

2005



THE  
PLEIONE  
REVIEW



INCLUDING HARDY ORCHIDS

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Further information can be found on The Pleione Website at [www.pleione.info](http://www.pleione.info)

**Front Cover:** *Pleione* Marimonda (*P. aurita* x *P. albiflora*) - see p. 33

## Editorial

**W**elcome to the 2005 issue of the *Pleione* Review, now in its eighteenth issue since the first in 1988. The growing season last year was much more average compared to the exceptionally hot weather of the summer of 2003 and collections seem generally to have grown well. I hope yours did so too.

This issue contains the usual mix of new articles and the regular features. As always, I am so grateful to those who contribute articles. Each year I worry that there will not be enough material to fill an issue, but so far each year I have gladly been proven incorrect. But realising this may not always be the case, I would encourage everyone to consider writing something. It doesn't have to be long or demonstrate any particular expertise, just sharing how you grow and what results you get is of interest to everyone. In the end, if there is not enough material then the Review will simply cease to be.

But this year at least we have another full and varied issue. Jan Berg has provided us with some interesting insights into *Pleione* genetics. (A more detailed analysis of the DNA of *Pleione* species has been undertaken at Kew in recent years and I hope to be able to report on this in next year's issue). In a second article he then shares with us the results of one of his crosses. Charles Ellwood reports on the ups and downs of his growing season while Ian Butterfield shares useful information on how he grows...no, not pleiones, but *Cypripedium*!

Continuing the non-*Pleione* theme, Terry Smale writes on *Serapias* while back on our *Pleione* theme we have a report on an excellent project by girls at Writhlington School regarding the threat of extinction to *Pleione*. I tell you a bit about my own *Pleione* hybrids before the usual listing of newly registered hybrids and of course there is our regular "Bulbils" pages for your correspondence. Enjoy!

**Paul Cumbleton**

## One Grower's Year with Pleiones

Charles Ellwood reports news from his collection...

The last year has been an interesting one for me, much of it nothing to do with plants. I was made redundant in the spring and had to contemplate the possibility of moving to find work. Eventually, I found a position  $\frac{3}{4}$  of an hour away from my current home.

The summer off gave me plenty of time to spend with my plants, something I enjoyed but I am less sure the plants appreciated it. I searched the Internet for *Pleione* and found several suppliers on the continent with interesting lists, not only of *Pleione*, but of other hardy orchids. As a result I have a few plants in the greenhouse with interesting names. *Pleione limprichtii* from China is very nice and certainly from the *bulbocodioides* complex. *Pleione limprichtii* from India (and the same supplier) promises to be interesting but did not flower for me this year. *Pleione* sp. from China turned out to be a form of *P. pleionoides* and made me wish I had been bolder and ordered a couple more. The lists from the English suppliers were equally interesting and I dare say the bank balance will suffer this autumn. (I am trying to remember what my grandma would have said, something about devils and idle hands I fear).

Some *Pleione forrestii* bought last year have also flowered this spring and are somewhat varied. One bulb has produced a flower with yellow petals and an almost white lip (still with blood red blotches on it). My nose could detect no perfume in this clone; unusual as I normally find this species is strongly scented. Another was a pale primrose yellow and a third "normal" *forrestii*. This is the species that hooked me on the genus and is still a favourite despite its temperamental nature. The older clones seemed to respond positively to the colder rest they had over winter, trying to get away in early March as they came back into the greenhouse just as the cold weather returned. Even so, one or two laggards are only just moving at the end of April, they will be consigned

to the unheated shed once again come winter.

Another minor success last year was keeping a few bulbils of *Pleione humilis* alive for a season. This was achieved by removing them from the greenhouse before growth started and putting them on a north-facing windowsill. Humidity was maintained in a propagator but with excessive heat and drying-out avoided. Obviously this did nothing for the appearance of our spare room but most people who use it are already aware of many of my idiosyncrasies; any who are not learn rapidly! I am trying the same trick this year with one or two things and will report next year if I remember.

I bought a couple of bulbs of *Pleione praecox* in January and they arrived with a couple of inches of leaf-growth and significant root growth. This surprised me somewhat but the plants have grown away. They started making bulbs in April and also gave me another record: leaf-tip dieback in March!

The increasing size of my collection and the increasing pressure on my time (my daughter was born in January) means that I am now using dead, dried sphagnum moss in my compost; it is easier to obtain than live, less moisture retentive types of moss. I save my home-propagated ground moss for one or two special plants. I do grow some sphagnum myself alongside the carnivorous plants but have had to buy in extra. The epiphytes love it in basket pots, I hope the terrestrials like it as well.

I will sign off with a couple of comments about other hardy orchids. The *Cypripedium* hybrid bought because it shares a name with my son is about to flower and is thriving. *Anacamptis papilionacea* is flowering nicely despite its recent name change. Finally, slugs love *Spiranthes sinensis* if they get half a chance; I fear one of my two recent acquisitions is no more, though the same fate has been visited on the culprit! The survivor appears to be developing a flower-spike but this is still tiny early in May.

## My Introduction to *Cypripediums*

**Ian Butterfield, well known for his National Collection of *Pleione*, recalls here how he became interested in another orchid genus – *Cypripedium* - and tells us how he grows them...**

I first became interested in *Cypripedium* in 1990. I was in the Gang Ho Ba valley in western China, where I was photographing *Cypripedium tibeticum* and stepped backwards to find myself standing on more of the same plants, which were growing all around. There were so many of them! They started to grow on me and after several more trips to China and seeing other *cypripediums* growing in different habitats, I thought I ought to start growing them.

Eventually, in 1997, I bought a few plants but I think I was afraid of them. I had heard and read that they were very easy to kill and that they are quite expensive to buy. I had also heard and read that they should not be fed or sprayed with chemicals and that they should be kept just damp all the time. The result was that I kept mine far too dry. They were in a cold frame with the lights on most of the time, even during the summer. They were kept in a refrigerated box during December, January and February at a temperature of about 1°C. They got too dry in here in spite of being watered occasionally.

Seven years on I have discovered *cypripediums* are much tougher than I thought. Yes I have killed some and have also destroyed some plants that had virus-like symptoms on the leaves, although I am not sure I have done right.

My collection has grown and now spends all year in a cold frame with mesh sides. The lights are kept on during the winter so that they do not get too wet while dormant. Sometimes the pots need a little water if the winds have dried the compost out. If the weather is very frosty, the mesh sides of the frame are covered with felt to stop the worst of the frost. The lights are removed as soon as possible once the shoots start to appear through the compost (as long as there is not too much rain).

During the summer they love a moist atmosphere so the plants are sprayed over in the evening.

I liquid feed once a week from May until the leaves start to go yellow in September or October, using Tomorite (a high potash fertiliser normally used for tomatoes) at half strength. I also foliar feed once a week with Maxicrop seaweed extract.

The plants are repotted in October as they are going dormant and put back in the cold frame with the lights still off (unless it rains hard). A few slug pellets are scattered in the frame as both slugs and snails love cypripediums!

Finally, the compost I grow them in is:

4 parts propagating bark (sieved through a  $\frac{3}{16}$ " sieve and the fines discarded)

2 parts supercoarse perlite (sieved through a  $\frac{1}{8}$ " sieve and the fines discarded)

2 parts coarse grit (sieved through a  $\frac{1}{8}$ " sieve and the fines discarded)

2 parts half-decayed beech/oak leaves (sieved through a  $\frac{1}{2}$ " sieve and the roughage discarded)

2 parts woodland soil/loam (sieved through a  $\frac{1}{2}$ " sieve and the roughage discarded)

To this mix I add a dusting of dolomitic limestone powder.

