Central Vancouver Island Orchid Society Newsletter
February 2010

Miltassia Minbrach 'Adele' AM/AOS 80pts (*Miltonia* Minas Gerais x *Brassia brachiata*)
Exhibitor: Poul Hansen, Photo by Judith Higham, helping us with the AOS awards photos
Awarded at the January 2010 judging

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Meetings are held September through June on the Saturday before the 4th Wednesday of each 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.

Program for February 20th

Getting Plants Ready for a Show

With Bryan Emery

Coming Events:

Victoria Orchid Society, March 6-7th 2010, Student Union Building U of Vic.
CVIOS 50/50 Auction March 20, 2010
CVIOS Orchid Show and Sale, April 16-18th Country Club Center, Nanaimo

Coming Meeting Dates:

Feb 20, Mar 20, April 24th, May 22, June 19, 2010

Editorial:

Well we are off to a new start and 2010. There is more to this year than the Olympics in my life namely orchids and fun with you guys. I hope you all had a great holiday season and if you made resolutions you made ones you can keep.

The article on *Spiranthes romanzoffiana* has some CVIOS connection so I thought that even though a little scientific I would share it here. Marylin Light asked our society for plant tissue for DNA work years ago and Jerry and I sent her samples. Yes, the is a local orchid and yes you can see it in many places.

We managed over $900 in Japanese plants in the big order. They will be at the February meeting for pick up so if you ordered please be there. I of course fell the hardest, but when faced with orchid plants for the garden I just tried a little to hold back and they won. I look forward to some new flowers in my garden this spring.

Do prepare for the Auction in March. Remember the items should be of reasonable value and you get 50% of what they sell for. You can donate some items to the society so we get 100% of the sale price if you wish. As we will not have the postponed Christmas party at the same time we will have tables to spread everything out more and this one will be more organized. Promise!

Cheers Mike

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CVIOS Meeting Minutes
January 23, 2010

The meeting was called to order at 12:00 noon, with 43 members present. There were no guests or new members.

1. Approval of November 20 minutes as published: Dora Glover moved, Bev Morrison 2nd; carried

2. Treasurer's Report: Treasurer Shelley Rattink reported account balances for the General Account, AOS Account, Plant Sales and Special Project (Harry's Memorial Fund) Accounts for November and December. Shelley moved acceptance of her November report, Bev Morrison 2nd. She then moved acceptance of December's report and Anne Hartman 2nd.

3. Correspondence: President Bryan Emery, indicated that the 'Orchid Review' and AOS Magazine had arrived since our last meeting and are in our library. He also pointed out that $1.00 off coupons for Victoria's early March show were available on the front table.

4. New Business:

***** At the executive meeting prior to the general meeting, executive members brought forward a motion to nominate Conrad Thomas as a 'Life Member' of CVIOS. Conrad is a founding member of our society and has generously contributed his time and energy as well as sharing his knowledge and

experience with members over many years. Dora Glover 2nd the executive motion and it was carried unanimously.
* The Executive also decided at their meeting to purchase large quantities of Bark Mix and other supplies for orchid culture and have it available at meetings and shows for sale. Sue Christison will purchase and store materials on our behalf.
* Membership cards were available for those who have paid their memberships. These cards allow members to receive discounts at most Horticultural merchants.
* There was a large number and variety of plants and orchid supplies available on our sales table(s).
* Executive members convinced Mike to offer a couple of supplemental newsletters each year to include large articles related to orchid culture that would not fit in our monthly newsletter. All members felt this was a good idea.
* Mike reported that 'Japanese plants' would be arriving late in February.
* Mary asked us to check our bookshelves at home for CVIOS library books, as many still seem to be missing.
* Harry's Memorial Fund will be used to purchase five books on growing orchids from Ecuador and for a Lap Top Computer to facilitate video presentations.
* Dora asked if anyone from our group was planning to go to Victoria to hear Howard Ginsburg's presentation at their meeting in March. She asked if anyone was interested in car pooling to contact her.
* Refreshments: Sandra asked for extra people to bring goodies to our March meeting as extra people are being invited to our auction. Thank you to Bob Iddon, Nancy & Don Miklic, Shelley Rattink, and Anne & Rainer Hartmann for bringing snacks today. In February the following people agreed to bring goodies: - Linda Regnier, Don McDermid, Vickie Gay and Dora Glover.
* March Auction: There will be no formal meeting, aside from updates regarding our show plans. Coffee and Goodies will be available. We will invite Victoria Orchid Society members, Horticultural Clubs and Friends to come. Set Up will start at 10:00 am., with items arriving from 10:15 - 11:00; viewing from 11:00 noon, when the auction will begin. Proceeds can be shared 50/50 with donor or donated entirely to the society.
* Maureen offered to take plants to Victoria for the Judging session at the Richmond Centre in February (Saturday, February 13). She would be taking plants down the morning of Friday, February 12. Please give her a call or send her an email if you have any plants to go for judging.

