

Liparis loeselii in Poland: distribution, trend, conservation



status

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Biology

- Yellowish-green orchid, 5-20 cm high, growing at fens usually for not longer than 8 years and blooming in Poland from June till the beginning of August;
- Vegetative or more often generative type of reproduction (usually self-fertilisation, although small hymenopterans were seen on flowers), that is supported by rain drops;
- Fruits appear in August and open in autumn because of higher humidity or snow load and contain up to a few thousand small and airy seeds, dispersed by wind;
- The species needs mycorrhiza fungus for its development;
- Populations are mostly not numerous (few to several dozen of individuals), although sometimes big populations occur (Biebrza and Rospuda river valleys);
- Individuals are concentrated in clusters and their number fluctuates from year to year (wet years support *Liparis loeselii* population rise because plants sprout better in wet conditions in the spring and fruit better when the summer is rainy);
- Average area occupied by particular populations range from few square meters to tens of ha, rarely exceeding 1 ha.

Ecology

- It grows mainly on moisty fens with rich brown moss layer (soligenic and topogenic type of peatlands), and less often in the places of seepages (e.g. in gravel pits) or at dried peats or within the complexes of *Molinion* meadows and shallow fens;
- Specific and typical only for north-eastern Poland places where fen orchid occurs are *Pinus-Betula* well-lighted forests (fen woodland);
- It grows at organic soils and only sometimes at mineral substrate – in most cases fen orchid occurs at peat with gyttja layers underneath and in few cases at floating mat or directly at sand, calcareous gyttja and lake chalk;
- Fen orchid habitats are often minerotrophic and fed with alkaline water (pH range: 6,6-7,9; EC range: 200-750 $\mu\text{S}/\text{cm}$);
- As a heliotropic species it occurs most often within low vegetation (*Scheuchzeria-caricetea nigrae*, *Caricetalia davallianae*) with *Carex davalliana*, *C. panicea* and *Calthion* meadow species or within initial patches with *Eleocharis quinqueflora*, *Triglochin palustre* and *C. limosa*; It grows also altogether with small sedges, *Trichophorum alpinum*, *Campylopusium stellatum*, *Limprichtia cossonii* and *Hamatocaulis vernicosus* and some populations occur in small sedge-moss communities with *Carex rostrata*, *Festuca rubra*, *Menyanthes trifoliata*, *Tomentypnum nitens*, *Aulacomium palustre*, *Hamatocaulis vernicosus*, *Calliergonella cuspidata* and less often with *Equisetum fluvatile*, *C. lasiocarpa* and *Molinietalia* meadow species.