# Quantifying the Extinction Threat to Pleiones

Your editor reports on an excellent piece of work by students at  
Writhlington School...

## Introduction

The students attending Writhlington School are most fortunate in having a wonderful collection of orchids that are used in many ways as part of their education under the enthusiastic supervision of one of their teachers, Simon Pugh-Jones. Last year, three of his students, Kim Beer, Abigail Morgan and Catherine Sanders (see photo p. 9) chose to do some research on pleiones and enter their work in the Young Scientist of The Year competition. They did extremely well and congratulations are due to their getting to the finals in this National competition! What follows is a summary of their work and the results they achieved.

## The Subject of the Research

The girls decided to work on trying to quantify the extinction threat to pleiones. This is how they introduced their final report:

“The 21<sup>st</sup> century is a crucial period for Planet Earth. According to the World Conservation Union (IUCN) *Biologists now agree that we are entering a period of extinction not experienced since the end of the Cretaceous Period*. The causes of extinctions, habitat destruction, global warming and collection of rare species are constantly in the news and are issues for governments, international bodies and campaigners worldwide but the scientific reality of the extinction of individual species is difficult to assess. There is an urgent need for reliable research, such as that used to prepare the IUCN Red List, to improve the understanding of current species status and conservation imperatives. This project is



an attempt to provide such information for species of the orchid genus *Pleione* and assess the suitability of analysis methods.”

So what they were trying to do was to find ways of answering two important questions – are any pleiones already extinct and how great is the threat to those remaining?

### **Methodology**

They realised there were several possible ways they might go about trying to answer these questions. They write: “To determine the status of *Pleione* species a number of approaches could be adopted:

1. To carry out extensive field surveys of the known distribution of the plants.
2. To ask the opinion of leading experts in the fields of orchid botany and conservation.
3. To carry out analyses based on the data available within herbarium records.

Although the prospect of many years studying in the forests of the Himalayas and South China is appealing, the scope of this research and the financial constraints on Sixth form students lead to the adoption of approaches 2 and 3.”

### **Consultation**

So firstly, they wanted to consult the opinions of experts regarding the current status of pleiones in the wild. To do this they tell us “we planned e-mail and letter approaches to botanists in Britain, India and China, and carried out literature searches of relevant publications”. Later they tell us: “Information on species status was received from: 1. Dr Phillip Cribb, Curator of the Orchid Herbarium at Kew and Secretary of The IUCN Orchid Specialist Group.

2. Mohan Pradhan, Secretary of the Indian Sub-Continent Sub-Committee of the IUCN Orchid specialist Group.
3. Ian Butterfield, Nurseryman specializing in Pleiones and co-author of 'The Genus Pleione' 1999" They go on to tell us a little about each of these experts and what the views of each was regarding the threat of extinction to pleiones:

“**Ian Butterfield** has spent a life-time breeding and growing Pleiones and has travelled widely.” He told them that:

“The species most under threat of extinction are *P. albiflora* and *P. coronaria* as they are rarely seen in cultivation. Also under threat are natural hybrids such as *x lagenaria*, *x kohlsii*, *x confusa* and *x christianii*. Ian Butterfield believes that the other species are relatively safe. However, this depends on how much deforestation takes place within their natural habitat.

**Mohan Pradhan** is the leading orchid botanist and conservationist in the Himalayan state of Sikkiim.

Mohan Pradhan has offered his opinion for Indian species found in the Sikkiim-Himalayas, according to IUCN Red List Categories -

*P. praecox* – *lower risk/ vulnerable* - *praecox* has a wide distribution and a wide range of habitats. Therefore it is less threatened even if part of its habitat is destroyed.

*P. hookeriana* – *vulnerable* – its habitat is now easily accessible by road, and so is likely to be affected by external forces such as deforestation, collection and road construction.

*P. humilis* – *vulnerable/ endangered* – found in small populations and so is more vulnerable than other Indian species. Its habitat is approached by roads and so it is susceptible to illegal collection.

*P. maculata* – *vulnerable* – it is quite abundant, but becomes vulnerable

Photo: S. Pugh-Jones



Kim Beer (left), Catherine Sanders & Abigail Morgan work on their project (see p. 6)

Photo: P. Cumbleton



*Cypripedium formosanum*, just one of an enticing genus (see p. 4)

Photo: P. Cumbleton



*Pleione* Snow Monkey - (*P. yunnanensis* x *P. grandiflora*) - two clones from this new hybrid (see p. 33)

Photo: P. Cumbleton



if the habitat is disturbed.

**Dr Phillip Cribb** is a leading orchid botanist, prolific author and leading conservationist.

Dr Phillip Cribb has offered his opinion according to IUCN Red List Categories:

*P. coronaria* – critical – limited distribution, over collected, habitat destruction.

*P. forrestii* – endangered – habitat destruction, over collection

*P. albiflora* – endangered - habitat destruction, over collection

*P. grandiflora* – vulnerable - habitat destruction, over collection

*P. yunnanensis* – vulnerable - habitat destruction, over collection

*P. scopulorum* – vulnerable - habitat destruction, over collection

*P. formosana* - vulnerable - habitat destruction, over collection

*P. praecox* – Lower Risk (least concern)

*P. maculata* – Lower Risk (least concern)

*P. humilis* – Lower Risk (least concern)

*P. hookeriana* – Lower Risk (least concern)

*P. bulbocodioides* – Lower Risk (least concern)

*P. pleionoides* – Lower Risk (least concern)

*P. limprichtii* – doubtful taxonomic status”

Having consulted the experts, next came the maths!:

### **Mathematical formulae**

They secondly investigated the use of mathematical formulae that make use of herbarium data to infer the extinction threat. These formulae take account of things such as the time of the last recorded sighting of a species, the time from the first record to the most recent, the number of records between those two dates and so on. Using this kind of data, mathematical formulae can be constructed which infer the extinction threat. Many differing equations have been used in the past for other genera, so which ones may be most useful for *Pleione*? The girls decided to investigate just some of these to see which best matched the other data from the experts. They tell us:

“Following research four equations were selected. After an initial scan of raw data, a modification was planned to allow for possible skews in results arising from the different collection histories of India and China. The equations selected required the use of collection dates from herbarium records of *Pleione* species and we approached the herbaria at Kew, The British Museum London, Edinburgh, Paris, and Yunnan to obtain dates of all collections of pleiones. An appointment was made to visit the Kew Herbarium to view all *Pleione* record there..... These equations were applied to a data set of 251 herbarium records from as far back as 1827 covering 15 species and the five herbaria of Kew (K), The British Museum (BM), Edinburgh (E), Paris (P), and Yunnan (KUN).....Once extinction probabilities had been calculated for each species by each equation, a comparison was made between calculations by each method and against the information received from leading authorities.”

What the girls had done was to calculate a figure indicating the probability of extinction for each of the species they examined. They did this four times, using four different equations (plus one extra as they have explained, to take account of the different collection histories of India and China) and then compared the results with the opinions of

the experts to see which equation best matched what was already known by the experts. To do this, they tell us that “The key indicators will be:-

- Species which are relatively abundant and definitely not extinct should not register as extinct.
- Very threatened or extinct species should be identified as such.

Examples of species not extinct are *P. humilis*, *P. maculata*, *P. praecox* and *P. hookeriana*, based on information from Mohan Pradhan and status categories from Dr Phillip Cribb.

Examples of possibly extinct species are *P. albiflora*, *P. coronaria*, *P. grandiflora*, *P. lagenaria* and *P. limprichtii*, based on information from Dr Phillip Cribb, IUCN Red List 1997 and Ian Butterfield.

