

Odontoglossum Alliance Newsletter

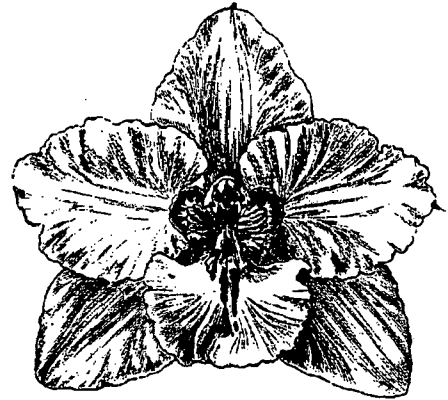
Volume 37

May 2001

The Influence of Species other than Odm. Crispum on Odont Breeding

(Limited to Odm and Oda only)

by Russ Vernon



This sounds like a relatively easy topic and few people have talked on it so why not? That was a **BIG MISTAKE!** There are several reasons why this is so and I'll introduce them to you and detail some of them for you. (Then I'll illustrate with some slide examples)

The breeding is quite complex even though Odm crispum is the dominant force. There is a big mystery factor and I'll explain more on that later. Multi-layers of generations are involved. Two breeding genera are involved that have different breeding characteristics.

Complexity of Breeding

Mainline Odont breeding, which is what I'm covering, is dominated by crispum. Crispum makes up anything from 18% to 95% of modern hybrids. There are six other species that contribute the vast majority of the background in that remaining percent. They include: harrayanum/wyattianum, luteo-purpureum, pescatorei (noble, properly), hunnewellianum (probably a natural hybrid of luteo-purpureum and harryanum), triumphans (spectasissimum, properly) and Cochlioda noeziiana. There are others that would be good considerations but don't show up in mainline breeding. All six bring their own set of breeding characteristics: dominance of background color and spots, color intensity, size, form, spot patterning, lip form, color and pattern, floriferousness, and stem habit. This all gets superimposed onto crispum which has its own set of characteristics and dominance.

Big Mystery Factor

This is the wild card of Odont breeding! This "mystery factor" refers to the fact that there can be 0-45%+ of the pedigree of a hybrid that is terra incognita, or papa idontknowwhoiensis. This factor means that we don't have any knowledge concerning a certain percentage of the makeup of any given hybrid. Early hybrid registration with Sanders' did not require that parents be listed when registering a new hybrid. This may have been due to commercial firms wanting to keep trade secrets, or labels got lost or maybe species were not positively identified at the time of the cross. Personally, I think that everybody was so happy that any seedlings survived to maturity, that rules were purposefully lax. As a result, crosses were registered with hybrid names where one parent was unknown or both parents were a mystery. How would you like to not know who your parents were? Some examples of this are: The Czar, Nathaniel (interesting, no last name!), President Poincare, Georgius Rex, President (that's all), Olympia, Coronation, Lady Prime.

These all figure prominently in Odont “beginnings”. Whoever came up with Georgius Rex must have been a real bungler because there are several genera that have this name used with double unknowns. What species were involved in these hybrids and what characteristics did they contribute? Knowing the European love affair with crispum, certainly it was heavily involved? Maybe halli which seldom occurs otherwise, epidendrodies, polyxanthum, hortensae, gloriosum all for yellow and edwardii for purple through pink or cirrhosum for floriferousness.

As far as crispum goes, which crispum was used? I have a 1906 Sanders’ catalog and in it are listed 113 varieties and clones of crispum. Their descriptions vary anywhere from white with yellow spots (xanthic), white with yellow lip, white blush pink, white with maroon spots, with burgundy spots, spots coalesced into rings, or into blocks of color in the center of the segments, or, united to nearly solid overlaying color weaving a white margin. So here we have this great variety of the base species and we have no idea which form was used. **Big Mistake!** No wonder on one takes this topic on!

Many Generations

Recent hybrids are the accumulation of up to 13 generations. Each generation is a new roll of the dice. With each new generation there are new combinations of species genetics plus any ploidy shifts and mutations that may have occurred. There is the dilution of dominant gene influence versus the concentration of recessive genes depending on the breeding tact, (out cross vs. line breeding). Then there is the fading species influence depending on how far back its introduction or reintroduction into the mix was.

Two Genera With Different Breeding Characteristics:

Odontoglossums

crispum: yields white backgrounds, anthocyanic blush; antho/carotinoid marks; recessive characteristics are no anthocyanic pigments eliminating the blush and dark marks leaving pure white with carotinoid marks (yellow), breeding as an alba, known as “xanthic”

pescatorei: similar to crispum only contributing more flowers per stem, reduced size and adding color intensity to marks. Bob Hamilton remarks about pescatorei being better to use for yellow breeding as the pigment for white is more dense and therefore reflexes the yellow pigment more intensely.

edwardii: source of lavender to purple; Odm Thompsonii which is crispum x edwardii was used as a parent 22 times into the 30’s but after the second generation stopped being used.

harryanum: responsible for the warm glow in many background colors (yellow on many bud segment edges) and unusual pigmentation on segments (sepals and petals) bases.

most other species: (yellow with brown marks) carotinoid yellow background, antho/carotinoid marks, also continuing to background warm colors

Cochlioda

Source of red flowers and possibly an engine behind solid colors (unspotted, non-white) and definitely the source of colored backgrounds. It seems that all non-yellow Odontoglossum hybrids have a white background color. Even so called colored forms have the pigment as an overlay and that pigment does not encompass the entire surface area of the flower. Adding Cochlioda allows that to happen.

To sum this all up: Crispum is the canvas; the other species are the paint. Amazingly, crispum and Pescatorei are the anomalies of the genus. There are so many “paints” and so many untried. Where crispum is over 80%, usually there is a white background. When crispum is at around 40-60% and pescatorei is about

equal in concentration, flowers are white with spots in varying amounts. If *Cochlioda* is involved, there is background color with spots. With *triumplans* and *luteo-purpureum* being over 25%, the background color is usually yellow and when they come in low concentrations, *harryanum* is 5-15% and *Cochlioda* is 5%, the result is colored backgrounds of pink, russet, purple and related hues. Where the unknown factor is high, most anything can happen! Because this picture is so complex, exceptions abound to these observations but I think you will find that these are good rules of thumb. I hope you enjoy being as confused as I am now that I have devoted months to this topic.

