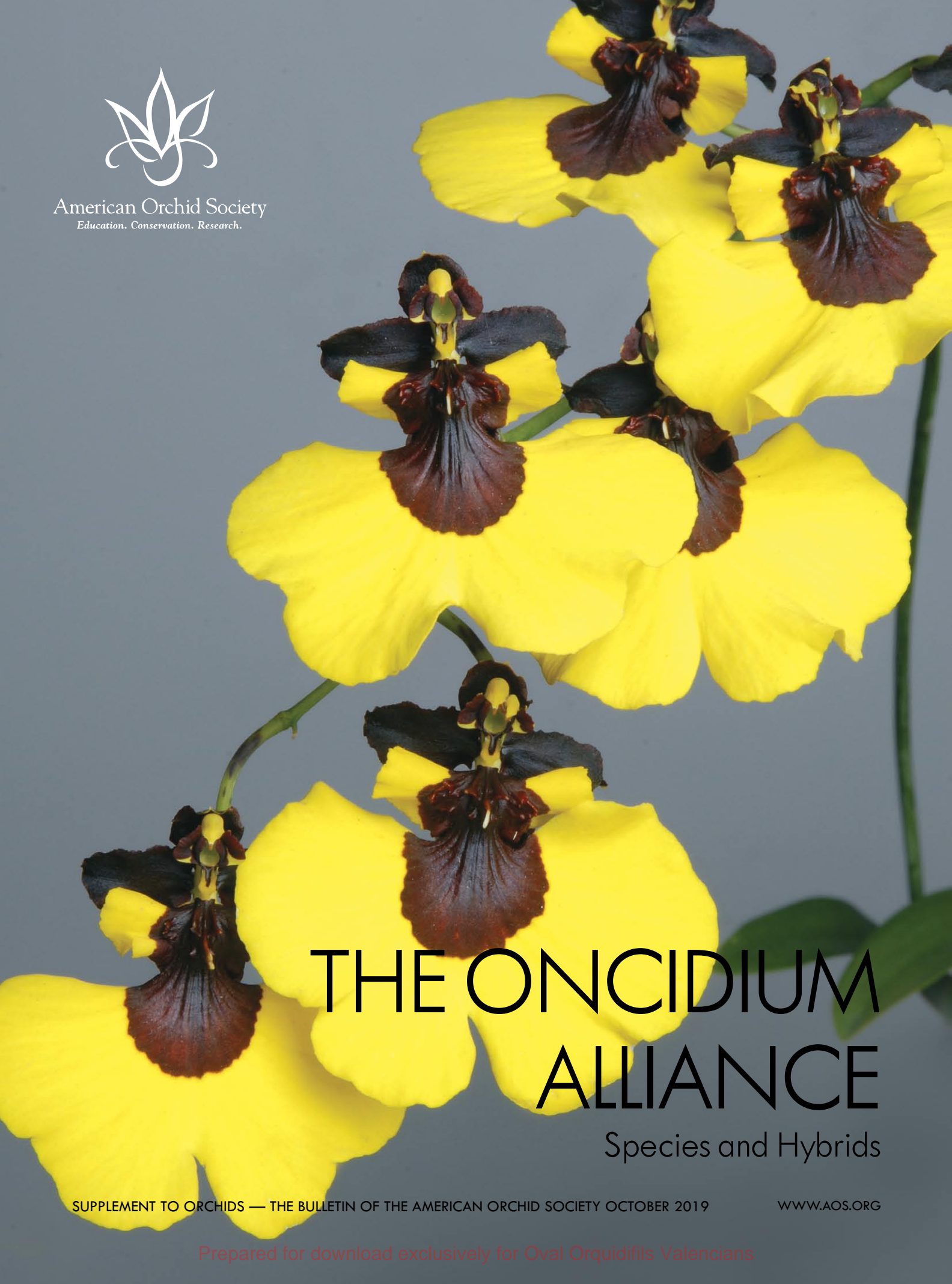




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# THE ONCIDIUM ALLIANCE

Species and Hybrids

SUPPLEMENT TO ORCHIDS — THE BULLETIN OF THE AMERICAN ORCHID SOCIETY OCTOBER 2019

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Over the years, names in the Oncidiinae have undergone numerous changes as taxonomists have tried to better classify the various members of then group. For instance, those species currently classified as Rhynchostele have been called Amparoa, Cymbiglossum, Lemboglossum and Odontoglossum. The authors of historical articles on the development of hybrid lines have, for the most part, chosen to use historical names. For currently accepted hybrid names, consult the Royal Horticultural Society Orchid Hybrid Register (<http://apps.rhs.org.uk/horticulturaldatabase/orchidregister/orchidregister.asp>) and the World Checklist of Selected Plant Families ([https://wcp.science.kew.org/prepareChecklist.do?checklist=selected\\_families%40%40242300820190045475](https://wcp.science.kew.org/prepareChecklist.do?checklist=selected_families%40%40242300820190045475)) for species names.

<i>Ada</i> (AY-da)	<i>Gomrassiastele</i> (gom-rass-ee-a-STEE-lee)	um)
<i>alba</i> (AL-ba)	<i>grande</i> (GRAN-dee)	<i>Otorhynchostele</i> (oh-toh-rink-oh-STEE-lee)
<i>alborubra</i> (al-boh-ROO-bra)	<i>guianense</i> (gee-an-EN-see)	<i>Otostele</i> (oh-toh-STEE-lee)
<i>alexandrae</i> (al-leks-AN-dree)	<i>hagsaterianum</i> (hag-sat-er-ee-AY-num)	<i>papilio</i> (pa-PEE-lee-oh)
<i>Aliceara</i> (al-iss-ARE-a)	<i>hallii</i> (HALL-ee-eye)	<i>pescatorei</i> (pes-kah-TORE-ee)
<i>altissimum</i> (al-TISS-ih-mum)	<i>Hamiltonara</i> (ham-ill-ton-ARE-a)	<i>Phalaenopsis</i> (fail-en-OP-sis)
<i>ampliatum</i> (am-plee-AY-tum)	<i>harryanum</i> (hair-ee-AY-num)	<i>Phragmipedium</i> (frag-mih-PEED-ee-um)
<i>aptera</i> (AP-ter-a)	<i>hastatum</i> (hast-AY-tum)	<i>powellii</i> (POWELL-ee-eye)
<i>arizajuliana</i> (a-ree-za-hoo-lee-AY-na)	<i>henekenii</i> (hen-eh-KEN-ee-eye)	<i>Psychassia</i> (sy-KASS-ee-a)
<i>Aspasia</i> (a-SPAY-zee-a)	<i>hortensiae</i> (hor-TENZ-ee-eye)	<i>Psycocentrum</i> (sy-ko-SEN-trum)
<i>aspera</i> (a-SPER-a)	<i>Howeara</i> (how-ARE-a)	<i>pulchella</i> (pul-KEL-la)
<i>aurantiaca</i> (aw-ran-tee-AY-ka)	<i>humeana</i> (hume-AY-na)	<i>pygmaea</i> (pig-MEE-a)
<i>aurarium</i> (aw-RARE-ee-um)	<i>imperatoris-maximiliani</i> (im-per-ah-tore-iss-maks-ih-mill-ee-AN-ee)	<i>recurva</i> (ree-KUR-va)
<i>aureorubra</i> (aw-ree-oh-ROO-bra)	<i>insleayi</i> (INS-lee-eye)	<i>regnellii</i> (reg-NELL-lee-eye)
<i>Banfieldara</i> (ban-field-ARE-a)	<i>jonesianum</i> (jones-ee-AY-num)	<i>Rhynchosia</i> (rink-OH-nee-a)
<i>Beallara</i> (beel-ARE-a)	<i>kramerii</i> (KRAY-mer-eye)	<i>Rhynchostele</i> (rink-oh-STEE-lee)
<i>besseae</i> (BESS-ee-eye)	<i>krameriana</i> (kray-mer-ee-AY-na)	<i>Rodriguezia</i> (rod-rih-GUESS-ee-a)
<i>bictoniensis</i> (bik-tone-ee-EN-sis)	<i>lamelligerum</i> (lam-el-LIH-ger-um)	<i>Rodrumnia</i> (rod-RUM-nee-a)
<i>bismarckii</i> (bis-MARK-ee-eye)	<i>lanceanum</i> (LANCE-AY-num)	<i>roezlii</i> (ROZE-lee-eye)
<i>bluntii</i> (BLUNT-ee-eye)	<i>lehmannii</i> (lay-MANN-ee-eye)	<i>rossii</i> (ROSS-ee-eye)
<i>Brachtia</i> (BRAK-tee-a)	<i>Leochilus</i> (lee-oh-KYE-luss)	<i>Rossioglossum</i> (ross-ee-oh-GLOS-sum)
<i>brachtata</i> (brak-tee-AY-ta)	<i>Leomesezia</i> (lee-oh-MEE-zee-a)	<i>Rossitonia</i> (ross-ih-TONE-ee-a)
<i>Bramesa</i> (bram-EE-za)	<i>leucochilum</i> (loo-koh-KYE-lum)	<i>sanderae</i> (SAN-der-eye)
<i>Brasidostele</i> (bras-sid-oh-STEE-lee)	<i>Leucoglossum</i> (loo-ko-GLOS-sum)	<i>santanae</i> (san-TAN-ee)
<i>Brassia</i> (BRASS-ee-a)	<i>lindenii</i> (lin-DEN-ee-eye)	<i>sasseri</i> (SASS-er-eye)
<i>Brassidium</i> (brass-ID-ee-um)	<i>londesboroughianum</i> (lon-des-bur-oh-ee-AY-num)	<i>schlieperianum</i> (schlee-per-ee-AY-num)
<i>Brassochilum</i> (brass-oh-KYE-lum)	<i>luteopurpureum</i> (loo-tee-oh-pur-PUR-ee-um)	<i>schroederianum</i> (shroh-der-ee-AY-num)
<i>Brassostele</i> (brass-oh-STEE-lee)	<i>macranthum</i> (mak-RAN-thum)	<i>sotoanum</i> (soh-toh-AY-num)
<i>Bratonia</i> (bra-TONE-ee-a)	<i>maculatum</i> (mak-yew-LAY-tum)	<i>spectabilis</i> (spek-TAB-ih-liss)
<i>brevifolium</i> (brev-ee-FOL-ee-um)	<i>madrensis</i> (ma-DREN-sis)	<i>spectatissimum</i> (spek-ta-TISS-ih-mum)
<i>Burrageara</i> (ber-age-ARE-a)	<i>majalis</i> (mah-JAY-liss)	<i>sphacelatum</i> (sfeh-sell-AY-tum)
<i>calochila</i> (kal-oh-KYE-la)	<i>Mesoglossum</i> (mee-zoh-GLOS-sum)	<i>splendens</i> (SPLEN-denz)
<i>candidula</i> (kan-DEE-dew-la)	<i>Mesospinidium</i> (mee-zoh-spy-NID-ee-um)	<i>stacyi</i> (STAY-see-eye)
<i>cariniferum</i> (kare-ih-NIF-fer-um)	<i>Miltonia</i> (mil-TONE-ee-a)	<i>stellata</i> (stell-LAY-ta)
<i>Cattleya</i> (KAT-lee-a)	<i>Miltonidium</i> (mil-tone-ID-ee-um)	<i>Ticoglossum</i> (tee-koh-GLOS-sum)
<i>cervantesii</i> (sir-van-TESS-ee-eye)	<i>Miltoniopsis</i> (mil-tone-ee-OP-sis)	<i>tigrinum</i> (tye-GRYE-num)
<i>cirrhosum</i> (sir-HOH-sum)	<i>miniata</i> (min-ee-AY-ta)	<i>Tolumnia</i> (tol-LUM-nee-ah)
<i>clowesii</i> (KLOW-zee-eye)	<i>moreliana</i> (more-ell-ee-AY-na)	<i>Trichocentrum</i> (trih-koh-SEN-trum)
<i>coccinea</i> (kok-SIN-ee-a)	<i>naevium</i> (NEE-vee-um)	<i>Trichopilia</i> (trih-koh-PEE-lee-a)
<i>Cochlioda</i> (kok-lee-OH-da)	<i>nebulosum</i> (neb-yew-LOH-sum)	<i>trilobum</i> (try-LOH-bum)
<i>Colmanara</i> (kol-man-ARE-a)	<i>nobile</i> (NOH-bih-lee)	<i>tripudians</i> (try-PEW-dee-anz)
<i>Comparettia</i> (kom-pah-RET-ee-ah)	<i>noezlianum</i> (noze-lee-AY-num)	<i>triquetra</i> (try-KWET-ra)
<i>compressicaulis</i> (kom-press-ee-KAW-liss)	<i>Odontioda</i> (oh-don-tee-OH-da)	<i>tuerckheimii</i> (terk-HYME-ee-eye)
<i>constrictum</i> (kon-STRIK-tum)	<i>Odontocidium</i> (oh-don-toh-SID-ee-um)	<i>unguiculatum</i> (un-gwee-kew-LAY-tum)
<i>cordata</i> (kor-DAY-ta)	<i>Odontoglossum</i> (oh-don-toh-GLOS-sum)	<i>ureskinneri</i> (yew-ree-SKIN-er-eye)
<i>crispa</i> (KRIS-pa)	<i>Odontonia</i> (oh-don-TONE-ee-a)	<i>urophylla</i> (yew-roh-FILL-la)
<i>Cyrtochilum</i> (sir-toh-KYE-lum)	<i>oerstedii</i> (er-STED-ee-eye)	<i>Vanda</i> (VAN-da)
<i>Degarmoara</i> (day-gar-moh-ARE-a)	<i>Oncidesa</i> (on-sih-DEEZ-a)	<i>varicosa</i> (var-ih-KOH-sa)
<i>desertorum</i> (dez-er-TORE-um)	<i>Oncidiinae</i> (on-sih-DEE-ih-nee)	<i>variegata</i> (var-ee-eh-GAY-ta)
<i>duvivierana</i> (doo-vee-vee-air-AY-Na)	<i>Oncidium</i> (on-SID-ee-um)	<i>velutina</i> (vel-yew-TEE-na)
<i>edwardii</i> (ed-WARD-ee-eye)	<i>Oncidopsis</i> (on-sid-OP-sis)	<i>verrucosa</i> (ver-roo-KOH-sa)
<i>ehrenbergii</i> (air-ren-BERG-ee-eye)	<i>Oncostele</i> (on-koh-STEE-lee)	<i>versteegiana</i> (ver-steeg-ee-AY-na)
<i>epidendroides</i> (eh-pih-den-DROY-deez)	<i>Oncostelopsis</i> (on-koh-stee-LOP-sis)	<i>vexativa</i> (veks-a-TEE-va)
<i>excellens</i> (EKS-eh-lenz)	<i>ornithorhynchum</i> (ore-nith-oh-RINK-um)	<i>vexillaria</i> (veks-ill-LARE-ee-a)
<i>festiva</i> (fes-TEE-va)	<i>oscarii</i> (os-KAR-ee-eye)	<i>Vuykstekeara</i> (vulk-stek-a-ARE-a)
<i>flavescens</i> (fla-VESS-enz)	<i>Otoglossum</i> (oh-toh-GLOS-sum)	<i>warneriana</i> (war-ner-ee-AY-na)
<i>forbesii</i> (FORBS-ee-eye)	<i>Otorhynchocidium</i> (oh-to-rink-oh-SID-ee-um)	<i>warszewiczii</i> (var-shuh-VITZ-ee-eye)
<i>fuscatum</i> (foo-SKAY-tum)		<i>williamsianum</i> (will-lee-ams-ee-AY-num)
<i>galeottiana</i> (gal-ee-ot-ee-AY-na)		<i>Wilsonara</i> (will-son-ARE-a)
<i>Gomesa</i> (GOH-meez-a)		<i>wyattianum</i> (weye-att-ee-AY-num)

# ORCHIDS

The Bulletin of the American Orchid Society

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Supplement to *Orchids* — *The Bulletin of the American Orchid Society* October 2019 Volume 88 Number 10 *Orchids* (ISSN 1087-1950) is published monthly by the American Orchid Society, Inc., at Fairchild Tropical Botanic Garden Editorial Office: 10901 Old Cutler Road, Coral Gables, Florida 33156 (telephone 305-740-2010; fax; email theaos@aos.org; website www.aos.org). ©American Orchid Society, Inc. 2018. Printed by Allen Press, 810 East 10th Street, Lawrence, Kansas 66044. Subscription price of *Orchids* is \$65 a year within the US, \$85 Canada and Mexico and \$105 for all other countries. Single copies of this special supplemental issue cost \$15.00 (plus shipping and handling). Prices are subject to change without notice. While *Orchids* endeavors to assure the reliability of its advertising, neither *Orchids* nor the American Orchid Society, Inc. can assume responsibility for any transactions between our advertisers and our readers. Periodical postage paid at Miami, FL and additional offices. POSTMASTER: Send address changes to: American Orchid Society, Inc., at Fairchild Tropical Botanic Garden, 10901 Old Cutler Road, Coral Gables, FL 33156. The American Orchid Society follows the *World Checklist of Selected Plant Families* with regard to questions of botanical nomenclature and synonymy in orchid species names and the International Orchid Register for hybrid nomenclature and parentage in editorial. The opinions and recommendations that appear in *Orchids* regarding the selection and use of specific plant-care products, including but not limited to pesticides, fungicides and herbicides, are those of the individual authors, and not those of the American Orchid Society, which neither adopts nor endorses such opinions and recommendations and disclaims all responsibility for them. When selecting and using such products, readers should seek and obtain the advice of the manufacturer and of responsible government agencies. Mail date: September 25, 2019.



Printed on 10 percent post-consumer recycled paper.

Supplement to *Orchids* — The Bulletin of the American Orchid Society October 2019

## CONTENTS

### 2 MOIR'S WEEDS

Anita Aldrich

### 10 PSYCHOPSIS

James Heilig, PhD

### 14 BRASSIA AURANTIACA

Norbert Dank

### 21 REFLECTIONS OF A HYBRIDIZER

James McCully

### 28 ONCIDIUM LEUCOCHILUM

Norbert Dank

### 34 ROSSIOGLOSSUM

Norbert Dank

### 40 RHYNCHOSTELE

Norbert Dank and Steven K. Beckendorf

### 47 A SHORT HISTORY OF ONCIDIUM BREEDING

Norbert Dank

### 58 ONCIDIUM STACYI

Robert Fuchs

### 62 ON THE ROAD TO THE SUN

Russ Vernon

### 68 ONCIDIUM TIGRINUM

Jean Allen-Ikeson

### 78 ONCOSTELE WILDCAT

Jordan Hardy

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THE EDITORIAL BOARD recognizes the generosity of Oncidiinae growers and lovers for their contributions to this Supplemental Issue of *Orchids*. When we all work and join together, wonderful things such as this celebration of Oncidiinae are possible. A special thanks to the authors and photographers who contributed their time and enthusiasm to this issue. — Jean Allen-Ikeson

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## COVER

Gomesa Mulattas' Dancing (*Itaquera* × *insignis*), photographed by Greg Allikas at the Sociedad Colombiana de Orquideología Show in Medellín, Colombia, illustrates the striking beauty in the *Oncidium* Alliance. The hybrid involves only four species; *Gomesa concolor*, *varicosa*, *imperatoris-maximiliani* and *insignis*.

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# Moir's Weeds

The Genus  
*Tolumnia*

BY ANITA ALDRICH



WEEDS, INDEED! WHEN W.W. Goodale Moir first started his curiosity-driven work with the genus *Tolumnia*, he was accused of breeding weeds. However, his journey actually produced some of the loveliest little gems in the orchid world. So, just what are these little plants and what is the mysterious allure that would prompt a grown man to play with “weeds”?

*Tolumnia* is a genus of small-growing orchids native to the West Indies with some species endemic to a single island. Their growth habit is distinctive with tiny pseudobulbs hidden by somewhat fleshy leaves triangular in cross section and overlapping at the bases (much like those of irises). Because of this overlapping nature of the leaves, the plants are often referred to as “equitants,” a term derived from the Latin *equitan* meaning astride a horse. The plants are sympodial, but in most cases, the rhizomes are so short that the entire plant appears as a clump. A few species have more elongated rhizomes producing the new growths at the ends of flexible stems giving the plants a rangy, jumbled look with a charm all their own. Some form keikis (plantlets) on the old flower stems, adding to the showy tangle. Few-to-many, white, pink or yellow flowers, usually about an inch (2.5 cm) wide, are borne on slender inflorescences that may be single or branched. The most striking feature of the flowers is the large, skirt-like lip, which flares out below the smaller dorsal sepal and petals and completely obscures the joined lateral sepals. A superbly grown plant can sport numerous growths with hundreds of flowers in a stunning display. This spectacle of large-lipped blossoms waving in the breeze has earned them the common name of dancing ladies.

*Tolumnias* are well adapted to their natural habitats as “twig” epiphytes. They are often found perched at the ends of tree branches or clinging to grass stems exposed to high light and abundant air movement. Species needing slightly more moisture thrive in sheltered areas closer to the trunks of trees. Rains and dews are frequent, but their exposure allows the plants to dry quickly.

As with most orchids, the seeds are wind-dispersed. Given the constant trade winds in the natural habitat, the seeds are fitted with tiny hooks to help them anchor in place once they land. These winds can also act as a dispersal agent by snapping the brittle rhizomes of the rangier species, carrying the plantlets to new lodgings.

**TAXONOMY** *Tolumnias* are sometimes referred to as variegata oncidiums,



AWARD ARCHIVES



CRAIG PLAHN



JAMES ØSEN

a term commonly used before the recent taxonomic realignment of the *Oncidium* Alliance. They were originally placed in the genus *Oncidium* (Sw.). In 1922, Kränzlin (1922) placed them in *Oncidium* section *Variegatum*. There they remained despite many discussions over the years of how different they seemed from the rest of the genus. Braem (1986) ultimately reclassified them as *Tolumnia*. This genus name was reinstated by priority from the first use of it by Rafinesque (1837). The origin of the name is uncertain but is believed to be derived from *Tolumnias*, the name of a King-Soothsayer in Virgil's *Aeneid*. Today the World Checklist of Selected Plant Families (WCSPF, sometimes referred to as the Kew Monocot List) recognizes the genus comprised of 27 species and three natural hybrids.

Some confusion has been generated

- [1] *Tolumnia variegata* ‘Robert Bailey’ CCM/AOS. Photograph by Greg Allikas.
- [2] *Tolumnia arizajuliana* ‘Willow Pond’ CBM/AOS
- [3] *Tolumnia pulchella* ‘Pink Ruffles’ HCC/AOS
- [4] *Tolumnia guttata* ‘Orchidom’ CCM/AOS

by the taxonomic change from *Oncidium* to *Tolumnia*, especially in archived materials. In some cases, the new name has not been carried over, requiring the referencing of information using both names. For the purpose of this article, breeding references are confined to intrageneric *Tolumnia*.

**HORTICULTURAL HISTORY** William Whitmore Goodale Moir (1897–1985) lived in Hawaii and frequently traveled around the world to various cane-growing

areas in his capacity as an agronomist with the Hawaiian sugar industry. He collected many species of orchids along the way and became known for his extensive and often unconventional pairings in various genera, but his name is most often associated with *tolumnias*.

