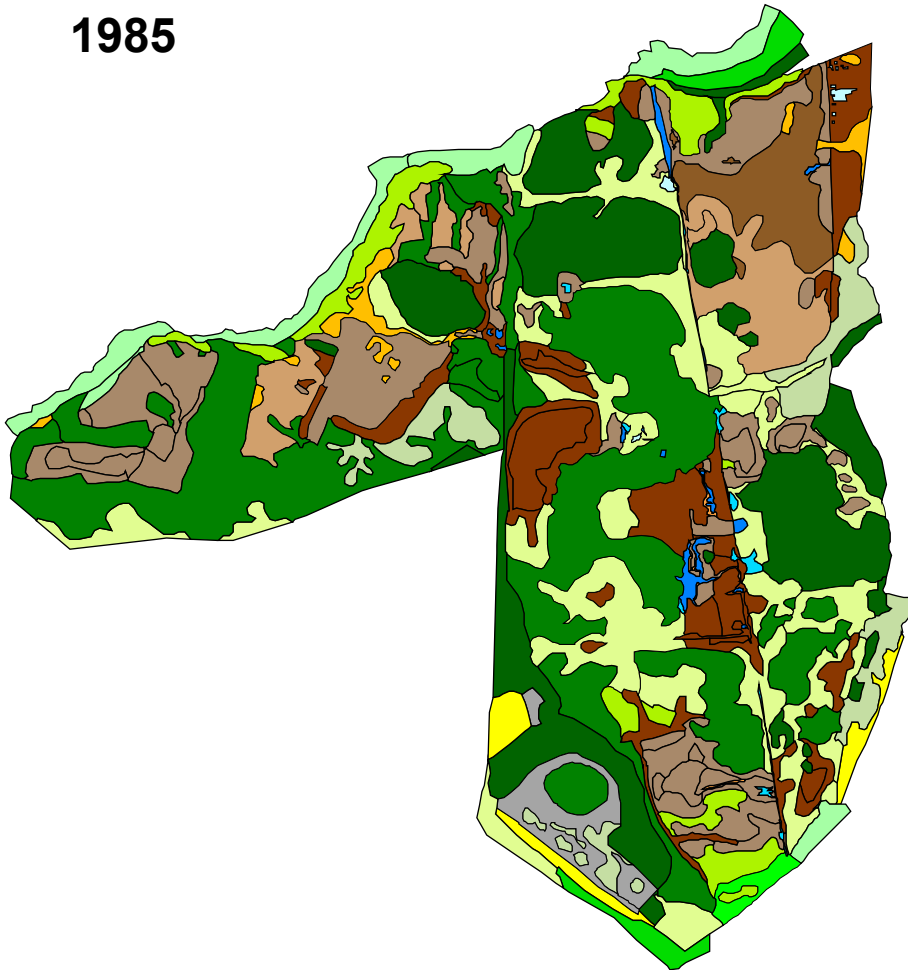


Vegetation changes:

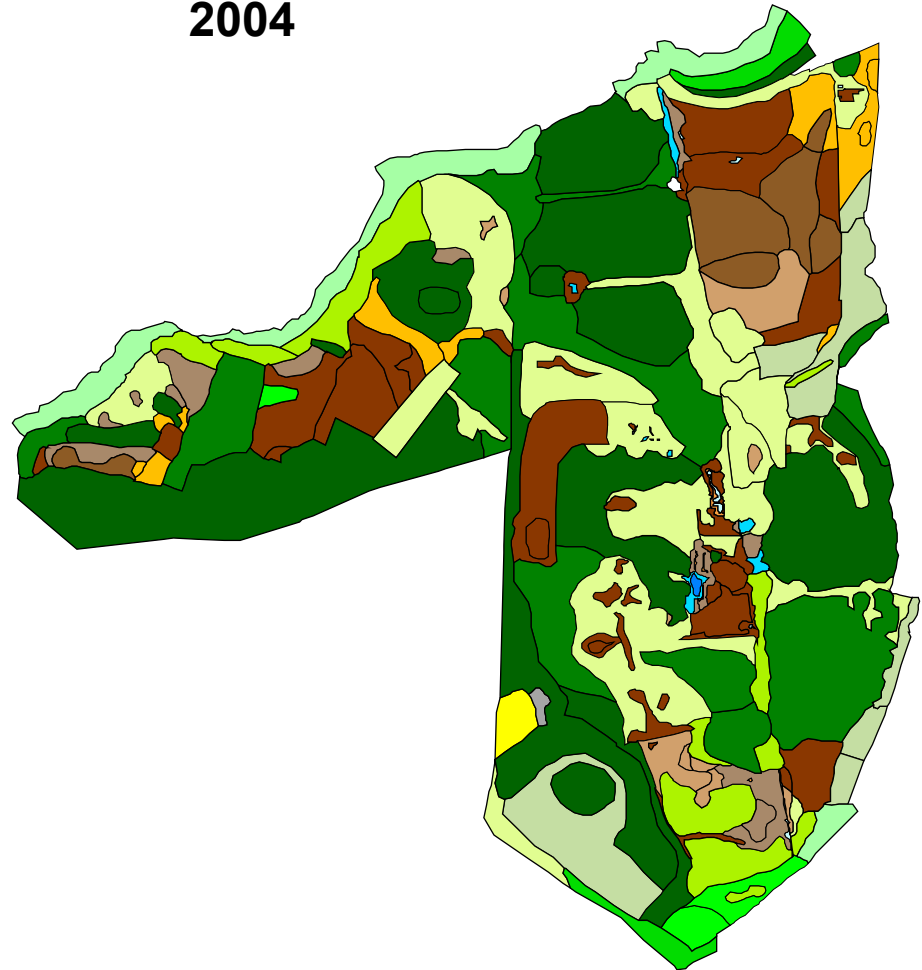
- Repeating of vegetation mapping (GIS tools)