Observation – *xanthics* – how do they behave, enhances, dilutes. Very seldom has the yellow lines been inter-bred with colored forms. Same to be said of red/yellow. I hope this gives you some idea of where we are at and the tremendous width and breadth of the possibilities that lie before us. Not even the genus *Phalaenopsis* has such variety both in species and in genetic variability as the *Odont.* We have a great deal to look forward to.

Russ Vernon delivered this talk at the Odontoglossum Alliance meeting on 24 March 2001 in Santa Barbara.

Russ Vernon on Russ Vernon

I got my first orchids when I was 12, all *Cattleyas*, and I joined the AOS soon afterwards. Gordon Dillon found out about my age and sent along an issue of the *Bulletin* that had articles written by young growers. In that issue was an article on *Odontoglossums* and on the cover was a color picture of a group of *Oda.* Florence Stirling seedlings blooming for the first time. I was amazed that a group of plants could have such variety and beauty and be of the same origin. I was given *Oncidium spaciatum* when I was 13, my first *Miltonopsis* when I was 14 and my first *Odont.* as an appreciation gift for being a show staging chairman when I was 19.

I graduated from Ohio State University in horticulture and soon after became the curator of the Wheeler Orchid Collection and Species Bank at Ball State University where I worked for 14 years. It was there that I was privileged to care for the *Odont.* collection given by Goldie Wheeler and Mexican *Odont.* given by Dr. Jim Harper as well as *Miltonopsis* from Beall's and Gary Baker along with about 3000 other species and hybrids.

I built a home greenhouse in 1990 that I grow *Phalaenopsis*, *Cattleyas* and *Vandas* in. After leaving Ball State to work for Jim Davis, creator of Garfield the Cat, I built a second greenhouse that is cool and now grow *Odont.*, *Miltonopsis* and *Lycastes*. This happened in 2000.

Editors Note:

Russ Vernon has been nominated to a Director of The Odontoglossum Alliance for a three-year term to begin in August 2001.

Report on the Santa Barbara Odontoglossum Alliance Meeting

A small and enthusiastic group attended the 2001 meeting of the Odontoglossum Alliance. It was held at the Holiday Inn in Santa Barbara at the same time as the Santa Barbara Orchid Show. The afternoon of 24 March featured three speakers and a group discussion led by Jim Rassmann. The first speaker was Russ Vernon and his talk is printed in this newsletter. He dealt with the make-up of *Odontoglossum* hybrids, drawing much of his material from the computerized orchid hybrid-listing program. It was interesting to see the make-up of hybrids and the domination of certain bloodlines, especially *Odm. Crispum*.

Howard Liebman gave an interesting and timely discussion of intergenerics alliance crosses. He showed a number of beautiful results dominated by the color red. Howard's succinct lecture, extemporaneously delivered, and true to the academic tradition, completed within the allotted time.

Jerry Redfield gave an extensive talk on intergenerics hybrids illustrated with numerous slides. He showed the results of both good and bad hybridization. There were very many interesting flowers with unusual colors and forms. It was a good lead in to the group discussion that followed.

Jim Rassmann, our session chairman, is the Chairman of the AOS Committee on Judging. He is undertaking a complete review of the judging criteria. He used this meeting to lead a group discussion of the present criteria for Odontoglossums and the Odontoglossum alliance. This was followed by numerous suggestions and group comments on revising the criteria. The group made many valid criticisms and several very positive suggestions for revising the criteria.

The evening provided an opportunity for the group to have a social hour and dinner. This was held at a Chinese restaurant and attended by 32 members and friends. The menu was varied, plentiful and enjoyed by all. A small auction was conducted with a number of plants contributed by our members and the alliance realized \$520.00 from the event. While attendance at the meeting and dinner was small in comparison with previous meetings, all enjoyed it. It is the one time of the year to renew acquaintances. Susan Tucker, the editor of the New Zealand Odontoglossum Alliance newsletter and her husband attended the talks and dinner. We were pleased to make her acquaintance in person.

Odontoglossum Alliance Meeting Schedule

The 2002 meeting of the Odontoglossum Alliance will be held at the Sheraton North Shore Hotel, Chicago, Illinois. This will be in conjunction with the Illinois Orchid Society Show and AOS Trustees meeting 10-14 April 2002. Sue Golan has agreed to be our local coordinator and contact. Tentative plans are to have four speakers, a dinner at a local restaurant including a plant auction of contributed material.

This is an excellent time to plan on contributing to the auction. Make and start a division of a fine plant, save a community pot of a new cross, look now in your greenhouse for that special plant of which you have a duplicate. Set the material aside and plan to take or deliver it to the auction. The auction is a fine time to obtain fine and interesting material. The benefits to your alliance are to enhance the color in the newsletter, make it possible to undertake programs to benefit our alliance, and to enhance our programs. The auction results were the foundation for the establishment of the AOS Endowment Fund for the Robert A. Dugger Odontoglossum Award. There are a number of proposals of projects for our alliance to undertake, any one of which will take some financial support. So start thinking about your donation now and keep it in mind. Plan to attend the meeting and show in Chicago. Each newsletter from now through February will contain reminders and information about the meeting.

For 2003, the Alliance is considering having its meeting in Hawaii at the Hawaii Naniloa Resort, Banyan, Holualoa, Hawaii. This meeting, again in conjunction with the Orchid Show and AOS Trustees meeting would be in the period 19-23 March 2003.

Web Alliance

We have arrived. The Odontoglossum Alliance's Web page, at www.odontoglossumalliance.com, is up and running and waiting for input from the membership about what should be located there. The Web page was borne of a discussion among John Miller, Bob Hamilton, John Leathers, Luanne Rolly and me over breakfast at the Santa Barbara Show last March in which we were discussing ways that the Alliance could better serve its members, be more easily accessible to a wider audience, promote broader understanding of the orchids in the Odontoglossum alliance and to increase the Alliance membership. Having a Web page is a relatively simple, inexpensive and highly flexible way of achieving all of these aims to various degrees.

