

In the southern part of the "Bernrieder Filz" there lies a small lake called "Schwarze Lache" with large areas of floating vegetation (quaking mat) and sedge-dominated aspects in which different endangered dragonfly species such as *Nehalennia speciosa* and *Sympecma paedisca* can be found. The "Schwarze Lache" area can be classed as the heartland of the bog.

The northern parts of the "Bernrieder Filz" are dominated by the *Pinus mugo-Vaccinetum* plant community, with decaying draining ditches and a lake remnant with transitional peatland vegetation. Most of the drainage ditches have been blocked by local naturalists in order to rewet dried-out areas. About 60% of the species of the lake remnant region can be regarded as highly endangered.

On the edge of the nature reserve, a great variety of different biotope types can be found: fishponds, spruce and beech woods with thermophilic edge vegetation, meadowlands with cattle breeding and extensively cultivated flat bogs (meadows) on slightly acid, mesotrophic peat.

Especially the meadows, which are cut only once a year in order to harvest straw, are inhabited by interesting sedge (Cyperaceae), rush (Juncaceae), orchid (Orchidaceae) and gentian (Gentianaceae) species as well as butterflies (Lepidoptera), grasshoppers (Saltatoria) and beetles (Coleoptera). This meadow area plays an important role in the interrelations between tyrphobiotic species and those of the edge biotopes, 50% of which are endangered.

After two years of field research, it can be concluded that not only the heartlands of the bog itself, but also the edge biotopes are inhabited by valuable and peculiar animal and plant species. In summary, one can say that the nature reserve area should be extended in order to create a biotope complex of sufficient expanse. The rewetting measures in the Northern parts as well as the extensive cutting of the "Streuweisen" should be promoted.

### The *Pinguicula* of the Caribbean

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The six *Pinguicula* species found in Cuba and the Dominican Republic are discussed. Cuba is the largest and oldest Caribbean Island, and contains three mountain ranges which reach approximately 3000 metres elevation. The five species of *Pinguicula* (*P. filifolia*, *P. albida*, *P. jackii*, *P. benedicta* and *P. lignicola*) listed for Cuba are all endemic.

*P. filifolia* grows in the West of Cuba in the Pinar del Rio region. *P. filifolia* appears to compete with the grasses, and there is evidence that grazing may create suitable habitat. The plant itself is grass-like, upright to about 20 cm with long but erect leaves. Flowers are held high above the leaves on thin stalks and are varying shades of blue, white or yellow. *P. filifolia* is threatened because its environment is rapidly being damaged by citrus farming.

*P. albida* is found in the same area. This is a small rosetted plant, barely five cm in diameter. The leaves are very thin, almost transparent. It hugs the ground under the shade of juvenile palm trees. This plant is an annual and can be found only near the start of the rainy season. White flowers are produced throughout the plant's life cycle. *P. albida* grows in areas poorly suited to cultivation, so the plant is not severely threatened. However, expanded farming or draining would quickly threaten the Pinar del Rio colonies.

*P. jackii* grows in the Trinidad mountains. It is a large rosetted plant which grows flat against vertical cliff faces and bears purple flowers. Very few sightings and no recent collections of this species have been made despite two visits and an enthusiastic search throughout the area. One site known to have plants in 1995 has been lost to vegetation and soil damage from pigs.

The small plant *P. benedicta* was found at high altitude. Its habitat may be threatened by pollution from nearby mining.

*P. lignicola* is a rare and stunning example of an epiphytic *Pinguicula*. Plants less than 5 cm in size were found at high elevation growing attached directly to the bark of trees. At this high altitude, temperatures are high during the day but fall rapidly at night, resulting in fog each night. The altitude also

results in a constant breeze. The night humidity provides all the moisture the plant requires. The main threat to this plant's survival is air pollution.

Mount Casibito in the Dominican Republic is the home for *P. casabitoana*. Another epiphyte nourished by night humidity, it is similar in habit and ecology to *P. lignicola*, although twice as big. The plant has sword shaped leaves and white flowers. *P. casabitoana* is found in much deeper shade than *P. lignicola*, although direct sunlight is tolerated as well.

### Features of the Genus *Pinguicula* from México

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Features of the Mexican *Pinguicula*'s will be discussed here in combination with colour slides taken in habitat during several field trips. Due to many recent publications of new species, half of the genus's number (38) occur in the mountains of México. This has given the author a growing motivation to study these plants as he has done for the last ten years.

Geographical ranges of species and their habitats will be the main topics of the lecture, followed by a discussion of features different between herbarium specimens and living plants in taxonomy.

### New Discoveries and Habitats of *Pinguicula* in México

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Editor's note: Dr. Lau was unfortunately not able to attend the conference; we are nonetheless printing the abstract he submitted before the conference.

Having to contend with the epithet "King of Cactus", my first botanical outreach and love, I also added in the list of plant families attractive groups of plants like orchids, bromeliads, passion flowers, gesneriads, palms, cycads, agaves, Mexican asclepiads, crassulaceas and finally *Pinguicula*.

In 1974 in the course of climbing the highest mountain in the State of Oaxaca, Cerro Zempoatepetl, we climbed over very steep walls that were covered by a beautiful, yellow moss, probably related to *Sphagnum*. Out of the moss protruded a *P. moranensis*-related flower of deep red color, the only really red *Pinguicula* of a group that is almost always purple, growing at 2300 m altitude underneath pine and oak trees on almost perpendicular rocks and sheer walls. It was years later that Franz Fuchs from Linz, Austria, visited us and was aghast at looking at a wall in my garden that was covered with this plant. Several years ago, at a conference in Birmingham, England, the plants were sold for 16 Pounds Sterling a piece, which surprised me. Dr. Franz Speta has published the plant under the name *P. laeana*. When we continued on the road from Cerro Zempoatepetl to Zaragoza, we examined a huge rock in a curve of the dirt road. One of our boys spotted a strange-looking *Pinguicula* that was not *P. laeana*. Without alpine equipment we could not reach it and had to give up the discovery.

Santa Maria Yucuhiti, close to Santiago Nuyoo, Oaxaca, there is a locality on which one large triangular granitic rock has three different *Pinguicula* species, one on each wall. To get there, one has to pass the altitude of 3000 m. The area is often shrouded in fog. A most beautiful form is covering the south-east side densely, leaves as well as flowers with long spur, and another red color. Some of the flowers tended towards purple. Old leaves of oak covered some of the plants. The north side was covered with a *P. moranensis* form, the South West side showed another difficult to define species - ?*P. mirandae* - with flowers that are white with light purple edges. The winter rosette is quite small, almost invisible, but when the rainy season begins, in May-June, they triple in size, and become covered with tiny flies. Not far away, near Yosundua, there grows a very thin-leaved *Pinguicula* which forms new plants at the