So what did they find? Two of the equations, one called the “Solow Equation” and the other the “Sighting Rate Equation” showed poor correlation with the expert opinion. The three others showed good correlation. These were: The “Solow/Roberts”, the “Collection Effort” and the “China Effect” equations. The latter two were the most effective. Of course the girls did realise that there are unreliabilities in any of these: “These methods are not entirely reliable; if a species has been collected only once but recently then all methods indicate that the species in question is not threatened in any way. E.g. *P. coronaria* has a high value because it was found in 1992.” In other words, sometimes all the equations got it wrong, as with *P. coronaria* where they all came out with a high value which indicates a species isn’t threatened (whereas *P. coronaria* is actually critically endangered). The following were the results for each of the species they examined:

***P. albiflora*** – is shown to be extinct in four of the five methods, expert opinion classes it as endangered. The only method showing it not to be extinct was method five allowing for the China Effect. In summary there is good correlation in our data.

***P. bulbocodioides*** – is shown to be vulnerable by one method, it is not

shown as extinct in any, expert opinion agrees with this assessment.

***P. coronaria*** – has a high value on all systems because it has been collected as recently as 1992, but it is very rare and may even be extinct (expert opinion classes it as critical). This shows that a high value does not necessarily mean an abundant species.

***P. formosana*** – has only been collected once, and therefore appears to be extinct in four methods. However the IUCN 1997 Red List categorizes it as vulnerable and experts Dr Phillip Cribb and Ian Butterfield have assured use that *P. formosana* is not extinct. This anomaly is because *P. formosana* is only found in Taiwan and so has not been found on expeditions to China or India.

***P. forrestii*** – is shown as extinct in two methods. Expert opinion classes it as vulnerable. This shows good correlation with expert opinion.

***P. grandiflora*** – four methods have shown *P. grandiflora* to be extinct, the IUCN Red List categorizes it as vulnerable. The data suggests that there should be more concern regarding the current status of *P. grandiflora*.

***P. hookeriana*** – is a lower risk species according to the IUCN Red List. It is not shown as extinct by any of the methods. This shows good correlation.

***P. humilis*** - is a lower risk species according to the IUCN Red List. It is not shown as extinct by any of the methods. This shows good correlation.

***P. lagenaria*** – is probably extinct, and is shown as such by four methods. This shows good correlation with both the IUCN Red List and expert opinion.

***P. limprichtii*** – has ‘*doubtful taxonomic status*’ and is probably extinct in the wild. However it may not be a species at all but a variety of *P. bulbocodioides*.



*P. maculata* - is a lower risk species according to the IUCN Red List. It is not shown as extinct by any of the methods. This shows good correlation.

*P. pleionoides* - is a lower risk species according to the IUCN Red List. It is not shown as extinct by any of the methods. This shows good correlation.

*P. praecox* - is a lower risk species according to the IUCN Red List. It is shown as extinct by two of the methods (the least effective), so there is a fair correlation with both the IUCN Red List and expert opinion.

*P. scopulorum* – is shown as extinct by three methods, the IUCN 1997 Red List categorizes it as vulnerable, so there is a fair correlation with both the IUCN Red List and expert opinion.

*P. yunnanensis* - is shown as extinct by none of the methods, the IUCN 1997 Red List categorizes it as vulnerable, so there is a fair correlation with both the IUCN Red List and expert opinion.

The girls went on to reflect on the ups and downs of the project:

“The successes of research include a large data set covering five herbaria. Despite the problems of communication, in particular, no response from Yunnan Herbarium in China the assistance of Dr Phillip Cribb in supplying a card index overcame this limitation. There were limitations within the data set, as some species have had very few collections. Any species occurring once will tend to appear as extinct.

Taking data directly from herbarium sheets at Kew Gardens proved to be harder than first anticipated due to incomplete sheets lacking either the name of the species, or the date of collection. Collecting comparative data from experts was successful and IUCN categories proved helpful in analysing data.”

They also pointed out that “The major modification was allowing for the China Effect in method five. This proved justified as shown by

graphs of differing collection histories.”

The girls conclude with the following recommendations:

- Recommended adoption of the Solow/Roberts or Collection Effort as preferred methods.
- Field research should be targeted at identified species: *Pleione albiflora*, *P. formosana*, *P. grandiflora* and *P. limprichtii* where new data is required to ascertain their continuing presence.
- Assume *P. lagenaria* is extinct as stated in the IUCN Red List 1997.

#### **Comments** (by your editor)

The work done by the students is first class and has shown which mathematical tools we can best use to infer the extinction threats that pleiones are under. Some of the species only recently seen in cultivation such as *P. aurita*, *P. chunii* and *P. saxicola* are not included in their Report, but we can probably guess that these too are, sadly, threatened in their wild habitats. *P. lagenaria* is actually a natural hybrid, *P. x lagenaria* (which is *P. praecox* x *P. maculata*), which is at least in cultivation both as wild-collected clones and as the man-made version, *P.* Confirmation. Whether it still occurs in the wild seems unclear, though the parents' ranges do overlap so it is possible that this natural hybrid could be re-created periodically as bees visit the various populations.

*P. formosana* is certainly not extinct and has at least some protection in Taiwan where a national park has been established specifically to give it the required safeguards. This is the “Alishan Taiwan Pleione Nature Reserve”. It is also the only species grown in large numbers commercially in Taiwan (or anywhere else...) where hundreds of thousands of bulbs are produced every year. We also now have examples of it from the mainland of China (sometimes named as another species, *P. hui*, but this is clearly a synonym). A German traveller, Gunther

Kleinhans, also saw *P. formosana* in abundance recently (May 2005) in the north of the Chinese province of Kanton (see his account starting page ).

*P. albiflora* was recently discovered again in the wild – see the account of this in the 2001 edition of this magazine. It is slowly getting a foothold in cultivation but is still very rare.

Another sad but efficient way of knowing if something is actually extinct or not is of course to see what is still being collected and sold illegally. All the species mentioned by the girls as requiring fieldwork to ascertain their continuing presence are still being offered and exported from China, indicating that they are still out there to collect – but for how much longer if collection continues unabated? (Sometimes they come in under different names, but are identified when they flower). Many readers may not realise that ALL orchids are protected by legislation in China, which prohibits their wild collection. This is in addition to the regulations of CITES (The Convention on International Trade in Endangered Species). So other than a very few scientific specimens which are collected under special license, ALL the pleiones that are coming out of China are coming out illegally; I am not aware of any that are nursery grown, all are taken from the wild. It is this, together with habitat destruction that constitutes the extinction threat to pleiones as with so many other plants and animals.

### **Addendum**

For those of you interested with the maths, an example of one of the equations used is:

#### **Solow/Roberts Equation:**

$$P = (t_n - t_{n-1} / T - t_{n-1})$$

Where P = Probability of Extinction

$t_n$  = Number of years between first and last record

$t_{n-1}$  = Number of years between first and penultimate record  
T = Total number of years from first record to present day

(A “record” is a verified herbarium specimen)

For example, take *P. praecox*. This was first recorded in 1828 and last recorded in 1975. So  $t_n$  will be  $1975 - 1828 = 147$ .

The penultimate record was in 1971. So  $t_{n-1}$  will be  $1971 - 1828 = 143$

Then T will be  $2005 - 1828 = 177$ . So the equation is:

$$P = (147 - 143 / 177 - 143) = 0.117647$$

If anyone has any questions about this work, Simon Pugh-Jones can be contacted by email at: [spughjones@tiscali.co.uk](mailto:spughjones@tiscali.co.uk) or by post to: Simon Pugh-Jones, Writhlington School, Radstock, BA3 3NQ

# SERAPIAS

**Terry Smale describes the genus *Serapias* and offers useful advice on their cultivation...**

## **Introduction**

**M**any of the tuberous European orchids are not particularly easy to cultivate, but as in all plant groups there are exceptions and in this case they are *Dactylorhiza* and *Serapias* species. A method of cultivation of dactylorhizas was described in the 2004 “Pleione Review” and in this article I will discuss my experiences with the genus *Serapias*. However, although serapias are relatively easy to grow, the downside is that they are less showy than the closely related *Orchis*, *Anacamptis* and *Ophrys* species. The flowers tend to be in shades of brown, although there can be variation.