It was in the 1950s that he was captivated by a profusion of brightly colored flowers scrambling over the vegetation along a roadside in the Dominican Republic. This innocent stop just to take a look precipitated a fortuitous turn in the course of orchid history. Moir and Moir (1980) describes his experience in the preface to his book, "Breeding Variegata *Oncidium*":

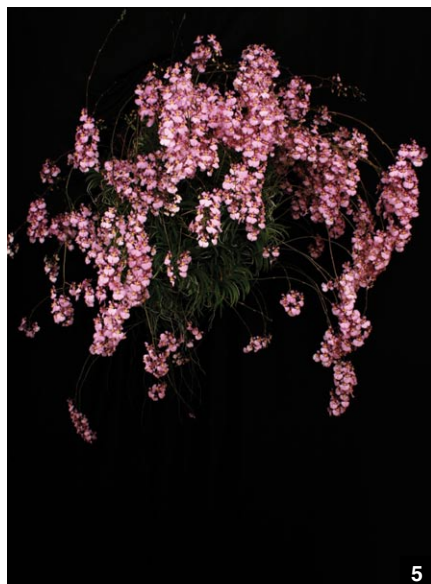
"There were two species — *variegatum* in lavender-pink and *guianense* in yellow. The stolons on the *variegatum* plants acted as barriers and prevented us from penetrating into the bush. We had never, nor have we since, seen such an exciting sight, and our enthusiasm was shared by our guides and other members of the party. ...We immediately realized that people were attracted by these tiny orchids in a way that was not the case with other orchids...and today a great number of people have been smitten with the beauty of these flowers." (p. xi)

It must have been a breathtaking sight indeed. Totally smitten himself, Moir began collecting *Tolumnia* species as he traveled around the Caribbean islands and began breeding them in his garden in Hawaii, only to be accused of breeding orchid weeds! Through his curiosity, efforts and botanical expertise over more than 30 years, he discovered an unexpected mother lode of beauty. As a result, this group of orchids lured other notable breeders to join the quest for new and exciting varieties. Today, *tolumnias* claim their own circle of devotees!

Moir registered his first *tolumnia* crosses in 1957 and gained momentum through the 1960s and 1970s originating and/or registering over 200 crosses. Even into the early 1980s, several more of his hybrids were registered.

Through his experience, he found that five species rose to the surface as cornerstones in *Tolumnia* breeding: *urophylla*, *pulchella*, *triquetra*, *henekenii* and *guianensis* (which he noted had three color variants in addition to the typical yellow form: *alba*, *alborubra* [white and red] and *aureorubra* [yellow and red]). These five species are in the background of virtually all *tolumnia* hybrids in some combination.

Following Moir's initial foray into



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the "weed" garden, others began to notice his progress and were inspired by the foundation that he was building. By 1975, several hundred crosses had been registered and had received a smattering of American Orchid Society awards. Many small backyard growers who were charmed by the displays of colorful flowers and their ease of culture were beginning to add to the mix with occasional "what if" crosses. For others, breeding *tolumnias* became a significant focus of effort with defined goals.

In 1975, the breakthrough grex *Tolumnia* Golden Sunset appeared on the scene. The cross was made by Robert and Susan Perreira and registered by Francis Aisaka. A fairly simple hybrid of Tiny Tim x Stanley Smith, it combined four of the five species Moir had determined were the most valuable for hybridizing (*urophylla*, *triquetra*, *pulchella* and *guianensis*). The best qualities of each of these species combined in Golden Sunset to produce an impressive and seemingly unlimited range of colors and patterns, belying the relatively plain and simple ancestry.

*Tolumnia* Golden Sunset was a cross of exceptional quality in its own right. Between 1975 and 2011 numerous clones received 51 quality and five cultural awards from the American Orchid Society. (For a full discussion of this extraordinary hybrid see Aldrich, 2001).

With Golden Sunset now in the hands of both commercial and hobbyist growers, hybridizing took off. Currently, it has figured as a direct parent of over 110 crosses (37 of them have received just under 150 AOS awards). Numerous subsequent progeny have extensive award histories as well. Golden Sunset may well be considered the cornerstone of modern *tolumnia* hybridizing — a true building block in orchid hybridization.

Golden Sunset's extraordinary value as a parent became evident during the decade of the 1980s and into the 1990s. Hobbyists were taking note, and the popularity of *tolumnias* exploded. The most active hybridizers were the Perreiras, Richard and Stella Mizuta, and Jon and Kaoru Oka in Hawaii. They produced many popular and stunningly patterned crosses

such as Robsan, Magic, Sniffen, Seka, Irene Gleason and Stunner among others. Jones & Scully made Dawn to Dusk; one strain receiving an Award of Quality (AQ) in 1980. By 1990, at least four other grexes with Golden Sunset ancestry had received AQs from the AOS. Of interest also is that four of the five First Class Certificate (FCC) clones awarded through 2018 have Golden Sunset ancestry. Oddly, Golden Sunset itself has never received an AQ or an FCC.

During the 1990s and 2000s, several other breeders joined the hunt, and new colors and patterns were developed. Some modern *tolumnia* hybrids of note include Sundown Reef, Galveston Bay, Red Bird Reef, Little Bird Reef, Elfin Star, Maple Dancer, Native Dancer and April Dancer, and the list goes on. A comprehensive treatment of modern *tolumnia* hybridization was published in *Orchids* in 2012 (Cole, 2012).

Moir's curiosity led him to experiment with introducing other *Oncidiinae* genera into *tolumnia* breeding. In general, he found that many of the capsules, even if they reached maturity, were virtually empty of seeds. The few seeds that were produced did not germinate or the seedlings failed to grow past a certain point. He observed that "successful" crosses lost much of their *tolumnia* character, being dominated by the other parent, and many of them were sterile as well. As a result, he noted that with all his trials "none of these have equaled the pure *Variiegata*" (Moir and Moir, p. 81).

At that time, *Rodriguezia* species seemed to be the most promising match for *Tolumnia* and were used mainly in an attempt to increase the flower count. Efforts were relatively successful in the early hybrids although with some loss of shape, as Moir lamented. Nonetheless, the better ones were used to breed further, but not nearly to the extent of the *Tolumnia* × *Tolumnia* hybrids. Because of extensive breeding back to *Tolumnia* to maintain colors, patterns and shape, modern *rodrumnias* are virtually indistinguishable from straight *Tolumnia* hybrids.

**FUTURE OF BREEDING** During the early 2000s, activity was declining as much of the potential seemed to have been tapped. While Moir's top five species were used extensively to extract the marvelous array of hybrids we enjoy today, the development of complex hybrids to such a high point begs the question, where can we go from here?

Although Moir maintained — and so



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far his contention has been correct — that the five main species noted above were the only ones of value in breeding, there is still room to explore some of the lesser-used species as well. Some of these will have little value, as Moir found. Others may take the breeding in unexpected and satisfying directions, similar to the experiences of novelty *Paphiopedilum* breeders in the late 1980s and 1990s. Selectively breeding with any interesting characteristics that present themselves should be worth a try. We now have the advantage of more material exhibiting enhanced traits. New features can be investigated to see what happens, but time and patience will be the key. We cannot expect to achieve significant results in one or two generations.

The pink and the yellow *tolumnias* are rather like the white *Phalaenopsis* in that they have reached a general level of high quality that is hard to surpass. Yet, mainstream breeding continues to produce combinations of patterns and spots that surprise and delight growers.

What about whites? As individual flowers, whites may not be as exciting as the more colorful and patterned forms. However, given the tendency of *tolumnias* to produce abundant growths and inflorescences, the sheer impact of a mass of white flowers can be dazzling.

These may be difficult to come by since there are few, if any, *alba* forms to work with, and those species that are white usually do not exert much positive influence overall. So far, white flowers have occasionally been produced by the "backdoor" approach of mating pinks and yellows. For example, the pink *Tolu. pulchella* crossed with the yellow *Tolu. guianensis* produced Waikiki Sunset, a large-lipped white with large, rounded



BRYON RINKE

- [5] *Tolumnia sylvestris* 'Natural World' CCE/AOS
- [6] *Tolumnia guianensis* exists in multiple color forms. Shown here is the alborubrum form 'Katharine Jamison' HCC/AOS photographed by Charlie Riner. The inset is a typical yellow form 'Lemon Sun' HCC/AOS from the AOS award archives.
- [7] *Tolumnia triquetra* 'Jamaica Duppy' AM/AOS; a rare xanthic form.
- [8] A more typical form of *Tolumnia triquetra*.
- [9] *Tolumnia guibertiana* 'Bryon' CBR/AOS
- [10] *Tolumnia prionoichila* 'Peter A.' CHM/AOS
- [11] *Tolumnia calochila* 'Bryon' AM/AOS



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[12] *Tolumnia* Native Dancer 'Robert Garrison' HCC/AOS. Photograph by Charles Marden Fitch.

[13] *Tolumnia* Galveston Bay 'Chase' AM/AOS. Photograph by Butch Usery.

[14] *Tolumnia* Sundown Reef 'Spotted Ewok' AM/AOS. Photograph by Butch Usery.

[15] *Tolumnia* Elfin Star 'Puanani' AM/AOS. Photograph by Charles Rowden.

[16] *Tolumnia* Orchidom Bulls Eye 'Dead Aim' HCC/AOS. Photograph by James Osen.

[17] *Tolumnia* Orchidom Stunner 'Chameleon' HCC/AOS. Photograph by James Osen.

[18] *Tolumnia* Walnut Valley 'M&B Strawberry' AM/AOS. Photograph by Bryon Rinke.

[19] *Tolumnia* Maple Dancer 'Sixmile Creek' HCC/AOS. Photograph by Geoffrey Gould.

[20] *Tolumnia* Red Bird Reef 'David' AM/AOS. Photograph by Theresa Riggs.

[21] *Rodrumnia* Orchidom Valentine 'Pedregal' AM/AOS. Photograph from the AOS archives.

[22] *Rodrumnia* Orchidom Dancer 'Burgundy Chateau' AM/AOS. Photograph by Bill Johnson.

[23] *Tolumnia* April Dancer 'Sundance' AM/AOS. Photograph by Jim Butler.

petals. But can these offspring continue to pass on the white color? The recently awarded *Tolu. triquetra* 'Jamaica Duppy' AM/AOS is an exciting new variant. Selfing it should produce white flowers if it is a true alba, a worthy end in itself. If not, selective self- and sib-crossings of the progeny may lead to a source of pure whites. If the *alba* form of *Tolu. guianensis* could be brought into cultivation, it could also be a valuable resource for large, full whites.

What about increasing floriferousness? Individual inflorescences often produce branches as the main flush of flowers begins to fade. One direction to explore would be encouraging these branches to develop sooner and ultimately bloom simultaneously with the main stem.

The species *Tolumnia compressicaulis* has the tendency to branch with near simultaneous blooming on the branches. Two earlier trials produced *Tolumnia Caribbean Stars* (× *pulchella*) and *Tolumnia Calypso Dancer* (× *Classy*) with inflorescences showing good branching. The pink parents mated with the yellow *Tolu. compressicaulis* also produced white flowers. A possible inroad to whites AND floriferousness? A later cross, *Tolumnia Golden Triangle* (Margie Crawford × *compressicaulis*), shows promise toward increasing floriferousness. Unfortunately, *Tolu. compressicaulis* seems to prefer somewhat cooler-growing conditions than some growers can give. Mating it with warmer-growing forms may help on this count as well.

*Tolumnia calochila* can be somewhat difficult to grow, but it has a charm all its own with its delicately fringed lip and the delightful added asset of its violet-like fragrance. Moir felt it lost most of its characteristics in breeding, and only a handful of crosses were registered through 2004. No further breeding has been done to any extent. The few crosses the author has seen showed a pleasant fringing on the lip, and the shape, though not full like the mainstream tolumnias, had a certain elfin charm. One of the nicest was *Tolumnia Caribbean-Jewell* (× *pulchella*) 1977, but its use was not pursued. *Tolumnia Feathered Dancer* (× *Classy*) 1996 picked up both the fragrance and the fringe, so the potential is there. Careful selection of parents through several generations will determine if the difficulties can be overcome and its assets accentuated.

Two intriguing species yet to be fully explored are *Tolumnia arizajuliana* and

*Tolumnia tuerckheimii*. These species represent a departure from the familiar full-lipped tolumnia shape and both have small flowers an inch or less in size on small compact plants. They will be something of a challenge based on Moir's notes for them. The first hurdle may well be acquiring them and providing their needs in cultivation, since little is known about them. Moir indicated that both come from upper elevations in Hispaniola, and *Tolu. tuerckheimii* may even be found at the frost line. He also remarked that seedlings did not grow well. Chromosome numbers were not known for these at the time, but today's technology can provide more insight into the compatibility aspect of these lines of breeding.

*Tolumnia tuerckheimii* is an interesting and attractive species. The flowers resemble mainstream equitants except that the lip has a reduced midlobe and side lobes with an elongated isthmus. Color is pale to bright yellow, more or less evenly spotted red brown. What might this do for patterns?

*Tolumnia arizajuliana* is a rare and unique species. The plants are very small, compact and carry few flowers that are golden brown with splashes of pink on the mid- and side lobes of the lip. The lateral sepals are not joined behind the lip but project outward giving the flower a stellate appearance. The lip midlobe is small and triangulate with the isthmus elongated and flanked at the upper end by reduced, oar-like side lobes. The most interesting features of the flower are the large, pure-white column wings. How would these be expressed in its hybrids?

The use of other *Oncidiinae* genera with *Tolumnia* did not seem worth the effort to Moir early in the game. Today with such a marvelous assortment of tolumnia hybrids, there is a better chance they may provide "what if" hybridizers with fascinating new directions.

As far as breeding behavior among the various species, Moir noted that most tolumnias carry chromosome numbers of 40, 42 and 84, which may account for ease of matching. Compatibility may be another issue to deal with among the more complex hybrids. These counts were based on 1977 data, and an up-to-date recount of all the *Tolumnia* species is advised. Advances in DNA research may prove to be of help here, and point to combinations both intra- and intergeneric that may have a reasonable chance of success. More formal research needs to be done, but the adventurous hybridizer, like Moir, should not wait for a "sure



ERIC HUNT

[24] *Tolumnia velutina* (now considered a synonym of *Tolu. variegata*.)

bet."

Although tolumnias may currently be in a somewhat depressed period of popularity, this may partly be due to the lack of exploration into some of the possible new directions. New colors, patterns and forms should provide the impetus to rekindle interest in them. Like the elegant white phalaenopsis and the standard complex paphiopedilums, the classic broad-lipped, brightly patterned flowers never go out of style. But renewed interest is always generated by innovative approaches as with the harlequin phalaenopsis and the brightly colored and patterned novelty paphiopedilums.

Another aspect of equitant breeding that should not be overlooked is self- and sib-crossing of the species. In many other orchid groups, line breeding is an active effort to improve the forms of the species. Here again, Moir observed and encouraged the occasional breeding of species back into complex hybrids to renew vigor. It makes sense to do so with better forms. *Tolumnia pulchella* is a good example among the equitants. Several improved forms have been awarded and cycled into further crosses without significant loss of improvements.

There are also conservation implications to breeding the species, not for improvement but for possible reintroduction to the wild. For these intents, it would be important to use parents not significantly removed generationally from the wild forms and certainly not selectively bred for improvement. Improved species are, in a sense, *prima donnas* accustomed to artificially improved conditions and some degree of pampering. They would likely not survive the true-life rigors of the native habitat. For conservation efforts,

unimproved forms are the logical choice.

JUDGING AND AWARDS *Tolumnia* species and hybrids have garnered over 200 AOS awards since the first was recorded in the mid-1960s. The AQs mentioned earlier were:

*Tolumnia* Dawn to Dusk (Ritzky × Golden Sunset) 1980, *Tolumnia* Linda (Rain-bow × Waikiki Sunset) 1978, *Tolumnia* Magic (Rainbow × Golden Sunset) 1987, *Tolumnia pulchella* 1965, *Tolumnia* Sniffen (Golden Sunset × Irene Gleason) 1985, *Tolumnia* Spicy Pink (Good Show × Purple Envy) 1990, *Tolumnia* Tiny Tim (*triquetrum* × *desertorum* [syn. *guianensis*]) 1965 and the FCCs:

*Tolumnia* Fandango ‘D & M’ (Celebrity × Irene Gleason) 1990, *Tolumnia pulchella* ‘Skippy’ 1972, *Tolumnia* SIO’s June Marie ‘Oceanview’ (Buck Hollow × Anita) 2018, *Tolumnia* Sniffen ‘Jennifer Dauró’ (Golden Sunset × Irene Gleason) 1985, *Tolumnia* Touch of Class ‘Hilltop’ (Oh Me × Stunner) 1991

According to *OrchidsPlus* records, the first quality award, an Award of Merit (AM), went to *Tolumnia triquetra* ‘Worrall’. As of December 2018, *tolumnias* have received AOS awards in all categories except the Award of Distinction (AD).

When it comes to assessing award quality in this group of orchids, what are the judges looking for? Certainly fullness, large size and vibrant color and patterns based on general improvement over the parents in the line of breeding. Thus, the importance of becoming familiar with the species and what they bring to their hybrids is an important principle of judges’ training. For *tolumnias*, Moir’s five main species offer the basis for evaluation.

The primary influences and difficulties to consider are:

*Tolumnia pulchella* — pink color, large size, full lip shape, good presentation on the inflorescence and the tendency to lengthen the raceme. Interestingly, when bred with yellows, the pink may be lost, but this may be useful if we are considering white flowers.

*Tolumnia triquetra* — potential for spots, compact plant habit and shortening of the inflorescence. Shape may be more angular or “pointy.”

*Tolumnia guianensis* — large petals, enhancing overall roundness, fall or spring blooming habit depending upon the variant used. This species prefers to act as a pollen donor and few crosses have been successful with it as the pod parent.

*Tolumnia henekenii* — interesting color potential and intensification, but decreased floriferousness and

sequential blooming. The dominance for its elongated shape carries through over several generations.

*Tolumnia urophylla* — yellow color, large size and full shape. Moir considered this species to be the most important. However, this author tends to disagree. In regard to his plant, he wrote:

“This species has proved difficult to perpetuate. A bigger variant was once sent to us....No one has since sighted it. We ourselves no longer possess [it]...its ‘blood’ is...found in the Golden Glow...we produced.” (Moir and Moir, 26–27).

Based on Moir’s listed chromosome count for *Tolu. urophylla* of 84 and his comments on its large size, difficulty of cultivation and rarity, it is likely his plant was a tetraploid variant. It is also worth noting that only six *Tolumnia* crosses were made with *Tolumnia urophylla* up to 1970. Since then only two additional crosses have been registered, Willowbank Bird (× Susan Perreira) in 2010 and Willowbank White Wonder (× Dendis Hope) in 2015. This would suggest that the later-used clones were probably diploids and not of as much value as Moir experienced with his original clone. By contrast, the other four species have been used collectively over 250 times, the latest being a cross of *Tolu. pulchella* with Phyllis Envy registered as *Tolumnia* Pantera Rosa in 2018.

Although the use of tetraploid forms is intriguing and greater enhancement of desired characteristics is possible, it is prudent to ask ourselves how much is too much. There is a point where the diminutive charm of these little gems could be lost.

CULTURE Regardless of where growers live, there are always the basic needs of light, water and nutrition that must be met along with the necessary adjustments to the “climate.” As with all orchids, the best teacher is observation of their natural habitats. The author lives in a semitropical climate somewhat similar to the *tolumnias*’ native habitat and grows them in an open-air situation. Summers are warm, and there is abundant light and humidity. Winters are generally mild but protection is necessary when the temperatures fall below 55 F (13 C). The plants grow well. Surprisingly though, even with careful attention, the plants do not seem to reach their apparent potential.

One theory that has been suggested is that in their natural habitats, plants adapt with the objective of survival in the environment at hand. These conditions may or may not be optimal.

Plants cultivated under “ideal” conditions with reduced stress are not limited to their survival mode. Even essential conditions can vary widely from location to location. Curiously, in what seem to be less favorable conditions such as lower light intensity, cooler climate or long winters, the plants may reach exceptional proportions. Perhaps there’s a special rapport of the grower with the plants — enough to tip the balance between average and superior growth?

Regardless of the color, shape or size of the individual blooms, the charm of a well-grown *tolumnia* lies in the profusion of flowers it produces with a seemingly disproportionate amount of care. Moir’s legacy to the world of orchids is nothing short of legendary. If he could witness the fruits of the foundation he laid for us, he would surely be pleased. Thank you, Mr. Moir, for your weedy adventures.

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— Anita Aldrich received the AOS Award for Excellence in Hybridizing in 2017 for her work in the genus *Tolumnia*. She has been hybridizing these beautiful little jewels since 1975. Anita, a life member of the AOS, has been an accredited judge since 1985. Anita is a former AOS vice-president, trustee, Chair of the AOS Judging Committee and Chair of the AOS Conservation Committee; 817 Blume Dr., Galveston, TX 77554 (email: aldrich@wt.net)

# Psychopsis

Butterflies By Any Other Name

BY JAMES HEILIG, PHD



ONCE CONSIDERED TO be in the genus *Oncidium*, the four species that make up this genus are certainly worthy of the common name butterfly orchid. The first time I saw one, I was entranced! Such a bright flower that really danced like a butterfly on a tall wiry stem. I had to have one.

*Sycopsis*, *Psychopsis* or *Psychopsis*? Or should that be two hemihomonyms and a homophone? Allowing two (or more) genera to have a name that sounds the same (homophone) or is spelled the same (hemihomonym) is strongly discouraged. Since there are different codes of nomenclature pertaining to different branches of the tree of life (the International Code of Nomenclature for algae, fungi and plants, and the International Code of Zoological Nomenclature, for example) an animal and a plant can have the same genus: *Psychopsis* Newman, an insect commonly called a lacewing, and *Psychopsis* Rafinesque, an orchid. Further exceptions occur within the same Code, as *Sycopsis* Oliv. is a member of the witch hazel family (Hamamelidaceae), which is a plant, and sounds like *Psychopsis* Rafinesque, also a plant.

Since this is about orchids, I will stick to *Psychopsis* Rafinesque 1838 of the subtribe Oncidiinae, Orchidaceae. *Psychopsis* is not a large genus with only four species that superficially resemble each other. *Psychopsis* is closely related to *Trichopilia* and *Psychopsiella* and together form a clade and have similar plant morphology. Superficially, *Psychopsiella* resembles *Psychopsis* but is more closely related to *Trichopilia* with which it shares the same chromosome number,  $n = 28$ , compared to *Psychopsis*,  $n = 19$  (Neubig et al. 2012).

*Psychopsis* species are characterized by producing round, bilaterally compressed pseudobulbs spaced closely on short rhizomes. Each pseudobulb produces a single leaf, which is usually thick and leathery. Leaves are a rich olive green overlaid with burgundy or purple mottling making them quite attractive. When mature, each pseudobulb can produce a new inflorescence that produces single flowers sequentially. Each inflorescence persists for many years and these quickly accumulate to produce a plant capable of producing many flowers. The spikes should not be removed until they are dead.

Flowers are rather uniform in color across the species. Yellow is the prominent color, which is overlaid by



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orange or reddish orange in blotched and spotted patterns. So-called alba forms are common in cultivation where the orange is replaced by a darker shade of yellow. Little is known about what naturally pollinates *Psychopsis* although Dodson (2004) reports finding *Psychopsis* pollinia on *Heliconius* butterflies. Pictures of *Heliconius* butterflies (Meyer 2006) do indeed have yellow and orange in their wings. Dodson speculated that since male butterflies tend to be territorial, they effect pollination while striking the flowers in an attempt to drive the intruding “male butterfly” away. The presences of glandular papillae around the stigmatic opening on the column might hint at another pollinator.

