Uruguay

Undaunted by not finding PC in Paraguay, I head to the coast for adventures in Uruguay and the beautiful beaches there. Montevideo and the now standard trip to the Botanical gardens revealed aquatic PC that the curators were not aware of. I pointed out the yellow-flowered bladderworts in their ponds in exchange for directions to beachside sand dune ponds where there were supposedly *D. rotundifolia* growing. My curiosity was piqued since I knew, first of all, that this species of sundew did not grow in South America. Secondly, sundews growing in sand within a hundred metres of the ocean seemed equally unlikely. The thought of relaxing on the beach after getting there was an equally appealing thought, so off I went on the local bus to "El Pinar".

I was shocked at my finds at the beach. Behind the sand dunes, along a roadside ditch in front of some cabins, I found five types of PC in a square metre. The two types of sundews appeared to be *D. capillaris ssp. brasiliensis* and *D. brevifolia* , the latter being obvious with its red wedge shaped leaves and glandular flower stalks. There were also three types of bladderworts at this location, one being a yellow flowered aquatic form that appeared the same as that at the Montevideo Botanical Gardens. It was, more than likely, one of the many polymorphic forms of *U. gibba* . The small terrestrial purple-flowered bladderwort at the beach was identified later as *U. tridentata* . The even smaller terrestrial narrow leaf-bladed bladderwort there, with only seed pods present, later proved to be a cleistogamous form of *U. subulata* upon flowering. I will never doubt anyone's claims of ocean-side CP again, especially after an experience like the one at El Pinar, Uruguay. *(To be continued.)*

Does *Pinguicula Bohemica* Exist?

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The Czech butterwort, P. bohemica Kraj., an endemic species of lowland swamps in Bohemia (CSFR), has been known for about 65 years (Krajina 1927). It was considered to be a variety of *P. vulgaris* in the well-known Casper's monograph (1962, 1966). In consequence of this opinion, the name *P. bohemica* was included as a synonym of *P. vulgaris* in the Synopsis of Carnivorous Plants in CPN (Schlauer 1986). In the Czechoslovak "New Flora", however, the species is named and described without any doubts (Dostál 1989).

A thesis has been elaborated,to include biometrical, morphological, and cytological comparisons of *P. bohemica* 's population to that of *P. vulgaris*, growing in quite similar natural conditions (Studnicka 1989). Several biometric differences are statistically significant, according to the thesis. Nevertheless, the following qualitative properties are the best features for species determination.

The corolla of *P. bohemica* is whitish, but in the mouth of the corolla tube there is always a characteristic dark drawing (Fig.1). This violet spot never occurs in *P. vulgaris*, which has a white mouth in the corolla tube. That is why *P. bohemica* may also be easily

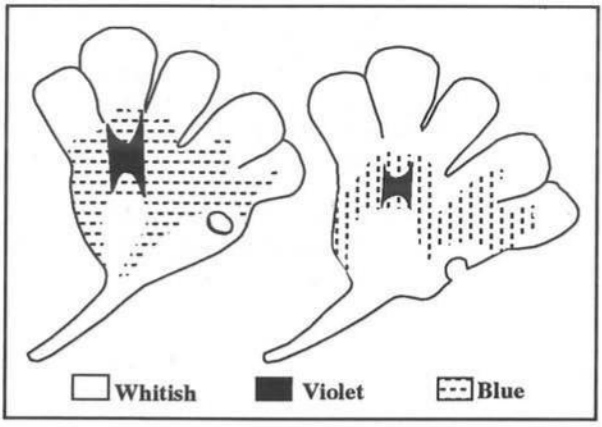


Figure 1—Inner coloration in the corolla of *P. bohemica*. Cut of 2 specimen, lower lips onthe left side

distinguished from the well-known albinotic varieties of *P. vulgaris* (*f. albida* and *f. bicolor*).

Parallel and concave lobes of the corolla are also very characteristic of *P. bohemica*. The species *P. vulgaris*, with flat divergent lobes, is quite different (photographs 1&2).

An important difference has been found in chromosome numbers: 2n=64 in *P. vulgaris*, 2n=32 in *P. bohemica* (photo 3, Fig. 2). The Czech butterwort is more related to further species with 2n=32 than to the evolutionarily modern *P. vulgaris* (Fig. 3).

As for ecology, *P. bohemica* can grow in the contemporary climate of Central Europe only in lowlands, while *P. vulgaris* grows both in lowlands and the mountains. *P. bohemica* grows in three micro-localities in a pure population where it does not mix together with *P. vulgaris*.

