



*Central Vancouver Island Orchid Society
Newsletter*

September 2014

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Meetings are held September through June on a Saturday at the Harewood Activity Centre, 195 Fourth Street, Nanaimo, in the hall on the second floor, doors open at 11:30, with the business meeting starting at 12:00 noon.

Masdevallia Rockstar. Grown by Bryan Photo by Judith Higham

Coming Meeting Dates: Sept. 20, Oct. 25, Nov. 22, Dec. 6.

Program for for September 20th

Orchid Species Preservation Foundation

With David Nixon

David will be letting us know all about the OSPF and its collection of orchids that are housed at the Muttart Conservatory

Coming Events:

Fraser Valley Show and Sale October 16-19, 2014

Editorial: Well everyone, this is the start of my term as newsletter editor. We shall see if you keep me around as long as you did Mike. It is rather hard stepping in after someone whom held the job for 20 years, his are some mighty big shoes to fill! I hope you will be patient with me as I get this editor thing figured out. Please let me know if there are any specific things you want to see in the newsletter.

We have some exciting things happening this year, Alexey will be organizing a “Members Tip of the Month” where a member will present a helpful hint at the meeting. We will also have an “Orchid Doctor” available before the meetings to answer questions you may have about your plants. If you are bringing in plants that do not seem to be doing well, we ask that you wrap them up to prevent spreading things to show and sales plants.

Our first show of the year is fast approaching! Please start grooming your plants for the FVOS show Oct 16-18 Mike will be taking our display over. Details on drop off points to follow.

Tip of the Month

Beginning from this meeting we are going to introduce mini-culture-sessions. Each meeting these sessions will last for approximately 15 minutes under general name "**Tip of the Month.**" It is important that members of our society to share their valuable personal practice and observations. For the beginners these sessions can be a first had source of information on how to grow orchids. For experienced growers ... well, it is never late to go back to basics!

This month

If you have mounted orchids in your collection, are you satisfied with results? If all orchids in your collection are potted, would you like to mount at least one of them? What are the limitations for this growing technique? This month Alexey Tretyakov will present "A Few Reasons to Keep Orchid Mounted".

Plant Doctor

Do you have a plant which does not look well? Do you feel uneasy to talk publicly about its conditions? We have not only **Tip of the Month** but another new feature for you -**Plant Doctor**. Bring your plant in question for one-on-one consultation. Bryan Emery will be our Plant Doctor for September, and will help you to solve the issue. **Plant Doctor** works "on demand" during coffee break. So far, the intend is to conduct Plant Doctor sessions bimonthly. Use your chance - bring unhappy orchids now!



Results from the Richmond Judging Centre (July)

Phalaenopsis bellina
'Chen' AM/AOS 87pts
(20142896)

Exhibitor: Pat van Adrichem
Photographer Judith Higham

CVIOS General Meeting - June 21, 2014

Shelley called the meeting to order at 12:00 noon.

Dora moved acceptance of the minutes of our May 24 meeting, Sandra seconded the motion and motion carried.

Correspondence this month included the June AOS Bulletin and a Botanus plant catalogue.

Treasurer's report: In Joann's absence Shelley gave us the balances for the AOS account, Harry's memorial fund and the General account. Shelley moved acceptance of her report and Mike seconded.

Shelley encouraged members to participate in the 'Bag Draw' of edibles on our break today.

She also indicated that Alexey suggested that members might like to share a growing tip or other information about orchids at each meeting. Members agreed this would add to our meetings and Alexey agreed to organize this for each meeting.

Picnic: This summer's picnic will be at Alexey's home, close to Qualicum. Mike will follow up with details and directions.

Membership: Vivian indicated that the answer of our question last month (Which pests are members most successful at adding to their orchid collection?) was scale and slugs.

Dora asked members to complete a membership form and send it along with their fee for next year to her over the summer if possible. Her address is 1212 Waddington Rd, Nanaimo V9S 4V5.