Of the four species, *Psychopsis papilio* is by far the most commonly found in cultivation. The natural range of *Pyp. papilio* extends over a rather broad geographic range, from Panama to Trinidad and Tobago to northern Brazil (IOSPE 2019). Flowers are bright yellow with orange blotches creating a really dramatic and eye-catching combination. Alba forms are also common. According to Braem et al. (1998), winter months tend to be dryer for *Pyp. papilio*, although water should be reduced — not withheld — completely during this time.

*Psychopsis krameriana* is naturally found from Costa Rica, south through Panama, Colombia, Ecuador and Peru. Flowers can be similar to *Pyp. papilio* but the plant is easily distinguished from that species by having the apex of the inflorescence as round in cross section instead of flat like that of *Pyp. papilio*. As it inhabits lowlands and areas with consistent rainfall, growing conditions should be maintained year around (Braem

[1] *Psychopsis* Kalihi ‘Green Valley’ AM/AOS (*krameriana* × *papilio*). Photograph by James Pyrzynski.

[2] *Psychopsis* Mendenhall ‘Rogan’s Gold’ AM/AOS (*Butterfly* × *papilio*)

[3] *Psychopsis* Mendenhall ‘Sn #7’ AM/AOS

et al. 1998).

*Psychopsis versteegiana* has a more southerly distribution, being found from Ecuador in the north, south through Peru and into Bolivia. According to Rolando and Christenson (1993), *Pyp. versteegiana* has been mistaken for *Psychopsis sanderae* and appeared in cultivation labeled as such. The papillae found on the column of *Pyp. versteegiana* are not glandular, whereas those on *Pyp. sanderae* are glandular (Rolando and Christenson 1993).

I have a tendency to try to grow every species of a genus I am interested in. Though there are only four species in *Psychopsis*, I have not grown all of them. *Psychopsis sanderae* has been rather elusive. Despite being a parent to one of the most common hybrids, *Psychopsis* Butterfly (I suspect the actual parent was *Pyp. versteegiana*!), straight *Pyp. sanderae* has been extremely difficult to find. It also has the most limited distribution of all *Psychopsis* being endemic to Peru. I have noticed it listed recently on the availability list of several South American growers. Whether these are truly *P. sanderae* or another species or hybrid remains to be seen — I will certainly be taking a gamble if there is a chance to finally be able to cultivate this beauty.

There has been a fairly low level of hybridization with *Psychopsis*, including several intergenerics involving various

genera in the Oncidiinae. Of the 56 grexes registered with a *Psychopsis* as a parent, 18 involve other genera such as *Trichopilia*, *Rossioglossum* and *Trichocentrum* (The International Orchid Register; The Royal Horticultural Society 2019). With chromosome numbers ranging widely from genus to genus within the Oncidiinae, it is not surprising that most intergeneric hybrids involving *Psychopsis* would be sterile.

The most successful are those hybrids within *Psychopsis* as far as awards and use in further crosses. For the most part, breeding with *Psychopsis* has largely revolved around back-crossing to *Pyp. papilio* or crossing *Pyp. papilio* hybrids with the other three species contributing fairly little to complex hybrids. There are other genera with only a handful of species where extensive diversity in hybrids has been achieved with regard to color and form (*Miltoniopsis* comes to mind), but this is not the case for *Psychopsis*.

Recently a peloric form has become available. Peloria is the term applied to a flower where radial symmetry is restored in a normally zygomorphic flower — in this case, the petals are replaced by “lips.” (Remember that an orchid “lip” is a modified petal.) This monstrous form is typically listed as *Psychopsis* Mariposa ‘Peloric’ or ‘3 Lips’ but I have noticed other names attached to peloric forms. I may be mistaken, but I suspect these are the same clone given different names. Whatever the correct name, it is a truly intriguing and impressive form.

One hybrid of note is *Psychopsis* Mendenhall, registered by Carter and Holmes in 1988, which is created by back crossing *Pyp. Butterfly* to *Pyp. papilio*. *Psychopsis* Mendenhall accounts for a third of all AOS awards to this genus and has been recognized 26 times by AOS judges, including two FCCs. Crossing it back to *Pyp. papilio* results in the next highly awarded *Psychopsis*, *Pyp. Memoria Bill Carter*, which was also registered by Carter and Holmes in 1995. Both grexes produce large flowers with clear, bright color. Other hybrids are available and certainly worthy of a place in any collection.

The plants generally prefer warmer temperatures but can tolerate cooler periods especially when not actively growing. I find they grow well under lights and on windowsills — the only limitation being the space required by the tall inflorescence, which can be over 3 feet (914 cm) tall! I have seen *Psychopsis* grow under conditions provided to



4

JAMES MCCULLOCH



5

MILTON WITTMAN

*Phalaenopsis* as well as those provided to *Cattleya*. Adjustment to brighter light should be done gradually.

Care should be taken to avoid deterioration of the potting mix. I have seen plants grown successfully in many potting mixes, though some level of moisture retention is desirable. Repotting should be done before the mix breaks down but while roots are actively growing. Given the sensitivity to potting mix deterioration, mounting seems like it would be a good option; however, providing sufficient moisture to a mounted plant may be difficult, making potting the better option. I prefer clear plastic pots since they allow you to actually see what the roots are doing as well as the condition of the potting mix deeper in the pot.

Flowering seems to occur whenever the plants feel like it. Flowers will appear sporadically and randomly from the various spikes on a plant. There was a grower in Michigan who seemed to have a flower on each spike on his plant, all open at the same time and just in time for spring orchid shows. I asked how he managed to accomplish this. He said he had noticed that it took between two and three weeks for a new bud to grow and open once the previous flower was finished. He decided to remove all buds and flowers from each spike three weeks before any show in which he wanted to display the plant. The result was that all of the spikes were more or less in sync creating a nice display.

Pests and diseases have not generally been a problem for me while growing *Psychopsis*. I have occasionally seen soft scale on leaves but have not noticed other problems. Root rot is typically the result of poor root conditions as a result of decomposing potting mix and is best addressed by repotting.

Whether you collect them all, or enjoy one or two in your collection, you will be rewarded with lots of showy, brilliant flowers over much of the year. Issues with potting media can be addressed by careful observation of your plants, something that all orchids benefit from.

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- [4] *Psychopsis* Memoria Bill Carter 'Garfield's Butterflies' HCC/AOS (Mendenhall × *papilio*)
- [5] *Psychopsis* Mariposa 'Fernbrook' JC/AOS (*papilio* × Kalihi). An unusual peloric form of the hybrid having three petals. Because of the width of the peloric petals, care should be taken as these flowers open to make sure that the petals do not become entangled and prevent opening fully.
- [6] *Psychopsis papilio* var. *albiflora* 'Carib' HCC/AOS. This taxon is synonymous with *papilio* var. *latourae*, differing only in the choice of taxonomic level.

# *Brassia aurantiaca*

The Orange Queen of Oncidiinae Breeding

BY NORBERT DANK/PHOTOGRAPHS BY NORBERT DANK UNLESS OTHERWISE CREDITED



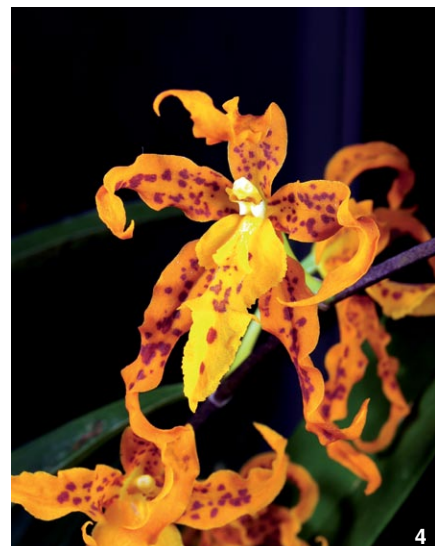
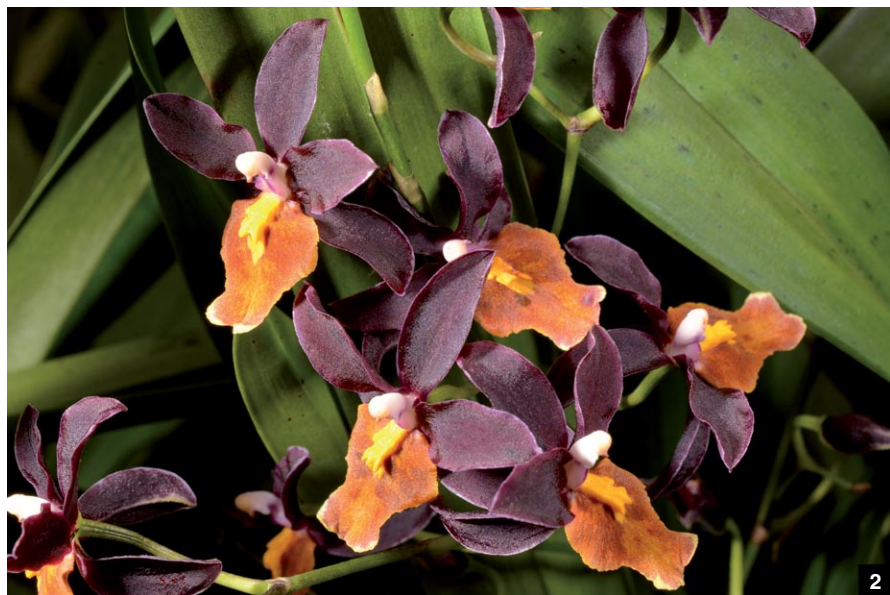


HUMANS HAVE ALWAYS been fascinated by brilliant colors. Just imagine how precious the extract from the purple snail was in ancient times: 8,000 snails were needed to produce 0.04 ounce (1 g) of dye, and 7.1 ounces (200 g) of dye were needed to dye 2.2 pounds (1 kg) of wool. Similarly, orchid lovers have always been fascinated by intensely colored species such as *Cattleya coccinea*, *Phragmipedium besseae*, or *Vanda miniata*. Among the Oncidiinae, *Brassia aurantiaca* (many of us still know it as *Ada aurantiaca*) and *Oncidium noeztianum* (syn. *Cochlioda noeztiana*) are two species with relatively small, not fully shaped, flowers but with exceptionally brilliant color. Whereas *Onc. noeztianum* has been used extensively and successfully in hybridization with odontoglossum-type orchids since the end of the 19th century, the list of hybrids with *Brs. aurantiaca* and its progeny is much shorter. Why is it? The following article will highlight the beginning of hybridization with *Brs. aurantiaca*, subsequent breeding activities, and will allude as to whether W.W. Goodale Moir was right in his opinion of the value of *Brs. aurantiaca* in breeding.

The genus *Brassia* currently comprises between 35 and 65 species, depending on whom you ask. According to Chase and Whitten (2011), recent studies (including DNA analyses) have shown that *Brs. aurantiaca* and other *Brassia* species are closely related and further, related to *Mesospinidium* and *Brachtia*. Newly described species from Peru link all these genera, so lumping into one genus was accepted, and *Ada aurantiaca* is now *Brs. aurantiaca*.

*Brassia aurantiaca* was first described by Lindley in 1853. A first-flowering plant was presented in London in 1864 and subsequently pictured in the *Curtis's Botanical Magazine*, plate 5435. It is a species that is found in northwestern Venezuela, Colombia and Ecuador, mostly growing in mountainous cloud forests at elevations of 5,500 to 6,000 feet (1,650 to 1,800 m). Thus, it requires cool, humid conditions to grow well, and a hot summer in a greenhouse without appropriate misting and cooling can destroy a plant. But if provided with these favorable conditions, it is an easy grower.

**EARLY BREEDING EFFORTS** Presently, a total of 25 Oncidiinae hybrids involving *Brs. aurantiaca* as a parent are registered, with 68 descendants in total. The first hybrid of *Brs. aurantiaca* was registered in 1911: *Brs. aurantiaca* × *Onc. noeztianum* as *Brassidium Saint Fuscien*,



- [1] *Brassia aurantiaca*
- [2] *Brassidium Saint Fuscien*
- [3] *Brassidium Gualaceo 'Barbara' JC/AOS*. Photograph by Judith Higham.
- [4] *Brassia aurantiaca* × *Oncidium constrictum*
- [5] *Brassia Memoria Bert Field 'Orange Prince' AM/AOS*. Photograph by James Harris

followed in 1913 by *Brs. aurantiaca* × *Cyrtorchilum edwardii* (previously known as *Oncidium edwardii*) and registered as *Brassochilum Juno*. *Brassidium* St. Fuscien was remade some years ago, and *Brs. aurantiaca* contributed star-shaped flowers and orange color, whereas *Onc. noezlianum* led to a more open flower habit. *Brassochilum Juno* was described in *The Orchid World* (1912–1913). The upright spike carried five flowers of dusky crimson color, obscurely spotted with dark purple. The lip was light reddish brown with a yellow crest. The result is no surprise when considering *Cyr. edwardii* is a small-flowered species with exceptionally deep lilac-purple flowers. Inspired by the description, Clive Hall from Mt. Beenak Orchids in Australia remade *Brs. Juno*. Many seedlings were raised and flowered; however, for most plants, the color was mostly dull with the flowers crowded at the end of the spikes.

Further *Brassidium* hybrids were the 1919 *Brassidium Nanum* (*Brs. aurantiaca* × *Oncidium Phoebe* [1905]) and in 1926, *Brassidium Citrinum* (*Brs. aurantiaca* × *Oncidium nobile*). A more recent cross is *Brassidium Gualaceo* (*Brs. aurantiaca* × *Oncidium wyattianum*) registered by Ecuagenera Orchids from Ecuador. A further example is the cross *Brs. aurantiaca* × *Oncidium constrictum*, which I discovered at an orchid exhibition. This hybrid has intense orange flowers of medium size. These hybrids give us an impression of what these early brassidiums may have looked like. It seems to be the rule for most brassidiums with *Brs. aurantiaca* as a parent that the orange color is dominant. A drawback of many brassidiums is that the flowers are often crowded at the top of the inflorescence, and sometimes they do not open completely — both traits are inherited from *Brs. aurantiaca*. A selection of *Brs. aurantiaca* clones with larger, wide-opening flowers is thus a promising start for successful breeding. Between 1926 and 1970, however, no further *Brs. aurantiaca* hybrids were made (or at least they were not registered).

BREEDING ASPECTS OF BRASSIA AURANTIACA — WAS W.W.G. MOIR RIGHT? W.W. Goodale Moir, in many ways the godfather of Oncidiinae breeding, also made some *Brs. aurantiaca* hybrids, crossing *Brs. Memoria Bert Field* to a variety of oncidiums, miltonias, and brationas. Based on what he knew about the first *Brs. aurantiaca* hybrids and on first own experiences, Moir and Moir (1982) stated:

“Flowers in both species [*Brs.*



6



7



8



9



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*aurantiaca* and *Brs. lehmannii* by the author] are closely set, only partly open, and on a nodding unbranched peduncle. These four faults are very difficult to overcome in breeding. The color seems to be the only reason for using *aurantiaca*, but indications are that it is not dominant and easily diluted.... The new hybrids should answer many questions when they bloom, but we do not feel that they will be very useful."

The "new hybrids" were crosses with *Brs. Memoria Bert Field*. Some of these crosses have been later used for further breeding. I will come back to Moir's statement subsequently.

STARTING OVER WITH BRASSIA MEMORIA BERT FIELD It was only in 1970 that a new attempt was made to introduce brilliant-orange color from *Brs. aurantiaca* into *Oncidiinae* intergenerics. The cross of *Brs. aurantiaca* and *Brassia verrucosa* was registered by G. Field as *Brs. Memoria Bert Field* — a beautiful hybrid with orange, spidery flowers. The Beall Company in Washington conducted a breeding program using *Brs. Memoria Bert Field* by crossing it to "complex" odontoglossum-type *Oncidium* hybrids and *Miltonia* or *Bratonia*. Most of these hybrids are nice, with mid-sized flowers. However, it seems that the orange color is easily diluted when *Brs. Memoria Bert Field* is used as parent as most of the progeny show a clear-yellow or, rarely, an orange color. One example is *Brassidium* Gold Star, which is a cross with *Oncidium* Yellowstone Basin.

When breeding *Brs. aurantiaca* hybrids, there are two directions to pursue: either you aim for star-shaped, orange flowers, or you try to improve the shape by introducing odontoglossum-type *Oncidium* hybrids with round, flat flowers, ideally with yellow or orange color. The first concept, spidery flowers, was successful when crossing *Brs. aurantiaca* with other brassias, producing hybrids like *Brassia* Orange Delight (*aurantiaca* × *Mary Traub Levin*) and *Brassia* Mivada (*aurantiaca* × *brachiata*). *Brassia brachiata* is now considered a synonym for *Brs. verrucosa*, which would make *Brs. Mivada* a synonym of *Brs. Memoria Bert Field*. They all are similar, producing sprays of orange-colored, spidery flowers. Many of them seem to be a bit unwilling to flower (at least if cultivated in the Northern Hemisphere), which seems mainly to be a quality inherited from some *Brassia* species. A similar, yet unregistered cross of *Brs. Mivada* and *Bramesa Admaste* has *Brs. aurantiaca* in both parents, and



- [6] *Brassidium* Gold Star 'Burnham' AM/AOS. Photograph from the AOS Award Archives.
- [7] *Brassia* Orange Delight
- [8] *Brassia* Mivada × *Bramesa* Admaste
- [9] *Bratonia* Orange Sherbet 'Highlands' HCC/AOS. Photograph by Mark McMaster.
- [10] *Brassidium* Golden Harry 'Keely B' HCC/AOS. Photograph by Richard Otaki.
- [11] *Brassicostele* Sunburst
- [12] *Brassidium* Jersey. Photograph taken at the Eric Young Foundation.
- [13] Two clones of *Brassidium* Quetivel Mill. Photographs taken at the Eric Young Foundation.
- [14] *Brassidium* Les Vracheres. Photograph taken at the Eric Young Foundation.

the color is intensely orange. It seems to be more floriferous than *Brs. aurantiaca* hybrids with *Brassia* species.

Another direction in breeding was to use *Miltonia* as the other parent. *Brassia aurantiaca* has been combined with *Miltonia* William Kirch to give *Bratonia* Orange Sherbet. Presumably, the yellow form of *Miltonia* William Kirch (Bluntii × *regnellii*) had been used for this cross. Also here, the flowers are more spider-like, and the lip is larger from the influence of the *Miltonia* parent.

The other breeding direction was for fuller flowers and started when *Brsdm.* Gold Star was crossed to *Oncidium* Harry Baldwin, an orange odontoglossum-type *Oncidium* hybrid with *Onc. noezlianum* in its ancestry. This result was registered as *Brassidium* Golden Harry, an appealing cross, which was mericloned but is not often seen today. It shows flowers that are similar to the yellow stars of *Brsdm.* Gold Star, with a rounder shape like odontoglossum-type *Oncidium*s. Again, the flower color is yellow, not orange. The result is more like a *Brassidium* with another, less-colored *Brassia*, as many traits of *Brs. aurantiaca* seem to have been bred out in this cross. Jim McCully from Mauna Kea Orchids used *Brsdm.* Golden Harry for another cross combining it with *Oncostele* Sunwolf (which is an *Oncostele* *Catatante* hybrid) and registered it as *Brascidostele* Sunburst, which has red flowers with an orange lip. This cross shows some orange color, which might, however, also be the influence from *Oncostele* *Catatante*.

**ERIC YOUNG ORCHID FOUNDATION BREEDING PROGRAM** The Eric Young Orchid Foundation (EYOF) started a breeding program with *Brs. aurantiaca*, also aiming for fuller, rounder flowers. The starting point was crossing *Brs. aurantiaca* with *Oncidium* Panise, a yellow odontoglossum-type *Oncidium*. The resulting *Brassidium* Jersey was registered in 1992 and shows orange star-shaped flowers heavily overlaid with chestnut-brown blotches. This was then crossed to the xanthotic *Oncidium* Eric Young, giving *Brassidium* Quetivel Mill (1995). *Brassidium* Quetivel Mill (1995) has nice star-shaped flowers with a light-yellow tone, overlaid with darker-yellow spots. Crossing it back to *Brs. Jersey* creates nice yellow flowers with attractive brown spots in *Brassidium* Les Vracheres. Finally, *Brsdm.* Quetivel Mill (1995) was crossed to *Oncidium* Bonne Nuit (*sphacelatum* × Eric Young) leading to *Brassidium* Kemp Tower. This hybrid even



made it on a postage stamp of the island of Jersey when a set of stamps illustrated with orchid hybrids from the EYOF was released. This breeding program shows another good trait of *Brs. aurantiaca* — it passes on the nicely spotted flowers with clear patterns to its progeny over several generations.

**SIDEWAYS—BRAMESA, BRATONIA** It was Kuno Krieger, a professional greenhouse manufacturer and keen orchid hobbyist from Germany, who started another round of *Brs. aurantiaca* breeding. He selected *Brs. aurantiaca* specimens with flowers that open as much as possible to avoid producing hybrids with closed or semiclosed flowers. In 1984, he registered his first *Brs. aurantiaca* cross, *Brassidium* Golden Star (*Brs. aurantiaca* × *Oncidium* *Mainaustern*). The flowers of this cross are mostly yellow with darker markings, but there is no real orange. His next try was using *Gomesa recurva*, a species with nearly green-white flowers, as the breeding partner. The result was *Bramesa* Golden Ballerina, which was registered in 1988. The flowers are bigger

[15] *Brassidium* Kemp Tower 'Trinity'.

Photograph taken at the Eric Young Foundation.

[16] *Brassia aurantiaca* × *Rhynchostele cordatum*

[17] *Brassostele* Mandarin

[18] *Brassostele* Memoria Burkhard Holm

than those of *Gom. recurva*, and the color is light-to-darker orange. Obviously, the orange color is dominant in this crossing. The flower habit and presentation range from brassia-like with longer spikes with bigger flowers and medium flower count to gomesa-like with shorter spikes with lots of smaller flowers. This primary hybrid is a beautiful addition to any *Oncidiinae* intergeneric collection as it tolerates somewhat higher temperatures. There is a further hybrid where *Brs. aurantiaca* was combined with *Gomesa*. *Bramesa* Admaste is a cross with *Gomesa crispata* and was registered in 1991 by Anton Schilliger from Switzerland. It is similar to *Bms.* Golden Ballerina.



[19] Three cultivars of the stunning hybrid *Brasscidostele* Chinese Tiger

Krieger's next cross, which has not been registered, *Oncidium* Hans Koch × *Brs. aurantiaca*, again did not bring the desired orange flowers. The resulting *Brassidium* bears star-shaped, yellow-brown flowers. Another hybrid made by Kuno Krieger is *Brs. aurantiaca* × *Rhynchostele cordata*. Here, as in many other primary hybrids, the orange color is dominant, combining nicely with the yellow-brown flower coloring from *Rst. cordata*. The flowers are intensely colored yellow-orange.

