

***Phragmipedium*, the Broken Slippers**

By Kenneth Girard 1996, revised and updated by I. Ostrander 2007

The genus *Phragmipedium* belongs to the section *Cypripedioideae* of the orchid family. This section is considered to be primitive in the evolution of the family. The two pollinia are located on each side of the column above the stigma. The singular pollen grains are suspended in a soft waxy mass. The stigma is situated below the pollinia, positioned so that a suitable insect will come in contact with it upon leaving the flower, hopefully spreading the pollen from another flower on it and taking with it some new pollen.

Phragmipediums are endemic to the Western hemisphere ranging from Mexico to Brazil, with the majority of the species native to Colombia, Ecuador and Peru.

The plants have alternating leaves on a short stem producing a tuft of new growth; new growths are annually formed from the base of the previous year's growth. The leaf tips are pointed either acutely or obtusely depending on the species. In *Paphiopedilum* the leaf tips are usually blunt and in most species indented. Most *Phragmipedium* plants have leaves that are rather long and thin, grassy looking, except *P. besseae*, which has wider and shorter leaves than most.

Most often floral characteristics are used to separate *Phragmipedium* from *Paphiopedilum*. The terminal inflorescence is often branched in *Phragmipedium* and unbranched in *Paphiopedilum*. As the flowers develop, the sepals in *Paphiopedilum* overlap, in *Phragmipedium* the sepals are fused shut at the edge. All *Phragmipediums* have an infolded lip and a claw face. The claw face is the area of the labellum (pouch) that forms the tube between the opening of the pouch and the escape hatch at the back close to the stigma and pollinia. All species of *Phragmipediums* can have multiple flowering inflorescences, and can either open all of the flowers at once or open them sequentially over a period of time, depending on the species.

The single most important characteristic which separates these two genera is the ovary. In *Phragmipedium*, the ovary is trilocular (three-chambered) and has

well defined walls between each chamber. In *Paphiopedilum*, the ovary is unilocular (one chamber), therefore has no ovary walls. The placement (placentation) of the ovules is also different between the two genera. In *Phragmipedium* it is axial, arising from the central core, where *Paphiopedilum* has parietal placentation, forming on the outside wall.

The genus was divided into five sections by most botanists (Dr. L. Garay for instance), based on floral characteristics. Dr. L. McCook combines the *Himantopetalum* and *Phragmipedium* sections together and with the arrival of the new *P. kovachii*, Dr. G. Braem has added for it the section called *Schluckebieria* (utilizing his wife's maiden name).

These sections are, in alphabetical order:

Himantopetalum – petals less than four times the length of the labellum, spiralled, leaves narrow and sedge-like, bracts on inflorescences below floral bracts, flowers open sequentially.

Lorifolia – petals usually linear and not more than four times the length of the labellum, often spiralled, labellum has auricles (horns) on sides of opening; flowers open sequentially

Micropetalum – small flowers are quite pubescent; petals quite wide compared to length; “windows” in the side and at the back of the labellum, flowers open sequentially.

Platypetalum – medium-sized flowers with flat petals, possibly having one twist; inflorescence can be up to 1 m or more, flowers open sequentially.

Phragmipedium – twisting petals greatly more than four times the length of the labellum, sheaths below floral bracts generally absent, leaves wide, flowers open all at once.

Schluckebieria – large flowers, dominant petals much larger than sepals and almost round, leaves large and wide; flowers open sequentially.

The proper naming of a genus and/or species has many rules which must be followed for that name to be valid. Unfortunately, in *Phragmipediums* these rules were not always followed and we end up with several names which may or may not be valid for the same group of plants. To be a valid species, the plant

must be identified by a taxonomist using as much (plant and written) material as is available. The science of taxonomy looks for similarities as well as differences and when there are too many similarities, then the plant is considered the same as or at most a variety of an already valid species. When there are several differences considered to be distinct, the plant in question may be named a new species. Flower colour is not always a good indicator when trying to identify a particular plant, neither is petal shape or how many warts or hairs are on the staminode.

Once identified as a new species or variety of an already established species, these findings must be properly published in an acceptable publication such as *Orchid Review*, *Orchids*, *Lindleyana*, *Orchid Digest*, *Die Orchidee* or any other botanical publication. The publication does not have to deal solely with orchids.