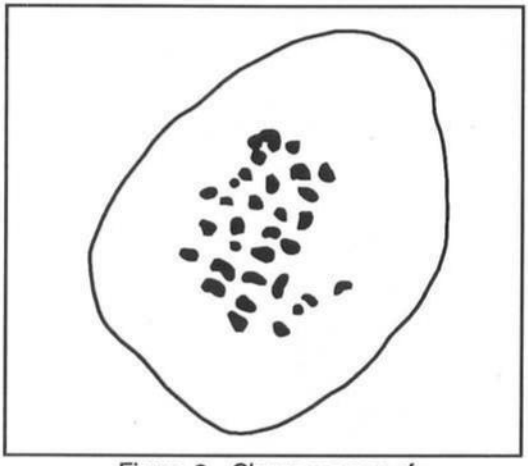


Figure 2—Chromosomes of *P. bohemica*.

We can express a clear consequence then: the species *P. bohemica* is not a product of a wish, a dream, or a fantasy of Czech patriots. It is a lowland species, well distinguished morphologically, genetically, and ecologically. We can assume that the evolutional predecessors of *P. bohemica* came to Bohemia from Southern Europe and occupied an area confined by the mountains (see Studnicka 1981, p. 40). On the contrary, *P. vulgaris* moved from northern Europe (Fig. 3). There was certainly a long interval between habitations of both these species in Bohemia.

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[1]Miloslav Studnicka (Kominicka 600, 460 01, Liberec 4, Czechoslovakia) is well known in these pages for his articles on*Pinguicula bohemica,* among other things. He has written in the past that the habitats for this species, and therefore the species, are quite endangered. Now his country is engaged in a habitat recovery program and Miloslav is propagating hundreds of *P. bohemica* by means of culture to replace back into ori- ginal locations, historically as well as more recent. His laboratory is attempting to make the resulting plants as genetically diverse as possible to see if this will enhance survival.

