The Orchid Society – Royal Botanical Gardens

Orchidata

July 2015

Message from the Executive

Our AGM/ Strawberry Social / Swap and Sale took place on June 14, 2015, a little early for the strawberry season unfortunately, but we still had lots of nice treats on the table.

On behalf of all the members, we would like to take this opportunity to thank Lynda Vuurman for her many years of service to the Society as Vice-President, President and Past President. Wendy Hearder-Moan, in particular, wishes to acknowledge Lynda's invaluable advice and guidance over the past two years, which enabled her to survive as President. Lynda has also played a very active role in coordinating the judging at our Show and setting up displays at outside Shows and we earnestly hope that she will continue to participate in these activities.

There will be a few new faces on the Executive Board in the coming year and a number of current members have changed portfolios.

Jocelyn Webber is the Show Chair for 2015-2017, replacing Ben Boers, although Ben will continue as RBG Liaison and we hope he will also play a significant role in the Show, helping Jocelyn learn what needs to be done. It is a big job and one of her first tasks will be to recruit committee members. If you can offer your assistance, please do.

Yvette Mondesir has agreed to take over the Membership portfolio and we welcome her to the Board. The outgoing Membership Secretary, Jacquie Goddard, will remain as Orchidata editor, replacing Drew Goddard. Drew, meanwhile, is your new President. Wendy Hearder-Moan steps back, becoming Past-President, but will also wear the Librarian's hat for the upcoming term. The previous Librarian, Penny Lipcsik, has not been able to participate lately for personal reasons.

The incumbents will continue in the following positions: Nancy Freckleton (Publicity), Bob Gibbon (Flasking) and, as mentioned, Ben Boers (RBG Liaison).

Of course this represents only half of the Executive; the other positions come vacant at the next AGM and it's not too soon to give it some thought if you are interested in being more active within the Society. As a matter of fact, we are still looking for a Vice-President or Co-ordinator of Outside Shows. If you could devote some time to the Society, please contact Drew Goddard or any member of the Executive.

A membership survey was distributed at the May meeting and is also available on the website in a handy fill-in format. In particular, we are soliciting your ideas about programs for the upcoming year. Lauren Booklin is working on programming and would be very pleased to hear from you as to what topics you would like to learn more about or who you would suggest as a speaker.

The next event on our agenda is the picnic which will take place on July 26, 2015, starting at 1:30 p.m. at the home of the Past-President, 3039 Britannia Rd., Burlington. An email has been sent out with details, but if you are not on the email distribution list and need more information, contact Wendy at 905-335-4055. Let's hope the third time is the charm in terms of weather!

Monthly Meeting Schedule OSRBG

Date	Locations
July 26, 2015	President's Picnic
August 16, 2015	Room 5
September 20, 2015	Room 5
October 18, 2015	Room 5
November 15, 2015	Room 5
December 13, 2015	Room 5

Upcoming Events

July 26 2015 **– OSRBG Presidents Picnic**
Wendy Hearder-Moan Home 3039 Britannia Rd., Burlington

Aug 16, 2015 – **OSRBG General Meeting, Room 5. Plant sales commence at 1:00 pm &Meeting to begins at 2:00 pm. Programme:** TBA.

Sept 20, 2015 – **OSRBG General Meeting, Room 5. Plant sales commence at 1:00 pm &Meeting to begins at 2:00 pm. Programme:** TBA.

Sept 26 & 27, 2015 **–Central Ontario Orchid Society Show and Sale,** Cambridge Hespeler Arena, 640 Ellis Road, Cambridge. Celebrating their 30th year.

Orchid seductress ropes in unsuspecting males

Written by Samille Mitchell
http://www.sciencewa.net.au/

The Drakaea livida (pictured) is in the same family as the orchid from a Kalbarri population which attracts a rare and poorly known wasp species. *Image: Jean and Fred*

A SINGLE population of a rare hammer orchid species known as a master of sexual deception appears to have recently evolved to seduce a new and wider-spread species of impressionable male wasps.