**BRASSOSTELE MANDARIN** Anton Schilliger created a successful cross with *Brs. aurantiaca* called *Brassostele* Mandarin (× *Rhynchostele bictoniensis*), which was registered in 1991. This cross has even been propagated for the mass market and is inherently a nice plant. *Brassostele* Mandarin presents as a real intermediate between both parents: The 1–1.5-inch-wide (2.5–3.5-cm-wide) flowers are not fully open, and are deeply orange colored with maroon-brown markings all over the sepals and petals. The most attractive part of the flower, however, is the large, brilliantly orange-colored lip. *Brassostele* Mandarin has so far been used for two further crosses.

Schilliger registered *Gomrassiastele*

Doktor Karlheinz Senghas by combining *Bst. Mandarin* with *Gom. crispa*, an unusual hybrid, which was registered in 2000. Up to present, *Gst. Doktor Karlheinz Senghas* is the only *Gomrassiastele* that has been registered. The specimen received an HCC from the Orchid Society of Switzerland in 2001 and presented with 12 flowers of deep orange-red color.

In one of his last crosses, Krieger used *Bst. Mandarin*, crossing it to *Oncidium* Tiger Glow, which was registered as *Brasscidostele* Chinese Tiger. I had the chance to see several flowering plants at Orchideen Lucke in Germany, where a part of Krieger's collection has been kept after he passed away in 2005. Many of the resulting plants produce flowers that resemble more of an *Oncostele* Golden Trident — only the growing habit shows that this must be a *Brs. aurantiaca* hybrid. This is not that surprising, because *Onc. Tiger Glow* is *Oncidium* (Tiger Hambühren × Remembrance), and *Ons. Golden Trident* is *Onc.* (Tiger Hambühren × *Rst. bictoniensis*). Thus, in this cross, *Onc. Golden Trident* is "contained." But approximately 30 percent of the progeny in this cross bear open, nearly flat 2–3-inch (5.1–7.6-cm) yellow-orange flowers. The yellow sepals and petals of these

plants bear maroon markings, whereas the lip is a deep-orange color. It is one of the rare successes in generating second-generation orange *Brs. aurantiaca* hybrids. There seems to be a chance that further crosses with *Bst. Mandarin* can produce orange-flowering progeny.

Another hybrid of *Brs. aurantiaca* was made by Orchideen Holm with *Rst. rossii*. The resulting *Brassostele* Memoria Burkhard Holm bears up to four completely orange, large flowers with a shape resembling the *Rst. rossii* parent. No progeny of this hybrid has been registered so far, but I recently crossed it back to *Rst. rossii*. I am excited to see if the resulting hybrid will have orange flowers.

**WHAT IS THE OUTLOOK?** During the first 100 years of using *Brs. aurantiaca* in breeding, many interesting, surprising and sometimes also disappointing creations have been made. Breeding with *Brs. aurantiaca* is always experimental, as the progeny often vary considerably, especially in the second generation.

And yes, Moir was right concerning the orange color in second- and third-generation hybrids. It seems that the intense color of *Brs. aurantiaca* is nearly always maintained in primary hybrids, but then easily diluted in further crossings

(although often fine plain-yellow flowers are the product of such crosses). And yes, flower presentation is often negatively influenced by the short-peduncled *Brs. aurantiaca*, but this can be overcome by further breeding; e.g., by using odontoglossum-type *Oncidium* species or hybrids with good flower presentation. In some primary hybrids, such as *Bst. Mandarin*, the flower presentation is already quite good.

Moir and Moir (1982) further stated concerning *Brassia*, and *Brs. Memoria Bert Field* in particular:

“*Ada*, therefore, is much more dominant in the cross. Whether this dominance continues remains to be seen in further crosses. *Aurantiaca* definitely has shortened and crowded the flowers, and it will be interesting to learn what happens in the new crosses.... One should make every effort to cross *Brassia* first with very long-peduncled, floriferous plants before combining it with *Brassia*, *Miltonia*, or *Aspasia*, if one must use it at all. Not having seen adaglossums we do not know how they turned out. We cannot guarantee that the hybrids of *Brassia* with floriferous, long-peduncled hybrids or species will overcome these faults eventually. But we can recommend that the progeny be backcrossed to floriferous species or hybrids to attempt to overcome these faults before using them with plants with short-stemmed peduncles.”

We easily understand that, due to the well-known drawbacks, commercial growers prefer to focus more on the mainstream hybridization programs, thus generating all the beautiful *Aliceara*, *Brassidium*, *Bratonia*, *Miltonidium*, odontoglossum-type *Oncidium* and *Oncidopsis* we see at orchid shows and in garden centers. But despite all possible drawbacks of *Brs. aurantiaca* breeding, the brilliant-orange color is always worth a try. And sometimes, there are these keen people who just want to know what the result of a certain genetic combination would be — then excitedly wait for the first flowers to open. It is these pioneers who have given us many of the nice hybrids discussed in this article.

When using *Brs. aurantiaca* hybrids in breeding, selection of appropriate parents seems to be crucial. As shown in the case of *Bst. Mandarin* × *Onc. Tiger Glow*, there are also second-generation *Brs. aurantiaca* crosses where — at least in some clones — the orange color is preserved. It seems that the use of *Bst. Mandarin* resulted in orange-flowered progeny, which is different than the use of *Brs. Memoria*

*Bert Field*, where most progeny showed yellow flowers. In this cross, combination of species and hybrids was done according to Moir’s suggestion: *Rst. bictoniensis* is a long-peduncled species with well-spaced flowers — the first combination with *Brs. aurantiaca* resulted in *Bst. Mandarin* with long inflorescences and good flower presentation. This was crossed to an odontoglossum-type *Oncidium*, thus resulting in an improved orange-flowered *Brascidostele*. Only further breeding with *Bst. Mandarin* will show whether this primary hybrid is a good breeding partner to produce orange-flowering hybrids with odontoglossum-like flowers.

At least some *Brs. aurantiaca* hybrids have found their way to the mass market, like many brassias (such as *Brs. Orange Delight*, *Brs. Memoria Bert Field* or *Brs. Mivada*), *Brassidium Golden Harry* and *Bst. Mandarin*. It seems worth it to look out for the next *Brs. aurantiaca* hybrid — there is always a good chance for an enduring orange surprise.

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Moir, W.W.G. and M. Moir. 1982. *Creating Oncidiinae Intergenerics*. The University Press of Hawaii, Honolulu, Hawaii.

#### Additional Resources

American Orchid Society, *OrchidsPlus*, the electronic record of AOS awards.

The Royal Horticultural Society’s Sander’s List of Orchid Hybrids.

[www.iospe.com](http://www.iospe.com)

[www.orchidroots.com](http://www.orchidroots.com)

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## INTERNATIONAL ODONTOGLOSSUM ALLIANCE

THE INTERNATIONAL ODONTOGLOSSUM ALLIANCE (IOA), established in 1985, is devoted to orchids of the *Odontoglossum* Alliance. The goal of the IOA is to promote the culture and preservation of the genus via conservation, ex situ culture, propagation and fellowship. The IOA strives to be a significant resource for all growers of odontoglossums. Its publication, *The International Odontoglossum Alliance Journal*, published in both English and Spanish, is available via the IOA’s website: [www.odontalliance.org](http://www.odontalliance.org). The journal is robust and colorful. Publication dates are determined when sufficient information is gathered to make an interesting read. The IOA website provides information about our occasional meetings.

The IOA began as a membership organization and is now a free readership collective, a model deemed the better fit for the 21st century. Growers interested in receiving announcements about the publication of new editions or wishing to provide announcements, articles, letters to the editor, criticisms, information or photographs are welcome to email IOA editor: John Leathers at [jjleathers@comcast.net](mailto:jjleathers@comcast.net).

The IOA strives to be a significant resource for all growers interested in odontoglossums.

# Reflections of a Hybridizer

## Thirty Years of Breeding in the Oncidium Alliance

BY JAMES MCCULLY/PHOTOGRAPHS BY JAMES MCCULLY UNLESS OTHERWISE CREDITED

IN 1984, I took a class focusing on orchids at the University of Hawaii–Hilo. A long-time orchid grower and enthusiast, Earl Dunn, taught this class. Earl and I were having a casual talk one day and I asked him, “From which genera do you think the most successful type of orchid for the pot-plant market will come from?” Without much delay, he responded, “The oncidiums, they have such a wide range of attributes.” This comment stuck.

At the time, phalaenopsis hybrids were preparing to explode as the preeminent pot-plant orchid. Significant breeding programs in Europe, the United States and especially Taiwan were beginning to make great improvements. The commercially important capacity to force flowering through lowering of temperature was being perfected. This particular innovation would turn out to be the game changer. The market grower has to be able to make and meet scheduled deliveries, and must also be able to predict costs and cash flows. When phalaenopsis became programmable year-round, they immediately became the number one floriculture crop and that has increased for 20 consecutive years.

But without the benefit of foresight, I had by then posed the question to myself, “Do I stay in phalaenopsis (I had more than a million plants growing at the time) and breed with the three to four important species in that genus, or do I switch to oncidiums with more than 10 important genera and at least 30 important species?” Furthermore, the Oncidium Alliance was reputed to have more than 800 species stretching from Mexico to Brazil and from sea level to 10,000 feet (3,048 m) in the Andes. The answer seemed obvious to me at the time: Earl Dunn was right; I would replace phalaenopsis with a better alternative, oncidiums.

Little did I know I was seeking to be the premier buggy-whip maker at the dawn of the automobile age.

My breeding goals required me to match phalaenopsis characteristics, which would require:



- Improve inflorescence habit to an ideal height c. 20–30 inches (50–75 cm), flower arrangement and promote multiple inflorescences (two inflorescences minimum per pseudobulb);
- Improve speed of growth and time to flower;
- Improve vigor and ease of growth;
- Improve shelf life, longevity of flowers;
- Improve flower size and color;
- Try to establish fragrance as a component; and
- Breed or determine how to control selective initiation of flowering.

I knew that this would be a multigenerational breeding program and I needed to operate my business with immediately available selections. Prior to this time, the key to success in the traditional orchid market was the size and the color of the flower, qualities important to collectors and orchid society judges. However, in the middle of this selection process, there were clones that seemed suitable to larger production and to meet consumer requirements. An example of a successful show plant that could be utilized as a pot plant was *Aliceara* Marfitch (aka *Beallara*), registered by Robert Dugger in 1983. The desirable clone ‘Howard’s



[1] *Aliceara* Marfitch ‘Howard’s Dream’ AM/AOS. Photograph from the AOS award archives.

[2] *Oncostele* Wildcat ‘Bobcat’ AM/AOS. Photograph courtesy of Norbert Dank.

Dream' AM/AOS was selected by Howard Liebman and mericloned by Stewart Orchids. This was a huge purple flower on a strong branching inflorescence. It flowered slowly and sporadically but was always (and still is) in demand. While it only expressed a few of the characteristics I felt necessary for an ideal selection, both consumers and growers accepted it. Other popular selections at that time were *Oncidium* Jungle Monarch (aka *Colmanara*), *Oncidopsis* (Beall) Bartley Schwarz and *Oncidium* Sharry Baby.

**ONCOSTELE WILDCAT** Then came *Oncostele* (*Colmanara*) Wildcat, registered by the Rod McLellan Co. in 1992. The breeder and grower at that time, Jeff Britt, was interested in having production plants available for their wholesale and retail markets. In 1989, he made what was to me the unpromising cross of *Oncidium* Crowborough (1965) × *Oncostele* Rustic Bridge. I say unpromising because I owned the same parent plants that he used. The Rustic Bridge in particular was a quite difficult plant to appreciate, to put it charitably. It sported an elongated, top-heavy inflorescence with poorly formed flowers and foliage that was especially prone to necrosis. The fact that it came from the problematic genus *Rhynchostele* was also of concern. Its only redeeming virtue was its lip. The 'Mephisto' clone in particular had a lip that caught your eye from across the greenhouse. When I told Jeff Britt that I would never use either Rustic Bridge clone as a parent, he replied with some sardonic comment about the gift a breeder must have "to see the gold amidst the dross."

So much for my powers of observation. Jeff Britt's instincts gave him the most highly awarded *Oncidium* Alliance cross of all time. At this time *Ons.* Wildcat has received 72 awards from the AOS. This was the perfect example of why to make a cross based on your instinct rather than your brain.

Jeff tried this cross with three pollinations using two cultivars of Rustic Bridge. He surprisingly achieved a highly homogeneous population of fast-growing, early-flowering, well-branched and well-colored, pot-plant candidates. I speculated that the Crowborough (1965) he used, 'Spice Island' AM/AOS, must have been one of the chance tetraploids from mericlone (mutagenesis).

Britt selected more than a dozen clones for further testing and some of those clones are still produced today. Moreover, individuals of the grex have shown significant somaclonal variation





(variations produced by plant tissue culture) with many favorable traits offered through this selection process. A passing observation: all the success I have had with breeding with Wildcat has come from using red-colored forms (from the 'Mephisto' line), in particular *Ons.* Wildcat 'Bobcat' AM/AOS, which alone has six AOS awards. What a great legacy for any breeder to have created a plant that has been so widely appreciated by growers, enthusiasts and breeders. Aloha to my friend, Jeff, too soon gone.

**ONCOSTELE CATATANTE** I have by now made more than 4,000 crosses in this alliance. The 1,249th cross I made reflected my interest in developing a pot plant that nearly met all the criteria that I had set forth in my breeding plan in a single cross. That cross is *Oncidium* Sphacetante × *Ons.* Wildcat, which I named *Oncostele* Catatante, conflating the parental names. I registered it in 2002 after I used the 'Evelyn Extra' clone of Sphacetante as the seed (female) parent and Wildcat 'Chocolate Danish' HCC/AOS (Mephisto line) as the pollen (male) parent. *Oncostele* Catatante is my continuation of, as well as an homage to, the pivotal onciidiinae-hybrid *Ons.* Wildcat.

The cross was fast growing, homogeneous, and early to flower. The selection 'Pacific Sun Spots' is a bit of a misnomer as it has no visible spotting. I have obtained Plant Breeder Rights for the European Union and it has shown utility as a pot plant due to a strong inflorescence habit, easy blooming, good color and it frequently has two or more inflorescences per pseudobulb.

The parentage of the plant includes a range of species. Phenotypically, it is what can be observed as superficial expression of the various genotypes, suggesting that the species *Oncidium sphacelatum*, *Oncidium fuscatum*, and *Oncidium leucochilum* played significant roles in the grex. I believe the *Onc. sphacelatum* was key for floriferousness, warmth tolerance and multiple inflorescences. The *Onc. fuscatum* contributed the structure of the inflorescence, floral arrangement and the shape of the flower. The *Onc. leucochilum* contributed the scale of the inflorescence and the shape and size of the pseudobulb, which is no small thing in an attractive pot-plant cultivar.

I considered *Ons.* Catatante to be an ideal basis for further breeding; a canvas if you will. It has indeed been receptive to a wide range of pollen donors as well as an excellent pollen parent itself. It easily

expresses the color of the other parent, no doubt in part because it has so much color in its own background. While it could be superficially categorized as a "brown," I would argue its pigments are likely an overlay of red anthocyanin on a base of yellow carotenoids. It has an orange glow, especially from the sheen on the lip. This is a key color distinction as compared to a "brown" from red anthocyanins overlaying green chlorophyll. There is no more definitive test of a pot plant's color than to take a daylight-selected "red" into a home and, under a fluorescent or incandescent light, have it express its inner "brown." *Oncostele* Catatante, on the other hand, looks good indoors.

Here are a number of crosses I have made using *Ons.* Catatante as one of the parents. Note the names of the other parent invariably evoke or describe a "hot" color.

*Oncostele* Firecat (Catatante 'Pacific Sun Spots' AM/AOS × *Oncidium* California Fire 'Full Fire') (2009) This hybrid had a range of multispiking, productive selections, from the well-branched inflorescence and sharp, contrasting lip of 'Harmony' to the large scale and sunset colors on an extended raceme of 'Simple Pleasures'.

*Oncostele* Rising Sun (2009) (*Oncidium* Scarlet Pattern 'King Crimson' × *Oncostele* Catatante 'Pacific Sun Spots' AM/AOS) The richest, most-saturated red I had achieved up to this point was the clone 'Red Sun' AM/AOS.

*Oncostelopsis* Sunkissed (2009) (*Ons.* Catatante 'Pacific Sun Spots' AM/AOS × *Oncidopsis* Living Fire) There were two distinct clones selected: the compact, floriferous, clear butter-yellow of 'Buttercup' and the two-toned, taller 'Butterscotch' HCC/AOS.

*Oncostele* Hilo Firecracker (Aloha Sparks × Catatante) (2010) My good friend, James Fang, is the owner of Hilo Orchid Farms here on the Big Island of Hawaii. He is the best grower of orchids on the island and does a smattering of crosses as well. He and I almost simultaneously made the same cross using different clones of *Ons.* Aloha Sparks. He used the large-flowered 'Pele's Glow', which had a bronze sheen to its color, while I went with the more elongated, rich red, 'Edna's Flame' AM/AOS. He registered the cross first, otherwise we would be discussing *Oncostele* Aloha Cat, which was my proposed grex name. I like his name better. The best choices are 'Lucky Strike', which is a taller, multispiking, well-branched two-toned gold and white (!)



- [3] *Oncostele* Catatante 'Pacific Sunspots' AM/AOS. Inset courtesy of Floricultura.
- [4] *Oncostele* Firecat 'Harmony'; inserts: 'Highlight' (right) and a bloom from a sib-cross (left).
- [5] *Oncostele* Rising Sun 'Red Sun' AM/AOS. Photograph courtesy of Floricultura.

and 'Sangria', which is a deep carmine red.

*Oncostele* Warm Memories (2010) (*Oncidium* California Merlot 'Strong Heart' × Catatante 'Pacific Sun Spots' AM/AOS) 'Martian Dawn' My breeding focus is for clear colors. I had spent my early years in hybridizing trying to achieve vigor and structure without concern for color expression. My observation is that when selecting for a single trait there are invariably correlated traits that can negatively affect the next generation. Therefore, I prefer to have confirmed, line-bred characteristics (phenotype) dominant for floriferousness, inflorescence structure and vigor. Then, with the current population, I seek color expression as the single trait to be added to that confirmed phenotype. This multihued selection is an exception: it shows a classic range of sunset colors. The carotenoids, flavonoids and anthocyanins overlap and, under varying light, show a range of intermixed colors. I include it here because of its significance in my

future breeding lines, and, well, I like it.

*Oncostele Tom Cat* (2012) (Catatante 'Pacific Sun Spots' AM/AOS × *Oncidium Geneva Red* 'Ruby Red') I have used the *Onc. Geneva Red* grex many times as a parent. The *Onc. Firecracker* parent of Geneva Red provides great structural influence from its *Oncidium hastatum* parent. *Oncidium Geneva Red* was named after the Geneva Avenue location of Golden Gate Orchids by its owner Tom Perlite. Thus, this plant became *Ons. Tom Cat*. Two excellent selections, initially labeled 'A' and 'B', were selected for well-branched inflorescences, a propensity for double spiking and strong colors.

*Oncostele Solari* (2014) (Catatante 'Pacific Sun Spots' × *Oncidium George McMahon* 'Elvish Gold') Although Solari fails to fit the model of a pot plant for the European market, there are other markets in the world. I have a good friend, Miriam Yokoyama in Brazil who is devoted to introducing the Oncidiinae to consumers in what is the home country for many of the species I use in my breeding program. The Brazilian market desires large flowers on taller inflorescences, and the large scale and intense color of the *Onc. George McMahon* doubled the flower size of the *Ons. Catatante*. Concentric rings of dark barring add contrast.

More than half the listed crosses would never have occurred without Tom Perlite, a superb grower and breeder, of Golden Gate Orchids. He was always generous with his plants. It goes without saying that while you can envision any cross you choose, unless you have a piece of pollen and a stigmatic surface to affix it upon, you have nothing to work with. I have never been successful growing odontoglossums here in Hawaii, so a continuous supply of well-grown, well-bred odontoglossums from Tom allowed me to continuously replace my breeding stock with his next generation of seedlings. I was also able to reach back into his benches and acquire a selected plant or a classic division as well. Orchid breeding requires a lot of luck, especially regarding the opportunity to acquire your breeding plants. While building a base for my breeding, I was lucky to have Tom as a source of the finest odontoglossums then extant. Mahalo Tom.

My primary goal moving forward is to create an array of intense colors in the hot range, reds through yellows, of a clear nature. By trying to breed only to clearer colors in either color direction, I hope to provide a better light-reflecting surface (texture) on the flowers and to accentuate



the drama of the color for which orchids are most appreciated. I have relied almost exclusively on my own breeding lines for the last few generations using linebreeding techniques in an attempt to select for the desired traits. In my earliest crosses I made a high percentage of heterogeneous crosses (parents with widely differing genetic backgrounds). I was trying to shortcut through brute-force volume the breeding process (i.e., to "get lucky" in the first generation). Results were as expected with little to show for it until Catatante came along.

Sidenote: Serendipity seems to occur more often when I select F2 parents who share in common the species, *Onc. fuscatum*.

**ONCIDOPSIS NELLY ISLER** Mrs. Isler, a Swiss, was a breeder of oncidiums who was focused on commercial varieties. She made a number of crosses that were in production in the 1990s including *Oncidopsis Stefan Isler*, *Oncostele Linda Isler*, and *Oip. Nelly Isler*. All her selections were available only from Floricultura in the Netherlands. Her best result, still the most successful variety, is *Oip. Nelly Isler* (syn *Burrageara*). This cross, registered in 1995 with various clones protected under European Plant Breeders Rights (similar to our plant patents) continues to provide a license-based income stream to Mrs. Isler's estate.

It is a compact plant, a thrifty but somewhat slow grower that maintains clean foliage. This is an especially important attribute in this group. Neither growers nor consumers will tolerate disease spots and blemishes on the foliage. Most importantly, Nelly easily makes multiple inflorescences, a trait from the *Miltoniopsis* parentage.

The cross comes from *Oip. Stefan*



*Isler*, a mix of *Onc. leucochilum* and the bright-red *Oncidopsis Edna 'Stamperland'* (originally known as a *Vuylstekeara*), which has *Oncidium (Cochlioda) noezlianum* to thank for its color and *Miltoniopsis vexillaria* for its ability to provide multispiking, size and shape. Mrs. Isler crossed Stefan Isler to the large, linebred *Miltoniopsis Kensington*. I must say I have attempted that same cross many times without any fertility resulting.

To my eyes, it offered an obvious path forward in intergeneric breeding, one that incorporates *Miltoniopsis* for floriferousness, size, color, ease of growth and potential fragrance with oncidiums that can provide structure, longevity, branching inflorescences and perhaps fragrance.

So I tried to rebuild Nelly Isler using similar selections. In one of my attempts, (cross MKO2806) I decided to simplify the initial mix by going from *Oip. Edna* straight to the *Miltoniopsis* parent, skipping the *Onc. leucochilum*. My plan was to then bring back the oncidium genes using future pollen parents to this platform. The best result was *Oncidopsis Francine*

(*Miltoniopsis* Maui Titan × *Oip.* Edna), named for my wife. It was fast to flower as a seedling, and the clone 'Roseglow' first flowered 19 months from deflasking. The clone 'Red Devil' flowered at 21 months with two inflorescences. When I see homogeneous (similar) seedling populations with quick, initial flowering times, my experience is that the clones will flower easily and early. The Maui Titan parent is a primary hybrid of *Miltoniopsis bismarckii* × *Miltoniopsis santanae*.