## **Naming**

The bull had a central place in Greek and Egyptian mythology and the generic name is derived from Osirapis, which is the Greek for Apis, the sacred bull of Memphis that was an incarnation of the god Osiris. The flowers do have a fleeting resemblance to some of the bull images that can be seen in the Heraklion Museum, but these bulls only have one horn!

The first problem with the genus *Serapias* is putting a name to the various species. I am not up-to-date with my European orchid nomenclature and only have literature that mentions *S. cordigera*, *neglecta*, *vomeracea*, *orientalis*, *lingua* and *parviflora*, plus various subspecies and hybrids such as *S. olbia*. They are not easy to key out, but as with *Pleione*, the callus ridges at the base of the lip are a help: *S. lingua* is the only species with a single ridge, the others have two. The two-ridged species seem to blur one into the other and might in some respects be regarded as a cline, but there are some useful indicators.

Thus the ridges are parallel except in *S. cordigera* where they are divergent and *S. vomeracea* can usually be recognised by the floral bracts, which are much longer than the flowers.

### **Plants in the Wild**

The genus is essentially circum-Mediterranean, occurring right around that sea including North Africa and the Levant. There are outliers in the Azores and Caucasus, but it does not get into northern Europe and is certainly not a part of the British flora. Plants can be found in a wide variety of different habitats: acidic or basic, damp or dry, open or lightly wooded. It is not unusual to find them (particularly *S. lingua*) growing in ditches that are seasonally very wet. It is probably this significant lack of habitat preference that makes them relatively easy to grow. Quite often they can be found growing as colonies because they tend to produce offset tubers more freely than many other European genera. Flowering is a little later than most *Ophrys* and *Orchis* apart from the very late ones such as *Orchis sancta*.

### **Cultivation**

I have had some *Serapias* clones in cultivation now for about 25 years and because of the propensity of many clones to produce additional offset tubers, most have built up to nice pot-fulls. The most prolific in this respect are forms of *S. lingua* and I have even been able to distribute some of these to friends. Unfortunately, they usually flower too late for the accessible AGS March shows at Harlow and Rainham. The flowers last for a long time in good condition, maybe for a month.

It is unlikely that any *Serapias* are truly hardy and they need to be grown under frost-free conditions. A friend gave me material of *S. lingua* from a Corfu stock that he grows planted in the ground in an unheated bulb frame, but in a plunged pot in my Access frame it was decidedly unhappy and had to be rescued back into the greenhouse.

*Serapias* are grown like the other Mediterranean orchids in my collection,

in clay pots containing a 1:1 mixture of John Innes Compost No.2 and 4mm crushed granite grit. At one time I tended to make allowance for the origins of the stock by adding a little chalk or composted pine needles to adjust the pH, but this seems to be completely unnecessary in practice. They are normally repotted every two years and I do not reincorporate any of the old compost in an attempt to transfer mycorrhizal fungi, as sometimes recommended. The fungi are undoubtedly needed to provide carbohydrates for the growth of seedlings, but their usefulness to adult plants is more obscure. In any case, if fungi are needed, they are likely to be present on the hairy surface of the tuber. Repotting is best done in August while the plants are still dormant, placing the tubers about 5cm below the surface of the soil. You will need to be able to distinguish between the plump, pale-coloured new tubers and the withered, dark spent tubers. The additional offsets can be quite small so look carefully before discarding the old compost.

Watering is started early in September and continued until the end of May, when the plants die back for the summer months. Some light feeding in the spring will help to improve tuber size. I do not give any water during the summer dormancy. From the end of March until new shoots appear in October, the pots need some shade and I achieve this by putting them on the floor of the greenhouse. However, they need to be brought up onto the staging in full light for the winter months. Watch out for greenfly, particularly on the flowers. "Provado" aerosol spray is quite useful for eliminating aphids because it does not result in water sitting in leaf bases, but the propellant does make label ink run! (*Editor's note: This product is sold in the U.K. as "Provado Ultimate Bug Killer" and contains a mix of imidacloprid and methiocarb*).

### **Propagation**

Many clones of serapias build up quite nicely without any intervention from the grower. For those that do not, carefully knock the plants out of the soil in March and cut off the new tubers, which are stored in dry compost for the summer. Replant the parent orchids and keep them growing for as long as possible so that they produce additional new

tubers.

The Sainsbury Orchid Project at RBG Kew has investigated European tuberous orchids and found that seed will not normally grow on sterile nutrient agar such as can be used for pleiones. One has to revert to the older techniques that involve inoculation of the nutrient medium with mycorrhizal fungi. It is likely that serapias would fall into this category and that raising them from seed by the amateur would be impracticable.

### **Illustrations**

*Serapias orientalis* (?). (Photo: back cover). This material was obtained without a name from Tile Barn nursery and is said to originate from the island of Kithera, south of the Peloponnese. The name above is the closest that I can get using the keys at my disposal. It is one of the largest serapias that I have seen anywhere, being almost 45cm tall in flower. It has produced up to five flowers per stem and they are quite large with broad lips that are about 35mm long. In the three years that I have had it, it has increased from one to four tubers.

*Serapias lingua*. (Photo: opposite). I inherited this stock about 12 years ago when its owner emigrated to Philadelphia to work. It is quite bold by lingua standards, growing to about 25cm tall and producing mauve flowers that have lips 25mm long. It is probably the most prolific clone that I have for offset tubers. I acquired two other clones at the same time, one of which has beige flowers with a pink rim (ex Crete) and the other has maroon flowers. My smallest *S. lingua* clone was collected in Portugal (PJC 406) and has very narrow brown lips that are only 15mm long.





*Serapias lingua* (see p. 22)

Photo: P. Cumbleton



*Pleione Sifaka* - (*P. Piton* x *P. forrestii*) - this new hybrid resulted in a very variable and colourful mix (above and next three pictures). See p. 33

Photo: P. Cumbleton



Photo: P. Cumbleton



*Pleione Sifaka*

Photo: P. Cumbleton



Photo: P. Cumbleton



Two types of *P. Ueli* Wackernagel: rose “g” & pale “b” (see p. 30)

Photo: P. Cumbleton



*Pleione Bonobo* (see p. 33)

## Some *Pleione* Genetics

**Jan Berg describes measurements of the relative D.N.A. content of some of his pleiones...**

Counting the number of chromosomes in *Pleione* species and their hybrids is quite a time-consuming job. Because pleiones have rather small chromosomes you also need a good microscope. With my old one, which magnifies 1000x, I was not able to get pictures that were good enough.

But it is not necessary to know the exact number of chromosomes to get some knowledge of the ploidy level<sup>1</sup>. In normal plant cells the chromosomes are located in nuclear DNA. By staining the nuclear DNA in plant cells with a fluorescent solution, the relative amount of DNA can be measured. By comparing this with the amount of DNA in one or more standards of known ploidy level, or in this case with Pleiones that are most likely to be normal diploids (2n) and with *P. Bulbocodioides* 'Yunnan' (6n), one can determine the ploidy level of the plants being examined.