- water vegetation
- tall sedges
- fens
- meadows
- willow carrs
- forests
- ruderal vegetation

1985



2004

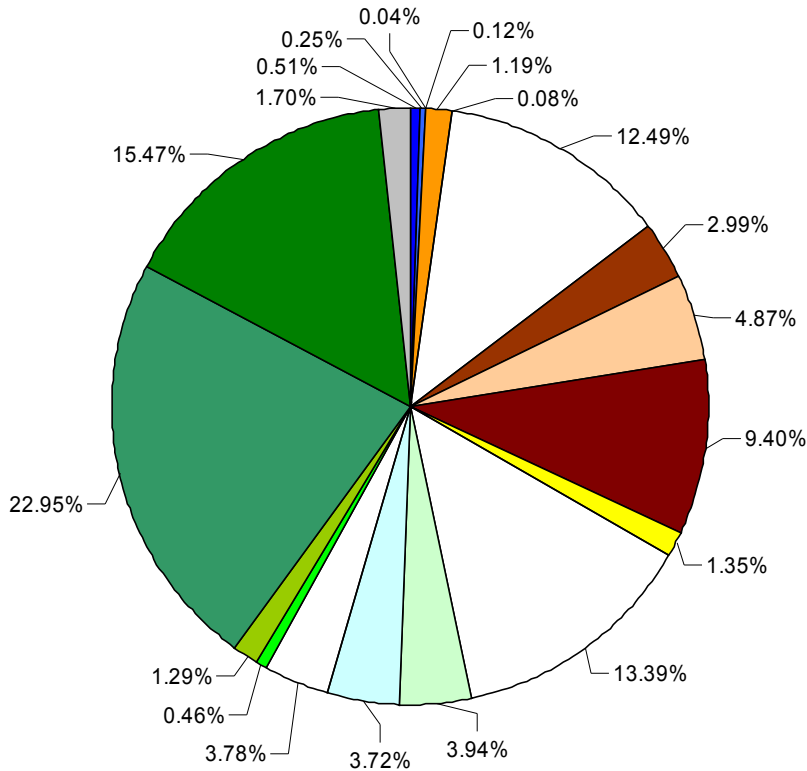


Vegetation changes:

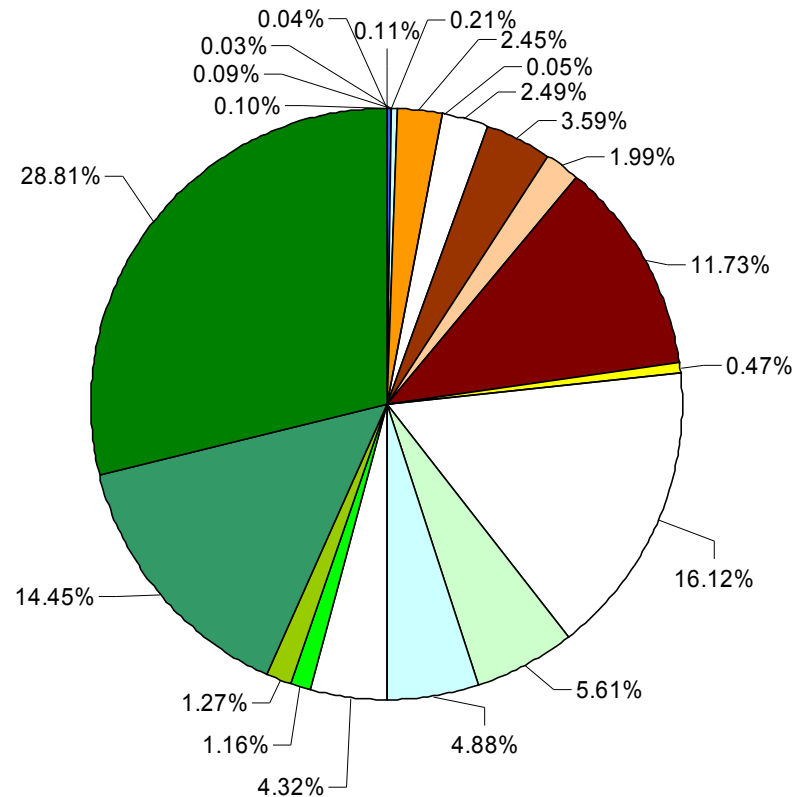
- Repeating of vegetation mapping (GIS tools)

- water vegetation
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1985



2004



- 1
- 2
- 3
- 6
- 7
- 14
- 19
- 20
- 22
- 23
- 24
- 30
- 31
- 32
- 33
- 34
- 35
- 38
- 40
- 41
- 42

Vegetation changes:

- Repeating of vegetation mapping (GIS tools)