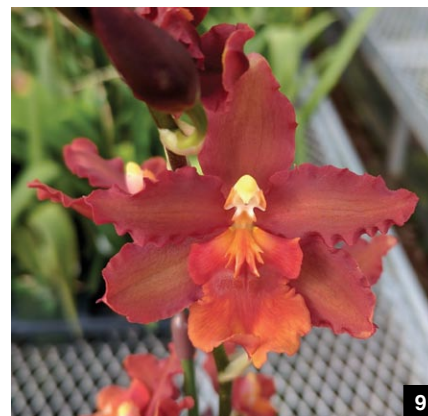
By the way, the clonal epithet, 'Red Devil', in no way characterizes any aspect of the grex honoree's personality. Instead, it was an unthinking homage to the football club Manchester United, whose home jersey color is of a similar hue!

*Oncostelopsis* Mayor Billy (*Oncostele* Warm Memories × *Oncidopsis* Francine). I am optimistic that this is a breakthrough hybrid in my development of a red oncidium pot plant to equal or exceed *Oip.* Nelly Isler. The cross was made reciprocally and selections were made from both approaches. The most vivid, deep scarlet color on a well-branched inflorescence of 29.5 inches (75 cm) is the clone 'Vosne Romanee' using Warm Memories as the seed parent. When using Francine as the seed, the inflorescences are shorter in the 20-inch (50-cm) range, branched and with a brighter cerise red. The Francine progeny are particularly floriferous. Growers of first-generation trials report double inflorescences on double pseudobulbs at less than two years total growth from flask. Particularly long lasting with strong color persistence, this hybrid has everything except a fragrance.

**NOTABLE TRIAL PLANTS CURRENTLY UNDER EVALUATION**

*Oncostele* (Sunup × Two Alarm Fire) The seed parent, Sunup, is proving to be a good breeder and providing clear color intensity from its *Oncidium* Remembrance lineage and great structure from the Catatante parent. This is crossed with a highly selected *Oncidium schroederianum* hybrid, *Oncidium* Two Alarm Fire. I use *Onc. schroederianum* for its multispiking characteristic, its light-reflecting capacity and its scent. It can branch and it shows good vigor as a parent. However, this selection of Two Alarm Fire does not branch, lacks fragrance and is somewhat dull. So, why use it as a parent? Its vigor and consistent double spiking per pseudobulb are highly desirable traits, and it once again passed them on here, while receiving the color from the seed parent.

*Oncidopsis* Oranje (*Oncidopsis*



Francine × *Oncidium* Sanguine) I am not sure this will be a successful pot plant in Holland, but the color should certainly appeal to the Dutch. A true orange, bred from the red Francine with a linebred xanthic, ondontoglossum-type *Oncidium* Holiday Gold. Unlike the pollen parent, the foliage is clean and vigorous.

*Oncidopsis* Onolicious (Francine × *Miltoniopsis* Pearl Ono) *Oncidopsis* Francine once again shows great breeding characteristics, this time back to a *Miltoniopsis* as the seed parent. Francine has miltoniopsis lineage on both sides, making the genotype more than 75-percent "pansy orchid," while the selection bias went to the oncidium characteristics (the phenotype). The rationale for this is that just a dollop of *Oncidium noezlianum* and a bit of *Oncidium harryanum* add both structure and flower longevity. The selection process here, from the Francine through the Onolicious, was for a flower with great substance that would provide extra days in the market and a resistance to handling damage in transit.

*Oncostelopsis* Brazilian Sun (*Oncidopsis.* Pacific Waters × *Oncostele* Sunup) This is a truly serendipitous expression of the miltoniopsis clear color on the seed side with rich carmine red



- [6] *Oncostelopsis* Sunkissed 'Buttercup' AM/AOS
- [7] *Oncostele* Hilo Firecracker 'Lucky Strike'
- [8] *Oncostele* Warm Memories
- [9] *Oncostele* Tom Cat 'Cayenne'
- [10] *Oncostele* Solari 'Corona!'
- [11] *Oncidopsis* Nelly Isler
- [12] *Oncidopsis* Francine

from the Remembrance genes on the pollen side. The grex produces an excellent inflorescence, long lasting quality, and bags of eye-catching contrast.

**BREEDING GOALS VERSUS ACCOMPLISHMENTS: THE FIRST 30 YEARS** My breeding goals were previously listed in this article to meet the demands of the consumer market. As I reflect on the original state of cultivar pool for potted orchid production in 1990, I believe I have accomplished a number of my goals. A predictable, uniform inflorescence height of no more than 30 inches (76 cm) is common. The speed to flower is uniformly less than 24 months from flask. Vigor and resistance to edema expression (blistering of the foliage under high humidity) is the norm. The longevity of the flowering with good culture is two to three weeks, which is acceptable to the market. Flower size and color are improving and meet consumer expectations. Fragrance is still elusive outside of the *Onc. Sharry Baby*-type, an *Oncidium sotoanum*- (*ornithorynchum*-) based fragrance. My work incorporating *Onc. schroederianum* as an alternative is still in progress.

What is now known is that fragrance as a pollinator attractor is not a common feature in *oncidiums*. There are only a few species in which that pollinator attraction is featured. In my breeding history, the genes that enable fragrance in orchid breeding seem recessive or else linked to features that I seem to be selecting away from. In any case, the vast majority of the hundreds of crosses I have made for fragrance have had a complete absence of this trait in the first generation; adding insult to injury, subsequent breeding from this generation has never resulted in fragrance reappearing in later generations.

I have been able to produce clean foliage and fragrant analogs to *Onc. Sharry Baby* but have not been able to meet the market demand for a heavily fragrant, 20-inch (50-cm) plant with bright colors that produces multiple inflorescences. My current interest is to take a key breeding plant that is fragrant, such as *Oncidium Heaven Scent* (Ruffles × *Sharry Baby*) (2005) or *Oncidium Sweet Sixteen* (Ron's Rippling Delight × *Sharry Baby*) (2005), and convert it to a tetraploid. I would prefer to use the latter plant since it incorporates all preferred sources of fragrance in the *oncidiums*: *sotoanum*, *leucochilum* and *schroederianum*.

A breeding approach to controlled flowering has been elusive. What has



13



14



15



16

been learned in the past 20 years is that when sufficient starch is formed in an *oncidium* pseudobulb, then the plant can support flowering (Blanchard and Runkle 2008). A change is required in the apical meristem (think “stem cells”) with the new development then becoming an inflorescence rather than another pseudobulb. Usually *oncidiums* can flower twice a year, and the assumption has always been that an environmental factor, either daylength or change in temperature, induced this transition. It is now known that regardless of the environmental trigger to sexually reproduce (flower), *oncidiums* must convert the existing starch in the pseudobulb to a particular form of sugar known as “mannan.” In this flowering mode, the sugar mannose is over 95 percent while glucose, arabinose and galactose together are less than 4 percent (Hsiao et al. 2011). This understanding provides the commercial grower with a clear-cut path forward to

control flowering once it is determined how to trigger this conversion. Some research (Chin et al. 2014) shows that prolonged, elevated temperature treatment induces this transition. This technique will not likely be adopted by commercial growers since thermal stress of the plant can be counterproductive. However, the knowledge that the AsA redox ratio is the “master switch” to mediate the phase transition from the vegetative to the reproductive is an important understanding and was the basis for continued research (Chin et al. 2016) that tested exogenous applications (sprays) of various compounds, which did in fact affect the AsA redox ratio and did have an effect on early flowering of *oncidiums*. So we do seem to be getting closer to the final and most important improvement of *oncidiums* as modern pot plants: predictable year-round flowering.

Orchids should continue to increase in total production in the world market.

From 2000–2015, phalaenopsis increased from 8 to 129 million just in Europe. In 2014 over 22 million phalaenopsis were grown in the United States. Orchids have long since replaced poinsettias, chrysanthemums, roses, begonias, etc. because growers prefer profitability to tradition. Phalaenopsis offer more money per square foot than any other floriculture crop, exceeding \$25 per square foot (929 cm<sup>2</sup>) per annum. However, in interviews with significant players at the world level, a common thread runs through their predictions of future production trends. Other types of orchids need to catch up with phalaenopsis. Oncidiums, second in production over the last 25 years to phalaenopsis, have been declining in acreage in the European market as phalaenopsis have reached higher percentages of total production area. Your banker will want to know why you are producing an orchid that yields only \$20 per square foot (929 cm<sup>2</sup>) (oncidiums), if you can produce another orchid that produces greater income. The logic is inescapable, however: the genetic base is available in many tropical and subtropical genera besides oncidiums to match phalaenopsis programmability. Miltoniopsis and nobile-dendrobiums are currently in demand by growers since they can already approach or match phalaenopsis efficiency. Both growers and consumers demand something new and it is a breeder's dilemma as to how to deliver it.

The predicted demand in the European market for alternative types of orchids to phalaenopsis is 25 percent of the current market, which is to say 35 million plants. Current European oncidium production is estimated to be less than 5 million plants. The lack of programmability is the immediate hurdle. Once this problem is solved, the obvious upside for these producers is that any increase in alternative orchid demand is likely to be accretive in total sales of orchids. It is not likely that demand for phalaenopsis would drop, but begonia growers better be looking over their shoulders!

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17

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— James McCully of Mauna Kea Orchids in Hawaii has been a farmer since 1976. Beginning in the 1980s he saw the future of orchids as the preferred replacement for the potted plants of the day and his entire professional life since then has been focused on providing source material for professional growers. Although the future of plant breeding (as with current taxonomic theory) is no doubt molecular, with specific gene editing allowing for targeted and rapid improvement, he is admittedly deeply mired in his past. He is an empiricist who relies solely on classical plant-breeding techniques, deliberate interbreeding, backcrossing and rigorous selection at all stages.

- [13] *Oncostelopsis* Mayor Billy
- [14] *Oncostele* (Sunup × *Oncidium* Two Alarm Fire)
- [15] *Oncidopsis* Oranje
- [16] *Oncidopsis* Onolicious
- [17] *Oncostelopsis* Brazilian Sun

His operating principal in determining whether to use a plant in the breeding program is, “if I were to stumble across this in nature, does this plant have any single characteristic superior to what I currently have in flower at this time” and if so, game on. He has made thousands of crosses and grown out millions of plants to look back on just a few. None of his current endeavors to improve the cultivars used for oncidium pot plants would be possible without the services of a loyal and talented grower, Leopoldo Ancheta, (Edna’s Flame/Paul’s Pride) who has worked with McCully since the beginning (email: [jwmccully54@gmail.com](mailto:jwmccully54@gmail.com)).

# *Oncidium leucochilum*

A Secret Star in Oncidiinae Breeding

BY NORBERT DANK/PHOTOGRAPHS BY NORBERT DANK UNLESS OTHERWISE CREDITED



THERE ARE STARS that are easy to recognize: everyone knows them, and they are unquestioned celebrities. As in show business, celebrities occur in Oncidiinae breeding. *Oncidium noezlianum* (syn. *Cochlioda noezliana*) is a good example with its brilliant-red flowers. *Oncidium noezlianum* readily transfers the red color to its progeny, and this red color is enduring throughout many generations of further breeding. Just think of the red oncidiums, which were formerly odontiodas. Or consider the fiery red *Oncidopsis* Nelly Isler (previously known as *Burrageara* Nelly Isler), which is still mericloned in the millions — the red color of its flowers comes from its grandmother *Oncidopsis* Edna, which has 50 percent *Onc. noezlianum* in its background. You can often easily tell just from looking at it that there is some *Onc. noezlianum* blood contained in a hybrid.

And then there are the steady and diligent workers, mostly acting in the background. You do not really take notice of their contributions, but without them the orchid world of today would not be as we know it. One of them is *Oncidium leucochilum*, a species found in mountainous forests in Mexico, Guatemala and Honduras at elevations up to 6,000 feet (1,829 m). It grows in intermediate-to-cool conditions and produces spikes of up to 12 inches (30 cm) with up to 50 waxy, long-lasting fragrant flowers. This article will highlight the role of the secret star *Oncidium leucochilum* in Oncidiinae breeding. Did you know that it is contained in such successful hybrids like *Oncostele* Wildcat and *Oncidopsis* Nelly Isler (yes, the previously mentioned celebrity of Oncidiinae mericloning)?

*Oncidium* species such as *Oncidium tigrinum*, *Oncidium maculatum*, *Oncidium aurarium* (syn. *Odontoglossum trilobum*) and *Onc. leucochilum* — with their round, flat flowers — have been used in Oncidiinae breeding with odontoglossum-type hybrids for three main purposes: introducing warmth tolerance; creating plants with longer, upright and branching inflorescences; and increasing plant vigor. Although *Onc. leucochilum* grows better in cooler conditions (and thus does not contribute to warmth tolerance), it has nicely branching inflorescences, and it is usually a good grower. Presumably this was the reason why it was crossed to the odontoglossum-type *Oncidium* Golden Guinea to give *Oncidium* Crowborough (1965), registered in 1965 by S. Low. This was the first hybrid in this direction of breeding — there were several other



- [1] *Oncidium leucochilum*
- [2] *Oncidopsis* Nelly Isler
- [3] *Oncidium* Crowborough (1965) 'Rustic Canyon' HCC/AOS. Photograph by Richard Clark.
- [4] *Oncostele* Wildcat 'Bobcat' AM/AOS
- [5] *Oncidium* Sheila Anne 'Golden Gate'
- [6] *Oncidium* Tiger Crow 'Pierre Bouchard' AM/AOS. This hybrid's claim to fame is its bright yellow color. Unfortunately, available pictures of 'Golden Girl' HCC/AOS are too faded to illustrate this trait.

RUSS VERNON

*Oncidium* hybrids with *Onc. leucochilum* registered between 1959 and 1966, mostly made by W.W.G. Moir, but these were combining *Onc. leucochilum* with intermediate-to-warm-growing *Oncidium* species such as *Oncidium altissimum*, *Oncidium hastatum*, *Oncidium sphacelatum* or *Oncidium sotoanum*.

Making *Onc. Crowborough* (1965) was a great idea — combining the large-flowered yellow *Onc. Golden Guinea* with the smaller-flowered, vigorous *Onc. leucochilum* resulted in an easy-growing, compact plant with long, branching inflorescences and many medium-sized, vividly colored flowers with a contrasting white lip. It has proven to be a milestone in *Oncidiinae* breeding — not only extensively awarded by the AOS, it is also parent of 59 direct descendants. Probably the most successful offspring are *Oncostele Wildcat* (× *Rustic Bridge* in 1992) and *Oncidium Tiger Crow* (× *Tiger Hambühren*, 1992). *Oncostele Wildcat* has been propagated by the millions, and there are red as well as yellow clones still available at orchid nurseries and in garden centers. *Oncidium Tiger Crow* was a lucky strike from Tom Perlite of Golden Gate Orchids. From one seed capsule, only about 50 plants were raised, and once the plants flowered, only one clone, called ‘Golden Girl’ HCC/AOS, was worthy of further propagation. This plant was then mericloned in the 1980s and became available in USA, Europe and elsewhere. *Oncidium Tiger Crow* has in turn been used 12 times for further breeding; interesting results are *Oncidium Sheila Ann* (× *Wearside Pattern*), *Oncidium Dorothy Wisnom* (× *Tiger Butter*) and *Oncidium Brennan Scott Barfield* (× *Angel Island*). *Oncostele Wildcat* has even more progeny and was used 47 times in crosses. The most prominent is *Oncostele Catatante* (× *Sphacelante*).

Another breeding direction was combining *Onc. leucochilum* with the fiery red *Oncidopsis Edna*, which is *Oncidopsis Harwoodii* (*Onc. noezlianum* × *Miltoniopsis vexillaria*) crossed to *Oncidium Charlesworthii* (1908) (*noezlianum* × *harryanum*). *Oncidopsis Edna* was already registered in 1921 by the famous odontoglossum breeder Charlesworth and is made up of 50 percent *Onc. noezlianum*, from which the deep-red color comes. *Oncidopsis Edna* was mericloned by Floricultura and was widely available in the 1980s and 1990s. Jakob and Nelly Isler from Switzerland crossed it to *Onc. leucochilum*, which improved the spike habit, leading to more





upright, longer inflorescences with more flowers, and better vigor. The resulting *Oncidopsis* Stefan Isler (registered in 1990) was mericloned and might still be available at some nurseries. Long, upright inflorescences bear deeply red-colored flowers of similar size and shape as *Oip. Edna*. You would not really recognize from the plant habit, flower color and shape that this is an *Onc. leucochilum* cross. The most famous progeny of *Oip. Stefan Isler* is *Oip. Nelly Isler*, which is *Oip. Stefan Isler* × *Miltoniopsis* Kensington. *Oncidopsis Nelly Isler* can still be found in many garden centers as it fulfills perfectly what orchid growers like to see in their greenhouses: compact plants, not-too-long inflorescences, seemingly vigorous, no spots on the leaves, and flowering quite quickly once out of flask and with often two inflorescences per bulb with sequentially opening flowers. It is said that there are more than a million plants of *Oip. Nelly Isler* produced worldwide per year and, like *Oncidopsis Cambria*, it is a one-in-a-million hybrid, which fulfills all the requirements to be an orchid celebrity. Burkhard Holm crossed *Oip. Stefan Isler* to *Oncidium schroederianum*, which is another silent star of Oncidiinae breeding. The resulting *Oncidopsis* Holm's Lava Glow produces upright inflorescences with orange-red flowers, which do not at all resemble the *Onc. schroederianum* parent, although *Onc. schroederianum* adds further vigor and floriferousness to the hybrid.

Quite often seen in orchid nurseries and even garden centers and discounters is *Oncidopsis* Bartley Schwarz (Beall), which has an interesting pedigree. It contains complex *Miltoniopsis* hybrids (37.5 percent), *Onc. altissimum* (12.5 percent), *Oncidium fuscatum* (12.5 percent) and again *Onc. leucochilum* (37.5 percent). If you see the flowers, you would not assume that there is *Onc. leucochilum* in it — nevertheless, *Onc. leucochilum* improves flower spike habit and flower presentation, and probably contributes to the partially white lip vigor.

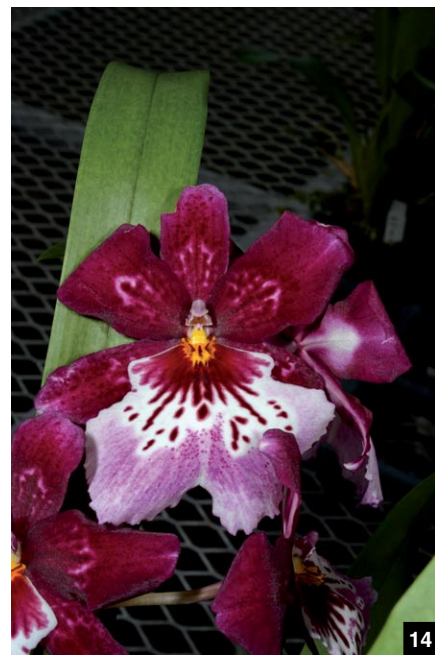
And now for something completely different — did you ever hear of a hybrid named *Otorhynchocidium*? This tongue twister combines the genera *Otoglossum*, *Rhynchostele* and *Oncidium*. Only three hybrids of this type have been registered so far, and all are based on *Otostele* Summit (*Otoglossum brevifolium* × *Rhynchostele bictoniensis*). *Otoglossum brevifolium* is an intermediate-to-cool-growing Oncidiinae species from Colombia, Ecuador and Peru and has a stunning display of waxy



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- [7] *Oncidium* Dorothy Wisnom
- [8] *Oncostele* Catatante
- [9] *Oncidium* Brennan Scott Barfield
- [10] *Oncidopsis* Stefan Isler
- [11] *Oncidopsis* Holm's Lava Glow
- [12] *Oncidopsis* Bartley Schwarz (Beall)
- [13] *Otorhynchocidium* Cherry Fudge 'Car-mela' HCC/AOS
- [14] *Oncidopsis* Autumn Falls
- [15] *Oncostele* Black Beauty

red-brown flowers with a yellow lip. *Otostele* Summit was used for further breeding to *Onc. leucochilum*, which gives *Otorhynchostele* Cherry Fudge. Flower shape and size as well as the wine-red color of the sepals and petals are influenced by the *Otoglossum* parent, the red lip comes from *Rst. bictoniensis*, and *Onc. leucochilum* contributed with good presentation of the flowers on a longer, partially branching inflorescence.

*Oncidium leucochilum* has also been combined with *Miltoniopsis*. Jim McCully, owner of Mauna Kea Orchids located on the Big Island in Hawaii, created and selected numerous *Oncidiinae* hybrids. Many of these are in propagation and available at orchid nurseries and garden centers. One of his hybrids is the unusual combination of *Onc. leucochilum* with *Miltoniopsis* Teresa Helena Lima. *Miltoniopsis* Teresa Helena Lima is what one would consider to be a complex *miltoniopsis* hybrid having mostly *Miltoniopsis vexillaria* and *Miltoniopsis roezlii* in its background. Combining this with *Onc. leucochilum* gives plants with charming *miltoniopsis*-like flowers. Again, *Onc. leucochilum* is in the background, yet the flowers do not much resemble the *Oncidium* parent.

In addition to combining *Onc. leucochilum* with *odontoglossum*-type *Oncidium* hybrids, using *Miltoniopsis* or more extravagant hybrids like *Oot. Summit* in primary hybrids with *Onc. leucochilum* seems to be a promising endeavor, producing stunning results. Just take *Oncostele* Black Beauty ( $\times$  *Rst. bictoniensis*) — it demonstrates the power of *Rst. bictoniensis* and *Onc. leucochilum* to produce plants with velvety red-dark flowers. Inflorescences are again upright and partially branching, and have medium-sized, waxy and glossy, dark-red flowers. Both parents contribute to the dark sepals and petals, and the velvety-red lip presumably comes from *Rst. bictoniensis*. The latter tends to produce a dark-red lip in many first-generation hybrids. *Oncidium* Issaku Nagata is another primary hybrid, which is *Onc. (leucochilum*  $\times$  *fuscatum*). It is one of the rare crosses where *Onc. leucochilum* is the capsule parent. This hybrid produces a charming display of red-white flowers on Christmas-tree-like branching inflorescences. The flowers quite resemble the *Onc. fuscatum* parent with brown sepals and petals with a yellow fringe, and a white-red lip similar to *Oncidium* Debutante (*fuscatum*  $\times$  *cariniferum*). This is a characteristic of many *Onc. fuscatum* hybrids that often is transferred to second-generation hybrids.



- [16] *Oncidium* Issaku Nagata
- [17] *Oncidium* Debutante
- [18] *Oncidium* Pacific Lust
- [19] *Oncidium* Volcano Hula Halau 'Tasane'e's Delight' HCC/AOS. Photograph by Nile Dusdieker
- [20] *Oncidopsis* Holm's Yolara

*Oncidium* Issaku Nagata was used 29 times for further breeding. Two of the more widespread hybrids are *Oncidium* Pacific Lust (× Aissa McLaughlin) and *Oncidium* Volcano Hula Halau (× *Onc.* Kilauea). The combination of *Onc.* Issaku Nagata with the red *Oncidium* Aissa McLaughlin created a hybrid with an impressive, branched inflorescence, bearing many medium-sized, pink-to-red flowers. Several selected plants have been propagated by mericloneing.