Shelley showed off our new sign for shows, designed and produced by Ray. Thanks to Ray for his efforts.

Sandra passed the sign up sheet for refreshments around and for September the following people agreed to bring goodies: SUZANNE, JULIA, GERRY and VICKIE. Thank you to Shirley, Maureen, Donna and Maxine for bringing goodies today.

Our meeting was adjourned at 12:15, followed by the AGM and election of officers for 2014/15.

Results from the Richmond Judging Centre (August)

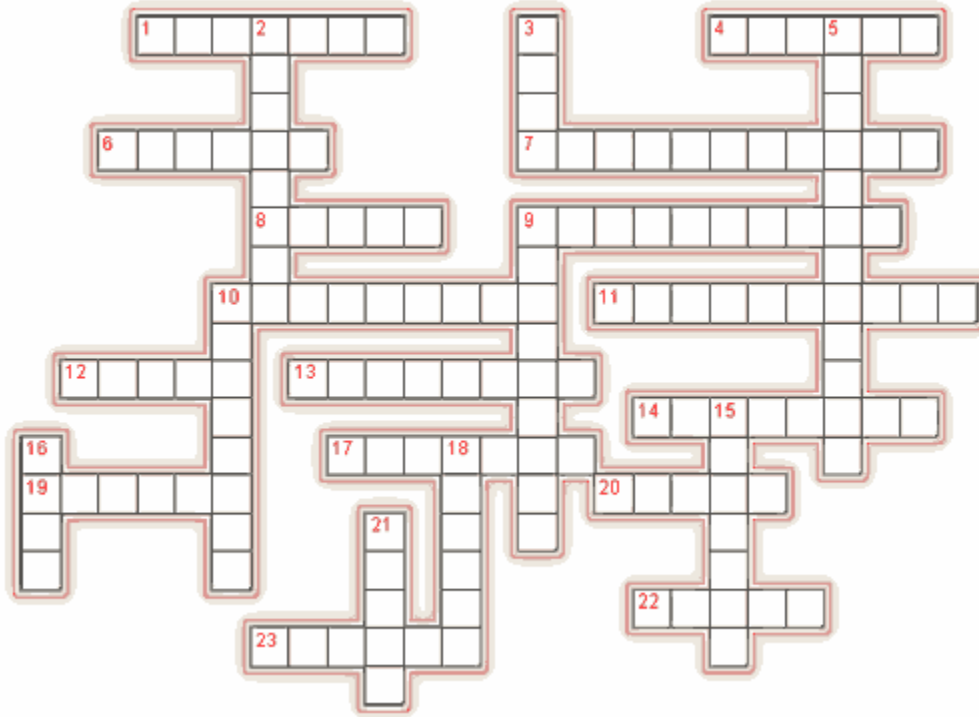


Paph Delrosi 'Nelly'
AM/AOS 80pts

Exhibitor Catherine
Frutiger

Photographer Judith
Higham

Pot 'til You Drop



ACROSS

1. an organic media
4. seedlings from flask are usually planted in a --
6. container often used for vandas
7. place oldest ones against edge of pot
8. mealy bugs, scale, aphids
9. all cutting blades must be --
10. often used for good drainage
11. old organic media does this
12. a sterilizing tool
13. a technique of propagation
14. removing dried sheaths
17. orchid pots are usually clay or --
19. a lack of this causes root rot
20. identifies plant
22. the production of new --- is a good time to repot
23. they give support to tall plants

DOWN

2. to use too small a container
3. holds rhizome in place
5. a monopodial orchid
9. Cattleya is this type of orchid
10. often used media for Phals
15. to use too big a container
16. an inorganic potting media
18. pieces of broken clay pot
21. a plantlet

Answers will appear in next months newsletter. Crossword courtesy of the American Orchid Society

The Living Orchid Collection

Ex situ (*Latin*) means out of place. Whenever we grow orchid species out of their normal growing habitat we are growing them ex situ.