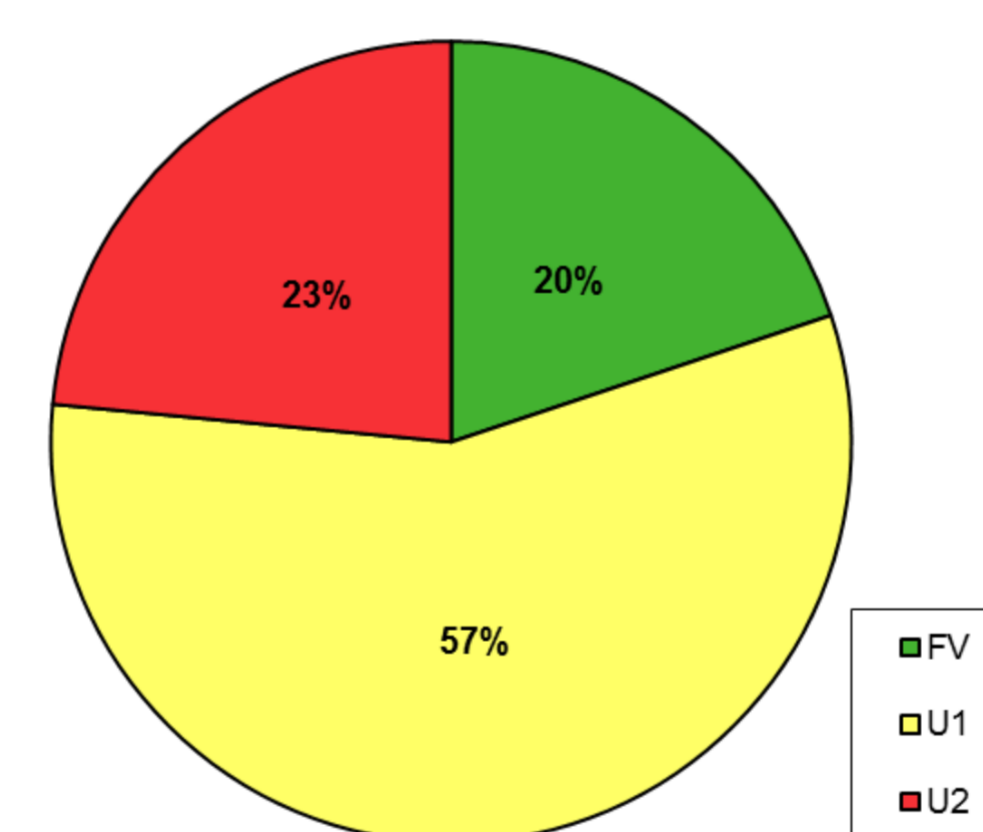
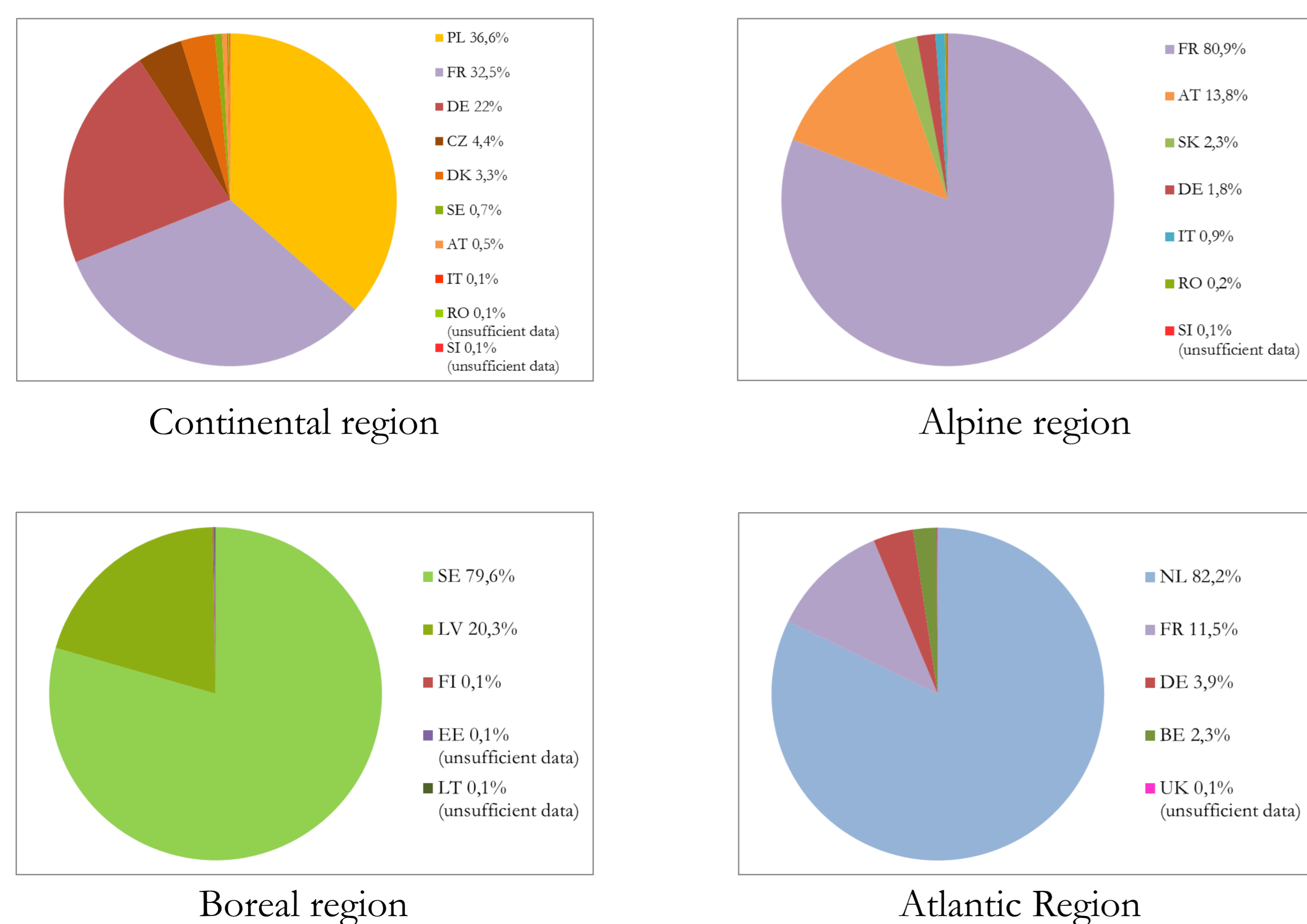
Distribution and population trends