Finally, *Oncidopsis* Holm's Yolara shows again the advantages of introducing *Onc. leucochilum* into more complex *Oncidiinae* hybrids: *Oncidopsis* Yokara × *Onc. leucochilum* has nicely patterned flowers, which are smaller than the flowers of its parent *Oip.* Yokara although the plant has longer inflorescences and more flowers. It can be grown cool to intermediate and has a wider range of temperature tolerance than the quite difficult-to-grow *Oip.* Yokara. Indeed, I have never seen an *Oip.* Yokara, and all the people I talked to who had one told me that it was quite difficult to maintain and often faded away after a few years. Again, *Onc. leucochilum* is a silent worker. You do not see much of it in the flower, but it considerably contributes to a better growth habit and floriferousness. Orchideen Holm mericloneed a superior plant of this hybrid. It is still in propagation, and I have seen it for sale even in garden centers.

What do we learn from all this? *Oncidium leucochilum* is a good breeding parent — more successful as pollen parent (91 offspring) than as seed parent (12 offspring). It influences the spike habit (more upright) and spike length (longer). The resulting flower size in the hybrids is medium, which is compensated for by more flowers on branching inflorescences. The white lip can be passed on to its first-generation progeny, but in the second or third generation, this trait is often bred out. It seems that in some hybrids, the *Onc. leucochilum* influence may lead to single aborted buds — just empty bracts sometimes appear on the inflorescences. I have seen it with *Oip.* Stefan Isler and *Oip.* Holm's Yolara. Not serious, but of course not ideal for the commercial orchid grower. Still, the positive aspects prevail, and this is a reason why *Onc. leucochilum* has been and surely will further be used as a premium parent in *Oncidiinae* breeding programs.

If you are an orchid aficionado also growing *Oncidiinae* hybrids, you will sooner or later come across hybrids containing *Onc. leucochilum* in its background. If you



see one of these hybrids, just consider the work *Onc. leucochilum* is doing here, even if it is not visible from plant habit or flower aspect. Consider the spike length and branching, the shape of the flowers, the vigor of the plant. It is the work of a secret star of *Oncidiinae* breeding.

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and South America, with special focus on the species and hybrids in the *Oncidiinae*. He is a member of the German Orchid Society as well as the AOS and IOA. His second passion is photography and he likes to take pictures at exhibitions as well as nurseries, but also of orchids growing in the wild. His pictures can be found at [www.flickr.de/nurelias](http://www.flickr.de/nurelias). Im Buschfeld 15, 51399 Burscheid, Germany (email: [nurelias@nurelias.de](mailto:nurelias@nurelias.de)).

# Rossioglossum

## How to Grow a Tiger

TEXT AND PHOTOGRAPHS, UNLESS OTHERWISE CREDITED, BY NORBERT DANK



*ROSSIOGLOSSUM* WAS NAMED for John Ross, a keen orchid collector from the 19th century, and contains many attractive and quite easy-to-grow species and hybrids. Recently, it has been enlarged with several species, which were previously placed in other genera.

It was around 1838 when John Ross collected orchids in Mexico for wealthy orchid lovers in Europe. Compared to today, traveling to exotic countries like Mexico was quite an adventure, and many professional collectors risked their lives to find new orchid species in Central or South America, Southeast Asia or Africa. Ross did not know that his expedition to Mexico would grant him the highest honor in the botanical world — a genus named after him!

During some of his excursions to the oak and pine tree forests on the Pacific mountainous ranges of the state of Oaxaca, at elevations of 3,281–7,874 feet (1,000–2,400 m), he found some orchids he never had seen before. These were growing on larger tree limbs in thick moss layers and with strong pseudobulbs with bluish-green leaves and large, glossy, yellow-brown flowers. Remarkably, in these regions, there is a period of heavy rainfall from May to September, and a pronounced dry period from October to April with sparse rainfall. Only fog and mist provide some moisture, which is absorbed by the moss layers. Further, temperatures are on the lower side during that time, going down to 41 F (5 C) during the winter rest period. This did not correspond well to the image of tropical forests held by Europeans and surely caused hundreds of imported plants to perish quickly in the warm, damp European greenhouses.

Nevertheless, one of the plants sent by Ross to England flowered in the greenhouses of George Barker and was described by John Lindley in 1840 as *Oncidium insleayi*, named for Barker's gardener, a Mr. Insleay. This species, nowadays known as *Rossioglossum insleayi*, was the first *Rossioglossum* species to be described. In the same year, 1840, another *Rossioglossum* species was described and named *Odontoglossum grande* (now known as *Rossioglossum grande*), which was found by George Ure Skinner in Guatemala. The name already tells it: *Ros. grande* has large, showy flowers. Additional *Rossioglossum* species followed; a description of *Rossioglossum schlieperianum* from Costa Rica was published in 1865 as *Odontoglossum schlieperianum*, named for the German orchid collector Adolf Schlieper. Soon



- [1] *Rossioglossum hagsaterianum* and *Rossioglossum splendens* (inset).
- [2] A selected clone of *Rossioglossum grande*.
- [3] *Rossioglossum insleayi*
- [4] A line bred *Rossioglossum williamsianum* ('Struber Gold' × 'Struber Tiger').
- [5] *Rossioglossum Rawdon Jester*

*Rossioglossum splendens* followed, which was described in 1868 as a variety of *Ros. insleayi*.

*Rossioglossum williamsianum*, described 1881 and named for an English orchid nursery owner, was long regarded as a natural hybrid between *Ros. grande* and *Ros. schlieperianum*. Only when larger quantities of *Ros. williamsianum* were introduced from Guatemala did it become more and more clear that it is a species in its own right, because these plants were collected in regions where *Ros. grande* is not found.

Looking at the artificial hybrid between *Ros. grande* and *Ros. schlieperianum* named *Rossioglossum Alexandra Regia*, it can be concluded that this assessment is correct. The best way to distinguish *Ros. grande* from the other *Rossioglossum* species is the form of the column appendices. Whereas the appendages of *Ros. grande* are relatively large and quadrangularly shaped, these appendages are filamentous for all other *Rossioglossum* species with large, yellow-brown flowers. The well-known and widely cultivated primary hybrid *Rossioglossum Rawdon Jester* shows column appendages that are triangular shaped, an intermediate between the large appendages of *Ros. grande* and the filamentous appendages of *Ros. williamsianum*, the other parent. I have often seen *Ros. Rawdon Jester* specimens labelled as *Ros. grande* or *Ros. williamsianum* — even orchid judges sometimes have difficulties in distinguishing them. Some years ago, I received a division of an excellent, highly judged *Ros. williamsianum*, which turned out to be *Ros. Rawdon Jester* (note the differences in the figure).

Finally, another species was described in 1922 as *Odontoglossum powellii* (now *Rossioglossum powellii*). It has never been found again, thus it is difficult to confirm if it is a distinct species. Some regard it to be synonymous to *Ros. schlieperianum*.

For many years, these *Rossioglossum* species were placed in the genus *Odontoglossum* and lumped together with species that are now regarded to be *Oncidium*, *Rhynchostele*, *Cyrtorchilum*, etc. Schlechter set up section *Rossioglossum* (named for John Ross) within the genus *Odontoglossum* in 1916 to encompass these species around *Odontoglossum insleayi* with blue-green leaves and large, yellow-brown flowers. But it was only in 1976 when Garay and Kennedy suggested an independent genus *Rossioglossum*.

In recent years, supported by DNA analysis and further plant systematics



[6] *Rossioglossum Alexandra Regina* including a close-up of the column appendages.

[7] *Rossioglossum Bob Hamilton*

[8] *Rossioglossum Jakob Jenny*

[9] *Rossioglossum Maria Heuberger*

[10] *Rossioglossum Holm's Tiger* (Rawdon Jester × *splendens*).

research, three additional species were added to the genus *Rossioglossum*. The new members are *Rossioglossum krameri*, *Rossioglossum oerstedii* (formerly *Ticoglossum krameri* and *Ticoglossum oerstedii*), and *Rossioglossum ampliatum* (formerly *Oncidium ampliatum*). The hobbyists among us who are familiar with the habit and flower form of *Ros. grande*, *Ros. williamsianum*, *Ros. schlieperianum*, *Ros. splendens* and *Ros. insleayi* might argue that these new members do not look at all like *Rossioglossum* species compared to the original members of the genus. Further research will show whether the concept of *Rossioglossum* including these three new members is stable, or whether it might change again. At least it is clear that the five original species of *Rossioglossum* form a distinct, well-defined genus.

There was also the discovery that there might be another *Rossioglossum* species similar to *Ros. splendens*, but distinct from the latter. It was described in 2003 and named *Rossioglossum hagsaterianum* in honor of Eric Hagsäter, a renowned specialist in South American orchids, living in Mexico. *Rossioglossum splendens* and *Ros. hagsaterianum* are similar but can be distinguished by their distinct areas of distribution and by the form of the lip. Whereas the lip of *Ros. splendens* gradually broadens from a narrow base, the lip of *Ros. hagsaterianum* has a short, slender base and quickly enlarges to a full, round shape. There are some theories that *Ros. splendens* actually is a natural hybrid between *Ros. hagsaterianum* and *Ros. insleayi*, but this theory would contradict the fact that the species are found in different locations that do not seem to overlap. It would be interesting to see if an artificial hybrid between *Ros. hagsaterianum* and *Ros. insleayi* resembled *Ros. splendens*.

According to the Royal Horticultural Society, *Rossioglossum* thus now contains a total of 10 species, with *Ros. powellii* being a doubtful member of this genus. All the other nine species are more or less frequent in culture. While *Ros. grande*, *Ros. williamsianum*, *Ros. insleayi*, *Ros. schlieperianum*, *Ros. splendens*, *Ros. hagsaterianum* and *Ros. ampliatum* are larger plants, *Ros. oerstedii* and *Ros. krameri* are nearly miniature species.

*Rossioglossum* species grow in the Pacific ranges of the Sierra Madre in Mexico, Guatemala and Costa Rica in regions with a pronounced cool and dry winter with a wet and warmer summer. Generally, these six species have two



11



12

different growth and flowering patterns. They all need a dry, cool rest period in winter, when temperatures for species such as *Ros. grande* can go down to 41 F (5 C) with no harm to the plants if the potting medium is dry. Some species have a shorter winter rest, like *Ros. williamsianum* and *Ros. schlieperianum*, as their growing season is longer compared to the other species.

[11] *Rossioglossum* Nurelias (*grande* × *splendens*). The inset photograph is a close-up showing the long column appendages.

[12] *Rossioglossum* Bob Holm. The long column appendages of this hybrid are quite visible in the photograph.

There are several attractive intrageneric *Rossioglossum* hybrids available from nurseries. They usually grow more easily than their parents and have attractive, showy flowers. Although I have never seen a hybrid between *Rossioglossum* and another genus, I am well aware that there are hybrids registered such as *Rossiosteale* Gay Buzz Mist (*Ros. grande* × *Rhynchosteale bictoniensis*) by J. Gay in 2008 and *Rossitonia* Wonder (*Ros. grande* × *Miltonia regnellii*) registered by Masao Yamada in 1956. Neither of these crosses are vigorous and thus survive only a few years, or they have been registered by mistake and actually represent a different cross. I would love to see a picture of *Rossitonia* Wonder, or any other of these intergeneric crosses with *Rossioglossum*.

Intrageneric crosses between *Rossioglossum* species, though, can be made quite easily and breeding efforts started around 1900. More recently, mostly German orchid growers have created some attractive new hybrids.

But let us start with the first *Rossioglossum* hybrid, registered in 1902 by the famous *Odontoglossum* grower Charlesworth in England, as the hybrid between *Ros. grande* and *Ros. schlieperianum*. For a long time, *Ros. williamsianum* was regarded to be the natural hybrid between *Ros. grande* and *schlieperianum*. The artificial hybrid shows that this theory is unlikely, as it does not at all resemble *Ros. williamsianum*.

The next *Rossioglossum* hybrid was registered more than 80 years later: *Ros. Rawdon Jester* was made by the well-known *Odontoglossum* nursery Mansell & Hatcher from Leeds, England, and registered in 1983. *Rossioglossum* Rawdon Jester combines the positive traits of both parents: *Ros. grande* contributes large flowers with contrasting colors, a well-shaped labellum and great vigor, whereas *Ros. williamsianum* considerably increases the flower count and improves the presentation of the flowers on the inflorescence. *Rossioglossum* Rawdon Jester is probably the most prominent *Rossioglossum* hybrid, and it is available at many orchid nurseries. It grows well, and plants can reach a considerable size due to its *Ros. williamsianum* parent. Usually, *Ros. Rawdon Jester* flowers during winter, which is between the flowering season of *Ros. grande* (around October) and *Ros. williamsianum* (spring).

Crossing *Ros. Rawdon Jester* back to *Ros. grande* gives *Rossioglossum* Bob Hamilton. In 2006, this hybrid was registered by Tom Perlite from Golden



Gate Orchids. Due to its 75 percent *Ros. grande* ancestry, it is less easy to differentiate from *Ros. grande* but the triangular-shaped column appendices still give us the hint that this is not *Ros. grande*.

More recent hybridization efforts have used species with an attractive yellow lip such as *Ros. insleayi* and *Ros. splendens*. Crossing *Ros. grande* with *Ros. insleayi* gives *Rossioglossum* Jakob Jenny — the clone I photographed shows the flower shape of *Ros. grande* and clearly gets its color from the other parent, *Ros. insleayi*. Similarly, *Ros. splendens* and *Ros. hagsaterianum* come with an intensely yellow-colored lip surrounded by nice dark-red spots and sepals and petals that are mostly covered by an attractive chestnut-brown color. The yellow lip is often passed on to its progeny and not only with *Ros. Jakob Jenny*. *Rossioglossum* Maria Heuberger (*grande* × *hagsaterianum*), registered by Franz Glanz in 2007; *Rossioglossum* Nurelias (*grande* × *splendens*), registered by Orchideen Holm in 2011; and *Rossioglossum* Holm's Tiger (*Rawdon Jester* × *splendens*), registered by Orchideen Holm in 2012, show this nice effect. These hybrids are real eye catchers with their dark-brown flowers and the contrasting yellow lip.

There are some more recent *Rossioglossum* hybrids, such as *Rossioglossum* Struber Sensation (*Alexandra Regina* × *splendens*) and *Rossioglossum* Bob Holm (*insleayi* × *splendens*). While *Ros. splendens* and *Ros. hagsaterianum* are terribly slow growers, their hybrids are much more robust and vigorous. This is partially due to the so-called “heterosis effect,” which means that crosses between

two species often produce hybrids that are more vigorous than either of the parents. *Rossioglossum* hybrids are a good start if you would like to begin growing *rossioglossums*.

The species most widely found in cultivation is *Ros. grande* — I assume that there are more *Ros. grande* plants in cultivation than plants from all other five species reviewed together. It has the showiest flowers, is an easy grower and can even be grown on the windowsill if during the winter resting period it is not kept too warm. *Rossioglossum grande* once was so popular that it got the nickname the “tiger orchid” for its large, yellow-brown flowers.

*Rossioglossum schlieperianum* and *Ros. insleayi* are occasionally offered at orchid nurseries, whereas *Ros. williamsianum* is difficult to find. The rarest species in my experience are *Ros. splendens* and *Ros. hagsaterianum*. This is surely partially due to the slow rate of growth, which makes them difficult to propagate and to flower.

How can you best grow the tiger orchid and its relatives on a windowsill or in a greenhouse? First, you have to respect their growing cycle: *Ros. grande*, *Ros. insleayi*, *Ros. splendens* and *Ros. hagsaterianum* flower once the new growth has matured, which is around October and November in the Northern Hemisphere. After flowering, they should be kept dry with little watering, if at all.

*Rossioglossum schlieperianum* and *Ros. williamsianum*, however, develop the inflorescences during the spring in parallel to the slowly developing new growth. Once the flowering season is over, the new shoot accelerates growth and starts



to mature in autumn. In my greenhouse, *Ros. williamsianum* is still actively growing in December, so I continue watering and feeding the plant until the new growth matures and roots do not have green tips anymore.

After a cool and dry winter rest, the plants usually start new growth in March or April. With the appearance of the new growth, watering frequency and volume can be slowly increased. This is also a good time for repotting, once the new shoot has reached a size of about 3.9 inches (10 cm). A new pot should be large enough to cover two growing seasons, as they do not like repotting. I prefer to grow *Rossioglossums* in plastic pots using bark media and only small amounts of water-retaining ingredients such as sphagnum moss. Good drainage is of essence, so pots with large holes at the bottom will ensure a healthy root system. Furthermore, the plants should be firmly fixed in the new pot, so that roots can develop without being damaged. Some *Rossioglossum* species suffer considerably when repotted. I have seen that with *Ros. splendens* and *Ros. hagsaterianum*, which are very slow growers. When repotted, they might not even develop a new growth at all during the next growing season, or the new growth might be small with tiny leaves. At the other end of the scale, some *Ros. williamsianum* specimens develop a strong root system and tolerate repotting much better.

During the growing season, all of them can receive plenty of water. Fertilizer can be given at up to 350 parts per million (ppm); some growers even feed them with 500 ppm on a weekly basis. It is, however, important to flush the pots thoroughly, specifically before the winter rest, as residual salts can harm or even kill the root system during the dry season. During summer, they grow well under temperate conditions and tolerate warm days in summer with temperatures up to 86 F (30 C) or more much better than *Oncidium* species formerly classified as members of the genus *Odontoglossum*.

Lots of fresh air and air movement support healthy leaves and good growth. During the summer, *Rossioglossum* species grow well outdoors in temperate regions like western and central Europe in a shady place with some morning or evening sun. When the new leaves unfold, the new bulb is visible and the inflorescence starts to develop, watering should be gradually decreased, and the plant may receive more sunlight to support maturation of the new growth.



14

*Rossioglossum grande*, *Ros. insleayi*, *Ros. hagsaterianum* and *Ros. splendens* will flower between October and December, whereas *Ros. williamsianum* and *Ros. schlieperianum* develop their inflorescences the following spring. During winter, more intense light is beneficial and night temperatures down to 41 F (5 C) are well tolerated by most species. Ideally, during the day, humidity should not be too high, which corresponds to the dry conditions of their natural habitat.

*Rossioglossum williamsianum* and *Ros. schlieperianum* seem to prefer somewhat warmer temperatures during that time, as they have a longer growing season. The warmer the plants are kept during the winter, the more often they need a brief shower of water. In their natural habitats, dew is formed during cold nights. The pseudobulbs should not shrivel, so regular misting in late evening or early morning mimics the natural fog of their habitats. In my greenhouse, I give them a brief shower on sunny winter mornings every once in a while. Regular watering of the potting medium during their rest period will harm their roots and result in a weak new growth. Toward the end of winter, the new growth starts to emerge from the base of the youngest bulb, and a new growth season starts.

The more vigorous species like *Ros. grande* and its hybrids can develop into showy specimens over the years. It is a rewarding experience to see a large tiger orchid in full flower. When will you give it a try?

[13] A mass display of hybrid *rossioglossums* at Orchideen Holm, Germany.

[14] First described as *Oncidium ampliatum* in 1833 and long in cultivation as such, this species was transferred in 2000 to a new genus, *Chelyorchis* by Dressler and Williams however DNA analyses place it in the genus *Rossioglossum* with which it shares similar growth habit (flattened orbicular pseudobulbs) and, apparently oil-collecting bee pollination syndrome of the other species with yellow-and-brown flowers. Plant featured is *Rossioglossum ampliatum* 'Yvonne' CCM/AOS photographed by Michael MacConaill. The inset close-up by Norbert Dank.

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# Rhynchostele

The Other *Odontoglossum*

BY NORBERT DANK AND STEVEN K. BECKENDORF/PHOTOGRAPHS BY NORBERT DANK UNLESS OTHERWISE CREDITED



THERE ARE ORCHIDS that we adore, appreciate for their flowers and colors, and definitely want to have, as they are in vogue now. Then there are other orchids for which the love started years ago, and we seem to have developed a kind of relationship with them over the years. For us, one of these genera is *Rhynchostele*, a genus that has jewels and gems in it, small and large, and we are addicted to them all.

You might ask yourself, “Rhyncho-what? What’s that?” Indeed, many of the species now belonging to the genus *Rhynchostele* were included for a long time in other genera, such as *Odontoglossum* or *Mesoglossum*. However, more recently, they found their home in the genus *Rhynchostele*. The first three species were found by Pablo de la Llave, a Catholic priest, politician and natural scientist, and Juan Martinez de Lexarza, a Mexican botanist, in the southern ranges of the Sierra Madre Occidental in Mexico close to the Pacific Ocean. *Rhynchostele aptera*, *Rhynchostele cervantesii* and *Rhynchostele maculata* were described in 1824 as *Odontoglossum apterum*, *Odontoglossum cervantesii* and *Odontoglossum maculatum*. Further species were found in the years of intense orchid hunting in Mexico and Central America — *Rhynchostele bictoniensis*, *Rhynchostele cordata*, *Rhynchostele ehrenbergii*, *Rhynchostele galeottiana*, *Rhynchostele pygmaea*, *Rhynchostele stellata* and *Rhynchostele rossii* were described as odontoglossums between 1838 and 1847, followed by *Rhynchostele ureskinneri* (1859), *Rhynchostele madrensis* (1874), and *Rhynchostele majalis* (1886). *Rhynchostele candidula* was first described as *Odontoglossum nebulosum* (syn. *Rst. aptera*) var. *candidulum*, and only later, its status as an independent species was recognized.

In 1852, Lindley recognized similarities between these members of the genus *Odontoglossum* and summarized the group related to *Rst. cervantesii* as *Odontoglossum* Section *Leucoglossum*. In the very same year, Reichenbach transferred *Odontoglossum pygmaeum* to a new genus *Rhynchostele* because of some morphological peculiarities.

The name *rhynchostele*, “beak-like column,” refers to the shape of the rostellum. Mexican botanists worked further on this genus. In 1984 Federico Halbinger erected the genus *Lemboglossum*, and finally, in 1993, Miguel Angel Soto Arenas and Gerardo Salazar used morphological similarities



- [1] *Rhynchostele cordata* ‘Marko’
- [2] *Rhynchostele aptera*
- [3] *Rhynchostele cervantesii*
- [4] *Rhynchostele bictoniense*
- [5] *Rhynchostele ureskinneri* ‘Michael’  
HCC/AOS
- [6] *Rhynchostele ehrenbergii*

STEVEN K. BECKENDORF

with *Rhynchostele* to transfer all the lemboglossums into the previously monotypic genus *Rhynchostele*.

In 1979, more than 150 years after the discovery of the first *Rhynchostele* species, *Rhynchostele hortensiae* was described. It grows in wet cloud forests in Costa Rica and is rarely seen in culture despite its attractive, large, ornamental flowers. And only recently, the use of DNA data revealed that *Mesoglossum londesboroughianum* should also be added to the genus *Rhynchostele*. Together with *Rhynchostele oscarii* from Guatemala, published only in 2006, this makes a total of 17 accepted *Rhynchostele* species according to the World Checklist of Selected Plant Families.