I was lucky to get in contact with another "Orchidiot" who was able and willing to do some measurements for me. I was especially curious to see the results for *P. maculata* 'Big Major'<sup>2</sup> and *P. Confirmation* 'Tanned Beauty'<sup>3</sup>. Two clones of *P. formosana*, a 'normal' clone of *P. maculata*, an average *P. Confirmation* and *P. bulbocodioides* 'Yunnan' (6n) were used as standards.

### **Results:**

The standards, *P. formosana*, *P. maculata* and an average *Pleione Confirmation*, all gave approximately the same peak in the histogram (between 155 and 165 on a logarithmic scale) and were supposed to be diploids (2n). The *P. bulbocodioides* 'Yunnan' gave the expected peak for a hexaploid (243). *P. maculata* 'Big Major', with a peak of 160

turned out to be a normal diploid (2n). It is just a big one! *P. Confirmation* ‘Tanned Beauty’ proved to be a triploid (3n) (peak at 193). Further, my clone of *P. limprichtii* is a tetraploid (peak at 209) and the two clones of *P. Vesuvius* I own are pentaploid (5n) with peaks at 234 and 235 respectively. This last fact makes it plausible that they are from the cross between *P. bulbocodioides* (6n?) x *confusa* and not from the reverse cross *P. confusa* x *bulbocodioides* (6n?)<sup>4</sup>.

In a personal communication, Paul Cumbleton told me he was not able to get viable seeds using *P. Confirmation* ‘Tanned Beauty’ as a parent. This is not surprising because it is a general experience that triploids are mostly infertile or nearly so. But in an attempt to get an even more beautiful *P. Liz Shan* (*P. maculata* x *P. Confirmation*) than the clone ‘Pretty Girl’ is, I made the cross again with *P. maculata* ‘Big Major’ (2n) and *P. Confirmation* ‘Tanned Beauty’ (3n) as parents. On first sight the seed-capsules contained only seeds without embryos, and with the *P. Confirmation* as the seed-bearing plant this was indeed the case.

But orchids give a lot of seeds per capsule and if only 0.5% of 10,000 seeds have an embryo you may raise 50 plants! For years I have used a trick to concentrate the viable seeds. I empty the ripe capsule into a large drinking-glass, hold it slightly downward above a piece of paper and turn it slowly around. The empty seeds stick to the wall and the good ones, who are more heavy and smooth, go downward more quickly and fall on the paper. Sometimes you have to repeat this procedure more than once. In the case of *P. Liz Shan* I obtained in this way now some tens of protocorms in two small flasks (from *P. maculata* as the seed-bearing plant).

### **References:**

<sup>1</sup> A cell with only one set of chromosomes is called haploid or monoploid (written as “1n”). Most individuals from the result of sexual reproduction have two sets of chromosomes, one from each parent and are called diploid (2n). Then there is triploid (3n), tetraploid (4n), pentaploid (5n), hexaploid (6n) and so on.

<sup>2</sup> Berg, J. The Pleione Review 2003 p. 31

This clone is described there as *P. maculata* ‘Major’. But it is not allowed to use only the word “Major” in the designation of a cultivar because it is a Latin word as well. So it is now named *P. maculata* ‘Big Major’. See also: Cumbleton, P. The Pleione Review 2004 p. 7

<sup>3</sup> Berg, J. National Pleione Report 1999 p. 8

Berg, J.; National Pleione Report 2001 p. 30

The artificial *P. x lagenaria* mentioned in this article is now registered as *P.* Confirmation. The name *P. x lagenaria* is reserved for the natural hybrid. Anyone who got this hybrid from my stock or bought it from “Orchideeën Wubben” should change the name on the label!

<sup>4</sup> Wimber, D.E. and Cribb, P.J. The Plantsman 1981 **3** p.182 and 188. In this article both parents are still misnamed. The mentioned *P. yunnanensis* is in fact *P. bulbocodioides* and the *P. forrestii* should be *P. x confusa*.

## Seven types of *Pleione* Ueli Wackernagel using *P. formosana alba* as pollen donor:

**In a second contribution to this year's Pleione Review, Jan Berg  
describes the outcome of one of his crosses...**

In 1999 I mentioned my remake of *P. Ueli Wackernagel* using the pollen of a *P. formosana alba*<sup>1</sup>. About 50 % were nearly white; the others had the common rose colour. All had a lip with the central yellow line characteristic for *P. aurita*. In this species some have a yellow blot at the apex of the lip while others have not<sup>2</sup>. This was also the case with my seedlings, though the *P. aurita* used in this cross had no yellow blot.

In normal coloured *P. formosana* the lip has spots that spread out in the apex. In some of my seedlings this was also the case. The appearance of these markings on the lip is independent from each other. Thus one would expect 8 types of lips, marked in different manners. As you see below (Figs. 1 and 2) I got only seven. This may be because I sowed only a relatively small amount of seed in two flasks of 250 ml and afterwards selected strongly on vigour of growth, shape of the flower, susceptibility of pests and diseases and so on. So perhaps a light form with a blot at the apex and with spots as well may have existed but I destroyed it.

**Fig 1:** Lip markings attained on the nearly white flowers

Type	Yellow blot	Spots	Cultivar
	at the apex		
(a)	-	-	
(b)	+	-	'Pearl' <sup>3</sup>
(c)	-	+	



**Fig 2:** Lip markings attained on the rose coloured flowers

Type	Yellow blot	Spots
	at the apex	
(d)	-	-
(e)	+	-
(f)	-	+
(g)	+	+

The spots in the light forms are yellow. The yellow blot in the dark forms is over the rose, making a nice mixed-colour. (see photo P. 26).

It does not often occur that one gets such a big variation in a hybrid from two species. Meanwhile I have got a nice real alba form of *Pleione*. Ueli Wackernagel by using two light forms as parents.

**References:**

<sup>1</sup> Berg, J. National Pleione Report 1999 p. 8  
At that time *P. aurita* was called *P. chunii*.

<sup>2</sup> Cribb and Butterfield, The Genus Pleione, second edition, fig. 21 and 22.

<sup>3</sup> A photo of this cultivar was published in the Pleione Review 2002 p. 18

## My Very Own New *Pleione* Hybrids

**Paul Cumbleton, your editor, reports the first registration of new hybrids he has raised himself from seed...**

**A**s you can see from the table on the page after next, I (your editor) have registered my first hybrids! My very first hybrid flowered in 2003 and this was *P. Zeus Weinstein* x *P. aurita*, now called *Pleione* Spot-Nosed Monkey (see photo p. 39). A few more flowered last year, and this year about a dozen more, making a total of 18 new hybrids so far. It is very exciting and rewarding to watch your very own new hybrids open for the first time, especially as I have grown them from seed to flowering myself.

### **How I am Naming Them**

You may know that Ian Butterfield (who has produced more than a hundred of the hybrids we all grow) has a theme for all his hybrid names - the grex names are all the names of volcanoes and then selected clones he calls after birds so you get, for example, names like *P. Vesuvius* 'Tawny Owl', or *P. Etna* 'Bullfinch'. I have decided to adopt this tradition of having a theme. So all my hybrids are going to be named after the common names of monkeys and apes, and the selected clones (cultivars) will have the names of rocks, minerals or gemstones. I have chosen these simply because I have a fascination for primates and also for geology. It's quite fun choosing them! Of course occasionally I may stray from this to name some after loved ones and friends.

### **Primary Hybrids**

Three of the ones I have registered are primary hybrids (that is crosses between two pure species). It is surprising just how many of the possible primary hybrids have yet to be made – only about one third of them have been produced so far. Primary hybrids usually end up looking pretty much as you would expect – i.e. they appear “half way” between

the two parents and the seedlings, while varying, do not show as much variation as those of more complex hybrids. Occasionally though they surprise you. For example, I had expected (and hoped) that the cross between *P. grandiflora* and *P. forrestii*, which I have called *Pleione* Bonobo, would produce all-yellow flowers. Though some indeed have turned out this way (see photo p. 26), some also appeared with pink petals and yellow lips. I suspect this colour may have come from the *P. forrestii* parent as you can often see flowers of this species that have some red markings on the petals.