As an organization, we need to decide what we would find most useful on the Page and how we want to present ourselves to the Internet community. Here are some thoughts that I have had and some recommendations made by various Alliance members:

The introduction should describe something about both the organization and the group of orchids that it represents. Since we are an international organization, I would like to have the introduction in German, Spanish and French, in addition to English, if I can find willing translators and authors (any volunteers?).

There have been many suggestions in the Newsletter that we begin a photo archive of plants in the Odontoglossum alliance. The Web page is the ideal place to house such an archive because it allows easy accessibility to both Alliance members as well as orchid enthusiasts in general. Our current space allocation is large enough that we can have 200 – 250 photos before we run out of space, and additional space is very inexpensive. Alliance members with photos that they would be willing to show can send slides, photos or digital files to me for conversion (Tom Etheridge, 1715 NW 17th St., Corvallis, OR 97330).

In addition to photos of species, I plan to post the photos of the past winners of the Robert Dugger Award. I think that I can get the slides from either the AOS or the local judging region, assuming that there are no copyright issues. Would anyone be interested in having a page dedicated to photos of hybrids or scans of old prints?

As diverse as this alliance is, a page of cultural recommendations would probably be useful to orchid enthusiasts in general.

A page describing the benefits of membership and how to join should be included. This might also be a good place to list the officers and board members.

A links page that includes lists of commercial orchid nurseries that sell Odontoglossum alliance plants, other Web pages of related interest (AOS, RHS, hobbyist pages, etc.), conservation organizations, etc. might be useful.

Anything else that Alliance members would find useful for themselves or for other Odontoglossum alliance enthusiasts.

I have published a Web page that incorporates many of these ideas but it is, and will always be, a work in progress. I would appreciate as much feedback as I can get about what Alliance members would like to see on the page. I would also recommend that you take a look at such organizations' pages as the AOS, www.theaos.org, and the Cymbidium Society, www.cymbidium.org. These are both very effective, professional-looking Websites that do not compromise functionality for gimmickry. Please forward any comments to me at tomandlu@home.com and be sure to check out the Web page.

Thomas Etheridge

Membership Dues

Membership dues for the period August 2001 through May 2002 are now due. You may pay your dues for one or two years. Many members have taken advantage of the two-year period for dues. If you have paid through May 2002, NO notice is enclosed with this Newsletter. If there is a membership and dues form enclosed please respond promptly with your payment in US dollars. I regret that we can not accept credit cards or payment in any other form than that of US dollars or a check that will clear through a US bank with payment in US dollars or a Postal Money order that will be payable in US dollars

The dues are \$15.00 per year. You may also subscribe to the New Zealand Odontoglossum Alliance newsletter for an additional \$5.00 per year.

Make checks payable to:

Odontoglossum Alliance

Mail to:

Odontoglossum Alliance

PO Box 38

Westport Point, MA 02791

USA

Please submit your payment along with the dues form promptly and before the mailing of the August newsletter. At the same time you can send in your vote for the two directors nominated to fill vacancies.

Election of Directors

Tom Etheridge and Russ Vernon have been nominated to fill the vacancies of two directors whose terms have expired. Enclosed with this newsletter is a ballot. Please complete the ballot and mail to:

Odontoglossum Alliance

PO Box 38

Westport Point, MA 02791

USA

If your membership payment is also due, enclose the two together. Ballots will be counted on 1 August 2001. Those ballots received after that date will not be counted. You may write in candidates for the office. Vote for 2 directors. Those elected will have three-year terms expiring in August 2005.

Thanks to James Rassmann and Roger Williams, whose terms are expiring in August, for their service as directors.

Plans for the Book "Odontoglossums" by Leon Duval

This issue of the Odontoglossum Alliance newsletter completes the publication of the English version of the book "Odontoglossums" by Leon Duval, published in 1900 in France. Carl Withner thoughtfully provided the Alliance with a copy of the book and the idea of publication. Carl reported that he has seen only one other copy of the book. Shirley Thomas was kind enough to provide the English translation of the original French version we have been publishing.

It is now planned to publish a complete text in both the original French and the English translation. We will be offering this to our members. After a suitable time after the offer, the Alliance will make it available through the American Orchid Society Book Store.

Our thanks to Carl Withner for providing the original book and to Shirley Thomas for her translation of the original version to the English version.

Editors Note: This completes the serial publication of the book: "Odontoglossums" by Leon Duval, published in 1900

LIST

THE PRINCIPAL SPECIES OF ODONTOGLOSSUMS

Comprising their names, the names of their introducers, the date of their introduction, and the names of the botanists who have described them.

Names	Introducer And collectors	Dates	Botanists
Astranthum	Jean Linden	1868	
Bictoniense		1835	
Blandum (fig. 37)		1870	
Cariniferum		1848	
Cervantesi (fig. 6)	Loddiges	1847	La Llave et Lexarza
Cirrhosum (fig. 44)	Klaboch	1873	
Citrosmum (fig. 19)		1842	Lindley
Constrictum	J. Linden	1843	
Cordatum	Barker et J.Linden	1838	
Coronarium	J.Linden	1843	
Crinitum	Roezi et Wallis	1882	
Crispum			
(Alexandrae)(fig. 32,33,48)		1830?	Blunt
Cristatum	Hartweg	1849	
Edwardii (fig. 2)		1878	
Grando (fig. 16)	Ure Skinner	1839	
Halli (fig. 24)	Colonel Hall	1837	
Harryanum (fig. 27)	Veiteh	1887	
Hastilabium (fig. 25)		1843	
Insleayi (fig. 1)	Barker	1840	
Krameri		1868	
Laeve	Ure Skinner et Hartweg	1841	
Lindenii	J. Linden	1842	
Lindleyanum		1865	
Londesboroughianum (fig. 38)		1878	
Lucianianum	Horticulture internationale	1887	Reichenbach
Luteopurpureum (fig.10)	J. Linden	1842	