The kneeling hammer orchid (*Drakaea concolor*) emits chemicals that mimic the sex pheromones produced by female wasps—a ruse to trick unsuspecting male wasps of a particular species into visiting its flowers in an attempt to get lucky.

In the process the wasp unwittingly picks up pollen which it later transfers to other flowers for pollination.

Australian National University post doctoral research fellow Ryan Phillips studied populations of the orchid in different WA locations including in the Mid West to understand which species of wasp they attract for pollination.

By moving orchid flowers from different geographical locations to wasp-rich sites he could work out which orchid populations attracted which type of wasp.

The task was made simpler by the extremely strong lure of the orchid's pheromone-mimicking chemical—an attractant which entices wasps within minutes, while some enthusiastic studs were sometimes attracted within mere seconds.

"In one case I was sitting at some traffic lights in Bunbury with another species of hammer orchid on the passenger seat and had a wasp fly in the window and start trying to make love to the flower!" Dr Phillip says.

Dr Phillip's study revealed that the orchid from a Kalbarri population attracted a rare and poorly known wasp species.

Should the rare wasp populations flounder, so too would the orchid species.

Kneeling hammer orchid. Credit: Ryan Phillips

However, a small population of the orchid near Northampton attracted both this rare species and a second

far more common wasp species, which was previously unknown to science.

While the widespread wasp species was also present in Kalbarri, the orchids there failed to attract it.

This begged the question, had the Northampton population evolved to attract the more common wasp species?

“The expectation with plants with geographic variation is that they’ll adapt to attract the most effective pollinator—usually the most common one,” Dr Phillips says.

“While this happened at Northampton, in Kalbarri we had the opposite situation—the rare orchid population is attracting the rare wasp species.”

Dr Phillips says such a situation suggests the Northampton population has experienced gene mutation which has enabled it to produce a chemical that also attracts a more reliable pollinator.

The fact that the Kalbarri population has not yet developed in such a way suggests the Northampton population adaptation has occurred in relatively recent evolutionary times.

Notes: The research also involved scientists from the Botanic Gardens and Parks Authority and the University of Western Australia.

Bletilla striata, a native to China, Japan and Tibet also known as Chinese Ground Orchid.

They flower in late spring/early summer...

Each leaf originates from the pseudobulb underground and appears pleated, reaching a maximum height of about 12 to 18 inches.

...

The spike produced several pinkish-purple nodding flowers.

The flowers resemble small two inch cattleya orchids... six years later, the plant has multiplied considerably and there were at dozens of flower spikes gracing my garden last year.

Judging by the number of shoots that have made an appearance so far, I wouldn’t be surprised if I had at least 50 flower spikes this year.

I also found success with another purple-flowered variety of Bletilla striata, ‘Big Bob’.

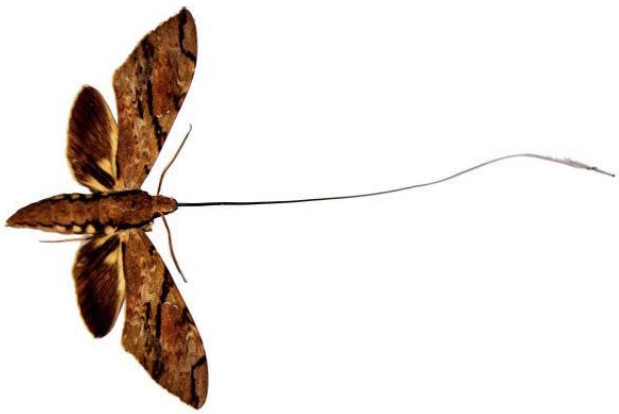
It has been in my garden for five years now, and has multiplied considerably and is taller and a bit earlier blooming than the straight species."