The other two primary hybrids I registered came out much as expected. *Pleione* Marimonda (*P. aurita* x *P. albiflora*. See photo front cover) is perhaps noteworthy in that it is the first artificial hybrid registered that uses the true *P. albiflora* as a parent (though this species is of course involved in the natural hybrid *P. x confusa* and in hybrids that utilise *P. x confusa*). *Pleione* Snow Monkey is pretty and the seedlings have varying degrees of yellow (or not) on the lips from the *grandiflora* parent (see photos p. 10)

### **More Complex Hybrids**

Of the four other hybrids I registered, *Pleione* Sifaka (*P. Piton* x *P. forrestii*. See photos p. 24 & 25) produced the most varied seedlings in a wide range of colours, many with nice streaks on the petals. Some of them show great promise and will be selected out and given cultivar names in due course. *Pleione* Caparro (*P. forrestii* x *P. Ueli Wackernagel*. See photo p. 39) has *P. forrestii* as seed parent which is rarely done. This and the other complex hybrids are all attractive in their own way.

### **The Future**

I am continuing to make new crosses and will be naming more new hybrids in the future. I will of course be trying to build up stock of them all and hope to make them available for you all to grow in the future. Growing from seed takes a long time – I'm averaging five years from pollination to first flower. But the rewards are worth it!

## Newly Registered *Pleione* Hybrids

Each year this regular feature lists all the new *Pleione* hybrids that have been registered since the previous *Pleione* Review...

The information in this list has been supplied by the Royal Horticultural Society as the International Registration Authority for Orchid Hybrids and is published with their kind permission.

Eleven new hybrids have been registered since those detailed in last year's issue:

Grex Name	Parentage	Registered By	Year
Aldabra	<i>P. xbarbarae</i> x <i>P. Shantung</i>	K. Redshaw	2004
Makian	<i>P. Marion Johnson</i> x <i>P. Edgecombe</i>	I. Butterfield	2004
Sharon Ann Winter	<i>P. San Salvador</i> x <i>P. Keith Rattray</i>	I. Butterfield	2004
St. Helens	<i>P. Keith Rattray</i> x <i>P. Kenya</i>	I. Butterfield	2004
Angwatibo	<i>P. aurita</i> x <i>P. Adams</i>	P. Cumbleton	2005
Bonobo	<i>P. grandiflora</i> x <i>P. forrestii</i>	P. Cumbleton	2005
Caparro	<i>P. forrestii</i> x <i>P. Ueli Wackernagel</i>	P. Cumbleton	2005
Marimonda	<i>P. aurita</i> x <i>P. albiflora</i>	P. Cumbleton	2005
Sifaka	<i>P. Piton</i> x <i>P. forrestii</i>	P. Cumbleton	2005
Snow Monkey	<i>P. yunnanensis</i> x <i>P. grandiflora</i>	P. Cumbleton	2005
Spot-Nosed Monkey	<i>P. Zeus Weinstein</i> x <i>P. aurita</i>	P. Cumbleton	2005

### The *Pleione* Website

Remember that you can find a great deal more information about pleiones and hundreds of pictures of them on my *Pleione* Website at:

**[www.pleione.info](http://www.pleione.info)**

## “Bulbils”

**This is our regular feature for YOUR observations, short news items, announcements and general letters. Many of you may not feel able to write a whole article for the Review, but here you could contribute just a sentence, a single observation or a short paragraph. And if you have a bit more to say, you can send a longer letter. Please send all contributions to your editor (see contact details, inside front cover).**

### 1. Corrections/additions regarding *Ponerorchis*

Dear Orchid Enthusiast, in 2003 the Pleione Review published my article about the Japanese dwarf orchid UTYOURAN (*Ponerorchis graminifolia* var. *graminifolia*). In 2004 The RHS Orchid Review published a revised version. Later, after finishing a list of obtainable plants, I found new information on the different flower shapes. One grower named some shapes I hadn't heard of. With the help of an experienced nurserywoman and the recent yearbook on UTYOURAN, I am happy to now be able to complete the list of flower shapes. I would like to apologize for my mistake.

#### Flower Shapes

HYOUJUNKA: as published in the Orchid Review, no change

NIOH: as published in the Orchid Review, no change

RENSETSU: as published in the Orchid Review, no change

#### KAPUTO-ZAKI:

Kaputo is a name of a traditional Japanese head covering, and it refers to the shape of the upper petals of the blossom, which it resembles. The blossoms are roundish and, being 2 to 3 cm in diameter, rather large. The two petals have a similar colour pattern as the lip and therefore are

considered to be “labelloid”, an attribute many *Cattleya* hybrids are famous for.

#### SHISHI-ZAKI

These plants are probably the most spectacular: the petals often surpass by far the size of the lip, spreading like wings. The blossoms, up to 4 cm in “wingspans” are large enough to resemble small humming birds in flight.

#### YAE-ZAKI

This term is used for all double or semi double flowering forms. They are rare, and usually only admired at exhibitions. They are often asymmetric and look “untidy”.

#### KODAKARA-ZAKI

Refers to plants that consistently develop (not just occasionally!) monstrous flowers and flowers heavily deformed by what looks like virus infection. They are usually green. UTYOURAN are considered to be prone to virus infection.

In the winter of 2003, the Rock Department at the RHS Garden Wisley purchased a small collection of UTYOURAN in different flower shapes and colour patterns. They flowered for the first time in the following June. The garden will display them in the Alpine House at Wisley as and when they flower each June/July from 2005.

**Gunther Kleinhans, August 2004**

## **2. Can anyone help with photos?**

I have started a project to try to compile a new talk with a title something like “Orchids for Alpine Growers”. This will concentrate on those species that are grown in gardens or cool greenhouses in the UK, i.e. just the sort of orchids that are of interest to members of the Alpine Garden Society. I will be able to obtain images of those plants that friends and I grow, but there are going to be some obvious gaps. Therefore, can anyone provide me with CD-Rom copies of good quality

digital images of Australian terrestrial orchids, preferably cultivated, except for *Pterostylis*? Such images could include *Corybas*, *Diuris*, *Caladenia*, *Chiloglottis* and *Thelymitra*. Also, are any cool-growing South American terrestrial orchids being cultivated in the UK? The obvious genus in this category is *Chloraea*.

**Terry Smale**, 28 St Leonards Rd, Epsom, Surrey. KT18 5RH.  
Email: terry@smale1.demon.co.uk;

### 3. *Pln maculata* var. ‘alba’

In the previous Pleione Review, Paul Cumbleton asked if anybody knows whether this variety still exist in culture. I don't know anyone who has it, but it was offered by a Dutch nurseryman. Of course I ordered some but they were in very bad condition. I succeeded in saving one growth. On flowering it turned out to be just of the normal type. A fellow who also got one from the same nursery did not get it in flower yet. I hope it is not the same problem that you get by ordering *Pln. albiflora*. All you get is another *Pln. grandiflora*!