Sceptrum (fig. 39)	Id.	1868	
Maculatum (fig. 5)	La Llave et Lexarza	1838	
Maxillare (fig. 37)		1846	
Nebulosum (fig. 17)	Baron Karvenski et J. Linden	1833	Reichenbach
Nevadense		1868	
Odoratum	Id.	1842	
Gloriosum			
Oerstedii (fig. 3)	Warscewicz et d'Oersted	1872	
Pardinum			
Pescatorei (fig. 26)	J. Linden	1877	Reichenbach
Polyxanthum (fig. 47)			
Prestans	Warcewicz	1877	
Puchellum (fig.42)	Ure-Skinner	1875	
Ramosissimum	J. Linden	1840	
Rigidum	Hartweg	1843	
Rossi (fig. 18)	Ross	1842	
Schlieperianum (fig.4)		1837	
Stellatum	J. Linden		
Triumphans (fig.45)	Id.	1841	
Uro-Skinneri (fig.43)	Ure-Skinner	1842	
Wallisi	Wallis	1834	
Tripudians	Warscewicz	1867	
Schrooderianum		1849	

NAME OF PLANTS AND OF THEIR VARIETIES	COUNTRY OF ORIGIN	DESCRIPTION, ABBREVIATED, OF THE FLOWER	TIME OF FLOWERING	CULTURE OF SUMMER	CULTURE OF WINTER	GREENHOUSES AND PLACE OCCUPIED BY THE PLANTS IN THE GREENHOUSE	GENERAL OBSERVATIONS AND TIME OF REPOTTING
Bictoniense	Guatemala	Flowers of variable colour of 4 to 5 cms. In diameter; greenish yellow sepals and petals spotted with brown	September October	The same as for Odontoglossum Crispum	Beware of excess moisture	Temperate greenhouse, in the least warm part	Always use very permeable compost; beware of drying out; repot in January/February
Blandum... (Fig. 37)) Oriental Cordillera, (see Ch1 - mountain range adjacent to the coast of Venezuela) at New Granada.	Little white flowers spotted with brown and reddish purple	April, May, June	The same as Odontoglossum Crispum	Ditto	Cool greenhouse with plenty of light, in the warmest part of the house.	Beware greatly the insects of summer. Repot September/October
Cariniferum	Chiriqui (This is a province in Panama)	Medium sized flowers, petals and sepals lance-like and sharp, glistening like tears on the outer surface; lip with a long tooth	September, Oct. - Nov	The same as Odontoglossum Crispum	Ditto	Temperate greenhouse; compost not compacted	Beware of excess humidity in the winter. Repot in January - February
Cervantesi: Decorum (Fig. 6), Punctatissimum	Mexico and Guatemala	Medium sized flowers with concentric chocolate brown rays; trilobed lip	March to May	Plenty of light and not dry	Ditto but a little dry	Cool near the glass	Don't like to be disturbed. Repot for 2 years. Repotting in June-July.

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Cirrhosum (fig. 44) de M. Finet; Baron Hruby; Klaboch	Andes of the Equator	Medium flowers with straight sepals which end in flexible creamy white filaments spotted with maroon or black; short trilobed lip; lateral lobes faintly toothed	March, April, May	Well saturated	Rather a bit dry	The warmest part of the Od. greenhouse	Very susceptible to insects, especially on the buds. Repot in September
Citrossum (fig. 19) Album, Pinctatum	Mexico, Oaxaca, and Guatemala	Medium sized flowers, white and pink; sepals and petals similar; lip with a long nail spread out into an apron etc.	May - June	Air, light, and abundant watering.	Very dry until the flower stems appear.	Temperate greenhouse, suspended towards the glass, since the clusters of flowers hang below the pot.	Beware the shafts of sunlight on the bulbs, and above all, don't disturb. Repot in September
Constrictum	Veneuela	Small flowers, greenish yellow, brown spots; lip with a violet tip	January, February, March	Culture of Odontoglossum Crispum	Ditto	Ditto	Ditto

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Constrictum... Var. Sanderianum	Venezuela	Seems to be a variety of Od. Constrictum and, however, is often very distinct.	January, February, March	Culture of Odontoglossum Crispum	Ditto	Ditto	Ditto
Cordatum...	Mexico and Guatemala	Large flowers 8 to 10 cms. in diameter, colour smudged straw yellow, spotted with brown van Dyck, lip rope shaped, very pointed, more or less smudged with blackish spots.	In winter	Culture of Od Maculatum	Ditto	Ditto	These species dread excessive humidity in winter, and require plenty of light
Coronarium; Chiriqueuse; Miniatum	New Grenada	Large flowers with sepals tinted with brown, yellow petals marbled with brown; yellow lip with brown spot on the disc	Variable	Very saturated in an always cool environment	Ditto but with restrictions	Temperate greenhouse. Suspended close to the glass	Drain the compost well. Do not disturb the roots.

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Crispum (Alex)(Fig. 32,33,48) This species is composed of so many varieties that we consider it useless to publish here a list which could not be complete.	Colombia	Very variable in their form and in the smudges or spots which decorate them. We refer our readers to the illustrations contained in this volume.	Throughout the entire year but principally from March to May.	See the special chapter	Ditto	Ditto	Ditto
Cristatum: cristatellum	Andes of the equator	Flowers from 5 to 6 cms. In diameter; petals and sepals are similar, cat brown, spotted with yellow and with a yellow spot at the base. Lip yellow, rather pale or white with a spot at the tip	April. May. June.	Culture of Odontoglossum Crispum	Ditto	Ditto	Do not leave the flowers on the plant for a long time. Repot in September.
Crocidipterum	New Granada	Yellow flowers with orange brown spots; lip pale yellow crossed with some brown orange spots	April; May	Culture of Odontoglossum Crispum	Ditto	Ditto	Ditto

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Edwardii...(fig. 2)	Andes of the equator	Small flowers of pretty violet, more or less dark, very odoriferous	May, June	Very saturated and well aerated	The same, but with precautions	Close to the door in the cool greenhouse	Prefer a container a little large. Repot in September - October
Grande...(Fig. 16)	Guatemala, Costa-Rica	Large or very large flowers, golden yellow with bands of earth sienna; lip creamy white	September, October, November	Aerated and with plenty of light and even outside as needed	Temperate house, but a little dry	On plaques	Attracts woodlice and slugs who eat the roots. Repot in January - February
Halli: Leucoglossum, Xantoglossum (Fig. 24)	Ecuador-district of Quito	Sepals and petals similar greenish yellow, lip long, pointed, lacy on the edges	March to May	Culture of Odontoglossum Crispum	Ditto	Ditto	Do not leave the flowers too long on the plant. Repot in the autumn
Harryanum...Many beautiful varieties have been sold, simple perfection of the type introduced. (Fig. 27)	Colombia	Petals and sepals equal, dark brown with yellow lines; lip elongated, white, reticulated with purple on two thirds of the surface; the tip is pure white	June, July	Well saturated; well aerated.	Little humidity and plenty of light	Temperate greenhouse or in the warmest part of the Odontoglossum Crispum greenhouse.	If one leaves the flowers more than eight or ten days, the bulbs will shrivel. Repot with plenty of space in September