In situ orchid conservation and habitat preservation are the first line of defense for safeguarding orchid species for the future. A strong conservation effort would result if orchid growers would pledge not to buy newly discovered orchids like *Phragmipedium kovachii* until after the orchid and its habitat have been safeguarded in situ. Given the realities of our world, ex situ orchid conservation is important. Orchids and their habitats continue to be destroyed by logging, farming, collection and climate change. Ex situ conservation can start by just growing your species orchids well. The next step is to propagate them from division and seed, and then distribute them to other growers. Our current ex situ conservation efforts are unorganized and without clear direction. This could lead to problems for species ex situ. One of the problems is preserving genetic diversity of a species. Another is knowing how many individual plants of a given orchid species are ex situ.

For a long time *Paphiopedilum delenatii* was considered extinct in the wild. All *Paph. delenatii* from 1910 to 1991 were bred from a few plants found in the 1910's and 20's. This led to line breeding for about 60 years resulting in little genetic diversity and growth vigor. In 1991, new populations of *Paph. delenatii* were found. This increased the genetic pool of *Paph. delenatii* giving greater diversity and vigor to the *Paph. delenatii* ex situ. Preserving genetic diversity of a species is important for ex situ orchid conservation. A large group of individual plants of a particular species are necessary to preserve a species well ex situ. Species with few individuals have to be carefully crossbred to increase the health of species ex situ. Ex situ conservation must encompass a wide range of flower and other plant characteristics of a particular species and not be limited to award winning quality. Award winning flower quality is based on human perception and not on the natural pollinator's perception.

Zoos have cooperative systematic breeding programs for mammal species in their care to maintain healthy populations and genetic diversity. We should do that with orchid species. The Living Orchid Collection (LOC) is a beginning strategy for an organized, ex situ orchid conservation program in which everyone who grows a species orchid can participate. LOC is a collective, living orchid collection entered into a web database. Grouping orchid collections together as a virtual single collection will be a stronger ex situ conservation effort than separate individual collections. A grower enters their species orchids into the database. Each grower will continue to own, grow and have all rights over their orchid. A LOC identification allows growers to remain anonymous unless they want their identity to be known. LOC could be used for producing pollen, seed, propagation for genetic diversity, research, replanting in natural habitats, and taking pressure off wild collecting. Researchers and ex situ conservation efforts can use the database and then contact the grower by e-mail. The grower can decide if they want to take part in a particular ex situ conservation effort.

Orchid societies are encouraged to enter as a group. This would allow society members that grow only a few species to participate more effectively ex situ conservation. A society would essentially have their own Living Orchid Collection. For more information on the Living Orchid Collection:

<http://www.livingorchidcollection.org>

Mark Sullivan is the administrator of the Orchid Conservation Coalition

OK I know this is a bit of a large article but it has some interesting info for scientists and novice growers alike!

Phylogeny of *Angraecum* in Madagascar

by Tahiana Andriananjanantsoa,

transcribed by Inge Poot from notes supplied by Terry Kennedy and Jean Ikeson

This talk was in the nature of a progress report on Tahiana's thesis undertaken at the University of Montreal and partially funded by SOOS via the SOOS Conservation Committee.

Madagascar is an island 249 miles off the S-E coast of Africa and it has the distinction of being the fourth largest island in the world, with an area of 228,900 square miles. The prehistoric breakup of the supercontinent Gondwana separated the Madagascar-Antarctica-India landmass from the Africa-South America landmass around 135 million years ago. Madagascar later split from India about 88 million years ago, allowing plants and animals on the island to evolve in complete isolation. The people inhabiting the island originally came from Indonesia, Malaysia and Africa. The country counts about 20 million people, 70% of them live on 1 dollar a day, and have a gross domestic product of 438 USD (in 2009).