The meeting adjourned at 12:25 for our break, followed by a tour of our fabulous show tables and Mike's informative presentation on "Roots"
Thank you to Don and Angkana for taking pictures of all of our beautiful plants

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Looking for Irish Ladies on Scottish Islands:

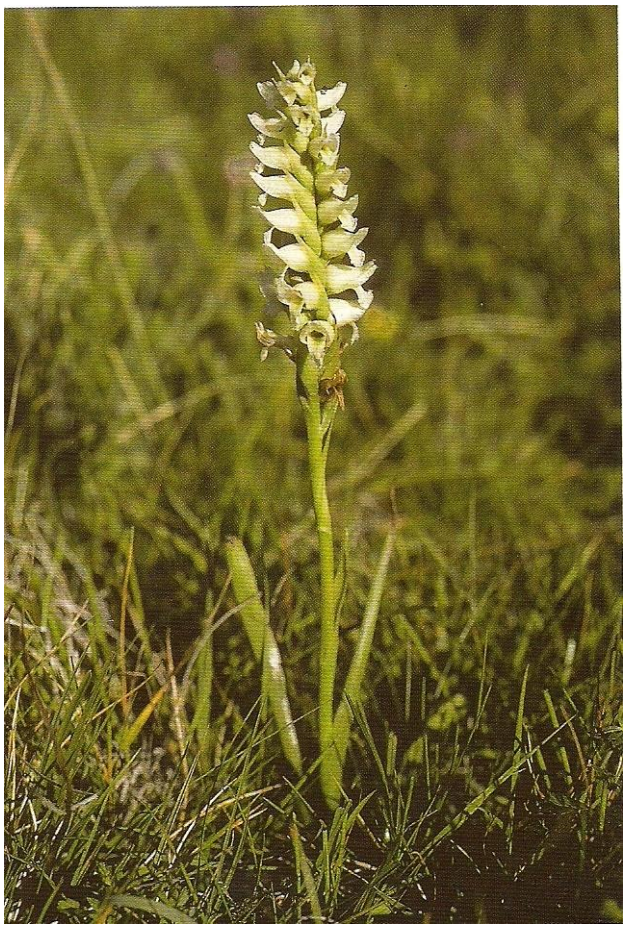
aspects of the conservation biology of Irish Ladies' Tresses orchid *Spiranthes romanzoffiana*

Richard and Mavis Gulliver discuss the work they have carried out over the past few years, studying the ecology of a rare British orchid

When we found an unusual orchid on the remote Hebridean island of Colonsay in 1991 we had no idea that within a year we would be living on the island, or that the plant would play an important part in our future lives. Half hidden in a clump of rushes on a grassy tussock in a

small lochan, the flowering spike had miraculously escaped grazing by the surrounding sheep and cattle. The creamy white flowers, set in three ranks which spiralled around the yellowy green stem, confirmed that we had found *Spiranthes romanzoffiana*, Irish Ladies' tresses.

It was interesting to learn that, in 1930, Lady Strathcona had produced a detailed watercolour of a specimen of Irish ladies' tresses growing on Colonsay. This was sent, along with the specimen, to the British Museum of Natural History in London. The specimen did not travel well but the painting allowed the plant to be identified immediately as *Spiranthes romanzoffiana.* Up to that point, this species was only known from the south and north of Ireland.



Spiranthes romanzoffiana growing wild in the Hebrides

An inflorescence of *Spiranthes romanzoffiana with 19 flowers*

Lady Strathcona arranged for the site of the plant to be protected from cattle grazing by a fence and about 10 plants flowered in 1931. However, it is believed that the plant was not observed again at this location. Hence, even at this early stage, two key elements in the ecology and natural history of the orchid became evident - its relationship to grazing and its unpredictable flowering pattern. These features have become increasingly evident during the 12 years in which we have studied the species

Plant structure and reproduction

At the base of the flowering stem of most individuals can be found a small green bud, known as a lateral bud. This grows slowly throughout the autumn and winter months before

typically developing into a group of three to five leaves. These are yellowish-green with a hooded tip and have a characteristically rubbery feel. They lack the sharply defined central midrib on their undersides, which is evident in the heath spotted orchid, *Dactylorhiza maculata* subsp, *ericetorum*, probably the commonest orchid associate of *Spiranthes romanzoffiana*.