**Jan Berg**

*(Editor's note: Many pleiones that arrive from China are incorrectly named. In this case I think there has been a further mistake: I have seen the Chinese suppliers listing "maculata (white flower)". This is intended only to describe the basic flower colour and not to mean that it is an alba form of maculata. But I think some nurseries have misunderstood this and have sold them as "maculata alba", which is of course altogether different. This also highlights the problem that many suppliers import pleiones from China and then sell them on directly to the public before they have flowered the bulbs themselves. This means they have not had a chance to check the validity of the names they come with. Also, imported bulbs often perform poorly in their first season or two until they have settled into cultivation after being ripped from the wild. By selling them straight to you and not growing them on first, the suppliers are ensuring that the buyer is the one taking the risk and not themselves! In all cases it is a case of buyer beware!! – You don't know what you are getting and it may well grow poorly. I suggest when buying any species Pleione, you ask the nursery if they have flowered them, if they have verified the name and how long they have grown them for. If you don't like the answers, don't buy the bulbs. For fun, you could also ask where they got their bulbs from and then observe the look on their face and laugh at their attempts to avoid answering the question or to give a vague answer! Then mention CITES and.....RUN!)*

## Pleiones in Canton

### **Gunther Kleinhans describes recent travels in China, hoping to find *Pleione chunii* and *Pleione microphylla***

The Southern Chinese Province of Canton (Guangdong or Kwangtung, depending on the Chinese dialect) is known to host several species of *Pleione*. These include *P. bulbocodioides*, *P. formosana*, *P. hookeriana* (this record according to a Taiwanese publication, “Pleiones of the World”, 1993, which might have been based on plants formerly known as *P. hookeriana* var. *sinensis* or *P. milanii*), as well as two more obscure entries, *P. chunii* and the recently described *P. microphylla*. The latter two species were the reason for my brief visit to the Cantonese mountains during the second half of April 2005.

The herbarium specimen of *P. microphylla* suggests that late April might be the best time to find this plant in flower, as it is for several other *Pleione* species living in different regions of Asia that I have previously visited (*P. albiflora*, *P. aurita*, *P. bulbocodioides*, *P. x confusa*, *P. coronaria*, *P. forrestii* and *P. yunnanensis*). A similar flowering time should apply to *P. chunii*, maybe a little bit later, but that’s something the original description doesn’t give away. The supposed type specimen was forced into flower during the month of February due to the tropical lowland climate of Guangzhou (Canton City). It had been collected and brought down from the mountains close to the border of Canton’s neighbouring provinces in the North.

My friend Albert Chan of Hong Kong, with whom I was travelling, had tried to grow several *Pleione* species over the years on his home’s rooftop garden. Bulbs of wild collected plants are still being offered at Hong Kong’s Mong Kok flower market. Once the bulbs are exposed to Hong Kong’s tropical heat, they burst into flower, shooting off their leaves, and die shortly afterwards, which I am sure also happened to the original *P. chunii* specimen at the Guangzhou garden.



Photo: P. Cumbleton



*Pleione* Spot-Nosed Monkey (see p. 32)

Photo: P. Cumbleton



*Pleione* Caparro (see p. 33)



Photo: G. Kleinhans

*Pleione formosana* in habitat in Canton, China (see opposite)

To prevent you from wasting your time, dear reader: the trip wasn't a great success. However, there are some things noteworthy.

A few years ago Dr Cribb confirmed that *P. chunii* is what had been in cultivation as “Chinese *P. hookeriana*” (*P. hookeriana* var. *sinensis*), or later *P. milanii*, for some time. There have been doubts, because living plants of these just don't seem to agree with the written type description of *P. chunii*, and so I wanted to see for myself. (*Editor's note: see a previous article on this problem by Gianantonio Torelli, in the 2001 edition of this magazine, p.15*). To get a chance to see the habitat of *P. chunii*, we travelled from Hong Kong northwards to the town of Lechang (aka. Lokchong or Lok Cheung in Cantonese dialect), and from there organized a trip to the mountain range with the greatest altitude within Lokchong county (China is divided into provinces, which themselves consist of larger municipal districts, which again are subdivided into the European equivalent of counties). The name of the range is the “Nine Peak Mountains” (Gau-Fung-Shan), with its highest peak, the “Five Finger Peak” (Ngji-Fung) at around 1500 m. This area, as most of the accessible hills and mountains in Southern China, was once heavily deforested. It now is a nature reserve. It also used to be a mining area where quartz and uranium were extracted. They say that the radioactive matter for China's first atomic bomb originated from this area. At least two native species of *Cymbidium* can still be found here.

Our guide brought us up to an elevation of around 1100 m, which I can't exactly confirm because I didn't bring my GPS. On the way, which was a comfortable walk of gradual ascent, we soon were greeted by some pleiones, growing on mossy rocks or cliffs, always close to where water was dripping down. The species was *P. formosana*, (see picture opposite) at this point in full bloom, forming small colonies. We found no plants on patches of the same cliff, however mossy, where the drizzle of water didn't reach. This, and the fact that there are no mosses and large lichens growing on the surrounding trees, which have re-grown over the years, suggests that the climate is generally too dry (very much unlike *Pleione* habitats in Yunnan) to allow for sizeable epiphytic plants. The *P. formosana* were of little variation, resembling very much its

Taiwanese sisters, who generally flower two month earlier, and which I have seen in huge colonies there. The bulbs of Taiwanese plants were also much larger, which I think is only the case because their habitat is more fertile.

From our 1100 m resting place, where the “Five Finger Peak” was rising in front of us, I started ascending towards it. On my way up through shrubbery and young trees I found some *Epipactis* in bloom, and scatterings of *P. formosana* up to around 1250 m, only where nearby wetness would allow.

*Pleione chunii* is supposed to grow under trees, and I went up as far as I could, trying to reach a sizable pocket of older and large trees, where I hoped to find more pleiones underneath. I got there, at what I guess was around 1350 m, surrounded by fog passing through the trees, forming clouds, but I found no more pleiones. The dense ground vegetation and the thin layer of dry moss on larger rocks wouldn't have supported any of them here. Neither found I any orchids along the now dry beds of little brooks that would pass the water from heavy rains and melting snow into the valley.

After our mountain visit we went to the South China Botanical Gardens' herbarium in Guangzhou, where the original *P. chunii* flowered during February of 1932 (herbarium specimen No. 43047). I took several pictures of the herbarium sheet (see picture opposite). I also took photos from another sheet (see photo p. 44) also ascribed to *P. chunii*, collected at some other Cantonese location in April of 1957 (No. 288771). However, despite both sheets being labelled *P. chunii*, these two sheets show different species: they significantly vary in flower size, lip shape and their callus. It is clearly recognizable that the sheet from 1932 shows what very much resembles the plant formerly known as Chinese *P. hookeriana* (now called *P. chunii*). The only trouble is that the pressed plant displayed on that sheet does not agree well with the original written description of the type of *P. chunii*; so something must have gone wrong.

Photo: G. Kleinjans



The herbarium sheet of the type specimen of *Pleione chunii*

Photo: G. Kleinbans

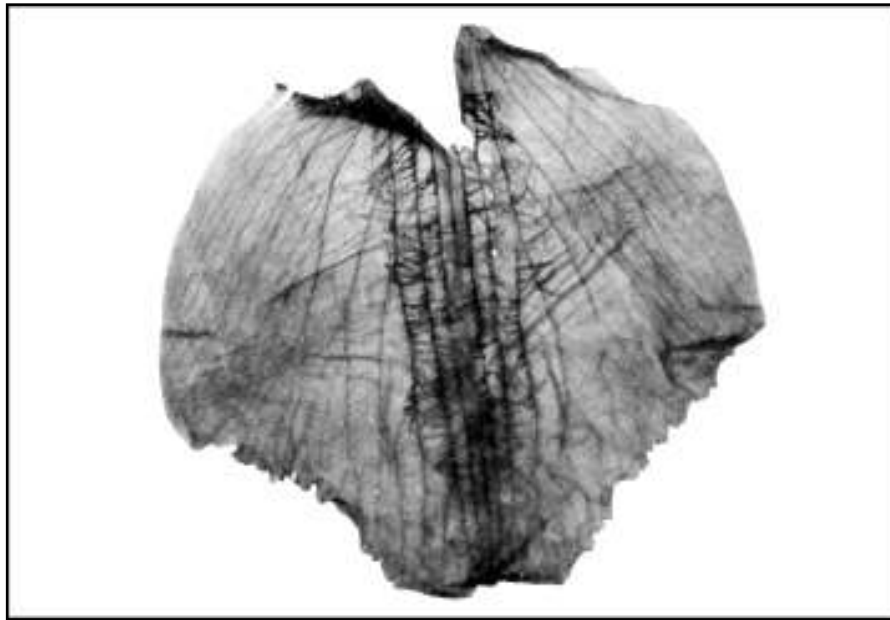


Herbarium specimen no. 288771, labelled *P. chunii* but which is different from the type specimen (no. 43047).