- In Poland ca. 300 populations of fen orchid were found – mainly in the lowlands in the northern part of the country (at lakelands and at shorelands – in the young glacial area), and in the south scattered in the uplands;
- Huge decrease of *Liparis loeselii* habitats – recently presence of only ca. 150 populations was confirmed, mainly in the north-eastern Poland;
- The biggest Polish populations (less than 50%) occur in Biebrza and Rospuda river valleys (north-eastern Poland);
- Countries with the most numerous populations of *Liparis loeselii* are:
 - France (50000-100000 individuals)
 - Poland and Netherlands (40000-60000 individuals in each country)
 - Germany (11000-55000 individuals).

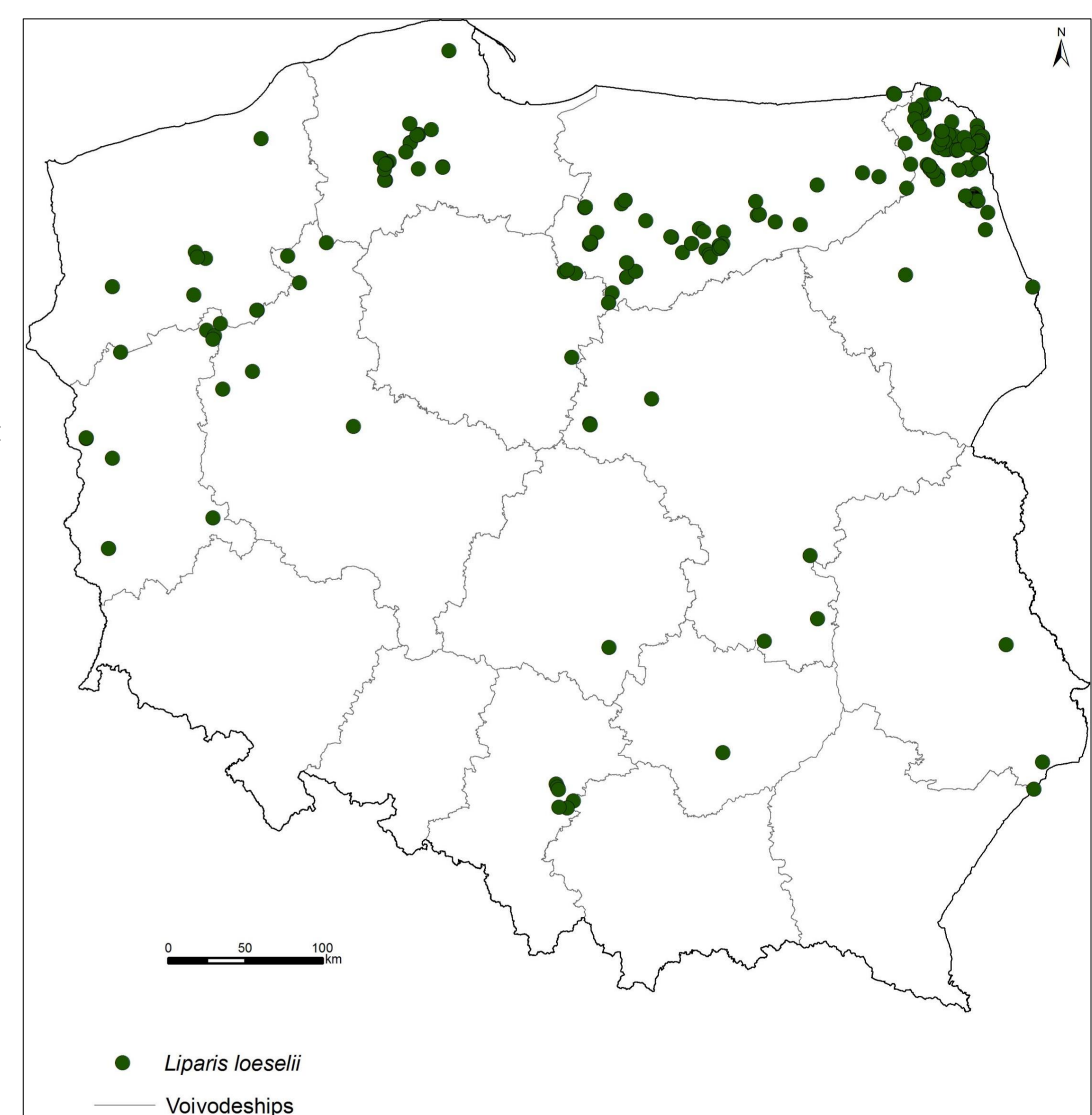
Conservation status

- Species listed in Annex II of the Habitats Directive;
- 90% of population is protected as Natura 2000 sites;
- Ca. 13% of sites (20 localities) are not protected at all;
- In many regions of Poland *Liparis loeselii* is critically endangered;
- Only 20% of Polish population is in favourable state;
- Decrease of the population is mainly connected with habitat loss due to drainages or successional processes (overgrowing with trees and bushes and *Phragmites australis*);
- Decreasing of the *Liparis loeselii* population can be also due to plant eaters and invertebrates (especially snails) pressure and lack of mycorrhiza fungus;
- The population in the European Union is declining and the overall assessment considers its conservation status as inadequate.

% of *Liparis loeselii* population per biogeographic region and per member state