In common with other species of British orchids, the leaves appear to have no defenses against either invertebrate or vertebrate grazers and are commonly truncated by sheep, cattle, rabbits and slugs. Slug grazing can also occur on the sides of the leaves. One mystery is the occasional discovery of leaf fragments, cut through horizontally at both the proximal and distal ends. The causal agent of this phenomenon is currently unknown to the authors.

Some plants remain in a vegetative state while others produce a single flowering spike. Our observations have shown a much greater variation in flower numbers per spike compared with that reported in the standard texts. In the same year we have seen diminutive plants with only five flowers and a most impressive specimen with a total of 40.

Unfortunately these flowering spikes are often totally grazed off by domestic stock and may also be nipped through by rabbits, which frequently leave a detached inflorescence by the truncated stem. Slug grazing damage to flowering stems is not uncommon; a particularly striking example of the devastation caused by slugs was a specimen left without leaves and with only a single flower at the base of the former inflorescence.

Vegetative plants can also produce lateral buds and sometimes either vegetative or flowering plants produce two (twin) lateral buds. Triple and even quadruple lateral buds have been occasionally recorded. Twin flowering plants, which are morphologically similar, are found from time to time; these are likely to have developed from twin buds. Our observations on Colonsay and those of Dr James Robarts on Barra have shown a low incidence of the rate of generation of new twin buds in anyone year, between 1.8 and 4.3%. Furthermore, our observations indicate that sometimes one of the newly generated twin buds is lost in the autumn. These results show that for Colonsay and Barra, both of which hold large populations of the species, twin bud production is not a major means of vegetative reproduction within the species on some islands. A further line of evidence is that the number of established twin plants observed within anyone year on Colonsay and Barra is between and 3.0 and 5.4%, ie very approximately equal to the annual rate of new twin buds. This suggests that either there is a low level of long term survival or an alternation of appearance above ground between twin plants. Had all the twin buds survived one would expect a much greater incidence of twin plants than is the case. However the picture is not completely clear-cut. A large population on Coli was studied by Ms Emma Grant and ourselves. The rate of twin bud production she found was similar to that in Colonsay and Barra, ie 2.1% and 3.7% in two consecutive years. However, we all found high values of established twin plants in study samples in this population, c 26% for Ms Emma Grant's sample and c 22% in our case. Established twin plants can consist of both members of the pair being vegetative plants, both members being flowering plants or one of each category:

On only two occasions in many hours of study have we observed a species of bumblebee visiting a *Spiranthes romanzoffiana* flower. The first observation was on Benbecula and lasted only a few seconds. The second, on Colonsay, involved a bee moving progressively from flower to flower. However, after removing its head from the flower it used its legs successfully to detach the pollinia.

Cross and self pollination experiments carried out by Dr James Robarts, Mrs Margaret Keirnen, Ms Emma Grant and ourselves have, up to now, proved unsuccessful. These have included crossing within populations and also moving pollinia between different islands. Plants

are capable of producing pollen tubes in a sucrose solution, as has been shown in experiments by Dr Robarts and ourselves. At this point we would like to acknowledge the unstinting help on pollination techniques and general information on the species provided by Dr Marilyn Light in Canada.

In our search for evidence on the subject of possible seed production, we visited a population of autumn ladies' tresses, *Spiranthes spiralis*, in Cumbria at a time when the capsules were fully developed and in a dried state. No equivalent structures on *Spiranthes romanzoffiana* have ever been observed by us, despite many man-hours of searching over several years. Typically in *Spiranthes romanzoffiana* the green capsules become flaccid, then turn light brown and subsequently wither, together with the stem itself.

The main means of vegetative reproduction and the frequency and scale of sexual reproduction in Scotland are currently unresolved issues, which add to the fascination of the species.

Distribution

Spiranthes romanzoffiana is predominately a North American species occurring in the northern United States, induding Alaska, and Canada. In Europe it is only known from the southwest, west and north of Ireland, the west of Scotland, including a number of Hebridean islands, and one location in Devon in England. In Scotland the majority of locations are close to the coast and therefore of low altitude but there are some exceptions. One old (1970) location is c 30km inland. In Devon, the site is c 35km inland and approximately at a height of 150m. Several of the Irish sites are some distance inland. At one coastal site in Ireland, first found in 1976, (Ledsham, 1977), it occurs at c 240m. It is possible that this represents the greatest altitude at which the plant occurs in Europe, though it can occur at altitudes above 2,400m (8,000ft) in Colorado and has been reported at 2,700m (9,000ft) in Idaho and 3,000m (l0,000ft) in Arizona.