Written by

http://herald-review.com/lifestyles/home-and-garden/plant-palette-chinese-ground-orchid-shows-promise/article_874517ef-4cd6-5783-8625-a5ebf8fc2047.html

Darwin Predicted This Animal's Existence Decades Before Its Discovery

By **Robbie Gonzalez**



Here's a great Charles Darwin story you may not have heard before: In 1862, the famed naturalist foretold the discovery of an unusual animal, based on his observations of a species of orchid endemic to Madagascar. The creature was ultimately discovered in 1903—some 20 years after Darwin's death.

Photo Credit: kqedquest | The *Xanthopan morganii praedicta* specimen in this photo was collected by staff entomologists at the California Academy of Sciences and is part of their collection | CC BY-NC 2.0

The species of orchid in question was*Angraecum sesquipedale*, a plant notable for the unusual depth of its nectar reservoir. The orchid's "whip-like green nectary," Darwin would write in his 1862 book on orchids and the insects that fertilize them, measured "eleven and a half inches long, with only the lower inch and a half filled with sweet nectar. What can be the use, it may be asked, of a nectary of such disproportional length?"

To Darwin, the orchid represented the first half of an evolutionary puzzle. Here was a most unusual flower, the form of which seemed to actively discourage fertilization; what animal would even bother to visit an orchid so possessive of its sugary prize? Such a strange plant, Darwin reasoned, necessitated a correspondingly unusual pollinator. But such a creature was theretofore unknown in Madagascar. As Darwin had written in a letter to his good friend, botanist J.D. Hooker, shortly after examining the orchid for the first time: "I have just received such a Box full from Mr [James Bateman, a well-known orchid grower,] with the astounding *Angraecum sesquipedalia* [*sic*] with a nectary a foot long. Good Heavens what insect can suck it." [Photo credit: Thérèse Viard | CC BY-SA 3.0]

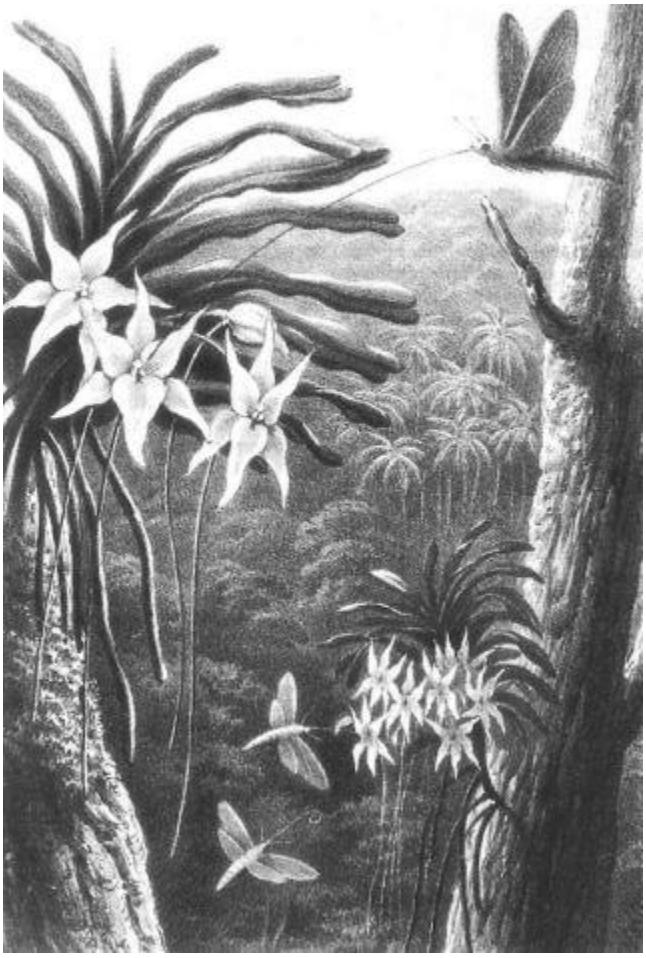
Based on a thorough inspection of the orchid, Darwin would later speculate not only on said insect's existence, but on its coevolution with *A. sesquipedale*. He describes his observations and presents his hypotheses on pages 198–203 of his book on orchids and their fertilizing insects. I'm tempted to cite the whole damn thing (because it's that good, and you should really read it for yourself), but I'll settle for a lengthy citation (bolding mine):