Overall assessment of *Liparis loeselii* population in Poland



Current *Liparis loeselii* distribution in Poland

UE member state	% of <i>Liparis loeselii</i> population per region and per member state	Region	Population size (individuals)
FR	80,9	ALP	22600 - 30000
AT	13,8	ALP	3000 - 6000
SK	2,3	ALP	605 - 900
DE	1,8	ALP	540 - 660
IT	0,9	ALP	100 - 500
RO	0,2	ALP	8 - 100
SI	0,1	ALP	no data
NL	82,2	ATL	40000 - 60000
FR	11,5	ATL	4000 - 10000
DE	3,9	ATL	808 - 3948
BE	2,3	ATL	435 - 2403
UK	0,1	ATL	no data
SE	79,4	BOR	40000 - 40000
LV	20,3	BOR	9400 - 11000
FI	0,1	BOR	50 - 100
EE	0,1	BOR	no data
LT	0,1	BOR	no data
PL	36,6	CON	40000 - 60000
FR	32,5	CON	21377 - 67227
DE	22	CON	10000 - 50000
CZ	4,4	CON	6000 - 6000
DK	3,3	CON	4534 - 4534
SE	0,7	CON	900 - 900
AT	0,5	CON	500 - 1000
IT	0,1	CON	50
RO	0,1	CON	no data
SI	0,1	CON	no data
FR	100	MED	70 - 100
HU	99,9	PAN	2900 - 3300
SK	0,1	PAN	5

Liparis loeselii population in UE member states and in biogeographic regions



Conclusions

- *Liparis loeselii* population in Poland is one of the biggest in the European Union and constitutes about 1/3 of fen orchid resources in the continental region;
- Overall assessment is unfavourable – inadequate or bad;
- Main Polish resources of *Liparis loeselii* are in the north-eastern Poland;
- Two biggest Polish populations are relatively safe – Rospuda river valley is a natural percolation mire where no evident dangers have been identified, and Biebrza river valley is protected as National Park and, moreover, Life project for alkaline fens is currently being implemented there.