

# The **Slipper Orchid Alliance Newsletter**

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Winter 2010

## ***Phragmipedium kovachii***

*Phragmipedium kovachii* - J.T. Atwood, S. Dalström & R. Fernández

Syn. *Phragmipedium peruvianum* - E. Christenson

In November 2001, Raul and Erica Abad, two adventurous travelers, went on a journey in search of orchid habitats. Together with Mr. Peter Croezen from Kitchener, Canada, an expert in biotechnology and in cultivating orchids, they traveled from Moyabamba up to Chiclayo, in Northern Peru. In a road spot called Venceremos, they met some local farmers selling orchids at a tiny stand. The farmers informed them about a recently discovered orchid that carried a big magenta flower; due to their urgency to reach Chiclayo they never saw this plant. Six months later Michael Kovach from Virginia bought several plants in the same location from Faustino Medina. He then became the first person who officially discovered this plant.

This new *Phragmipedium* was discovered in Peru in the district of Pardo Miguel, province of Rioja, in the region of San Martin. This species was found at an altitude between 1600 and 1900 meters above sea level. This new species is different from the other species of its genus. The

flower may be seen in a span of 16 to 23 cm, in magenta shades, and can last for 21 days. An inflorescence can carry up to four flowers. A frenzy of poaching of about 7000 plants and seedlings happened from three different locations. Most of those plants died due to improper handling and transportation and lack of information about the culture that this species needs. Luckily, there are still two more habitats that have been untouched, thanks to the inaccessibility of the habitat.

The Peruvian government tried to stop the illegal collecting, by seizing 532 plants and seedlings and forbidding the orchid farmers along the road from

*Phragmipedium kovachii* 'Laura'



### **SOA Membership**

If you receive a membership renewal form with your newsletter, your membership is up for renewal within the next three months.

Please fill out the form and mail it to our membership secretary, Jean Metcalf, 2323 Edinboro Rd. GH#6, Erie, PA 16509. Questions about your membership? Jean can be contacted at [orchidiva@gmail.com](mailto:orchidiva@gmail.com).

We encourage our international members to use the easylink PayPal service through our website, which offers automatic international currency exchange at good rates.

Venceremos to the city of Chachapoyas from selling or reproducing them. The seized plants were given to several universities in Lima, where there are no records of any surviving. From May of 2003, INRENA (during that time the Peruvian organization in charge of protecting wildlife) issued permits to collect this species for commercial purposes to three nurseries. A total of 25 plants were allowed to be collected, and these nurseries were permitted to keep the plants and propagate them.

The price on the international black market went up to \$10,000 per plant, then fell abruptly as INRENA asked the U.S. Fish and Wildlife Service to begin a broad investigation into the smuggling of the species into the United States. INRENA also informed all countries that are signers of the CITES treaty that the species was put on the endangered plant list of Peru and no plants were allowed to be exported. Since 2005, plants of this species are allowed to be sold only if they are from in vitro propagation. Around the world this species has been sold since then. In Holland and in Europe a seedling may fetch from 50 to 90 Euros and in the United States around \$90 to \$125 and up.

The species grows on a rocky soil with a lightly acid to alkaline pH and low electric conductivity. The chemical analysis of leaves shows unusual patterns of nutrients, quite different from all other species of the same genus that grow nearby within a couple of kilometers (see Table 1; Page 6 - for nutrients).

## Description:

Kingdom: Plantae  
 Division: Magnoliophyta  
 Class: Liliopsida  
 Order: Asparagales  
 Family: Orchidaceae  
 Sub family: Cyripedioideae  
 Tribe: Phragmipediaceae  
 Sub tribe: Phragmipediinae  
 Section: Schluckebieria Braem  
 Genus: Phragmipedium, Rolfe

Chromosome count:  $2n = 32$

## Propagation program:

To successfully engage any project of in vitro propagation, it must start with a stock of selected mother plants.



