**2\_3-4 Phragmipedium and cypripediums**

**RESOURCES:**

# Books & Journals

* Koopowitz. *Slipper Orchids*. Best on breeding lines and major species, both paphs and phrags.
* Hennessy & Hedge. *The Slipper Orchids* (includes information on phrag hybridizing prior to besseae and kovachii)
* Cribb & Purver. *Slipper Orchids of the Tropical Americas.* (Excellent review of UK hybrids and in depth on species.

# Articles

* “Sidebar: Identifying the Long-petaled Phragmipediums”. Diaz-Morales, et al. *Orchids*. December 2019
* “Phragmipedium, the Broken Slippers”. Girard. Judges Forum. Awards & Judging tab. aos.org
* “A discussion of Phragmipedium species & their influence on hybrids”. Schmidt-Ostrander. Judges Forum. Awards & Judging tab. aos.org
* “Phragmipedium dalessandroi: a somewhat controversial species”. Gruss. *Orchids*. September 2020
* “Phragmipedium: the Caudatum Group”. Cervera. *Orchid Digest*. 86(02)-2022
* “Phragmipedium schlimii” Part 1. Cervera. *Orchid Digest* 85(2) 2021
* “Phragmipedium schlimii” Part 2. Cervera. *Orchid Digest* 85(3) 2021
* Phragmipedium issue. *Orchid Digest* 84(4) 2020
* “Phragmipedium richteri and its hybrids”. *Orchid Digest* 83(3) 2019
* “Phragmipedium longifolium complex”. Braem. *Orchid Digest* 80(1) 2016
* “Phragmipedium delassandroi (confusion with besseae)”. Gruss. *Orchids*. 89(9) 2020
* “Phragmipedium kovachii and hybrids”. Decker. *Australian Orchid Review*. June-July 2014.
* “Miniature Phragmipediums and other Lines of Breeding”. Goldner. *Slipper Orchids*. Spring 2022
* “Interesting Hybrids of Phrag. kovachii and besseae from Cuck Acker’s Breeding”. Gruss *Slipper Orchids*. Spring 2020.
* “New Phragmipedium hybrids from the Breeding Program of Jean-Pierre Faust Part 2”. Gruss. *Slipper Orchids*. Spring 2021
* “New Phragmipedium hybrids created by Jean-Pierre Faust Part 1”. Gruss. *Slipper Orchids*. Winter 2020
* “New Phrag hybrids from the Breeding Program of Jean-Pierre Faust Part 3”. Gruss. *Slipper Orchids*. Summer 2021
* “Phrag fischeri and its habitat (& color variations for it and schlimii)”. Gruss. *Slipper Orchids*. Winter 2016.
* “First Generation hybrids with Phrag fischeri”. Gruss & Goldner. *Slipper Orchids*. Spring 2017
* “Breeding of Next Generation of Phrag fischerii hybrids”. Gruss & Goldner. *Slipper Orchids*. Summer 2017.
* “Phrag Taxonomy & the Species Concept: Are we correct or is Mother Nature”. Cervera. *Slipper Orchids*. Winter 2021
* “Phragmipedium schlimii”. Cervera. *Orchid Digest*. 2021(2) Apr-Jun
* “Phrag kovachii hybrids”. Decker. *Orchid Digest*. Oct-Dec 2009.
* “Phragmipedium Sedenii V Modern Hybrids”. Gruss. *Orchids*. October 2013.
* “Phragmipedium Sedenii IV; Cardinale”. Gruss. *Orchids*. August 2013.
* “Phragmipedium Sedenii III: three hybrids”. Gruss. *Orchids*. June 2013.
* “Phragmipedium Sedenii II: Schroederae and Calurum”. Gruss. *Orchids*. March 2013.
* “Phragmipedium Sedenii I: Origins”. Gruss. *Orchids*. February 2013.
* “Phragmipedium richteri: the species and hybrids”. Gruss and Rohrl. *Orchids*. September 2011.
* “Phragmipedium schlimii and hybrids”. Braem. *Orchids.* February 1996.
* “Phragmipedium at Eric Young Foundation (mainly besseae)”: Moon. *AOS Bulletin*. August 1995.
* “The genus Phragmipedium in Brazil”. Cervera. *Slipper Orchids*. Summer 2023.
* “New World Slipper Orchids: Breeding with Phragmipedium besseae and fischeri”. Fischer. *Orchids*. December 2009.
* “Phragmipedium caudatum: species and hybrids:” Gruss and Rohrl. September 2009.
* “Phragmipediums (besseae and hybrids)”. Decker and Doherty. *Orchids*. August 1999.
* “Phragmipedium besseae: discovery”. Dodson. *AOS Bulletin*. December 1992.
* “Phragmipedium besseae: hybridizing”. Gum. *AOS Bulletin*. December 1992.
* “Twenty years of Phrag. kovachii hybrids”. Goldner. *Slipper Orchids*. Summer 2023.
* “Phrag. longifolium complex”. Braem. *Orchid Digest.* Jan-Mar 2016
* “Breeding for White Phragmipedium hybrids”. Goldner. *Orchid Digest*. Oct- Dec 2020.
* “Little Slippers: Miniature and compact growing phrags”. Goldner. *Orchid Digest*. Apr-Jun 2010
* “New albino forms of Paphiopedilum and Phragmipedium”. Gruss and Koopowitz. *Orchid Digest*. Jul-Sept 2008.
* “The influence of Phragmipedium schlimii & besseae in slipper orchid hybrids”. Koopowitz. *Orchid Digest*. Oct-Dec 2003.
* “Those other Phragmipedium hybrids”. LeDoux. *Orchid Digest*. Oct-Dec 2003.
* “The Chromosome Revolution for Slipper Orchids”. Wimber. *Proceedings of the 14th World Orchid Conference*. 1993
* “The Don Wimber memorial lecture (Phragmipedium breeding in the UK)”. Moon. *Proceedings of the 16th World Orchid Conference*. 1999.
* “Thoughts on the identity of the red phragmipediums” (dalessandroi and besseae). Moon and Cribb. *Orchid Review*. Jul-Aug 1997.