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Hastilabium...(Fig. 25)	Cordillera oriental of New Grenada	Fairly large flowers, white, pink, or cream, striped across with purple; white pointed lip	February, March, April	Beware of excess humidity; loves the light	Same observation	Temperate greenhouse	Species rather difficult to conserve; must have a definite resting period; Repot May, June
Insleayi: (fig. 1) Var. Leopardinum and spemum	Oaxaca, Mexico	Flowers smaller than those of Grande, but pretty, and decorated with a lip, often more beautiful, of golden yellow heightened with orange spots.	Autumn	That of Grande	Ditto	Plenty of light	Must have a sufficiently long rest period
Laeve: Syn.Reicheuheinni	Central America	Flowers with sepals and petals almost equal; brown markings spotted with greenish yellow bars; lip shorter than the other segments; lilac, pink, and white.	April, May	Culture of Odontoglossum Crispum	Ditto	Cool greenhouse, temperate portion	Repot in permeable compost from June to September
Lindeni..	New Grenada	Flowers lemon yellow, sepals and petals lanceolate, undulating; lip egg shaped, lanceolate, shorter than the other divisions	June	Ditto	Ditto	Ditto	Very vigorous; requires large pots; do not disturb with repotting

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Lindleyanum...	Colombia and principally in New Grenada	Sepals and petals similar, linear, lanceolate, pointed; yellow with a brownish red spot in the centre, and some smaller spots; lip shorter, faintly trilobe.	April, May, June	Culture of Odontoglossum Crispum	Ditto	Ditto	Ditto
Lindleyanum: Var. Coradinei; Supra; Ligulare; Mirandum	Colombia and principally in New Grenada	Flowers much larger; more perfect form; lip not pointed at the tip, with a large square pinkish brown spot on the divisions.	April, May, June	Ditto	Ditto	Ditto	Ditto
Londesboroughianum (Fig. 38)	Mexico	Flowers, oblong sepals and petals, pointed, brilliant yellow, with concentric brown markings; lip is long and narrow with a small finger on each side; lip is uniformly brilliant yellow, with some pink spots at the base.	September October	During the day, requires heat and good saturation mitigated by well planned ventilation.	Keep healthy in light and not too wet.	Temperate warm greenhouse.	Must be held on the trunks of fern, or on logs suspended horizontally; needs only to be resurfaced from time to time.

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Luteo-Purpureum (Fig. 10) Amenissianum, Cuspidatum, Facetum, Hinnus, Mulus, Sceptum (Fig. 39) Wuystekeanum, etc.	Forests of Quindin, Central Cordillera of New Grenada	This type has large star shaped flowers, yellow, more or less dark, marbled or spotted with brown; the lip is panduriform, more or less marbled or fringed or indented	From May to July, and sometimes August and September	Culture of Odontoglossum Crispum	Ditto	Cool greenhouse, but in an area not too wet in the winter.	Never leave the flowers too long on the plant until they acquire a certain strength. Repot in pots large enough for two years, in September
Maculatum...(Fig. 5)	Mexico	Medium sized flowers, greenish yellow or marbled straw stippled with dark brown; lip very clear yellow.	April, May	Culture of Odontoglossum Crispum	Ditto	Ditto	Ditto
Maxillare: Syn. Madrense (Fig. 37)	Sierra Madre. Mexico	Scented flowers, white with almost brown spots at the base; petals similar but larger; lip much shorter with a yellow orange nail, and a white tablet in the shape of a trowel	April, September	Culture of Odontoglossum Crispum	Ditto	Ditto	Beware of excess humidity in the winter. Repot in January

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Naevium	New Grenada	White spotted with dark purple; sepals and petals similar, ovoid, lanceolated; lip almost the same form but shorter	April, May	Culture of Odontoglossum Crispum	Ditto	Temperate portion of the Odontoglossum Crispum greenhouse.	Quite delicate; important to give a sufficiently defined rest period in the winter. Repot after flowering without crushing the roots.
Nebulosum: Candidisimum (Fig. 17)	Mexico	Flowers large or fairly large, central white portion spotted with pinkish brown, with yellow lip also spotted.	Summer and Autumn	Saturate sufficiently in the period of vegetation	Keep a little dry after flowering	Temperate greenhouse beside Odontoglossum Crispum	
Nevadense...	Venezuela	Petals and sepals equal, lanceolated, pointed, brown channels, edged with yellow and sometimes with longitudinal striations yellow at their base; trilobed lip.	Summer and Autumn	Ditto	Ditto	Temperate greenhouse quite warm with plenty of light.	

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Odoratum: Var. Baphicantum, Deltoglossum, Hebraicum, Locanum	Venezuela occidental: Cordillea orientalis of New Grenada	Petals and sepals similar, honey or dark yellow; lip trilobed; round lateral lobes; petals and sepals more or less marbled with pinkish brown.	April, May, June. Also winter	Culture of Odontoglossum Crispum	Ditto	Ditto	Ditto
Oerstedii. (Fig. 3)	Costa Rica	Sepals and petals similar oblong and spread out; lip has two small lateral lobes, and a large median lobe, almost orbital, with a depression on the anterior margin; white column.	April, May, June	That of Odontoglossum Crispum	Ditto	Ditto	One may place the plants in little earthenware vessels, in good light, but always saturated.
Pardinum	New Grenada	Flowers medium size; lemon yellow, lightly spotted on the lip and petals; sepals lanceolated, undulating; petals shorter; lip with a short nail, almost apron-like.	In the spring	Plenty of light and moderate saturation	Little humidity, and close attention to the length rest period.	Temperate greenhouse	Ditto