We shall, I think, see that the fertilisation of the plant depends on this length, and on nectar being contained only within the lower and attenuated extremity. It is, however, surprising that any insect should be able to reach the nectar: our English sphinxes have probosces as long as their bodies; ***but*** *in Madagascar there must be moths with probosces capable of extension to a length of between ten and eleven inches [25—28cm]!*

...*We can thus partially understand how the astonishing length of the nectary may have been acquired by successive modifications. As certain moths of Madagascar became larger through natural selection in relation to their general conditions of life, either in the larval or mature state, or as the proboscis alone was lengthened to obtain honey from the Angræcum and other deep tubular flowers, those individual plants of the Angræcum which had the longest nectaries (and the nectary varies much in length in some Orchids), and which, consequently, compelled the moths to insert their probosces up to the very base, would be fertilised. These plants would yield most seed, and the seedlings would generally inherit longer nectaries; and so it would be in successive generations of the plant and moth. Thus it would appear that there has been a race in gaining length between the nectary of the Angræcum and the proboscis of certain moths; but the Angræcum has triumphed, for it flourishes and abounds in the forests of Madagascar, and still troubles each moth to insert its proboscis as far as possible in order to drain the last drop of nectar.*

Darwin had made two bold predictions. The first pertained to the existence of an as-yet undiscovered species of long-proboscised moth, the second to the coevolutionary relationship between said moth and *A. sesquipedale*. The former hypothesis would bear out some decades afterward; direct support for the latter, however, would come much, much later.

The Predictive Power Of Evolution



Darwin and his predictions were criticized not just by entomologists, but anyone who took issue with his evolutionary theories at large. Among his supporters was Alfred Russel Wallace, the largely overlooked co-discoverer of natural selection. In 1867, in a response to criticisms leveled by one George Campbell (who contended that Darwin's theories on *A. sesquipedale* and its pollinator had omitted "that function of power of Mind which we know as Purpose and Design"—an early articulation of the concept known today as "intelligent design"), Wallace doubled down on Darwin's moth prediction, while sharpening its edge.

His correspondence included this illustration of the as-yet undiscovered moth, its proboscis unfurled, pollinating the orchid with which it was thought to have coevolved. Artist Thomas William Wood had based the illustration on Wallace's descriptions of the predicted moth. These descriptions were, in turn, based on Wallace's familiarity with another well-endowed insect. The African hawkmoth *Xanthopan morganii* (then *Macrosila moranii*), Wallace noted, had a proboscis seven and a half inches long. "A species having a proboscis two or three inches longer could reach the nectar in the largest flowers of *Angraecum sesquipedale*, whose nectaries vary in length from ten to fourteen inches," he wrote. "That such a moth exists in Madagascar may be safely predicted and naturalists who visit that island should search for it with as much confidence as astronomer searched for the planet Neptune,—and I venture to predict they will be equally successful!"

Darwin and Wallace were right. Gene Kritsky describes the discovery of the foretold moth in a 1991 issue of *American Entomologist*:

> *The quest for the giant moth was realized in 1903 when Rothschild and Jordan described a large Madagascan sphinx moth . The new moth was a subspecies of the same moth that Wallace had examined and was appropriately named Xanthopan morganii pradicta. As expected, the moths are large with wingspans of ab out 150 mm and proboscises of about 300 mm.*

I cite Kritsky for two reasons. The first is to call attention to his own expert telling of this epic evolutionary yarn, which the entomologically inclined will no doubt enjoy. The second—and this, in my mind, is maybe the coolest thing about this story—is that when Kritsky wrote these words in 1991, the moth STILL had never been observed visiting or pollinating the orchid—or at least, these visits had never been documented. The moths, Kritsky explained, "are active at night and are apparently quite rare."