Transition matrix

1985 ↓ 2004 →

	water vegetation					tall sedges				fens				medows				willow carrs				forests				ruderal veg.			
TYPE	1	2	3	6	7	14	19	20	22	23	24	30	31	32	33	34	35	38	40	41	42								
1	8.21	21.00	21.17	0.00	7.44	0.24	2.10	13.35	1.43	0.00	9.29	0.00	14.29	0.00	0.00	0.00	0.00	0.00	0.84	0.63	0.00								
2	0.00	0.07	24.21	0.00	10.23	0.00	0.00	11.82	0.00	0.79	9.29	0.00	26.87	0.00	7.64	0.00	0.00	0.00	7.35	1.73	0.00								
3	0.00	0.00	70.64	0.00	8.26	0.00	0.00	0.00	0.00	0.00	16.51	0.00	4.13	0.00	0.00	0.00	0.00	0.00	0.00	0.46	0.00								
7	0.00	0.15	2.95	27.84	2.21	0.00	0.00	0.00	0.00	0.00	43.45	0.00	12.08	0.00	0.00	0.00	0.00	0.00	11.19	0.15	0.00								
14	0.00	0.00	0.00	0.00	0.00	50.56	0.00	2.23	0.00	0.00	9.80	0.00	0.00	8.32	14.89	2.57	3.57	0.00	2.24	5.82	0.00								
19	0.00	0.00	1.11	0.00	1.78	0.00	49.67	40.09	0.00	6.01	1.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00								
20	0.00	0.03	0.05	0.00	0.04	6.65	0.00	15.65	2.38	6.21	30.01	0.00	21.09	0.03	9.13	0.06	0.00	0.00	5.16	3.51	0.00								
22	0.00	0.00	0.00	0.00	0.48	8.55	0.00	0.50	65.95	0.00	23.69	0.00	0.66	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.00								
23	0.00	0.00	0.00	0.00	0.00	0.95	0.00	3.75	18.04	19.88	27.59	0.00	13.36	7.96	4.68	0.00	2.11	0.00	0.16	1.53	0.00								
24	0.00	0.00	0.02	0.00	0.01	6.75	0.02	0.32	0.06	1.10	41.50	0.00	33.03	3.68	2.86	0.24	0.00	0.00	4.73	5.68	0.00								
30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	34.28	0.01	62.36	0.00	0.00	0.00	0.00	1.07	2.28	0.00								
31	0.00	0.01	0.01	0.01	0.00	0.59	0.00	0.70	0.00	0.08	7.98	0.00	45.73	1.11	4.08	0.30	3.30	0.09	19.84	16.18	0.00								
32	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.03	0.00	12.41	55.30	0.08	0.00	0.00	0.00	15.08	17.06	0.00								
33	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.74	0.00	0.00	10.94	0.00	19.52	0.00	53.10	9.28	0.60	0.00	0.27	5.52	0.00								
34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.19	0.23	99.09	0.01	0.05	0.22	0.06	0.00								
35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.15	0.19	94.66	0.00	0.00	0.00	0.00								
38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.89	0.77	0.00	0.29	0.70	96.92	0.00	0.43	0.00								
40	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.08	0.00	0.05	0.61	0.00	7.07	0.01	2.14	0.54	0.46	0.00	39.61	49.40	0.00								
41	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	2.78	0.72	1.06	0.04	3.77	0.11	0.03	0.00	0.00	0.07	5.86	85.50	0.03								
42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.00	92.01	0.00	0.00	0.00	0.00	0.00	1.87	5.90								

Vegetation changes:

• without changes

- Repeating of vegetation mapping (GIS tools)



Vegetation changes:

- Repeating of vegetation mapping (GIS tools)

- open water
- water vegetation
- tall sedges
- fens
- meadows
- willow carrs
- forests
- ruderal vegetation



Vegetation changes:

- Repeating of vegetation mapping (GIS tools)

- water vegetation
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Vegetation changes:

- Repeating of vegetation mapping (GIS tools)