Sources of income are mainly tourism, agriculture (using ancestral methods and practices, such as slash and burn agriculture, pasturage, etc), and mining. The resources are mismanaged and transparency and good governance are lacking in politics. Biodiversity is rich for both plants and animals. Talking about biodiversity, Madagascar is known for its rich and unique biodiversity and is considered one of the 34 biodiversity hotspots in the world. It has 14,883 vascular plants, of which the most common are in the genus *Pachypodium* in the family *Didieraceae*. There are over 300 species of birds and 60% of them are endemic (this means that they do not occur elsewhere). Madagascar is home to about half the world's 150 species of chameleon. The example shown was the miniature species *Brookesia micra* a specimen of which looked a bit scared but perched comfortably on the business end of a matchstick! All 651 species of terrestrial snails are endemic. Over 100 species of fish are found around the island. Over 100 species of Lemurs call Madagascar "home". Here our speaker showed an adorable tiny species *Microcoebus bertae* which looked like a tiny brown bushytailed squirrel with huge black eyes. To then see dried lemur meat for sale is quite shocking.

Madagascar is really rich in natural resources. In 2015 the country is expecting to produce 750,000 to 2 million tonnes of ilmenite a year (ilmenite is a magnetic titanium-iron oxide mineral), that's 42% of the world production. Canadian companies are the first in terms of direct investment in mining in the country (Rio Tinto in ilmenite and Sherritt in nickel and cobalt). Sapphire is another ore - mined in open pits.

Slash and burn agriculture (tavy) and wild fire (used as a form of protest!) constitute a scourge in Madagascar, responsible for approximately 494,210 acres natural habitat loss every year. Species are being driven to extinction and many are under threat. On top of this, mining and illegal cutting aggravate the situation. As a result, over 80% of the natural habitats are gone, the remaining forest is fragmented and the wild population is endangered. Only 10% of the forest is still continuous and that is a strip all along the east coast. In 2009, more than 50,000 tons of tropical hardwoods were taken from Madagascar's forests and more than \$200 million of questionable money passed hands such as the selling of scarce woods such as rosewood on the black market, while the people of the country received a paltry sum (Randriamalala et al., 2010).

Orchidaceae is the second largest family of vascular plants in Madagascar, with approximately 57 genera and more than 1,200 species. 90% of which are endemic. When compared to Costa Rica with its approximately 150 genera and about 1500 species this is quite impressive. An attempt was made in Ranomafana, NP, on the S-E part of Madagascar, to re-introduce artificially propagated species to the wild.

360 seedlings were reintroduced in 2005. About 30% survived so far. Unfortunately the program was abandoned in 2007, when they lost the services of their guide. The project under way now involves field sampling various, usually inaccessible spots. There were 10 locations sampled in 2007 and 5 more are planned for 2012. GPS was used to fix the exact positions. Local guides had to be used since the terrain was difficult and the weather worse! Cyclones are not a rarity!. So far about 600 samples have been taken, each recorded for posterity with a photograph and its GPS location.

The genus belongs in the sub-tribe *Angraecinae*, which in turn is included in the *Vandeeae* tribe located in the *Epidendroideae* sub-family. The genus contains over 200 species, of which over 150 are found in Madagascar. Of the 46 African species six are found in Madagascar as well. The *Vandeeae* tribe contains 4 sub-tribes and of these the sub-tribe *Angraecinae* (with 15 genera of 360 species) together with the sub-tribe *Aerangidinae* (32 genera containing 330 species) are referred to as the Angraecoids.

You can tell the two sub-tribes of the Angraecoids apart by the structure of the rostellum (the structure that separates the pollinia from the stigmatic surface) and by the structure of the pollinia. *Angraecinae* rostellums are pairs of large flaps, while those of *Aerangidinae* are just one or two skinny teeth. *Angraecinae* pollinia have short stipes and generally large sticky pads at the end of the stipes (or stems), while *Aerangidinae* pollinia have long stipes and generally smaller sticky pads (called viscidiums). DNA analysis and the resulting “Cladograms” using two spots on the DNA of the energy carrying organelle showed that the *Angraecinae* sub-tribe is actually in two fairly strongly separated sections with the subtribe *Aerangidinae* placed right between the two sections. Therefore the sub-tribes are not a natural division.