*Phragmipedium kovachii* in its habitat  
 Photo: Manuel Camacho



Typical soil structure



The species grows on cliffs with a thin layer of moss on the soil  
 Photo: Manuel Camacho





7 inch wide flower (17.5 cms)



Back view of a *Phragmipedium kovachii* flower



*Phragmipedium kovachii* 'Alexa'



*Phragmipedium kovachii*  
'Memoria Grimanesa Manrique' CHM/AOS (94pts)



*Phragmipedium kovachii* 'Miluzka'



*Phragmipedium kovachii* 'Veronica'



*Phragmipedium kovachii* 'Jessica'  
Photo: Heinz Plenge



*Phragmipedium kovachii* 'Ana'



Pollinia



*Phragmipedium kovachii* 'Isabella'

### Seed production:

*Phragmipedium kovachii* needs temperatures of approximately 16°C (61°F) at night, and up to 30°C (86°F) during the day mainly during the last two months of flower development, in order to produce pollen and viable ovules. With higher night and day temperatures, there is a tendency to develop deformed flowers carrying immature pollinia and ovules. The pollinia can be kept viable at 5°C (41°F) for nearly 6 months. Pollination must be done after the 5th day from the time that the flower opened, because at this point the pollinia are ripe.

When pollination is successful, the flower stays attached to the ovary for at least 15 days. The ripening of the seeds takes from 90 to 120 days. More than 5,000 viable seeds are easy to obtain in one capsule. Seeds can be kept for at least one year at 5°C (41°F) at a relative humidity of 20%.



## In vitro propagation introduction:

There is no commercial protocol to mericlone *Phragmipediums*. The only commercial propagation way



*Hand pollination*



*Seed capsules in maturation*



*Seeds of Phragmipedium kovachii from one seed capsule*



*Deformed flowers produced during night temperatures of over 20°C (68°F) and during day temperatures over 30°C (86°F)*

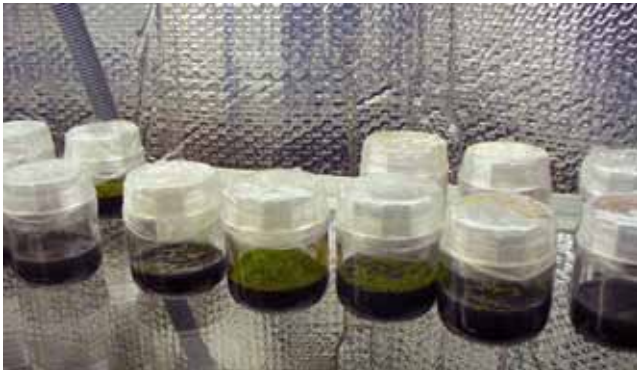
is through botanical seed that produces a wide variability among the siblings.

The first protocol to grow *Phragmipedium kovachii* in vitro was made at the Universidad Nacional de San Martín, Tarapoto by biologists M. Sc. W. F. RIOS RUIZ, M. A. LEÓN MARTINEZ and the agronomist R. A. GÁLVEZ PANDURO. The seeds are placed in small vials with 1 ml of household bleach diluted to 8% for 15 to 30 minutes. Afterwards three rinses are needed with distilled water. To avoid heavy losses of embryos, do not expose them excessively to the bleach. Then distribute the seeds over the medium. The modified Murashige-Skoog medium formula is used (Murashige and Skoog, 1962) with a 6.5 pH brought up by using Potassium Hydroxide. Electric conductivity is 2 mS/cm. Flasks should be kept in a dark area for 2 to 4 weeks.

The flasks are kept in a dark area for nearly four weeks. When the testas (the hard external coating of the seeds) are swollen, it is time to move the flasks under fluorescent lights (two 36 watts) 12 inches above the flasks for 10 to 12 hours daily. The growing temperature must be set at 21°C (70°F). When differentiation happens, it is time for replating. Repeat this more or less every two months. The same medium formula is used for replating with a supplement of banana powder, pH 6.5 and 2 mS/cm of electric conductivity.

## Deflasking process:

When the seedlings achieve a good root system, it is time for deflasking. The best time is during the end of winter or



*Different stages of germination*



*Plastic containers lined with moist sphagnum moss at the bottom, used to keep the relative humidity high*

spring. Usually the seedlings are ready after a year in the flask. Remove the media, lightly. Dip seedlings in a water solution with brown sugar, fertilizers and vitamin B1.