The center of distribution is Mexico — several species grow only there: *aptera*, *candidula*, *cervantesii*, *ehrenbergii*, *galeottiana*, *londesboroughiana* and *madrensis* grow in mountainous regions at altitudes between 4,921 and 9,843 feet (1,500 and 3,000 m). Further, *Rst. maculata*, *Rst. majalis* and *Rst. pygmaea* are distributed in Mexico and Guatemala. Only *Rst. bictoniensis*, *Rst. cordata*, *Rst. rossii*, *Rst. stellata* and *Rst. ureskinneri* have a broader distribution range in Central America, with *Rst. stellata* and *Rst. cordata* even reported from Venezuela. *Rhynchostele hortensiae*, in contrast, has only been found in Costa Rica so far, and *Rst. oscarii* has been reported solely from Guatemala. Although they were long regarded as *Odontoglossum* species, many orchid lovers, hybridizers and botanists have long thought that these plants were somehow special and different from the *Odontoglossum* species of Colombia, Venezuela, Ecuador, Peru and Bolivia. These other odontoglossums from Mexico and Central America hopefully have now found their harbor with regards to orchid taxonomy.

Whereas nearly all *Rhynchostele* species are in cultivation, the only doubtful species is *Rst. oscarii*, which was found in Guatemala and is known as the black orchid by local people. It was described by Fredy Archila Morales in 2006. It seems to be closely related to *Rst. bictoniensis*, but can be differentiated by its nearly black flower color and a somewhat different flower shape. As there are only black and white pictures available in the publication, we have to rely on the text of that publication. It describes the flower color as, "It wasn't black but a dark purple flower, but it was reason enough to call this plant the black orchid." Since its first description in 2006 it seems that no



7

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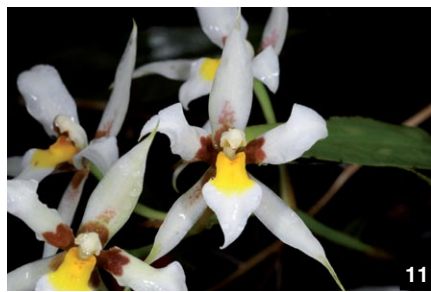
further plants were found, and no plants are in cultivation. Interestingly, one of the authors recently saw a *Rst. bictoniensis* seedling from a fifth-generation *Rst. bictoniensis* that was line bred at the nursery Orchideen Holm in Germany, which looks similar to *Rst. oscarii*. It also comes with a dark-purple, nearly black flower color, which seems to be a result of inbreeding. Could it be that in nature, where there are smaller populations of *Rst. bictoniensis*, such mutations could occur, and that *Rst. oscarii* is a form of *Rst. bictoniensis*? As there seems to be no living plant material available from *Rst. oscarii*, it might be difficult to shed more light on that assumption.

But what makes this genus so special? There are showy species such as *Rst. rossii* and *Rst. cervantesii* that can be grown in small spaces. These species produce lovely displays of flowers, which are 2–3 inches (5.1–7.6 cm), on relatively small plants. In contrast, *Rst. bictoniensis* and *Rst. ureskinneri* plants can reach sizes of up to 4 feet (1.2 m) including inflorescences, and can present up to 80 flowers.

There are also more rarely seen species, like the colorful *Rst. majalis*, the bright-yellow-flowering, deciduous *Rst. londesboroughiana*, the charming, large-flowering *Rst. hortensiae*, the delicate *Rst. stellata* with its star-shaped flowers, or *Rst. aptera* with crystalline-white flowers of up to 4 inches (10.2 cm) in diameter and profusely covered with red–brown spots.

The relationships among the various *Rhynchostele* species are interesting. There are sister species like *Rst. rossii* and *Rst. ehrenbergii*, *Rst. bictoniensis*, and *Rst. ureskinneri*, *Rst. cordata* and *Rst. hortensiae* or *Rst. aptera* and *Rst. candidula*, which are closely related. The table reprinted from Halbinger's publication on *Odontoglossum* Section Leucoglossum in 1982 shows these interesting relationships, which were mostly confirmed by DNA analyses. On the other hand, there are the odd ones like *Rst. pygmaea*, with plants of about 2 inches (5.1 cm) and flowers of 0.3-inch diameter (0.8 cm), or the previously mentioned *Rst. londesboroughiana*, which endures the dry season of the year, during which it looks quite dead without any leaves.

Several natural hybrids have been described. This is not surprising, as *Rhynchostele* species often grow jointly in their natural habitats. In the Plant List of the Royal Botanic Gardens of Kew ([www.theplantlist.org](http://www.theplantlist.org)), *Rhynchostele* × *vexativa*



(*aptera* × *cordata*) and *Rhynchostele* × *humeana* (*rossii* × *cordata*) are the only accepted natural hybrids. Three others, *Rhynchostele* × *aspersa* (*maculata* × *rossii*), *Rhynchostele* × *duvivierana* (*aptera* × *maculata*) and *Rhynchostele* × *warnieriana* (*aptera* × *rossii*) can be found in literature, although these are not accepted names according to Kew.

*Rhynchostele* species have been used widely in orchid hybridization. Starting around 1900, several primary hybrids between *Rhynchostele* and larger-flowering *Oncidium* (those species from the synonymous genus *Odontoglossum*) species like *Oncidium alexandrae* (syn. *Odontoglossum crispum*) and *Oncidium harryanum* (syn. *Odontoglossum harryanum*) were made. *Oncostele* George Day (*Rst. rossii* × *Onc. alexandrae*), registered in 1913, provides a good idea of these hybrids.

About 65 hybrids with *Rhynchostele* species had been registered by 1925, most of them (30) with *Rst. rossii*. After this first interest, hybridizers soon focused on larger-flowering *Oncidiinae* crosses and created those colorful and fully shaped hybrids, which are the basis for many of the current successful creations.

However, in the 1970s, *Rst. rossii* had its revival, with several interesting



- [7] *Rhynchostele galeottiana*
- [8] *Rhynchostele majalis*
- [9] *Rhynchostele stellata*
- [10] A collection of different *Rhynchostele rossii* color forms.
- [11] *Rhynchostele madrensis*
- [12] *Rhynchostele candidula*
- [13] A semi-peloric form of *Rhynchostele maculata* expressing almost liplike petals. Inset photograph of a typical form.
- [14] *Rhynchostele* × *humeana*



[15] *Brassostele* Billabong  
 [16] *Brassostele* Capricious  
 [17] *Cyrtocidistele* Rossini  
 [18] *Gomestele* Autumn Tints  
 [19] *Oncostele* George Day  
 [20] *Oncostele* Holm's Feuer-nugget  
 [21] *Rhynchoxosteles* Cormac

[22] *Rhynchoxia* Pacific Paranoia 'Other Side of Cool'  
 [23] *Rhynchoxosteles* Red Nugget  
 [24] *Rhynchoxosteles* Stamfordiense  
 [25] *Rhynchoxosteles* Violetta von Holm

combinations made with complex Oncidiinae hybrids — *Oncostele Hambühren* is a fine example of such a hybrid. Artur Elle, a renowned German commercial orchid grower, made and registered this cross in 1974. Beginning in the mid-1970s, he used *Rst. rossii* and *bictoniensis* to create new, exciting combinations in shape and color. *Oncostele* Anneliese Rothenberger (*Rst. bictoniensis* × *Oncidium* Goldrausch 1975) is another good example of this new direction in breeding. *Oncostele* Hambühren was used for further breeding — the combination with *Oncidopsis* (syn. *Vuykstekeara*) Cambria resulted in *Oncostelopsis* Helmut Sang. The large white lip and the distinct pattern of the flowers are traits inherited from *Rst. rossii*.

*Rhynchosele bictoniensis* is by far the most frequently used *Rhynchosele* species in intergeneric breeding — it has been crossed 211 times to a variety of Oncidiinae species and hybrids. More widely available *Rhynchosele* hybrids are *Oncostele* Golden Trident (*Rst. bictoniensis* × *Oncidium* Tiger Hambühren), and *Oncostele* Tiger Barb (*Rst. maculata* × *Oncidium* Tiger Hambühren).

A recent cross is *Rhynchosele* Pacific Paranoia (*Rst. bictoniensis* × *Miltonia* Honolulu) that nicely shows the advantages of using *Rst. bictoniensis*: upright inflorescences, as well as a nice display and intense, lively color of the flowers. In addition, the famous Oncidiinae blockbuster *Oncostele* Wildcat (*Oncostele* Rustic Bridge × *Oncidium* Crowborough 1965), which is still selling well after 25 years, contains a considerable amount of *Rhynchosele* genes. Made by Rod McLellan and registered in 1992, it consists of 25% *Rst. ureskinneri*, which is part of the parent *Ons. Rustic Bridge* (*Oncidium fuscatum* × *Rst. ureskinneri*).

Intergeneric rhynchosele hybrids seem not to have been carried beyond five generations, probably related to the fact that most of the crosses were to *Oncidium* (syn. in particular to previously named genera *Odontoglossum* and *Odontioda*), which are genetically not close to *Rhynchosele*. First-generation hybrids of this type are often strikingly patterned and quite colorful. Alan Moon of the Eric Young Foundation used to call them “instant awards.” However, genetic incompatibility usually meant that these hybrids have infertility, thereby limiting the chances that they will be bred on for multiple generations. An example of the few fifth-generation, intergeneric rhynchosele hybrids registered so far is



[26] This mericlone is being sold in the marketplace labeled *Colmanara Masai Red*. The name is not the registered hybrid name and appears to be a trade, or marketing, name. Although it is not possible to prove the hybrid name because the owner of the trade name will not release the origin of the plant or the parents of the hybrid, after significant research it is believed to be an *Oncostele* Midnight Miracles (*Rhynchosele bictoniensis* × *Oncidium cariniferum*). At a minimum, the cross is obviously a *Rhynchosele bictoniensis* based on its intense coloration and form.

*Brasidostele* Sunburst (*Oncostele* Sun Wolf × *Brassidium* Golden Harry) made by Jim McCully from Mauna Kea Orchids. It has 14 different species in its background including *Brassia* (syn. *Ada*) *aurantiaca* and *Rst. ureskinneri*.

However, if we stay within the boundaries of the genus *Rhynchosele*, we do not have this problem. The first such cross was *Rhynchosele* Colonel Leith (*rossii* × *ureskinneri*), registered in 1894, which shows a strong influence of *Rst. rossii*. Additional wonderful examples of this direction of breeding are *Rhynchosele* Bic-ross (*bictoniensis* × *rossii*), and *Rhynchosele* Red Nugget (*bictoniensis* × *cordata*). In *Rhynchosele* Violetta von Holm (Bic-ross × *bictoniensis*), the backcrossing illustrates the ability of *Rst. bictoniensis* to intensify colors and patterns. Two examples of intrageneric *Rst. aptera* hybrids, *Rhynchosele* Horst Janssen (× *bictoniensis*) and *Rhynchosele* Red Embers (× Red Nugget), show how valuable the large size and broad segments of *Rst. aptera* might be in hybridizing. *Rhynchosele* Bic-ross crossed with *Rst. cordata* on the other side shows evidence of the value of using *Rst. cordata* in intrageneric hybrids. The large, intensely patterned flowers are well distributed along the inflorescences. We firmly believe that this direction of breeding within the genus represents

the future of *Rhynchosele* breeding. Introduction of some of the rarely used *Rhynchosele* species, especially *Rst. aptera* (13 registered crosses so far) and *Rst. madrensis* (one registered cross so far, although it is a cross with *Oncidium noezlianum*), will produce exciting new types of rhynchosele hybrids, whether they are intrageneric or intergeneric. *Rhynchosele* Horst Janssen, *Rst. Red Embers* and *Rhynchosele* Galaxy Quest (*aptera* × *madrensis*) are fine examples of such improved *Rhynchosele* hybrids.

After reading this, you might be interested in growing one or more of these lovely and somehow special species. We hope you will, because most of the species are endangered in their natural habitats by tree logging and agriculture, as well as overcollection. The more genetic diversity in terms of different clones that can be maintained, the better are the chances to save an important part of the genetic pool of each *Rhynchosele* species. Another important factor is artificial propagation, which has a greater chance to succeed over a longer period of time if many different clones are available for reproduction. Most *Rhynchosele* species grow in seasonally dry mountainous areas with high humidity, wet summers and dry winters, preferably on larger branches of oak trees. Even in the dry season morning dew ensures a basic supply of water,

wetting the moss in which the plants grow.

Species such as *Rst. bictoniensis*, *Rst. cervantesii*, *Rst. cordata*, *Rst. ehrenbergii*, *Rst. maculata*, *Rst. rossii* and *Rst. ureskinneri* can usually be grown jointly in an intermediate-to-cool greenhouse. If you can give the plants a shady, cool place in your backyard during the summer, cultivation on a windowsill during winter is possible — especially for the easier-to-grow species like *Rst. bictoniensis*, *Rst. cordata*, *Rst. rossii* or *Rst. cervantesii*. Growth starts in spring, with increasing watering and feeding with rising temperatures. It is important to ensure that the potting medium dries slightly before the next watering. Good air movement is essential, especially after watering, to avoid rotting the new growth or the developing flowers. Direct sun must be avoided; dappled light is appropriate in summer. Temperatures should range between 60 and 80 F (approximately 16–27 C), which corresponds to the temperatures in their natural habitat. Higher temperatures can be lowered by shading, intense air movement and higher humidity. For short periods of time, however, such higher temperatures are usually well tolerated, as long as a clear drop in temperature is ensured during the night. Water is given abundantly during the growth period with sufficient fertilizing to ensure proper development of the new shoot and bulb. In autumn, expose the plants to higher light levels and pronounced day–night temperature differences; this promotes maturation of the new pseudobulbs and induces flowering. Soon, the developing inflorescences will appear — most *Rhynchosele* species flower between September and April, with some exceptions (e.g., *Rst. ehrenbergii* and *Rst. majalis* flower in summer). During winter, keep the plants at about 50 F or slightly warmer (10–12 C) minimal temperature during the night; in daytime, the temperature may rise with sunlight. Water sparsely during winter; sometimes misting is sufficient to mimic the formation of dew during the night in the natural habitat. Increasing temperatures in spring initiate a new growth cycle.

Usually, *Rhynchosele* species are grown in bark mixtures with some perlite, peat, sphagnum and charcoal. Whereas such media are suitable for growing larger *Rhynchosele* species like *Rst. bictoniensis* and *Rst. ureskinneri*, as well as *Rhynchosele* crosses with *Oncidiinae* hybrids, success with smaller



[27] This beautiful as-yet unregistered hybrid, *Rhynchosele* (Bic-ross × *cordata*) involves only three species, *Rst. bictoniensis*, *Rst. rossii*, and *Rst. cordata* in its background. The pink lip comes from the *bictoniensis* parent, the dark brown markings from *rossii* and the yellow overlay of the petals to *cordata*; a perfect blend of features.

*Rhynchosele* species like *Rst. rossii*, *Rst. cervantesii* or *Rst. ehrenbergii* is often limited. Try another potting medium — four parts sphagnum to two parts pine bark with some limestone can deliver good growing and flowering results, especially when clay pots are used. Clay pots provide cooling during the warmer periods of summer by evaporation once the plant is watered. Some species also do well mounted on cork slabs or pieces of bark if you have sufficient humidity. Try what fits best your growing conditions.

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Dr. Steve Beckendorf started growing orchids in the early 1980s and quickly became fascinated by *odontoglossums* and their close relatives because of their beauty and variety. He soon realized that few of the species in this group were readily available and began collecting them for propagation and use in hybridizing. His attempt to find unusual or lost species has led to many trips to the cloud forests of Mexico and South America. Steve is an accredited AOS judge and is passionately involved in orchid conservation. He is a director of the Orchid Conservation Alliance (OCA) and a member of the Conservation Committee of American Orchid Society.



# A Short History of Oncidiinae Breeding

BY NORBERT DANK/PHOTOGRAPHS BY NORBERT DANK UNLESS OTHERWISE CREDITED

HYBRIDS FROM THE *Oncidium* Alliance have flowers with splendid colors, often as exciting as fireworks, in a variety of shades and fine patterns, nicely arranged on inflorescences that sometimes branch. I think that no other group of orchids can compete with the oncidinae hybrids: Nowhere else will you find this mingling of red, yellow, pink, brown, white, green, and assorted pastels. There are star-shaped flowers, round-and-full flowers, and anything in between, presented on arching or Christmas-tree-like inflorescences or just as a single flower at the tip of the inflorescence. There are tiger orchids, butterfly orchids, dancing-lady orchids, and spider orchids, as well as bumblebee orchids. There are hybrids for every greenhouse or windowsill — you will find hybrids for cool, temperate and warm growing conditions. Telling the full story of oncidinae breeding from its beginnings to nowadays would fill a book (or indeed several books). So, what I will offer here is a fast-forward review of oncidinae breeding activities from its beginnings to today. For the purpose of the historic character of the article, I kept the historical names of the species and hybrids, although the current nomenclature has changed and has, for example, put most *Odontoglossum* species now into the genus *Oncidium*.

**THE BEGINNING** More than 120 years ago, the history of this group started with a few keen orchid growers in Europe who did not want to rely only on the heaps of orchids imported from South America to fill their greenhouses, and who wanted to try something new. I was happy to acquire an original version of *The Orchid Stud Book — An Enumeration of Hybrid Orchids of Artificial Origin* (Rolfe and Hurst 1909). The authors describe the first hybrids and their names. A few black-and-white pictures complete this interesting survey of the origins of orchid hybridization.

They credit the first artificial odontoglossum hybrid as *Odontoglossum Wilckeanum* (*crispum* × *luteopurpureum*),



which flowered for the first time in 1890 in the collection of Baron Edmond de Rothschild at Armainvilliers close to Paris. The flowers are white to yellow, sometimes white in the center and with a yellow picotee, usually with large red-brown markings all over the sepals and petals as well as the lip, which makes

[1] *Oncidium* × *wilckeanum*; plate 666 from Linden's *Lindenia Iconographie des Orchidées*. Swiss Orchid Foundation at the herbarium Jany Renz. Botanical Institute, Univ. of Basel, Switzerland. URL: <https://orchid.unibas.ch/index.php/en/specimen/en/302172/Odontoglossum/wilckeanum>. Retrieved August 30, 2019.

[2] *Oncidium alexandrae* (*Odontoglossum crispum*)

[3] *Oncidium* (*Odontoglossum*) *nobile*

them attractive.

The second artificially raised *Odontoglossum* came with a scientific question: Is it correct that the assumed natural hybrid *Odontoglossum* × *excellens* is the product of crossing *Odontoglossum nobile* with *Odontoglossum tripudians*, as Reichenbach assumed? Or should it be *Odm. luteopurpureum*? Seden crossed *Odm. nobile* with *Odontoglossum triumphans* and the resulting seedlings, with a first flowering in 1891, were identical to the naturally collected, natural hybrid named *Odm. × excellens*, according to Rolfe and Hurst (1909). The hybrid was named *Odontoglossum* *Excullens*. *Odontoglossum* primary (between two species) hybrids usually produce flowers that are intermediate between the parent species.

Many further *odontoglossum* hybrids followed. Fueled by the success of the first hybridizers, orchid lovers as well as professional orchid growers started to pollinate flowers and sow the seeds on the surface of the pot of the mother plants. Yes — there were no asymbiotic sowing techniques available yet, and the success rate for sowing orchid seeds was often limited to a few plants, if germination took place at all. For the first cross, *Odm. Wilckeanum*, only five plants resulted from the seed capsule (Rolfe and Hurst 1909). Rolfe and Hurst cite three *odontoglossum* hybrids to be the most interesting from 1898, all raised at the nursery of Charles Vuylsteke from Belgium, a major *odontoglossum* breeder between 1900 and 1930: *Odontoglossum* *Loochristiense* (*crispum* × *spectatissimum*) (syn. *Odontoglossum* *Harvengtense*), *Odontoglossum* *Crispo-Harryanum* (*crispum* × *harryanum*) and *Odontoglossum* *Rolfeae* (*nobile* × *harryanum*). *Odontoglossum* *Loochristiense* flowered similarly to *Odm. Wilckeanum*, whereas the combination of the white, round *crispum* with the colorful *harryanum* with its large lip and only partially open flowers resulted in a hybrid with large, yellow flowers, usually a large *harryanum*-like lip and many red-brown spots in *Odm. Crispo-Harryanum*. *Odontoglossum* *Rolfeae* is similar in flower form, but most often came with white flowers with smaller, more distinct spots. The list of descendants of these primary hybrids already gives a flavor of the boom in *odontoglossum* breeding that followed: *Odm. Loochristense* has 47 direct and 4,730 overall progeny (i.e., all hybrids that have this cross in their ancestry), *Odm. Crispo-Harryanum* has 59



and 5,915, and *Odm. Rolfeae* has 63 and 6,352, respectively. I took these numbers from the orchid hybrid database at [www.orchidroots.org](http://www.orchidroots.org), which also has pictures of many hybrids.

RED IS BEAUTIFUL! And then there was the sensation: the first *Odontioda* involving lovely *Cochlioda noezliana*, with its brilliant red or red-orange color. *Cochlioda noezliana* was described in 1891 and soon thereafter introduced to nurseries in Europe. Vuylsteke crossed *Cda. noezliana* with *Odm. nobile* with a stunning result: *Odontioda* *Vuylstekeae*, which immediately received an FCC and the Silver Gilt Lindley Medal at the Temple show in 1904. It flowered with beautiful white flowers heavily overlaid with patterns of red and pink, and a white lip with red spots. The yellow callus of the lip showed an additional nice contrast. This

is the first *Odontioda*, as well as the first *odontoglossum* intergeneric hybrid ever registered. The counterstrike of one of the competitors of Vuylsteke, Charlesworth Ltd. from England, followed in 1907 with *Odontioda* *Bradshawiae* (*Odm. crispum* × *Cda. noezliana*). Many clones of this hybrid produced brilliant-red flowers with a size intermediate between the small-flowered *Cda. noezliana* and the large-flowered *Odm. crispum*. Now the race for the most colorful *oncidinae* hybrids had started.

Charlesworth Ltd. deemed the contribution of *Oda. Bradshawiae* so valuable that their catalogue from around 1925 had a hand-colored page showing *Oda. Bradshawiae*. I was happy to see that catalogue at McBeans at my last visit there, and to also see this hybrid in the greenhouse in flower — perhaps a

division from the original breeding stock of Charlesworth Ltd. *Cochlioda noeziiana* has 153 direct descendants and a total of 5,450 direct and indirect progeny.

Further intergeneric hybrids with *Odontoglossum* were made with *Miltonia*, leading to *Odontonia*. Crossing *Odontonia* with *Odontioda* would give a *Vuylstekeara* (*Cochlioda* × *Miltonia* × *Odontoglossum*), named after the famous orchid grower Charles Vuylsteke. This is remarkable, as Vuylsteke was a pioneer and expert odontoglossum breeder, but never registered a *Vuylstekeara* himself.

With the introduction of sterile, asymbiotic, in vitro sowing techniques for orchid seeds around 1930, orchid breeding changed considerably. Thousands of orchid seedlings could be raised from one capsule instead of only a few. This was another burst for the orchid hybridization efforts — hybrids could now be raised from one capsule by the thousands. Selections could be made from a much larger number of seedlings, allowing the establishment of various breeding lines. The odontoglossum breeding mainstream from 1890 to around 1970 was mainly aimed at creating hybrids with large, round, flat flowers similar to *Odm. crispum*, with a flat lip and a variety of colors and patterns. There were breeding directions to create white flowers or white with red dots, mostly involving *Odm. crispum*, *Odm. harryanum* and *Odm. nobile*. Red odontiodas were bred using *Cda. noeziiana* and again the aforementioned three species.