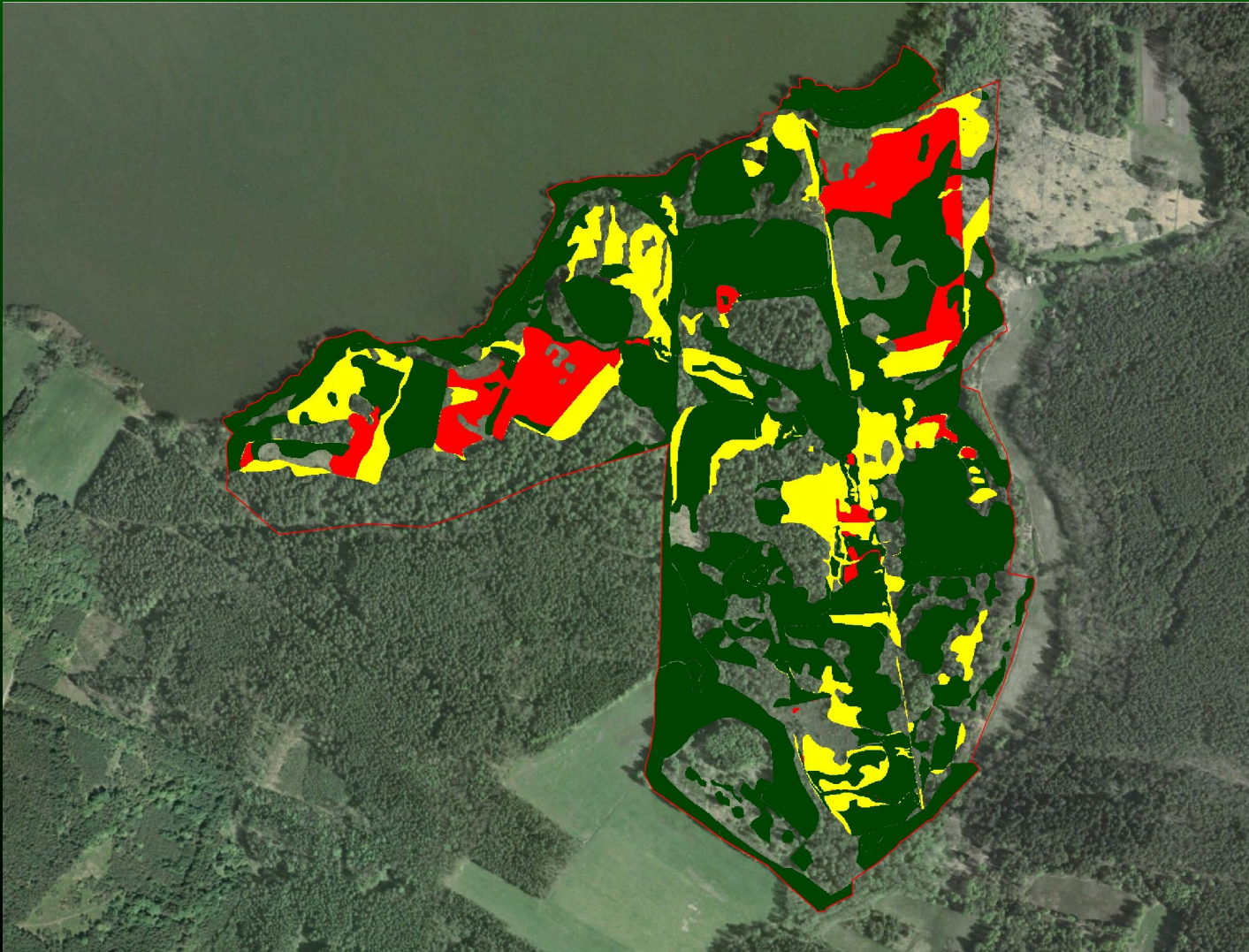
poor fens
• willow carrs
• forests



Vegetation changes:

- Repeating of vegetation mapping (GIS tools)

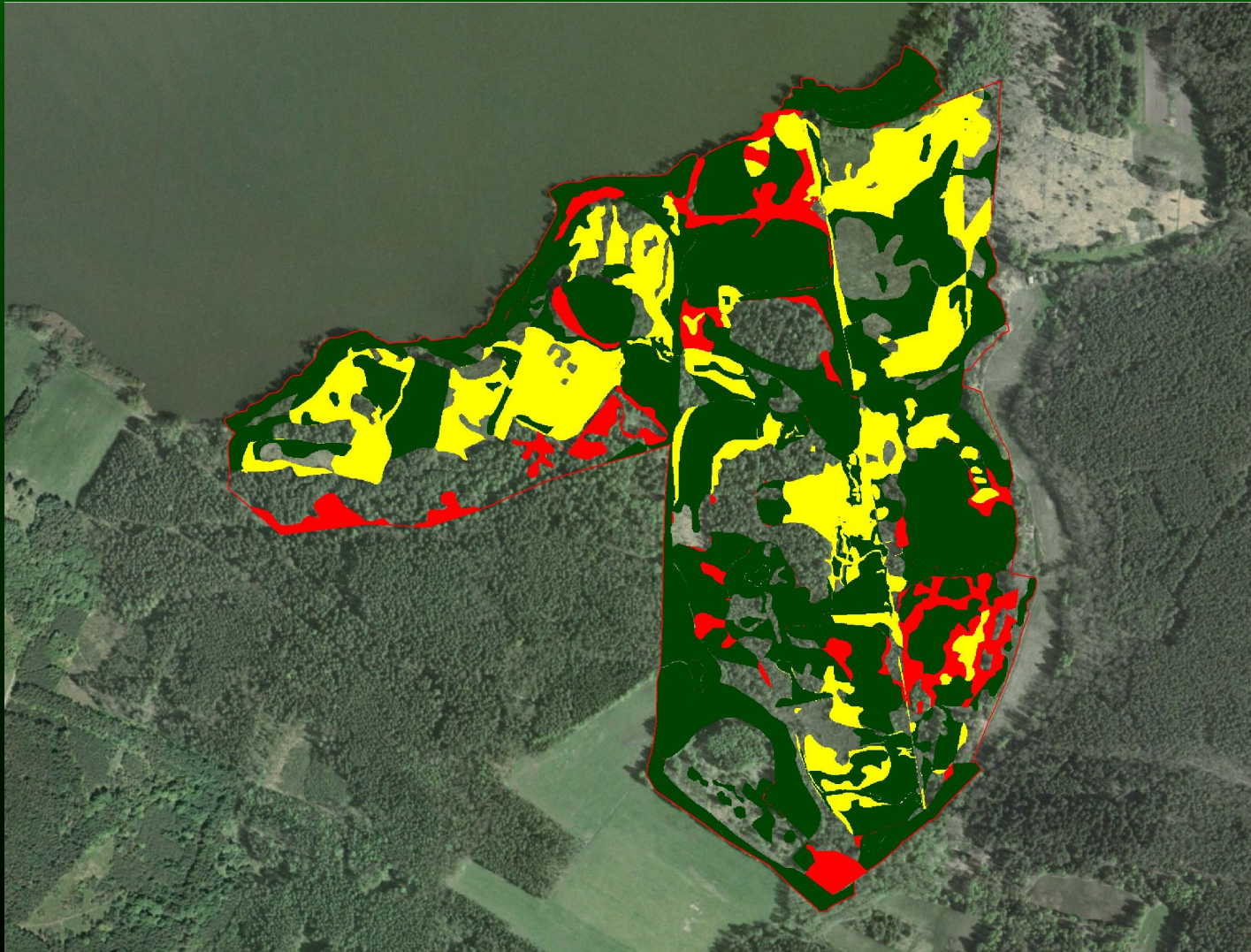
medium rich fens
• tall sedges
• poor fens



Vegetation changes:

• willow carrs
• forests

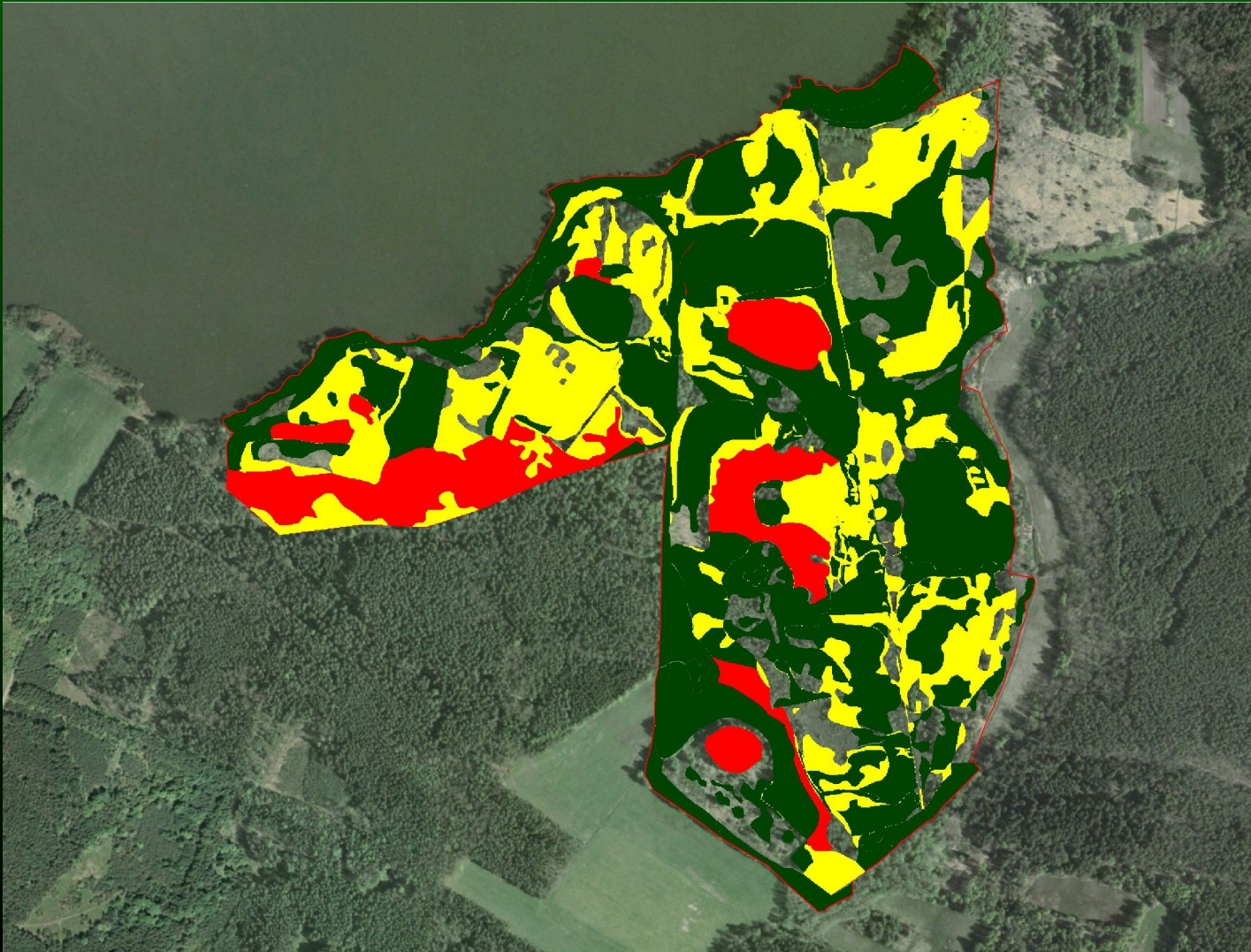
- Repeating of vegetation mapping (GIS tools)



Vegetation changes:

wet pine forest
• dry pine forest

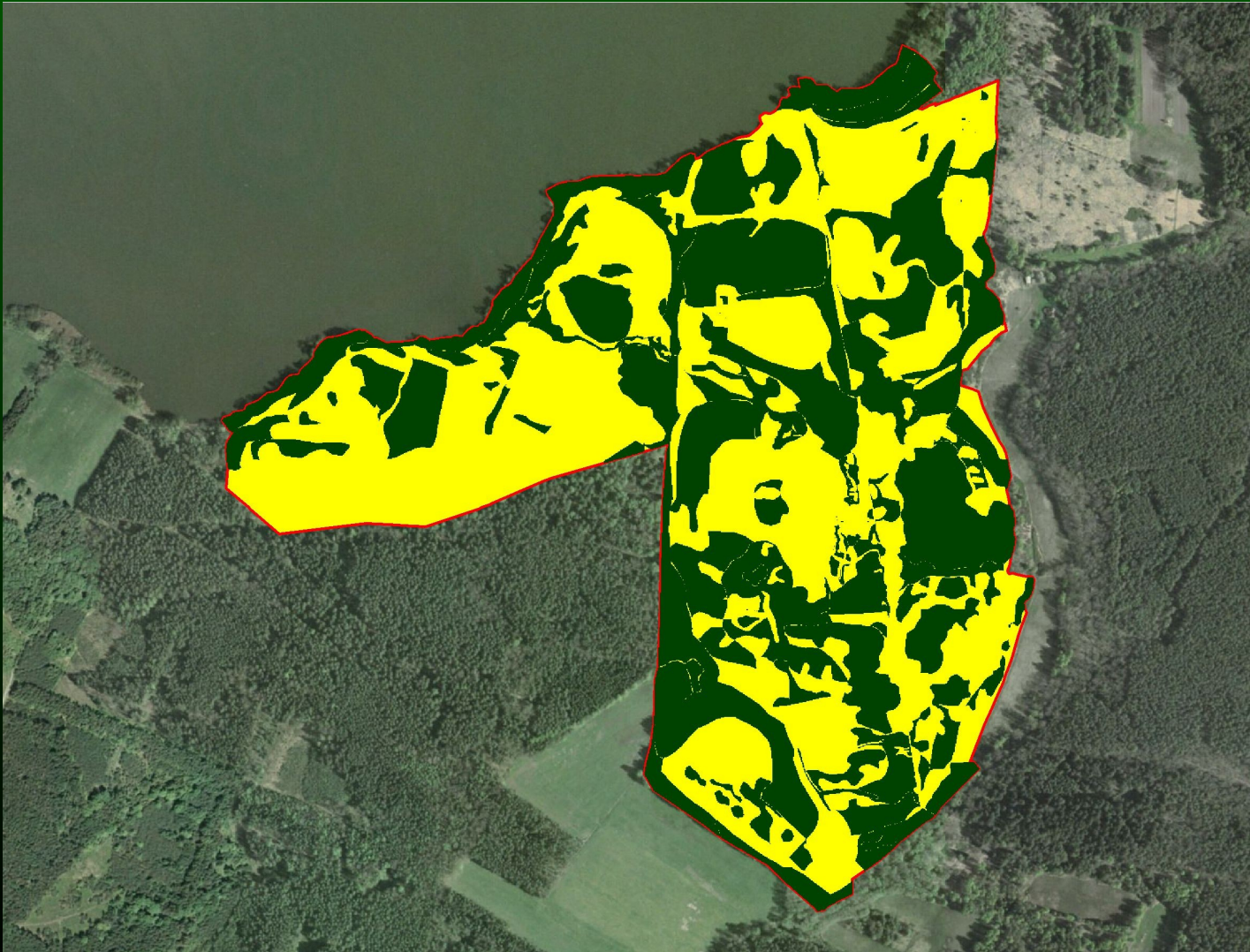
- Repeating of vegetation mapping (GIS tools)



Vegetation changes:

- Repeating of vegetation mapping (GIS tools)