## Nutrition:

Outflasked seedlings need a frequent fertilization program. A reliable fertilizer formula is 15–5–15 plus calcium, magnesium and micro elements. Feed the seedlings once a week at a concentration of 450 ppm. The use of high quality water is necessary. In addition, calcium



*Seedlings ready for outflasking*

nitrate, potassium silicate and magnesium nitrate in a concentration of 200 ppm each must be applied separately once a month. From time to time apply ground-up seashells, dolomite stone chips, and fish meal or sea weed concentrates.

The location of these seedlings must be in medium to high light, with no direct sun. The temperature should be at 26°C (80°F) daily and around 16°C to 12°C (61°F and 54°F) at night, with forced ventilation and high relative humidity at about 80%.

The growing medium may vary depending on the location and the skills of the grower. After trying several mixtures, this formula is currently being used:

Ground stones of ¼” to 3/8” - 25 %  
 (5% of dolomite stone)  
 Coarse perlite of ¼” to 3/8” - 15%  
 Charcoal ¼ to 3/8” - 15%  
 Fine fir bark - 40%  
 Ground seashells - 5%

In locations with low relative humidity, one can replace the stones with fir bark. The dolomite stone chips can be used as replacement for seashells.

**Figure 1.**

	N %	P %	K %	Ca %	Mg %	Zn ppm	Mn ppm	Fe ppm	B ppm	pH Soil
<i>Phrag. kovachii</i>	0.72	0.08	0.49	2.34	0.50	33	6	179	45	7.9
<i>Phrag. boissierianum</i>	0.72	0.07	0.71	1.98	0.15	14	6	110	36	6.5





Remove the media, lightly. Dip seedlings in a water solution with brown sugar, fertilizers and vitamin B1



ABOVE and BELOW: Seedlings well established in community pots



ABOVE and BELOW: Wrap the seedlings in damp sphagnum moss and plant them in a community pot filled with coarse growing medium



When seedlings in compots have grown large enough, they are transplanted from community pots into individual pots of varying types to suit their individual sizes



A typical type of small pot used for cultivation of *Phragmipedium kovachii* seedlings that have been removed from community pots





*Another type of container used for seedlings*



*Picture of seedlings in April of 2009*



*Same seedlings one year later, 2010*



*Cultivation difficulties:  
Lack of calcium and magnesium*



*Bacteriosis shows up in very high humid and cool conditions. Control is made using Dragon's blood (croton lecheri sap) in a dose of 5 to 10 drops per liter of water*



*Damage due to microscopic mites*



*Sun burn*





*Phragmipedium Haley Decker* (*Phrag. kovachii* x *Phrag. Saint Ouen*) {*Phrag. Saint Ouen* = *Phrag. Hanne Popow* x *Phrag. besseae*} Photo: Glen Decker



*Phragmipedium Fritz Schomburg 'Puca Pucara'*  
(*Phrag. kovachii* x *Phrag. besseae*)  
Grower: Perufflora; Photo: Mrs. Erica Moron de Abad



*Phragmipedium Allison Strohm*: Photo: Glen Decker  
(*Phrag. kovachii* x *Phrag. Living fire*)



*Phragmipedium Allison Strohm*: Photo: Glen Decker  
(*Phrag. kovachii* x *Phrag. Living fire*)



*Phragmipedium Suzanne Decker* (*Phrag. kovachii* x *Phrag. Cape Sunset*) {*Phrag. Cape Sunset* = *Phrag. Eric Young* x *Phrag. schlimii*}



*Phragmipedium Memoria Marisa Rolando*  
(*Phrag. kovachii* x *Phrag. Hanne Popow*)

## Hybrid Production:

The hybrids of *Phragmipedium kovachii* have shown a quicker growth pace during the in vitro process and in the nursery than the species plants. The hybrids flower in a shorter time after outflasking, and the flowers of some of the crosses reach up to 6 inches.