The blossom in the written description is said to have a diameter of 9 cm – but this is 25 % larger than the actual pressed flower. The other dimensions given for the flower are similarly larger in the written description than are those of the actual pressed specimen. The flower colour is stated as rose-purple, which seems to be quite dark for the plant as we know it. The lip is described as having a fimbriated (frilly) edge, a white disk (an area on the lower, wide part of the lip) with a yellow stripe on it, and spots that are darker than the rose-purple base colour. The callus is described as consisting of six fimbriate lamellae.

Contrary to that, the pressed plant's lip (No. 43047) has hardly any area around the outer edge of the lip that looks fimbriate, and I never actually saw a *Pleione* that has a pure white blotch on the lip (the “disc”) with a considerably darker colour around it. However, the callus of the pressed plant has 6 rows of hair-like lamellae (see picture below), which could be said to agree with the written description of six fimbriate lamellae.

Photo: G. Kleinbans



Close-up of the lip of the type specimen of *P. chunii*. The greatest width measures 3.8cm, not 5.5cm as stated in the type description.

The type plant was collected by N. K. Chun, described by Tso, and named after his teacher, Professor W. Y. Chun, a former director of the institute, which is today's botanical garden and herbarium. Maybe Mr Tso wasn't very experienced with pleiones or describing plants. Or maybe No. 43047, the supposed type specimen, is not the plant he based his description on. There is another number on the very top of that sheet, No. 22291; I still have to find out what that means.

There are further notes written on the two *P. chunii* herbarium specimens, which I will get translated, hoping to find more precise locations of where both plants were collected. Then, another visit will be planned, because it really is fun to search and find pleiones in the wild.

S.C. Chen and Z. H. Tsi described *Pleione microphylla* in 2000 from a dry specimen found in the herbarium of Harvard University in the United States. The plant was collected by F. P. Metcalf at the 25th of April 1936 in the Luofu-Shan (Law-Fau-Shan in Cantonese), a small and somewhat isolated mountain range only about 100 km North of the Hong Kong territory, and far away from any Northern Cantonese *Pleione* habitat. It is easily accessible via highway eastwards from the city of Guangzhou in less than two hours. Due to heavy industrialization, the Southern part of Canton province boasts today an infrastructure similar to places like Western Europe, and it is no trouble at all to get around rapidly.

I was shocked when Dian Xiang Zhang, the curator of the herbarium at the South China Botanical Gardens, told us that the whole Luofu mountain range was made completely bare some twenty years ago due to heavy deforestation. Since the area hosts one of the most important temples in China, I had hoped that its surrounding vegetation would have been holy enough not to have been chopped down. However, we still wanted to give it a try.

We asked Xiang Ying Wen, a senior engineer at the herbarium, to guide us. He has been in the Luofu-Shan several times before, but never found any *Pleione* there. Shortly before our visit we called Professor Chen,



who originally described the species, for advice on its habitat, which would resemble the one of *P. formosana* we found in the North with plants growing on mossy rocks and cliffs on moist or wet spots.

To get a good overview of the whole altitude range and its changing vegetation, we decided to climb Luofu-Shans highest peak, the Fei-Wan-Fung (translated as “Flying Cloud Peak”) with an altitude of around 1100 m rising out of flat land. Today the area’s nature is protected, a lot of the forest has re-grown, and many Chinese tourists now visit for sightseeing, relaxation and worship.

There were stone steps almost all the way up to the peak. At hardly any time there was a stretch we could walk on without steep climbing, and I don’t ever want to go there again. It was not nice at all, the path littered with garbage and few interesting plants to see. No landscape views either, because “Flying Cloud Peak” has its name for a good reason!

At some point we reached “*Pleione* country”: that’s where the air is saturated with moisture and holds a distinct chill, but no pleiones were to be found there. Mr Wen remarked that no snow falls here during the winter, unlike in the Northern Cantonese mountains.

We found a large colony of terrestrial orchids at the peak, and very few other orchids on the way up or down, while straying away from our path. These bulbous plants were lithophytic, since, as in the North, there are no mosses or substantial lichens to allow them to grow on the trees. Our best shot was to strip-search cushions of moss on large rocks that lay close to a mountain brook, but those lay in deepest shade. Then we left, without finding a trace of the plant we were looking for.

I would like to encourage other *Pleione* lovers to try their luck, hiking the surrounding hills and peaks, but not to waste their time on “Flying Cloud Peak”, since neither Mr Wen nor I believe that one will get lucky there. I think *P. microphylla* might be found in places not easily accessible, with more light, at medium or higher altitude close to small waterfalls, hoping that such locations actually exist.

With *P. microphylla* we would have expected a species that belongs to the *bulbocodioides* complex: The bulbs would resemble the slim miniature bulbs of the flowering *P. formosana* we found in the North. We would have expected plants with very small and delicate flowers in pure white or white with tinges of pink, with a nice blotch of yellow on the lip, and an unusual callus of 2 or maybe 4 entire lamellae, interrupted halfway along their length. Also, unlike the Cantonese *P. formosana*, we would have expected a *Pleione* with its tiny leaves fully developed at flowering time. I hope it is still growing there somewhere.

## This Year 's Contributors

**Jan Berg** has grown *Pleione* in the Netherlands for over 40 years. He enjoys hybridising and has so far registered 4 of his crosses with the Royal Horticultural Society's International Orchid Registration scheme.

**Ian Butterfield** is a British nurseryman who has specialised in growing and hybridising pleiones for many years. He is co-author of the book "The Genus *Pleione*", holds the National Collection of Pleiones and has won many Gold Medals for his displays at the Royal Horticultural Society's shows. He has over one hundred registered hybrids to his credit.

**Paul Cumbleton** - your editor on the *Pleione* Review for the past five years. I grow *Pleione* species and hybrids and also breed my own hybrids, the first of which were registered this year. I have the good fortune of working at the Royal Horticultural Society's garden at Wisley in Surrey, responsible for the Rock Garden and Alpine Display Houses.

**Charles Ellwood** is an amateur grower who fell for *Pleione* at a mixed plant show a decade ago when he first met flowering *P. forrestii*. He decided to try to build up a collection of the available species, ignoring the hybrids. Then he visited Ian Butterfield's National Collection in spring and now grows a range of both species and hybrids.

**Gunther Kleinhans**, as a child, admired a picture of blooming *Pleione formosana* in a German gardening catalogue. Later, as a teenager, he bought a bulb for around one pound. It never flowered, but he has been in love with pleiones ever since.

**Terry Smale** is well known for his expertise in South African geophytes and succulents. *Pleione* are a recent and growing interest.

**Thanks to all for your contributions!**

<b>Back Cover:</b> <i>Serapias orientalis</i> - see page 26
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