- without changes
- changes

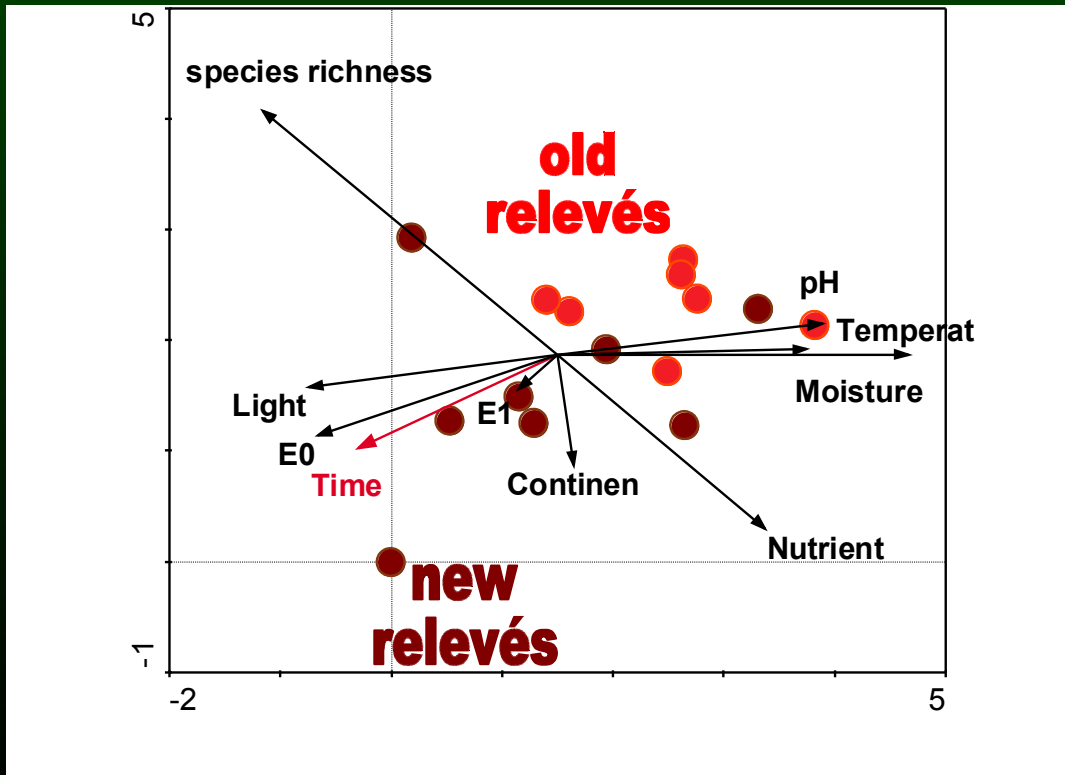


B) Repeating of phytosociological relevés

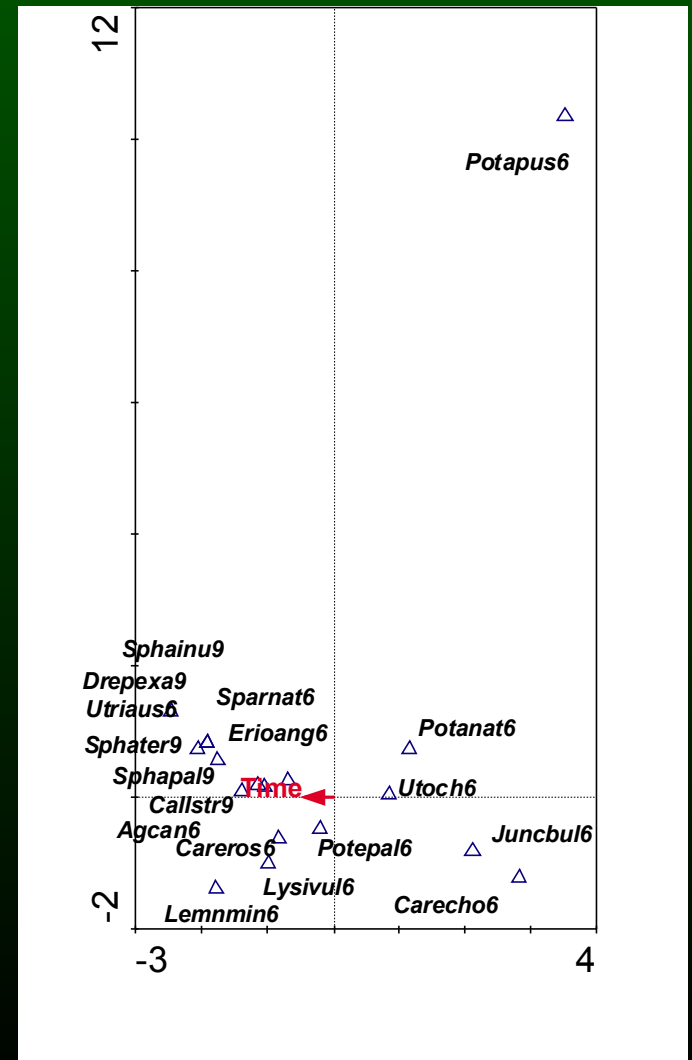
Vegetation of still waters



DCA



CCA



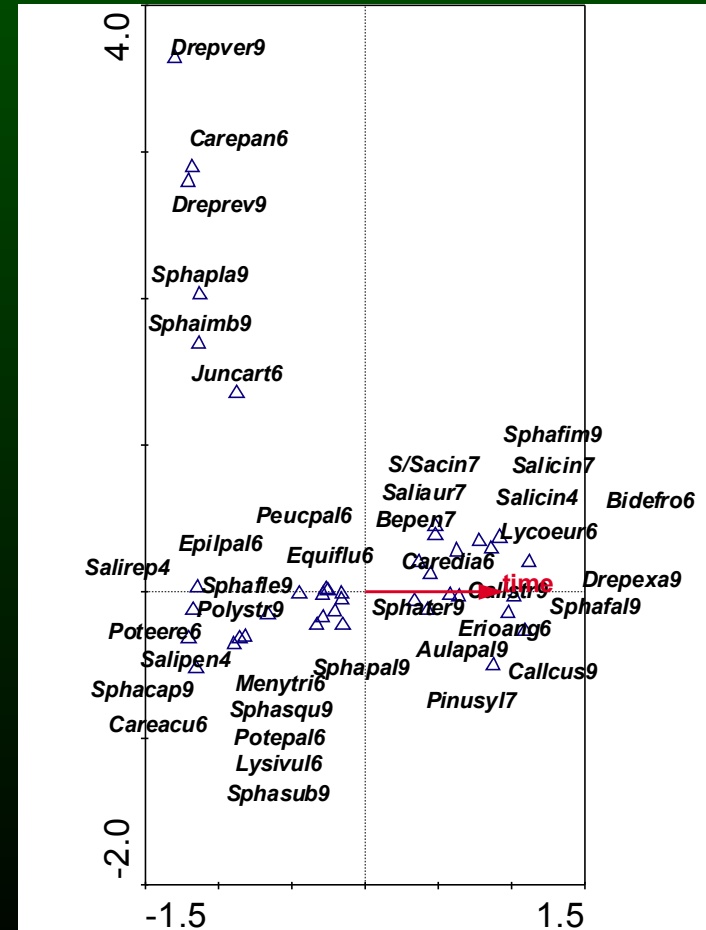
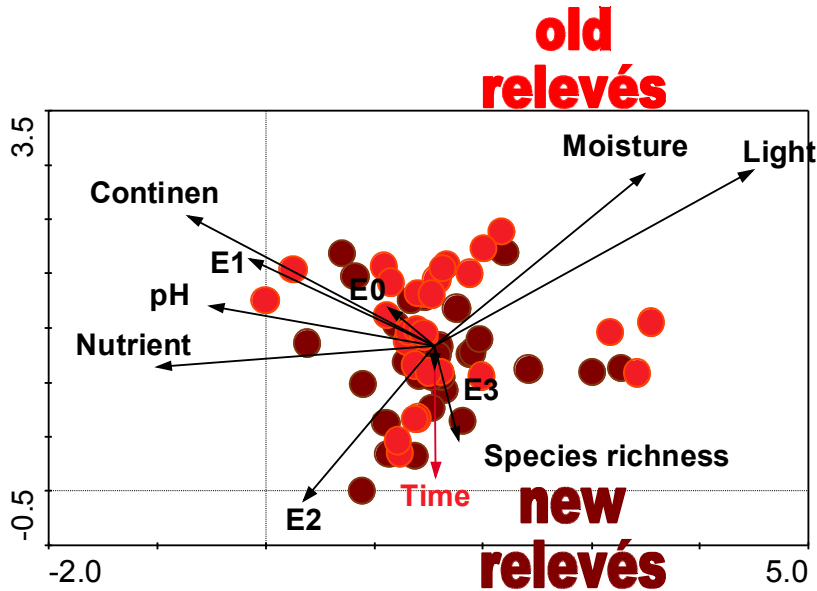
B) Repeating of phytosociological relevés