Webinars

* Wonderful World of Phragmipedium. Fischer. 09-2016.
* It used to be easy: phragmipediums. Cinert. 08-2015.

**RESEARCH QUESTIONS**:

* The *Phragmipedium caudatum* complex has had major revisions on accepted names and species back and forth since 2000. What are the currently accepted species, subspecies and varieties as per Plants of the World Online? *Phragmipedium caudatum* has a pale version commonly referred to as var.? The darker form is useful for breeding long-petaled reds. Give two examples and discuss what other features came from each parent.
* For the other members of the *caudatum* complex, briefly describe each with a few significant awards and why you believe they were granted. Provide examples of significant hybrids and what effect these *Phragmipedium* species had on them.
* What is the accepted name for *Phragmipedium czerwiakowianum*? The accepted name and this synonym add twisted petals to its F1s. Provide two examples where the other parent has flat petals.
* *Phragmipedium sargentianum* is listed as a synonym of *Phragmipedium lindleyanum*. Yet it is an accepted name for hybrids. Before *besseae* was discovered, it was a primary source of red in phrags. Does it still have a place in hybridizing for red? Give some examples and explain what it adds.
* *Phragmipedium longifolium* adds vigor. It does not impart twisting of the petals—what does it do instead? Discuss a few of the hybrids with the most awards and what its influence has been.
* How does *Phragmipedium pearcei* affect plant size in its hybrids, e.g., Mini Grande? Can you find other examples? Is there a downside to this species?
* Discuss the influence of the hybrid *Phragmipedium* Sedenii on and from its hybrids. Why do you think this hybrid has been so successful?
* Discuss the influence of the hybrid *Phragmipedium* Memoria Dick Clements on and from its hybrids? Why do you think this hybrid has been so successful?
* Discuss the influence of the hybrid *Phragmipedium* Eric Young on and from its hybrids. Why do you think this hybrid has been so successful?
* Discuss the influence of the hybrid *Phragmipedium* Grande on and from its hybrids. Why do you think this hybrid has been so successful?
* Discuss *schlimii*, *richteri* and *andreettae*, how to tell them apart and significant awards and hybrids. Provide analysis on the awards and hybrids.
* *Phragmipedium besseae* created great excitement when it described in 1982 and subsequently was introduced into cultivation. At first, branched versions were assumed to be *besseae* but later described as *dalessandroi*. Describe both species and their differences with significant awards, why you consider these awards significant and significant hybrids. What features do they impart to their hybrids and provide examples? Given the large number of awards to *besseae*, what would you expect before you would grant an additional award to this species? *Phragmipedium besseae* has a yellow version. How has that affected hybrids and are they as successful for judging as the red ones? Where does the yellow version produce the best hybrids. When comparing *besseae* and *delessandroi* when crossed to the same parent, what is the difference between the two?
* *Phragmipedium besseae* created a revolution in phrag breeding. With at least 150 years of orchid hunters in South America, how could any species as spectacular not be found sooner?
* *Phragmipedium kovachii* created another revolution. Although Peru limited two nurseries in Peru to five plants each for raising more of the species and hybridizing, *in situ* sites were stripped and numerous hybrids showed up faster than the Peruvians could have produced them, yet the Peruvian nurseries excelled in supplying legal plants and hybrids. There are now a large number of awards to *kovachii*. List three that you consider to be excellent and two recent ones that are not to that standard. Why do you think each was awarded. What did the ‘lesser’ examples possibly have to offer that made them special in some way, if possible? How would you consider the species if one came to your table given the large number of awards? When you see one with flat petals, it is assumed that the flower must be young and that they will recurve and the margins possibly twist in a few days or a week. Do we consider what we see when judging or what might commonly happen?
* Discuss the hybrids of *kovachii*. What does it do to color and form with a variety of phrag ‘types’ (narrow petaled vs *schlimii*, *besseae*, etc.)? What would you look for in future awards?
* What effect has converting phrag hybrids to tetraploids had?
* There have been a few recently found species with smaller flowers. What are they and what sort of breeding potential do you see? How would you score for size?
* How do you measure the pouch (see Measurement webinar)? How do you measure the length of the inflorescence (hint: the petals, especially in the Caudatum Complex, are not the most distal point *away* from the attachment at the base of the inflorescence)?