The genus *Angraecum* is monopodial in growth habit (that is it grows upwards, not sideways like a Cymbidium or Cattleya would. The species vary greatly in size, going from the 3cm *A. urschimum* to the about 100cm *A. longicalcor*. Like most orchids the inflorescence is a raceme, which means that there is no stem for the individual blossoms on the inflorescence just an elongated ovary. The flower colour is usually white, but can also be green, yellow or ochre. The flowers are spurred with the spur varying from one to 300mm in length for the different species. The number of chromosomes found in the plants is usually 19 pairs, but 21, 23, 24 and 25 also occur. The plants are usually epiphytic (grow on trees), but some are lithophytic (grow on rocks). They are found in tropical climates at elevations from 0 to 2000 meters. The genus usually uses Moths as pollinators (eg *A. sesquipedale* is pollinated by the famous *Xanthopan morgani praedicta*) but some species are bird pollinated such as *A. bracteosum* which is pollinated by the wren-like *Zosteror barbonicus*. There is even a species pollinated by crickets: *A. cadetii* by the cricket *Glomeramus orchidophilus*. The expectation is that other pollinators will be found with further study. The speaker is not the first person to study the phylogeny (evolutionary ancestry) of the genus *Angraecum*, but previous authors more or less ignored the *Angraecums* found in Madagascar other than study them enough to realize they do not all have the same ancestor (Micheneau, 2008). In scientific “speak” this means they are not “monophyletic” For instance in 2003 Carlswald and co-workers studied three African species using a gene known as “ITS”. It is located on a plastid found in the cytoplasm of the plant, not on the chromosomes in the nucleus. Studying changes in this gene does not allow resolution down to species level. The 2008 genetic study of Micheneau and co-workers involved 30 Mascarene species using plastid genes known as “matK”, “tmL-F” and “rps16” which all allow the investigator to discern if two plants belong to the same genus, but again it does not help in deciding if they belong to the same species. So Garay’s work in 1973 using characters such as flower, ovary and leaf structure to set up a classification turned out to not reflect actual relatedness. By now you are probably wondering how on earth these relationships can be discerned from the DNA – especially since all earlier work was done on one or two sites found on plastid DNA, not nuclear DNA. Scientists found sections of chromosome that are apparently not involved in essential, not to be altered functions. Any mutations occurring at these sites do not affect/kill the organism and will therefore be carried forward in future generations. Since mutations occur at a fairly steady rate if two plants have the same mutations, then they must be closely related. By counting the mutations and deciding if they are different or the same as those in another plant, an estimate

can be made of how long ago their ancestors became reproductively isolated from each other. These degrees of relatedness are what these “cladograms” show, that are flashed onto screens so often in much too tiny a print size to read....

Anyway the cladogram we saw showed that the bulk of angraecums together with the genus *Bonniera* is more closely related to *Jumellia* and *Aeranthes* than to the African angraecums. The latter are again not all closely related, but fall into two groups, one more closely related to *Dendrophylax* and *Campylocentrum* than to the other African group of angraecums, which in turn is closely related to the *Aerangidinae*. So there are three groups that have yielded plants that we would call angraecums, but they obviously had separate origins and were shaped by their gradual adaptations to similar pollinators. The *Aeridinae* are separated from even the two groups of African angraecums by the genera *Cryptopus*, *Oeonia* and *Beclardia*.

By co-operating with other researchers and trying to use more genes and especially genes from nuclear DNA in his analysis, a new picture is emerging that is different from that of other researchers. There is going to be a lot of combining and dividing of genera, especially in view of the situation with the African angraecums. If they are to remain angraecums, then a lot of other genera have to become angraecums too!