Fens



CCA

DCA



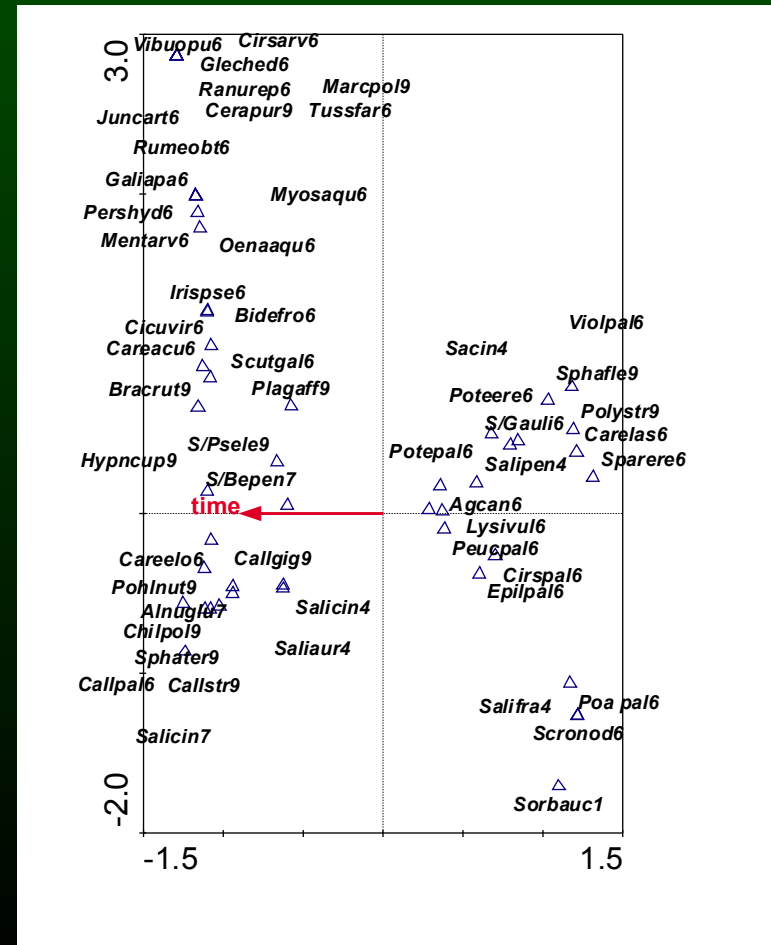
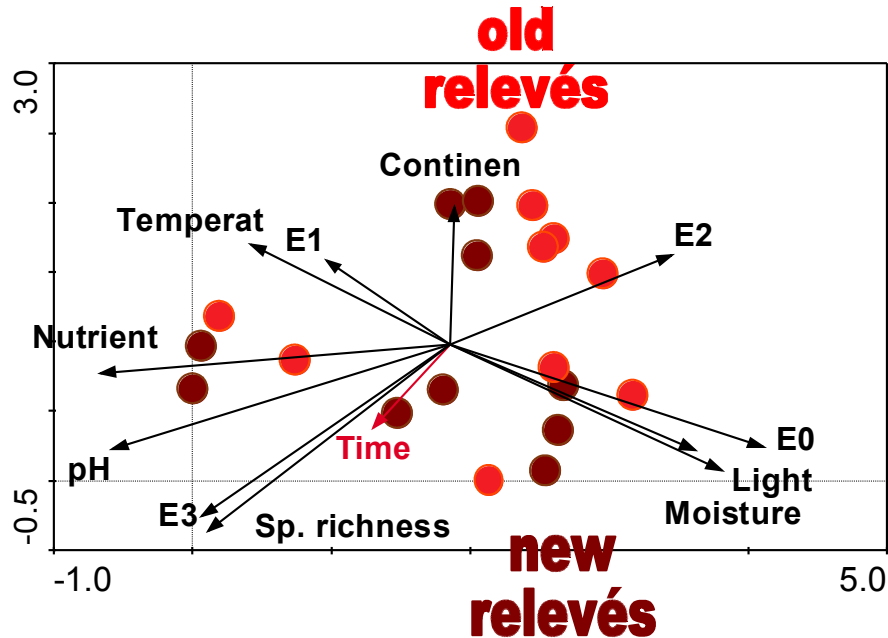
B) Repeating of phytosociological relevés

Willow carrs



CCA

DCA

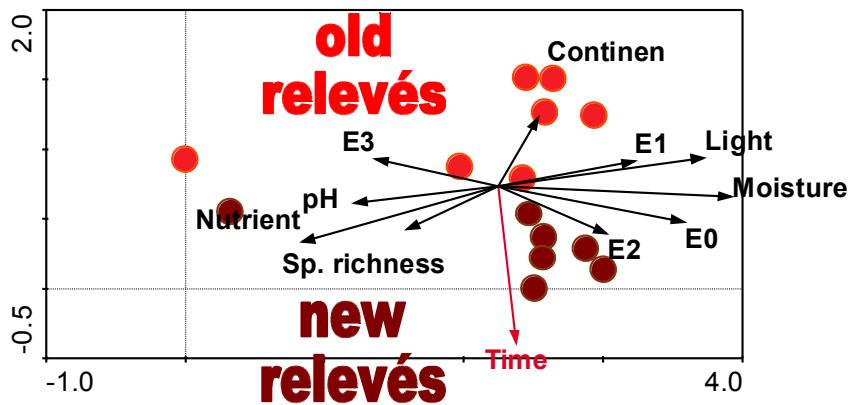


B) Repeating of phytosociological relevés

Forests



DCA



CCA