The hybrids that carry a large percentage of *Phragmipediums besseae* and *schlimii* genes are very promising. From experience in crossing *Phragmipedium besseae* since the 1980s, the experts expected that complex *Phragmipedium* hybrids crossed with *Phragmipedium kovachii* would be the most successful. The first results show that the more successful hybrids of *Phragmipedium kovachii* have been made with plants that have round blooms.

Records to May of 2010 show a total of 17 *Phragmipedium kovachii* hybrids registered in the RHS in London; 14 of them were made in Peru. Following are the three hybrids that have been the most awarded by the American Orchid Society:

*Phragmipedium* Fritz Schomburg (*Phrag. kovachii* x *Phrag. besseae*) – 3 AM, 3 HCC

*Phragmipedium* Alfredo Manrique (*Phrag. kovachii* x *Phrag. Walter Schomburg*) – 5 AM, 1 HCC; {*Phrag. Walter Schomburg* = *Phrag. Eric Young* x *Phrag. Andean Fire*}; {*Phrag. Andean Fire* = *Phrag. Sorcerer's Apprentice* x *Phrag. besseae*}; {*Phrag. Hanne Popow* = *Phrag. besseae* x *Phrag. schlimii*}.

*Phragmipedium* Suzanne Decker (*Phrag. kovachii* x *Phrag. Cape Sunset*) – 4 AM; {*Phrag. Cape Sunset* = *Phrag. Eric Young* x *Phrag. schlimii*}

The hybrids grow best and more quickly by increasing the organic matter in a less open medium, with lower light. They are less temperature sensitive than the species plants. This applies especially to hybrids that carry *Phragmipedium besseae* genes. The feeding program is similar for hybrids and species. The hybrids are usually less prone to be attacked by mites, which recently have become a pest of concern on seedlings of *Phragmipedium kovachii*.

## ABOUT THE AUTHOR

Alfredo Manrique started his nursery business in 1972. Early in the 1990s he realized the high potential of an orchid business and the great interest in Peruvian species.

By 1995 his nursery switched to be 90% dedicated to orchids and he started his own in vitro laboratory. Since 2003 he has worked intensively on *Phragmipedium kovachii* and its hybrids. He attends many orchid shows, mainly in the United States. He has been a member of the Peruvian Orchid Society since 1994 and is a Past President. He is also a member of the American Orchid Society.

Alfredo Manrique  
Centro de Jardinería Manrique (CJM)  
Av. Victor Alzamora N 314 Barrio Medico - Surquillo  
Lima, Peru  
Telephone 444-5315 Fax 242-9043  
cjpgard@terra.com.pe  
www.phragmipediumkovachii.com

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**Club Peruano de Orquidea**



*Phragmipedium* Alfredo Manrique  
(*Phrag. kovachii* x *Phrag. Walter Schomburg*)  
Photo: Glen Decker



## NEW OFFICERS AND DIRECTORS: CLARIFICATIONS:

A Nominating Committee composed of Judith Rapacz-Hasler, Sam Tsui and Jean Metcalf presents a slate as follows:

**President** – Barbara Tisherman

**Vice President** – Russell Tyler

**Secretary** – Vicky Leighty

**Treasurer** – Linda Thorne

**Directors** – Lois Dauelsberg, Glen Decker and Karen Muir

According to our By-Laws, “The slate shall be published in the SOA Newsletter. If no new nominations presented in writing by ten members in good standing and accepted in writing by the nominee are received within one month of publication, a single ballot shall be filed and those persons shall be declared elected. If a new nomination is received, the election will be repeated for that office in the next newsletter.”

The above slate will take office as of January 1, 2011, for a term of two years.

Our thanks go to our out-going Vice President, Janette Harris, and Director Sam Tsui for their dedicated service and to the new slate for accepting their responsibilities.