The large populations on the Scottish islands of Colonsay, Coll, Barra and Vatersay are all located a) behind sandy bays, sometimes with dune systems or appreciable stretches of sandy grassland present between the site and the sea, growing on soil containing much windblown sand or b) on promontories, or c) on land adjacent to channels between islands. Hence, in Scotland, there appears to be a possible link between the presence of large populations and areas subject to strong air movements.

A number of the early observations were of plants growing on abandoned lazy beds and this led to the feeling that the plant was strongly associated with such structures. However, while this can be the case, the plant occurs in a wide variety of habitat types. At the dry end of the scale it is known to us from one site on heather moorland and one which is a collapsed 'sod wall'. At the wet end of the scale it can occur in boggy areas among sphagnum moss *(Sphagnum* species) and on loch sides which are regularly inundated.

The largest known site in Scotland is in grassland in an extremely shallow depression, where the soil contains much windblown sand. This site is not by a lochside or by a burn and has no lazy beds. It is therefore radically different from the classic descriptions of the habitat of the species as given in many standard texts. By counting flowers in 2000 and then studying the ratio of flowering to vegetative and flowering plants in sample areas using detailed observations made by Ms Emma Grant, we estimated the total population in that year to be in the order of

1,100.

It is also highly significant that sheep are the main grazers at this site, although some cattle grazing does occur, and that grazing occurs all the year round. Hence this large, and by inference successful, population is occurring at a site with no summer grazing break and where winter grazing is not predominantly by cattle. Winter grazing by cattle and an absence of summer grazing had been considered in the past to be important factors for the long-term survival of the species in Scotland. Such a regime can undoubtedly support large populations as is evidenced by populations on Barra and Vatersay Many of the Irish lough-side populations are either lightly grazed or not grazed at all.

We have been intrigued to record an increase in the number of detected plants from one to 18 from 1999 to 2001 at a site which is more or less continuously heavily grazed by sheep with some cattle. At this site the vegetation height remains at around 30mm or less throughout the year. Searching for new plants here ceased in 2001 but 14 of the 18 of the cumulative total (1999-2001) were still present in 2003. Each year the flowering stems are grazed by sheep but the survival of all plants is good. In 2003 we detected one plant with a flowering stem together with 13 vegetative plants. In the spring, uprooted tillers of purple moor-grass *(Molinia caerulea)* and mat-grass *(Nardus stricta)* can be seen at this site, indicating the probable importance of grazers in suppressing species which are potential competitors.

It may be that *Spiranthes romanzoffiana,* as a member of the orchid family, is tolerant of heavy grazing, being sustained by organic carbon from its fungal partner, which provides a food source in addition to photosynthesis. This may be particularly critical after heavy defoliation. It should be added that most of the sites have mild winters and fungal breakdown of organic matter may well be occurring year round.

Plants with an abundance level in Britain of less than fifteen 10 x 10 kilometre squares are classified as a British Red Data Book species. *Spiranthes romanzcffiana* appeared in the first and second editions of this reference work. However, subsequent searching, particularly by Dr Frank Horsman, has raised the number above the ceiling value of 15. The figure reported in the New Atlas of the British and Irish Flora for the period 1987-1999 (Preston, Pearman and Dines, 2002), is 17 for Britain and also 17 for Ireland. In 2002 two plants were found on Tiree (Bowler, 2003), thereby extending the known range to another Hebridean island. Prior to this, an examination of the distribution maps led to a very strong suspicion that the species would one day be found there. Surveys organized by Scottish Natural Heritage in the 1990s indicated an absence of the species at a large number of its former sites in Scotland. This evidence was used As part of the process of categorizing the species as a Biodiversity Action Plan species for which one of the four qualifying criteria is a major decline in recent years. *Spiranthes romanzoffiana* is currently classed as a Scarce species (occurs in 15 to 100 10 x 10 kilometre squares). Thus it has two designations in Britain. In the Republic of Ireland it is covered by the Flora Protection Order 2000 and in Northern Ireland it is on Schedule 8 of the Wildlife and Countryside Act 1981. It is an Irish Red Data Book species.