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Pescatorei: (Fig. 26), Var. vestchinianum (fig. 34), Lindoni, etc. Fig. 17) (fig. 47)	Codillera orientale of New Grenada	Oblong elliptical sepals with full borders, larger petals, undulating; lip apron shaped, outlined with a little point at the base; borders indented; spotted with purple.	April, May, June, July	That of Odontoglossum Crispum	Ditto	Temperate portion of the Odontoglossum Crispum greenhouse.	Pescatorei does not like to be repotted often; it is a little more susceptible than the Odontoglossum Crispum; it is necessary to watch for aphids which compromise the flowering, and not to allow the branches to remain too long on the plant.
Polyxanthum: var. de Doin (Fig. 47)	Andes of Ecuador	Medium sized flowers of superb chrome yellow, marbled with pinkish brown; lip oblong with dentate margin at its apex; brown canals, borders of pale yellow.	spring	Plenty of light, and saturated, but not to excess.	Beware greatly of excess humidity.	Odontoglossum Crispum greenhouse in the temperate area.	Very susceptible to an excess of humidity. Do not try to repot too often; it is very tired after flowering; therefore let it rest.

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Prenitens.. Syn..sceptum (Fig. 39)	New Grenada	Flowers brilliant yellow marbled with brown on all segments; sepals and petals elliptical, lanceolated, pointed, undulant; lip crossed with a uniform orbital, tablet dentate on the borders, of a colour paler than that of other divisions.	Spring	Culture of Odontoglossum Crispum	Ditto	Ditto	Ditto
Pulchellum: Majus, Grandiflorum (Fig. 42)	Guatemala	Small white flowers, except for a yellow chartreuse disc on the lip.	Spring	Culture of Odontoglossum Crispum	Place back in the greenhouse of Mexican plants and not too wet.	Ditto	Ditto

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Ramosissimum V. Lilliflorum	Merida	Flowers of 5 cms., white spotted with purple mauve; sepals and petals almost equal, narrow, lanceolated, pointed, with flowers of a beautiful yellow more or less darkened, marbled with bands; an undulating border; tips reflected; elongated lip, triangular, pointed and reflected.	March, April	Plenty of air; moderate saturation	Ditto; but no excess humidity	Greenhouse of Mexican plants, near the door.	Like always to be treated in good well drained pots.
Rossi: (Fig 18) Var. Majus, Aspersum, Erenbergii, Humeianum, Warneianum. (Fig. 14)	Mexico	Flowers from 5 to 6 cms.; variable colour; white or pink, or purple; sepals spotted with brown at the base which is more or less dark; lip white or pink	From November to March	Greenhouse of Odontoglossum Crispum culture	Greenhouse of Mexican Odontoglossum in winter, and the same culture.	Ditto	Like to be kept in earthenware pots near the windows.

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Schlieperianum (Fig. 4)	Costa Rica	Flowers similar to those of Odontoglossum Grande, although smaller in all their parts	In the autumn from September to November	Same as Odontoglossum Grande	Ditto	Ditto	Ditto
Tripudians	Ocana, Bucaramanga	Flowers of 5 to 7 cms.; sepals elliptical, chestnut brown, with a point, and a yellow base, sometimes with yellow stripes; petals yellow with large transverse bands, chestnut brown; lip with short groove, enlarged in the front with a lobe which is almost orbicular, with a white lacy edge, sometimes pale rose.	Springtime	Culture of Odontoglossum Crispum	Culture of Odontoglossum Crispum	Being a little more susceptible, keep in the warm part of the Odontoglossum Crispum greenhouse.	This species does not like to have the flowers left on for a long time; It is very susceptible to insects.
Triumphans. (Fig. 43)	New Grenada in the company of Odontoglossum Pescatorei.	Flowers of a beautiful yellow, more or less deep coloured, marbled with bands of glassy earth or brown-black; lip white and yellow; then large smudges of duck brown.	Springtime	The same as that of Odontoglossum Pescatorei	Ditto	Ditto	

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Uro-Skinneri..(Fig. 43)	Guatemala	Flowers of 5 to 8 cms; sepals and petals chestnut brown, stained and marbled green; the former ovoid, dentate, the latter large, oval, longer than the sepals; the lip, ungulate with two strips set up on the ongle; large tablet; horn length tense, undulate, white smudged with pale rose.	July, August	Culture of Bictoniense	Ditto	Ditto	Ditto. Like large pots
Wallisii	Sierra Nevada	Flowers of 5 cm., sepals and petals equal, oblong, lanceolated, sharp; the former undulating, bright duck coloured; the latter spread out like the arms of a cross; yellow spotted with brown; lip pendulous; the two lateral lobes, curly, white; the anterior lobe, pointed, undulating, with crenellated margins, pink purple; white border.	July, August, September	Culture of Odontoglossum Crispum	Ditto	Ditto	Ditto

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Wilkinson and its very numerous varieties (Fig. 23)	Colombia	Natural hybrid of Odontoglossum Crispum and Odontoglossum luteo purpureum or vice versa; the flowers are very variable in form and colour; they are large, more or less; yellow, more or less spotted, smudged; lip itself retains more of Crispum than of Luteo purpureum	March, April, May	Culture of Odontoglossum Crispum	Ditto	Ditto	Ditto. Do not leave the flowers too long on the plant.