### UPCOMING EVENTS:

#### SAVE THE DATES!

#### The Paphiopedilum Forum

Saturday, February 19, 2011  
Contact: Bill and Lynn Goldner  
[woodstream@chesapeake.net](mailto:woodstream@chesapeake.net)  
[www.woodstreamorchids.com](http://www.woodstreamorchids.com)

#### AOS Spring Members Meeting

April 27-May 1, 2011 in Shreveport, LA  
Contact: Lena Parker  
[lenalparker2@comcast.net](mailto:lenalparker2@comcast.net) or 318-868-4568

#### 20<sup>th</sup> World Orchid Conference (WOC)

Nov. 13-20, 2011 in Singapore  
“Where New and Old World Orchids Meet”  
[www.20woc.com.sg](http://www.20woc.com.sg)

In our last issue there were two articles written by Ms. Grace Lo and Mr. Chu Yung Tsung of Majesty Orchids about some lovely and unusual orchids in their nursery. Mr. Olaf Gruss has informed us that he disagrees with the names used in the article.

In “When *Paph. papuanum* meets with *Paph. hainanensis*” Mr. Gruss says that the flower captioned as *Paph. papuanum* is really *Paph. violascens*, and *Paph. hainanense* is a synonym of *Paph. appletonianum*, sometimes also called *Paph. appletonianum* var. *hainanense*. Thus the hybrid pictured in the article is “a very attractive new primary hybrid between *Paph. violascens* and *Paph. appletonianum*.” Ms. Lo has agreed that this designation is correct.

Concerning the other article about *Paphiopedilum malipoense* var. *album*, Mr. Gruss says that the correct name should be *Paphiopedilum malipoense* forma *concolor*, described by Dr. Guido Braem. He explains that the color form was given its official name by the describer of the plant, Dr. Braem in 1998, when he published the official Latin description in a plant journal and placed the type specimen in an accepted herbarium. Mr. Gruss sees the var. *album* as a trade name, not the official name. However, Ms. Lo points out that in Taiwan that is the common and accepted name for this variety in the nurseries and markets. This particular plant in Figure 2 was awarded a Certificate of Horticultural Merit by the Taiwan Paphiopedilum Society. She adds that “Our original purpose to issue this article in public was simply to share our beautiful bloom photo and particularly to ask some experience for solving propagation problem.” Unfortunately the official name assigned by a taxonomist is not always known throughout the orchid community. By whatever name, this flower is an especially lovely and rare flower and we thank Ms. Lo and Mr. Tsung for sharing its picture with our members. We also thank Mr. Gruss for correcting the names.



Fig. 3. *Paph. (violascens x appletonianum)*



Fig. 2. *Paph. malipoense* forma *concolor*

## Supporting Members

In each issue of our newsletter we recognize and thank our Supporting Members (individuals and businesses) whose additional dues make it possible for us to carry out our mission of preservation of and education about all lady-slipper orchids. If you are interested in becoming a Supporting Member, please contact Jean Metcalf at [orchidiva@gmail.com](mailto:orchidiva@gmail.com). We encourage our members to support these businesses. From our web site you may contact them directly.

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 (412) 683-0207; [btisherman@aol.com](mailto:btisherman@aol.com)

Vice President: Janette Harris, Westfield, NC;  
 (336) 351-3945; [jaharris@surry.net](mailto:jaharris@surry.net)

Secretary: Russell Tyler, Brainerd, MN; (218) 829-4840;  
[mtyler@brainerd.net](mailto:mtyler@brainerd.net)

Treasurer: Linda Thorne, Seagrove, NC; (336) 879-6677,  
[orchidlinda@rtmc.net](mailto:orchidlinda@rtmc.net)

Director: Lois Dauelsberg, Woodland Park, CO;  
 (719) 687-2528; [loisdauels@aol.com](mailto:loisdauels@aol.com)

Director: Karen Muir, Laguna Niguel, CA;  
 (949) 643-8109; [muirkl@aol.com](mailto:muirkl@aol.com)

Director: Sam Tsui, Bloomington, IL; (309) 662-2386;  
[samtsui@orchidinnusa.com](mailto:samtsui@orchidinnusa.com)

Webmaster: Rod Knowles, Brainerd, MN;  
 (218) 829-4840; [rkgems@brainerd.net](mailto:rkgems@brainerd.net)

Newsletter Editor: Judith Rapacz-Hasler, Madison, WI;  
 (608) 274-3053; [jorapacz@wisc.edu](mailto:jorapacz@wisc.edu)

Membership Secretary: Jean Metcalf, Erie, PA;  
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