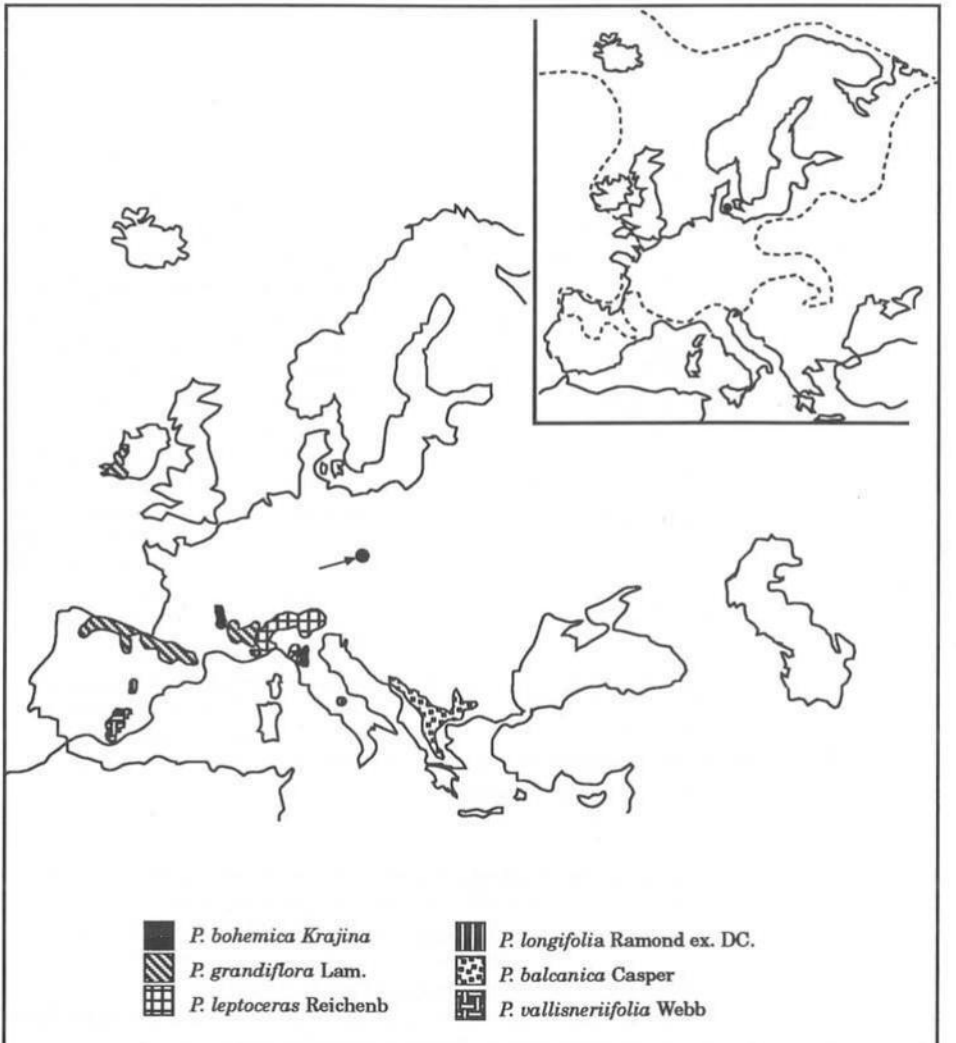
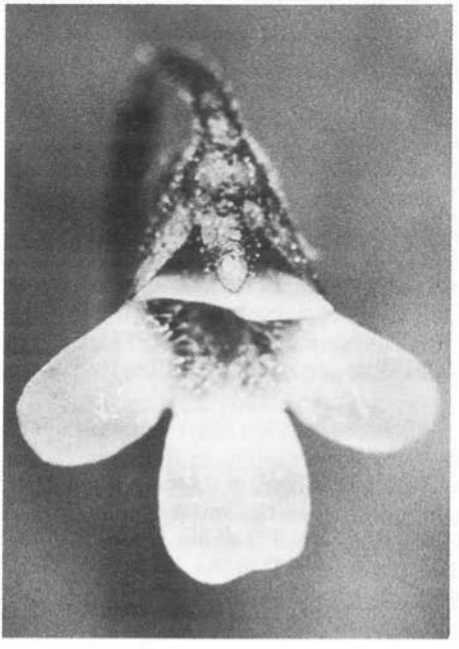
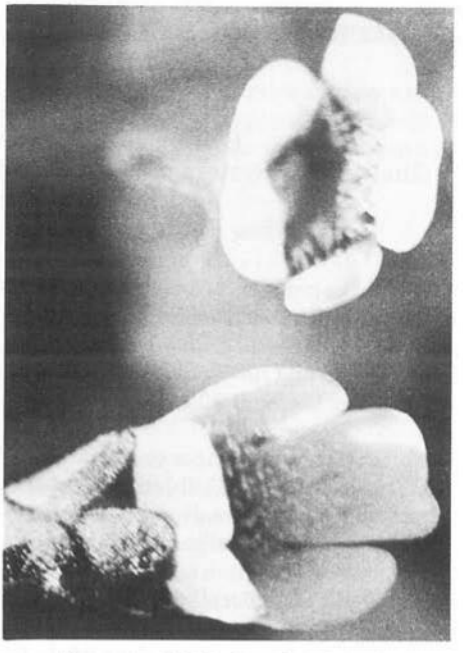


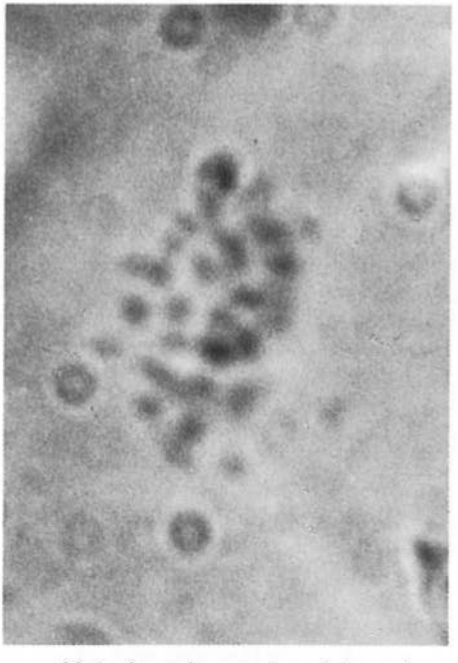
Figure 3. Distribution of the subgenus *Pinguicula* species comprising 2n=32 chromosomes in Europe. Distribution of *P. vulgaris* (2n=64) see in the small mpa (the dotted line). According to Casper.



Flower of *P. vulgaris.*



Flowers of *P. bohemica.* See the concave and parallel lobes of the corolla.



Metaphase in a root meristem of *P. bohemica.*