In other words, Darwin's larger prediction—that the moth not only *existed*, but had co-evolved with this plant, a plant to which it now served as ideal, pollinating counterpart—remained unproven. But it would not stay unproven for long.

In 1992, 130 years after Darwin's initial prediction, a male *X. morganii praedicta* was captured bearing a viscidium of *A. sesquipedale.* A viscidium is a disc-shaped structure, found on orchids, that sticks to a visiting insect the way crumbs from a cookie might stick to your face. It wasn't direct evidence, but it was close.

That same year, however, with the aid of night-vision equipment, researchers led by University of Erlangen biologist Lutz T. Wasserthal would capture the first ever photographic evidence of*X. morganii praedicta* visiting its orchid. In 2004, 143 years after Darwin's predictions, University of New Orleans biologist Philip J. DeVries would capture videographic evidence of the long-proboscised moth feeding from and pollinating *A. sesquipedale*

Membership

Memberships were due June 1, 2015.

You can renew you membership at the next monthly meeting, or by mailing your cheque to:

Yvette Mondésir
3010 Silverthorn Drive
Oakville, ON L6L 5N6
e-mail: *ydesir521@gmail.com*

Membership Fee: $20.00
Receive a $5.00 discount if you would like to receive the Orchidata newsletter via e-mail.

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Greenhouse Volunteers Needed

As you may know, the Orchid Society maintains the collection of orchids in the RBG greenhouse. This is a significant commitment which cannot be carried out without the help of volunteers.

Currently a group of volunteers meets on Thursday mornings from 9:30 to noon, more or less, and another group meets on Sunday mornings from about 10 until 12:30. This schedule is dictated by watering requirements. Volunteers are currently being sought for both these teams. "On the job" training is provided if needed.

In addition to watering, volunteers look after repotting the orchids, cleaning any plants that are being attacked by pests, removing dead leaves, sterilizing pots and other equipment, preparing plants for display and many other small but important tasks.

Volunteers are not required to attend every week, but some commitment to the collection should be demonstrated. If you are able to devote some time to helping us maintain the orchids, please contact Pat Vuurman (*pvuurman@hotmail.com*) regarding the Thursday group, or Denise MacLeod (*pmacleod5@cogeco.ca*) if you can volunteer on Sundays.

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Flasking Group

Anyone interested in flasking please give Ben Boers, Pat Vuurman or Bob Gibbon a call for details

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2015 – 2016 Executive & Contacts

President	**Drew Goddard**	905-635-6342
Past President	**Wendy Hearder-Moan**	905-335-4055
Vice-President	**Vacant**	
Treasurer	**Gavin Clark**	905-274-4888
Secretary	**Jacqui Arrindell**	905-528-1060
Membership	**Yvette Mondésir**	905- 825-1472
Newsletter	**Jacquie Goddard**	905-635-6342
Publicity	**Nancy Freckleton**	905- 628-4198
Native Orchids	**Scott Belton**	416-22-6091
Show Chair	**Jocelyn Webber**	905- 823-6815
Sales & Raffle	**Penelope Petrie**	905-383-3558
Programming	**Lauren Booklin**	289- 837-1462
COC Rep	**Peter Decyk**	905-632-1985
AOS/Mid-American Rep	**Peter Decyk**	905-632-1985
Hospitality	**Greta Culley**	905-648-0144
Librarian	**Wendy Hearder-Moan**	905-335-4055
Flasking	**Bob Gibbon**	905-387-1993
Orchid Collection	**Olga Jokutaitis**	905-544-9894
Orchid Collection	**Pat Vuurman**	905-527-4951
RBG Liaison	**Ben Boers**	905-701-8102

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Honorary Lifetime Member

Dr. James Brasch

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Membership and Address Changes

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Orchidata
Deadline for the August Newsletter is August 4, 2015

Please note that Orchidata news and orchid society newsletters should be sent to:

Jacquie Goddard
2037 Coral Crescent
Burlington, ON L7P 3K4
e-mail: *krackerjac@hotmail.com*

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