Locating and monitoring plants and future developruents

Most observers look for *Spiranthes romanzoffiana* in August when the plant is in bloom. The tip of the inflorescence bud frequently appears at ground level in early June and therefore grazing by domestic stock, rabbits, hares and slugs and, conceivably at some sites by geese, may

result in a loss of flowers and hence non-detection of the plant. The leaves are narrow and superficially can resemble grass leaves, making it extremely difficult to detect the plant in a vegetative state. Assessing the conservation status of the species is therefore hard to achieve. In the authors' opinion it can only be effectively carried out by permanently marking plants and monitoring year-to-year performance, once the exact positions of the individuals are known. An important pioneer of the use of this technique with orchids was Dr Terry Wells of Monk's Wood and the system has been used to very great effect with *Spirantbes romanzoffiana* on Barra by Dr James Robarts. One of his most impressive results is the discovery of a plant that spent six years in the underground state before reappearing above ground. This shows that at least seven years must elapse before one can assume that a plant at anyone location has died. In this case the plant would have been .sustained by its fungal partner over the six-year period before emerging above ground in the seventh. As some physiological activity must occur during this time, we prefer not to refer to the underground period as one of dormancy.

Our period of marking plants commenced in 1999 when we began to work under contract to Scottish Natural Heritage, supervised by Dr Chris Sydes. By making repeat visits to five sites on Colonsay between 1999 and 2001, and 10 sites on other Hebridean islands in 2001 and 2002, we have shown an increase in the number of detected plants in all but one site. At this site only one plant was present on the first visit and did not reappear above ground in the second year. Within this set of 15 sites some were currently lightly grazed, some were currently heavily grazed, some had a summer grazing break while others did not. Some were grazed by sheep, others by sheep and cattle. Rabbit grazing varied from site to site but evidence of slug grazing was widespread.

For the period 2002 to 2005 we have obtained a contract from Scottish Natural Heritage to look specifically at 10 very small populations, three of which had one or two plants in 2002 and seven that were at known locations with previous records ranging from 1990 to 2001.

The exercise involves setting up 10 x 10 metres exclosures to give a break from summer grazing. This allows the maximum possibility of observing plants. An equivalent area adjacent to the exclosure is also being monitored. These observations take place in June in order to observe vegetative plants, in August to observe flowering plants and in late September to check if any flowering plants have produced swollen capsules. In co-operation with Dr James Robarts, Mrs. Margaret Keirnen and Ms Emma Grant, reference populations, which have been observed with a commencement date varying from 1992 to 2000, are also being studied for comparative purposes.

At one of the 10 sites, new plants have been discovered in both the exclosure and the adjacent plot. At a second site new plants have been discovered in the adjacent plot. At this site a plant observed in 2001 was pushed deep into soft mud by cattle trampling prior to the exclosure being established. The two plastic marker pegs had also been pressed so far down that they could not be found. It will be fascinating to see if the plant eventually resurfaces.

One unexpected consequence of setting up the exclosures has been the bisection of a previously unknown population of northern marsh orchid, *Dactylorhiza purpurella.* Significantly this has flowered and produced swollen capsules within the exclosure, while the flowering stems of all plants outside the exclosure have been grazed to ground level.

The project continues in spring, summer and autumn 2004 and in the meantime we switch

from monitoring *Spiranthes romanzoffiana* populations to reviewing data on the computer monitor and also reading the. literature and contacting other orchidologists. We are fortunate that Richard Manuel has kindly supplied information about possible means of vegetative reproduction in a related *Spiranthes* species, based on his observations of plants in cultivation. If, by any chance, anyone is involved in growing *Spiranthes romanzoffiana* we would be delighted to hear from them.

Richard Gulliver worked for seven years as the Education Officer for the North York Moors National Park before moving to Colonsay in 1991 and then to Islay in 1997. He was the botanical recorder for the southern Hebridean Islands of Islay, Jura and Colonsay from 1992 to 2003. He has taught several residential courses on wild flower identification and from 1980 to 2002 was an associate lecturer in ecology for the Open University

Mavis Gulliver spent the last six years of her teaching career as head teacher of the Primary School on the Isle of Colonsay. She has had a life-long interest in natural history and has been involved in studying *Spirantbes romanzoffiana* since taking early retirement in 1997. Her publications include the Aidgap leaflets 'Guide to Woodland Plants' and 'Guide to Grassland Plants (1)', both co-authored with her husband and illustrated in colour by Carol Roberts.

Acknowledgements

We would like to thank the very many people who have helped us in our studies, without whose assistance our knowledge of the plant would be much less.

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January
Judging
In Richmond

LEFT: Masdevallia princeps 'Mem. Konglin' HCC/AOS 77pts, Exhibitor: Joe Chow
RIGHT: Paphiopedilum armeniacum 'Haze' HCC/AOS 79pts, Exhibitor: Hazel Stewart