There is a theory that should be examined that postulates that the genus *Angraecum* originated in Malagasy. Based on work at seven sites in Madagascar, all species from Eastern Madagascar are at high elevation and have the same habitat. It shows that most orchids have a narrow range of habitat requirements. Those found on the Western side of Madagascar are the exceptions, since they use different habitats. This separates them geographically from the high elevation species and thus provides a genetic barrier that should result in genetic isolation and a resulting diversification of species. The speaker is using many genes : – matK, rbcL, ycf1, rps16 – ITS, ETS – Nuclear from about 250 samples of plants to test relatedness. In this he is collaborating with Claire Micheneau and Tariq Stévant who are working on sequencing genes of African species.

Preliminary findings

- African species, are “nested” with *Aerangis*, *Angraecopsis*,
- Malgasy species, with *Jumellea*, *Aeranthes*, *Beclardia*, *Cryptopus*.

Conservation:

85% of the former habitat of Madagascar’s orchids is gone as a result of the slash and burn way of farming, where a new plot is cut and burned over for farming every year. The disjointed pieces of original jungle that are left need to be connected to allow cross-pollination/ flow of genes. So conservation groups have been planting trees as corridors. They cannot use desirable lumber trees for the corridor proper because they will be cut again!. So they have tried to plant fruit trees. Lumber trees such as *Dalburgia* (Rosewood and Palissandre), *Diospyros* (Ebony), etc... are planted to stop cutting them out of the wild forest. Permanent Forest: trees such as *Canarium*, *Ocotea*, *Nephelium*, *Dalburgia*, *Diospyros*, etc...are planted as well. The school-children are given lessons in reforestation techniques because they will be the agents of change for the better. The 25,000 trees planted so far were placed with the really active help of locals and students. One such corridor is the seven kilometer corridor between Kianjavato Ahmanson Field Station(KAFS) and Vatovavy.

Progress:

In 2010 : 3,581 trees were planted

In 2011 : 15,000 trees and this season so far : 18,000 trees have been planted

Efforts are being made to teach locals another way of farming to replace the slash and burn method.

There is no more work being done on micropropagation, because of lack of qualified staff, but some

re-introduction to former habitats and removal from mining sites to other areas where the species is found is being done by mining companies in co-operation with the government. When they are re-introduced into areas where they used to be originally, their pollinators are still present and result in quick reproduction by naturally set seed. Another problem hampering conservation efforts is the lack of official ownership of land. There are just verbal claims. By planting trees it is hoped that this defines borders that will be respected. Even though many foreign organizations have funded conservation efforts, the success is hampered by local cultural attitudes.

Angraecum leonis 'Jenny's Moonbeam' CCM-AOS
photo from
Aqplus



Angraecum sesquipedale 'Dr Nicholas C Katz'
AM CCM/AOS

This plant is a stunning example of what Angraecums are capable of. This plant is four feet tall!

Central Vancouver Island Orchid Society

Membership Form 2014 -2015

Society mailing Address: P.O. Box 1061, Nanaimo, B.C., V9R 5Z2

web site: www.cvios.com

Household membership \$25.00 per year (Sept.-Aug.) _____

Meetings are held September through June on the Saturday near the middle of the month at the Harewood Activity Centre, 195 Fourth Street, Nanaimo, in the hall on the second floor, doors open at 11:30, with the business meeting starting at 12:00 noon.

Contact: Dora Glover Membership Chairperson (250) 754-9634 - Date _____

.....
Name(s) for membership card(s) _____

Mailing Address _____

Postal Code _____

Phone number _____

Email address for newsletter _____

Where I grow my orchids ___ Windowsill CHECK ONE OR MORE

___ Under Lights

___ Greenhouse

___ Other _____

I have (circle one) (0 - 10), (11 -20), (20 -35), (36 - 50), (50 -100), (100+) orchid plants

I hereby give permission to have my name address, phone number and email address included in the published membership list that will be distributed to members only.

I (GIVE) (DO NOT GIVE) permission for publication. (**CROSS OUT ONE PLEASE**)

Date _____

Signed _____

Please note if this section is not filled in we cannot list you as a member in the membership list.