Many times, invalid, unpublished or discarded names are used in horticulture, especially by plant sellers to sell more plants. This is where a lot of misunderstanding comes into play. How many *P. longifolium* do you want? But if they are sold as *P. dariense*, *P. gracile*, *P. hartwegii*, *P. hincksianum*, *P. roezlii* etc., then you would want them all. This is unfortunate but it does happen. We have attempted in this manuscript to be botanically accurate and horticulturally enlightening, knowing how many of the plants we have seen were incorrectly labelled. Talk about confusion.

In this updated version, we have had the benefit of the Kew List of Monocotyledons and have used it to clarify which names are accepted at this moment. That does not mean these names may not be changed again, after more research has been done. Please, refer to the enclosed copy and note that the presently accepted species appear in bold print.

In the revision 2007, I am omitting the various keys to the different *Phragmipedium* species. For a proper, scientific key to all the currently recognized species, please look on the internet.

The same advice is given for the 600 or so different hybrids.

**A brief listing of the currently accepted major *Phragmipedium* Species,
their Sections, Geographical Origins and Date of Modern Publication**

| <u>Species:</u> | <u>Section:</u> | <u>Country of Origin:</u> | <u>Publ.:</u> |
|-----------------------------|-----------------|-----------------------------|---------------|
| <i>P. andreettae</i> | micropetalum | Ecuador, Colombia | 2006 |
| <i>P. besseae</i> | micropetalum | Colombia, Ecuador, Peru | 1981 |
| <i>var. d'alessandroi</i> | micropetalum | Ecuador | 1997 |
| <i>P. boissierianum</i> | lorifolia | Peru | 1896 |
| <i>var. czerwiakowianum</i> | lorifolia | Peru | 1995 |
| <i>P. brasiliense</i> | lorifolia | Brazil | 2003 |
| <i>P. caricinum</i> | himantopetalum | Bolivia, Peru | 1896 |
| <i>P. caudatum</i> | phragmipedium | Panama, Peru | 1896 |
| <i>P. chapadense</i> | lorifolia | Brazil | 2000 |
| <i>P. exstaminodium</i> | phragmipedium | Mexico | 1984 |
| <i>P. fischeri</i> | micropetalum | Ecuador | 1996 |
| <i>P. hirtzii</i> | lorifolia | Ecuador | 1988 |
| <i>P. klotzschianum</i> | himantopetalum | Guyana, Venezuela | 1896 |
| <i>P. kovachii</i> | schluckebieria | Peru | 2002 |
| <i>P. lindenii</i> | phragmipedium | Colombia EcuadorVenezuela | 1975 |
| <i>P. lindleyanum</i> | platypetalum | Guyana, Venezuela, Surinam | 1896 |
| <i>P. longifolium</i> | lorifolia | Costa Rica, Ecuador, Panama | 1896 |
| <i>P. pearcei</i> | himantopetalum | Ecuador, Peru | 1975 |
| <i>P. popowii</i> | phragmipedium | Panama | 2004 |
| <i>P. reticulatum</i> | lorifolia | Ecuador, Peru | 1921 |
| <i>P. richteri</i> | himantopetalum | Ecuador | 1994 |
| <i>P. x roethianum</i> | lorifolia | Ecuador | 1998 |
| <i>P. schlimii</i> | micropetalum | Colombia | 1896 |
| <i>P. tetzlaffianum</i> | himantopetalum | Venezuela | 2000 |
| <i>P. vittatum</i> | lorifolia | Brazil | 1896 |
| <i>P. warscewiczianum</i> | phragmipedium | Guatemala | 1922 |

Please be aware that the status of these species may change;
Some of them may turn out to be natural hybrids.

The two species *P. kaieteurum* and *P. sargentianum* have been decided to be varieties of *P. lindleyanum*.

Please note that when Ken wrote his work in 1996, *Phragmipedium xerophyticum* from Mexico was still accepted. In the meantime, this species has been given its own, monotypic genus, and now it is *Mexipedium xerophyticum*, not listed here.

Pronunciation: for kovachii say: kovakii and for popowii say: popoffii.