Species or varieties which do not appear in the general list, and may be cultivated in different greenhouses of Odontoglossums

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Adrianae. Hybrids supposedly from Illunnewellianum and Crispum (Fig. 50)	Bogota	Medium sized flowers recalling Crispum in their makeup; colour varies from pale light yellow, bordered with sulphur yellow to white with a margin of Naples yellow, finely mottled, recalling, more or less darkened; lip is mixture between the two parents.	May	Culture of Pescatorie	Ditto	Ditto	Quite vigorous; like its confreres, this hybrid must be constantly surveyed for insects

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Astranthum	Andes	Very much resembles Odontoglossum odoratum	Spring	Culture of Odontoglossum Crispum	Ditto	Ditto	Ditto
Brachypterium	New Grenada	Supposed to be hybrid between Pescatorei and Luteo purpureum	Spring	Culture of Odontoglossum Crispum	Ditto	Ditto	Ditto
Elegans	Andes of Ecuador	Very remarkable hybrids between Odontoglossum Cirrhosum and Odontoglossum Cristatum	February, March, April	Ditto	Ditto	Ditto	Like most precious plants it is important to not leave the flowers too long on the plant.
Od. Eugenae or Excellens (Fig. 5b and 5c)	New Grenada	These two superb natural hybrids occur quite rarely, but, however, a sufficiently good number of them exist in culture; the flowers are quite intermediate between the two parents.	From May to June	Culture of Odontoglossum Crispum and of Pescatorei	Culture of Odontoglossum Crispum	Ditto	Ditto

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Galliotianum	Mexico	White flowers with traversing bars, pink at the base of the divisions	Winter	Culture of Odontoglossum Cervantesi	Ditto	Ditto	Ditto
Gracile	Ecuador; Cordillera of Loxa	Flowers have reddish brown petals; lip carries two white spots	Spring	Culture of Odontoglossum Pescatorei	Ditto	Ditto	Ditto
Horsmanii	Ocana	Supposed hybrid of Pescatorei and Luteo purpureum	Spring	Ditto	Ditto	Ditto	Ditto
Hunnewellianum	Bogata	Small Flowers; sepals and petals deep Naples yellow marbled with clear brown; lip curly, yellow, smudged, column and crest white	May	Culture of Pescatorei	Ditto	Odontoglossum Crispum greenhouse	Sensitive to insects; Do not leave flowers too long on the plant
Ioplocon	Ditto	Seems to resemble Odontoglossum Edwardii	Spring	Culture of Odontoglossum Edwardii	Ditto	Ditto	Ditto
Marriotianum	Ditto	Supposed hybrid of Cirrhosum and Halli	Spring	Culture of Cirrhosum	Ditto	Ditto	Ditto
Murrellianum	Ditto	Supposed hybrid of Pescatorei and Od Nievium	Spring	Culture of Od Pescatorei	Ditto	Ditto	Ditto
Rigidum	Peru	Very unusual and very rare; flowers lemon yellow	Spring	Culture of Od Pescatorei	Ditto	Ditto	Ditto

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Schillerianum	Sierra-Nevada, Merida, etc	Flowers petals split, very pale yellow spotted with brown; lip brown, pointed, and base pale yellow	May, June	Culture of Od. Hastilbium	Ditto	Ditto	Ditto
Schroederianum	Colombia		August	Culture of Crispum	Ditto	Ditto	Ditto
Stellatum	Mexico	Appear to have certain analogies to Od Rossi	January, February, March	Same greenhouse and same culture as Od. Rossi	Ditto	Ditto	Ditto

Species which can be related to Odontoglossums, and whose culture is identical

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Cochlioda: Noezliana	Ditto	Flowers from 1 to 2 cms.; petals and sepals equal; colour reddish orange; in clusters of flowers elegantly curved.	Ditto	Culture of Od. Pescatorei	Ditto	Likes to be suspended close to the glass, in plenty of light.	Beware of excess humidity in winter, but in summer may be saturated.
Mesospinidium: Vulcanicum, Grandiflorum	Ditto	Flowers quite large; petals and sepals equal; well spread out in a star of a very beautiful pink magenta like a reflection of carmine lacquer.	Ditto	Culture of Od. Pescatorei	Ditto	In the temperate portion of the Od. Crispum greenhouse.	Like plenty of food but must not be repotted too often; above all beware of excess humidity.

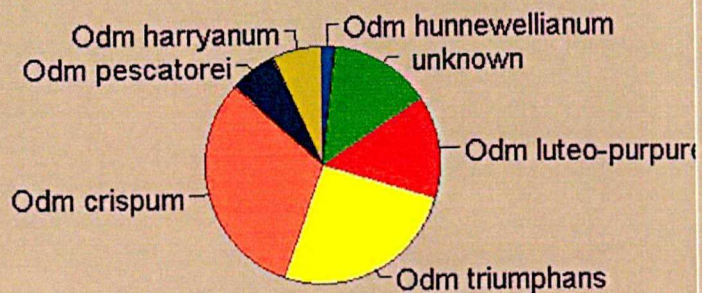
TABLE OF CONTENTS

Preface	i
Forward	v
Chap. I -History	1
Chap. II -Collecting	11
Chap. III -Importation. Of their establishment and of repotting in general	23
Chap. IV -Compost and repotting	32
Chap. V -Odontoglossum greenhouses	41
Chap. VI -Of watering, sprinkling, and ventilation	48
Chap. VII -Culture of winter	55
Chap. VIII -Culture of summer	63
Chap. IX -Mexican Odontoglossums	69
Chap. X -Culture of Odontoglossums in leaf mold	76
Chap. XI -Essay on culture in the country of the midi (South of France)	85
Chap. XII -Insects	91
Chap. XII -Diseases of Odontoglossums	99
Chap. XV -Presentation on the state of plants too old or Diseased, and the multiplication of rare varieties	105
Chap. XVI -Some words on beautiful Odontoglossums And their value	127
Chap. XVII -Study of Odontoglossum lips	142
Chap. XVIII -Some complimentary advice	162
List of principal species of Odontoglossum	168
Tables describing the species	170

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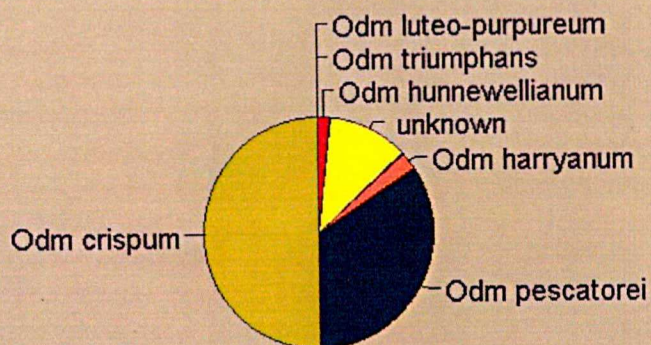
Species	Contribution
Odm hunnewellian	1.76%
unknown	14.06%
Odm luteo-purpure	14.06%
Odm triumphans	25.78%
Odm crispum	31.05%
Odm pescatorei	6.45%
Odm harryanum	6.84%

Odm Michael Newman Species Analysis



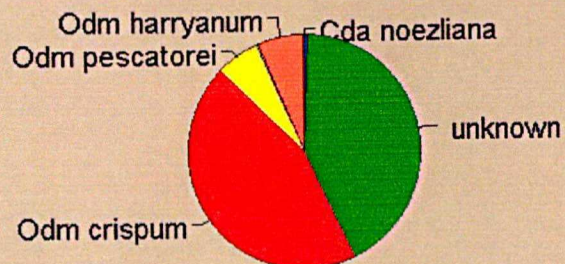
Species	Contribution
Odm luteo-purpure	.05%
Odm triumphans	.05%
Odm hunnewellian	1.56%
unknown	11.72%
Odm harryanum	2.54%
Odm pescatorei	33.89%
Odm crispum	50.20%

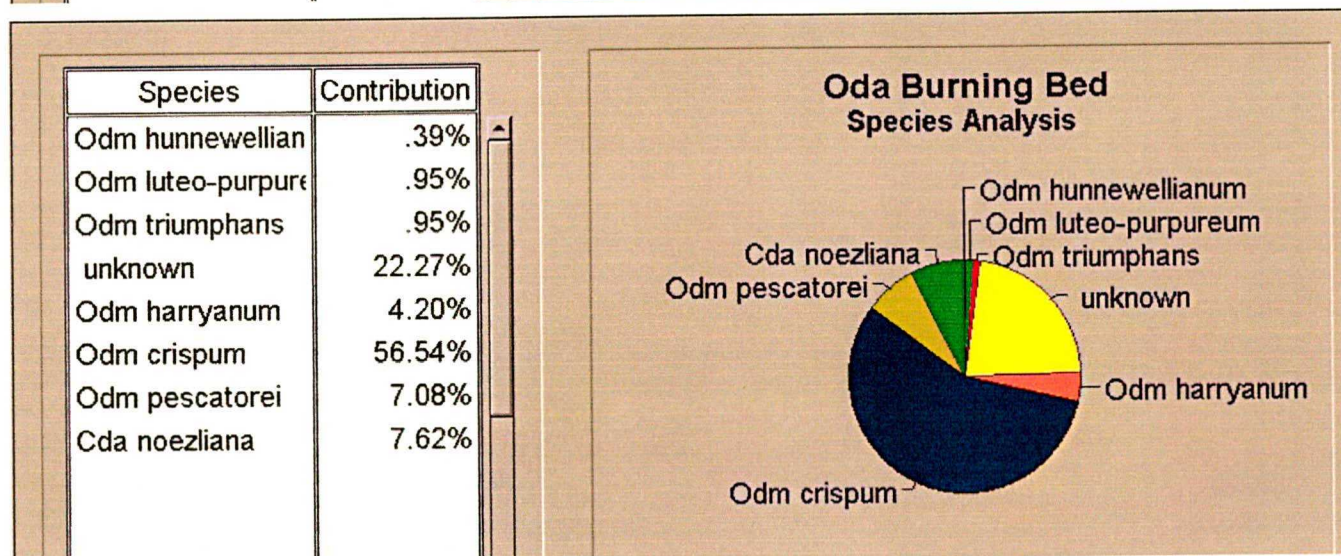
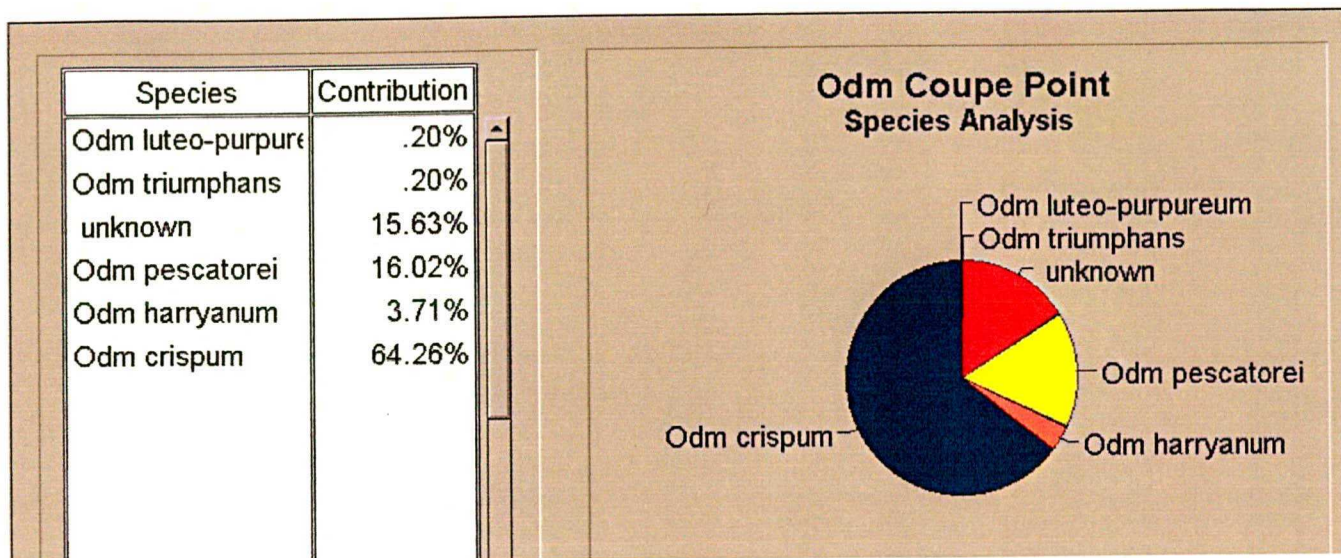
Odm Jim Mintsiveris Species Analysis



Species	Contribution
Cda noezliana	.78%
unknown	42.19%
Odm crispum	44.43%
Odm pescatorei	6.05%
Odm harryanum	6.54%

Oda Mirror Lake Species Analysis





Helcia brevis
photo: R. Thompson



Leochilus hagsateri
photo: S. Dalstrom



**Mesospinidium
incantans**
photo: Kennedy-SEL