Complex odontoglossum hybrids usually contain around 50% or more *Odm. crispum*, and additional *Odm. nobile*, *Odm. harryanum*, *Odm. spectatissimum* and *Odm. luteopurpureum*, as well as some *Cda. noeziiana* if it is an *Odontioda*. Red-flowering odontiodas additionally carry larger amounts of *Cda. noeziiana* genes, sometimes up to 50%, which often results in smaller, but fiery-red flowers. Yellow odontoglossums usually consist of higher percentages of *Odm. spectatissimum* and *Odm. luteopurpureum*. There is little influence of *Odontoglossum cirrhosum*, *Odontoglossum hallii* or other odontoglossum species in odontoglossum hybrids of this period.

Some famous examples of this time of odontoglossum breeding (year of registration in brackets) include *Odontoglossum Tordonia* (1935) and *Odontoglossum Stropheon* (1957). Both represent the breeding direction of white, sometimes spotted flowers, and have been used widely in further breeding (838 and



1,738 progeny, respectively). *Vuylstekeara Edna* (1921) and the famous clone 'Stamperland' FCC/AOS was mericloned and widely available during the 1980s. Consisting of only three species, *Odm. harryanum*, *Miltonia vexillaria* and *Cda. noeziiana*, this hybrid with its fiery-red, mid-sized flowers with its large lip are so attractive that it was used for further breeding. *Vuylstekeara Cambria* (1931) has large, velvety-red flowers with a large, white lip with red spots and was the first mass-propagated oncidinae hybrid.

The first nonfading yellow odontoglossum hybrid was *Odontoglos-*

[4] *Oncidium* (*Odontoglossum*) *Crispo-Harryanum* 'Andy E.' HCC/AOS. Photograph from the AOS award archives.

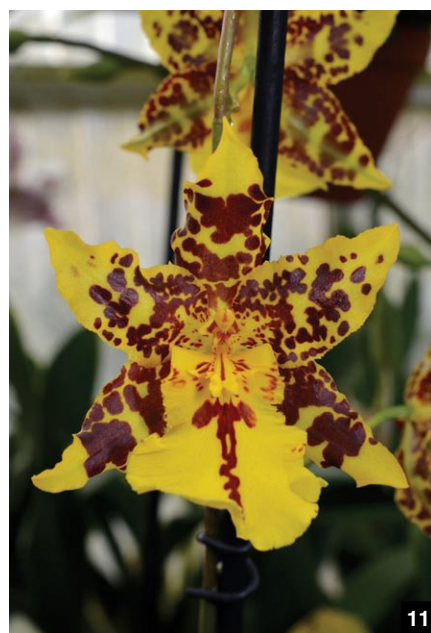
[5] *Oncidium* (*Cochlioda*) *noezlianum*

[6] *Oncidium* (*Odontioda*) *Bradshawiae* 'Charlesworth'

[7] A living example of *Onc. Bradshawiae*.

sum Golden Guinea (1955), which was used for many successful yellow hybrids. In addition, *Odontioda* Lautrix (1953) with its brilliant-red flowers was the parent for a series of famous red odontiodas. Breeding true-red odontiodas has often been a history of inbreeding in some hybrids like *Odontioda* Feuerkugel, which was made by Artur Elle and in which Lautrix makes up 75% of its ancestry. It is remarkable that all the hybrids named previously were registered by Charlesworth Ltd., with the exception of *Odm.* Golden Guinea, which was made and registered by Stuart Low. There are thousands of hybrids from this breeding period, and they mostly disappeared over the years. Only a few are still living today, hidden in the treasuries of avid orchid lovers and a few orchid nurseries.

**MAKE THEM SHORTER** The odontoglossum breeding nurseries were thriving. Just imagine the greenhouses of Charlesworth Ltd. located in southern England. They had entire greenhouses filled with home-raised *Odm. crispum* selections, and one greenhouse covered with xanthotic *Odm. crispum*. What a thrilling experience it must have been to stroll through these greenhouses during the flowering season. At that time, such orchids would cost a small fortune, much more than the monthly salary of a normal worker, so orchid growing was a rich man's hobby. That changed after World War II, when people attained an increasing level of prosperity during continued economic growth. During the period 1960 to 1980, more and more people started growing orchids as a hobby. Clients wanted to have plants that could be grown on a windowsill — not these long, arching inflorescences of hybrids from *Odm. crispum*, but something neater and handier. Now the new stars of breeding were parents creating hybrids with upright, sometimes branching inflorescences. It was the golden era of *Odontoglossum bicktoniense*, *Oncidium tigrinum*, *Oncidium maculatum* and *Oncidium leucochilum*. All these species transfer mostly upright inflorescences to their progeny, which often fit on a windowsill. *Odontoglossum bicktoniense* leads to somewhat smaller flowers, which is more than compensated by the lovely, often intensified coloration. *Oncidium tigrinum* created odontocidiums and wilsonaras with pastel or yellow flowers (depending on the other breeding partner) with an often enlarged, violin-shaped, yellow lip. *Oncidium maculatum* and *leucochilum* led to increased vigor and more warmth



tolerance, and often copied the flowers of the other parent, except just a bit smaller. Great examples of that breeding period are *Odontoglossum* Anneliese Rothenberger (*Golddrausch* × *bictoniense*) with its yellow sepals and petals and an often fiery-red lip, a trait inherited from *Odm. bictoniensis*, or *Odontocidium* Tiger Butter (*Odontoglossum* Golden Avalanche × *Onc. tigrinum*) and *Odontocidium* Tiger Hambühren (*Odm. Golddrausch* × *Onc. tigrinum*), both with upright, branching inflorescences with yellow flowers more or less overlaid with dark-brown spots and a large, yellow lip.

In *Burrageara* Living Fire (*Vuyl. Edna* × *Onc. maculatum*), the hybrid took the intense red color from the Edna parent, with some nice white markings on the lip. The flower shape is somewhat influenced by the *maculatum* parent. *Odontocidium* Tiger Hambühren especially had a pronounced influence on further breeding activities and was the masterpiece of Artur Elle, a gifted orchid grower of that time from Hambühren, Germany. *Odontocidium* Tiger Hambühren has 62 direct descendants, including the more widely available *Odontocidium* Tiger Crow (× *Crowborough*), *Wilsonara* Tiger Stirling (× *Odontioda* Florence Stirling), *Odontocidium* Golden Trident (× *Odm. bictoniensis*) and *Wilsonara* Tiger Brew (× *Odontioda* Memoria Rudolf Pabst). All these progeny of *Odcdm.* Tiger Hambühren inherited their nonfading yellow color from their grandparent *Odm.* Golden Guinea, which demonstrates the remarkable success of *Odm.* Golden Guinea as a milestone in breeding non-fading yellow odontoglossum hybrids.

**ATTACK OF THE CLONES** There is nothing more consistent than change. The next “big thing” after the introduction of in vitro sowing techniques was mericlone. Identical plants could be reproduced by tissue culture, making premium plants available to everyone. One pioneer who helped develop this technique for orchids was Vacherot & Lecoufle, who first began the technology with cymbidiums. In 1967, Keith Andrew from England received an FCC from the Royal Horticultural Society for his *Vuyl. Cambria* ‘Plush’ (*Rudra* × *Odontoglossum* Clonius), a wonderful hybrid with velvety-purple sepals and petals, and a large white lip with purple dots, registered in 1931 by Charlesworth Ltd. Only a few plants survived World War II, and this plant was one of these. In 1968, Keith Andrews took a division to Vacherot & Lecoufle to start in vitro tissue propagation. Soon, Floricultura took over



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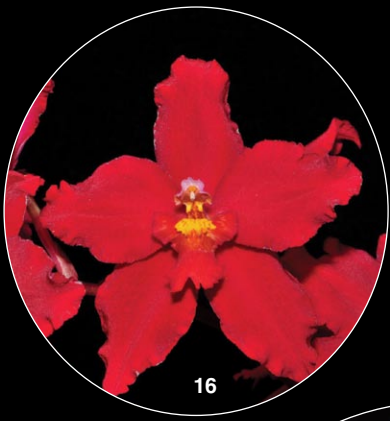


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mericlone of *Vuyl. Cambria*, and in 1985 around 100,000 *Vuyl. Cambria* ‘Plush’ plants were produced per year. This plant has been propagated by the millions.

The only oncidinae hybrid I can think of that has been propagated at even higher numbers than *Vuyl. Cambria* is *Burrageara* Nelly Isler. Registered in 1995, it is the most successful hybrid from the nursery Orchideen Isler in Switzerland and is a cross of *Burrageara* Stefan Isler (*Vuyl. Edna* × *Onc. leucochilum*) with *Milioniopsis* Kensington. It is as red as the *Vuyl. Edna*, the grandparent, and has a nicely enlarged lip, which is inherited from the *Miltonia* parent. It is estimated that about a million plants of *Burr. Nelly Isler* are produced around the world every year.

- [8] *Oncidopsis* (*Vuylstekeara*) Edna ‘Stamp-erland’ FCC/AOS
- [9] *Oncidopsis* (*Vuylstekeara*) Cambria ‘Plush’ FCC/AOS
- [10] *Oncidium* (*Odontioda*) Feuerkugel
- [11] *Oncidium* (*Odontocidium*) Tiger Hambühren ‘Rolf’
- [12] *Oncostele* (*Odontoglossum*) Anneliese Rothenberger
- [13] *Oncidopsis* (*Burrageara*) Living Fire
- [14] *Oncidium* (*Odontocidium*) Tiger Crow ‘Golden Girl’ HCC/AOS
- [15] *Oncidopsis* (*Burrageara*) Nelly Isler



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[16] *Oncidium* Cholita Cuencana 'Seminario San Luis' AM/AOS. Photograph by Wayne R. Hanson.

[17] *Oncidesa* Jiuhbao Gold 'Tainan' AM/AOS. Photograph by Marc Bein.

[18] *Oncidium* Barossa Valley 'Mary's Peak' HCC/AOS. Photograph by Ross Leach.

[19] *Oncidium* Catamount 'Pisgah' AM/AOS. Photograph by Julie McMillan

[20] *Oncidium* Burgundian 'Hunter's Passion' AM/AOS. Photograph by Maurice Marietti.

[21] *Oncidium* David Stead 'Picotee' HCC/AOS. Photograph by Katie Payeur.

[22] *Oncidium* Durham Majestic 'Lyoth Galaxy' AM/AOS. Photograph by Nobert Dank.

[23] *Oncostele* Tan Treasurers 'Brown Sugar' AM/AOS. Photograph by Glen Barfield.

[24] *Oncidium* Sterling Tiger. Photograph by Norbert Dank.

[25] *Oncidesa* Hwuluduen Chameleon 'Edwin Alberto' HCC/AOS. Photograph by Irma Saldaña.

[26] *Oncidium* Lois Posey 'Synea' AM/AOS. Photograph by Patrick Boisvert.

[27] *Aliceara* Snowblind 'Sweet Spot' AM/AOS. Photograph by Esteban Rodriguez.

[28] *Oncidium* Flora Maxey 'Hot Chili' HCC/AOS. Photograph by Melissa Garner.

[29] *Gomesa* Autumn Splash 'Mocha Moose' HCC/AOS. Photograph by James Curtis.

This new production process revolutionized the orchid market. Before mericlone was introduced, a selected plant was just one plant. If you wanted a division, it first needed to grow so that a backbulb could be taken or a second lead developed, and then you had to negotiate with the owner for what it would cost. Divisions of selected plants could become expensive, so you might consider that the second-best or third-best (or even tenth-best) seedling of that same cross might do as well. The business model of many nurseries depended on selling seedlings of successful crosses to orchid hobbyists for good prices, so that they could make selections and keep the premium plants for further breeding activities. They now had to change. Imagine — instead of paying a proud price for the tenth-best seedling of a cross, you could now buy an exact copy of the fantastic, best-awarded seedling for a reasonable price. Some orchid breeders did not survive this “attack of the clones.” On the other hand, everyone could now afford award-quality plants. This also contributed to the declining interest of the rich and noble in the passion for orchids, as it had now developed into a hobby of the common man.

**CAN YOU FEEL THE HEAT?** There was a visionary man in Hawaii who had a passion for orchids. He knew that growing odontoglossums in warmer regions, like Florida or coastal areas of Hawaii, is nearly impossible. Not only are the peak temperatures during warm days in summer sometimes too hot for odontoglossums, the differences between day and night temperatures are too small for growing odontoglossums successfully. What to do? He started breeding lines in Laeliinae and Oncidiinae and was perhaps the most influential oncidinae breeder until at least the 1980s, second to only the odontoglossum breeding efforts from the famous Belgian and English orchid nurseries. This is W. W. Goodale Moir, sugar inspector by profession and avid orchid breeder by passion. He made and registered thousands of hybrids and created some hybrids you would not expect could even exist like *Psychassia Supreme* (*Psychopsis papilio* × *Brassia maculata*, registered in 1959). Moir bred some fine miltonia hybrids, using *Miltonia spectabilis*, *clowesii*, *regnellii*, *flavescens* and the natural hybrids *Miltonia* × *bluntii* and × *festiva*. He also created miltassias with vibrant colors and fascinating patterns and recognized the potential of combining the spider-orchid brassias with



the colorful Brazilian miltassias. The most influential *Miltassia* from that breeding direction is *Miltassia Cartagena* (*Brassia verrucosa* × *Miltonia Anne Warne*), which comes with pristine-white, star-shaped flowers.

Moir combined “warm-blooded” oncidinae hybrids with “cold blooded” odontoglossum breeding lines. Crossing miltassias to *Odontoglossum* results in degarmoaras, such as *Degarmoara Winter Wonderland* (*Miltassia Cartagena* × *Odontoglossum Gledhow*) — in this hybrid, the white color of the miltassia parent prevails, and the flowers are somewhat fuller compared to *Mtssa. Cartagena*.

The most famous hybrid of that breeding direction, however, is *Beallara*

- [30] *Bratonia* (*Miltassia*) Cartagena ‘Moir’s’ HCC/AOS
- [31] *Aliceara* (*Degarmoara*) Winter Wonderland ‘White Fairy’ HCC/AOS
- [32] *Aliceara* (*Beallara*) Tahoma Glacier
- [33] *Aliceara* (*Beallara*) Peggy Ruth Carpenter
- [34] *Miltonidium* (*Vuykstekeara*) Memoria Mary Kavanaugh ‘Geysersland’ HCC/AOS. Photograph by John Stewart.
- [35] *Miltonidium* (*Vuykstekeara*) Aloha Passion
- [36] *Oncidium fuscatum* (*Miltonia warszewiczii*)
- [37] *Oncidium* (*Miltonidium*) Debutante



Tahoma Glacier (*Mtssa.* Cartagena × *Odontioda* Alaskan Sunset), which was made by Moir and registered in 1970 by the Beall Company. It has large, white flowers with attractive dark spots and a large lip, presented on upright, somewhat-arching inflorescences. It was mericloned in the millions and is occasionally still available. *Beallara* Tahoma Glacier is the parent of several additional successful hybrids, such as *Beallara* Peggy Ruth Carpenter (× *Miltonia* Purple Queen), that has a shorter spike and fits easily onto the windowsill.

Another breeding strategy to create warm-tolerant, odontoglossum-like flowers is crossing complex odontoglossum and odontioda hybrids to *Milt. moreliana*. The resulting plants come with fine, dark-purple flowers with odontoglossum shape and inherit the tolerance for warmer temperatures from the miltonia parent. Good examples are *Vuylstekeara* Memoria Mary Kavanaugh (*Milt. spectabilis* × *Odontioda* Elpheon) made and registered 1987 by Tom Perlite from Golden Gate Orchids, and the subsequent hybrid *Vuylstekeara* Aloha Passion (× *Odontioda*. Alcatraz), made and registered in 1999 by Jim McCully from Mauna Kea Orchids. *Vuylstekeara* Aloha Passion has a delicate flower pattern, and well-spaced flowers on an intermediate long inflorescence.

Moir also recognized the potential of several warmer-growing oncidinae species, such as *Miltonia warszewiczii*, for hybridization efforts, as described in his famous book *Creating Oncidiinae Intergenerics*. One cornerstone of this breeding direction with *Milt. warszewiczii* is *Odontonia* Debutante (*Odontoglossum cariniferum* × *Milt. warszewiczii*), registered in 1960 by Iwanaga. This breeding direction resulted in hybrids with Christmas-tree-like, branching inflorescences with white, brown, red, orange, yellow, and spotted flowers, like *Colmanara* Jungle Monarch (*Odn.* Debutante × *Onc. maculatum*) or *Colmanara* Catatante (*Sphacelanta* × Wildcat).

**ONE IN A MILLION** The other parent of *Colm.* Catatante is *Colm.* Wildcat. This hybrid, made by Rod McLellan Co. and registered in 1992, is one of the few “one-in-a-million” hybrids. What do I mean by that? There are only few oncidinae hybrids that fulfill all the requirements to be a wildly successful plant in the orchid pot-plant market. Successful orchids should not take too long to flower (ideally, 2–3 years out of flask). Their inflorescences should be short enough to



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fit on the windowsill, they should grow steadily, and their leaves should not tend to develop black spots. They should be floriferous and ideally develop two spikes per bulb. Further, the flowers should open consecutively and not too fast, so that there will still be some buds on the plant at the time of purchase. Colors must

be clear, not muddy, and patterns on the flowers should be distinct and have a strong contrast to the underlying color. Flowers must be presented nicely on the spike and well distributed. They should be genetically stable when mericloned, so that the seedlings grow evenly, and flowers always have the same shape

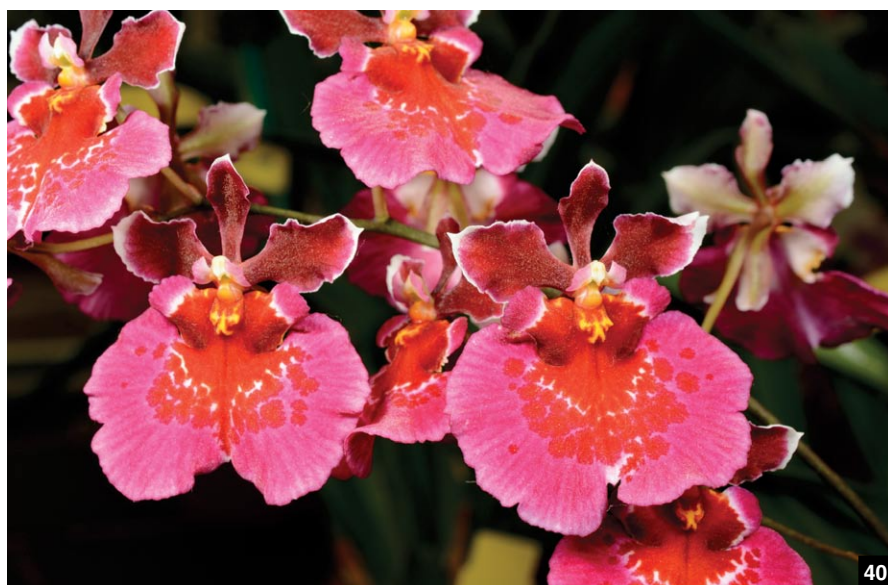
and color. As you can see, there are many prerequisites to being a successful mericlone. But ultimately the buyers decide whether a hybrid will be a success or not. Do they like the product? There are only few hybrids that were internationally so successful and continued to be sold for many years. *Vuykstekeara Cambria* was such a plant — the whole group of mass-market hybrids were later known as Cambria hybrids as a type.

*Beallara Tahoma Glacier* counts as well. Maybe *Oncidium Gower Ramsey* as well as *Oncidium Sharry Baby* can also be regarded as such successes. *Colmanara Wildcat* is another example — it is still propagated and sold in supermarkets or do-it-yourself stores. I would also count *Colm. Jungle Monarch* (which I still see offered quite frequently here in Europe) as well as *Billra. Peggy Ruth Carpenter* to be such a one-in-a-million successes, this time created by Milton Carpenter from Everglades Orchids in Florida. More recent potential additions to this portfolio are *Colm. Catatante* and, still to be seen, *Vuykstekeara Celtic Sun*, both made and registered by Jim McCully from Mauna Kea Orchids. And surely, *Burr. Nelly Isler* is such a success.

Can you make a lot of money from it? The propagating companies can, as well as the nurseries, the wholesalers and the retail sellers, but usually not the breeder of the plant. This is one reason why breeding efforts have declined over the years, as the chances to make a living from breeding have diminished.

**SIDEWAYS** There are mainstream breeding efforts, and then there is the other side. Many sideways directions in oncidinae breeding have been tried and tested, many of them successful, but some a bit strange and weird. There is the genus *Rossioglossum*, which breeds well if you stay within the boundary of the genus and use the species with large yellow-brown flowers. The best-known hybrid is *Rossioglossum Rawdon Jester*, which combines the positive traits of its parents *Rossioglossum grande* and *Rossioglossum williamsianum*.

Another direction is hybridizing of species that are sometimes called twig epiphytes: small orchids that grow on slender twigs rather than on tree limbs. The equitant oncidiums, also known as the *Oncidium variegatum* group or now as the genus *Tolumnia*, are an example of this group. There are thousands of charming *tolumnia* hybrids and you can literally grow hundreds of them in a small area in a greenhouse.



Others are *Comparettia*, *Rodriguezia* and *Leochilus*. For example, a smaller-growing hybrid is *Howeara* Lava Burst, which combines these genera. As the name suggests, it comes with brilliant-red flowers.

Breeding within *Rhynchostele*, which was part of the odontoglossum group, is successful and produces nice hybrids such as the well-known *Rhynchostele* Violetta von Holm made and registered in 1994 by Orchideen Holm, which is similar to the parent.

*Oncidium papilio* and related species (now *Psychopsis*) are vigorous and have nicely flowering hybrids like *Psychopsis* Kalihi and *Psychopsis* Mariposa. Another direction is to use *Ada aurantiaca* (aka *Brassia aurantiaca*) for breeding orange-flowering hybrids.

**RISING FROM ITS ASHES?** What have we learned about the history of onciidiinae breeding? It is long and colorful, has had ups and downs, has followed main pathways and side branches, and has kept up with the changing needs of customers over time. So what is next regarding onciidiinae breeding activities? It must be stated here that the interest in odontoglossum-type hybrids has declined over the last three decades. It is painful for me to see famous nurseries closing one after the other, or at least stopping their odontoglossum-breeding activities. These include Orchideenfarm Hambühren, Mansell & Hatcher, Vacherot & Lecoufle, Rod McLellan & Co., Golden Gate Orchids, and Geyserland Orchids, just to name a few. The last in this line is McBeans, who considerably reduced their business in 2018.

On the other hand, there are many nice onciidiinae hybrids with Christmas-tree-type inflorescences, and other onciidiinae intergenerics are still being bred and propagated. The main breeding hub nowadays is surely Hawaii, led by its most prominent hybridizer, Jim McCully, with his Mauna Kea Orchids business. An active onciidiinae breeder from Taiwan is Hwuluduen Orchids. There are some other, often smaller companies doing onciidiinae breeding programs. But, there is some decline in this area as well, and it seems that more nurseries and mericlone labs, such as Floricultura from the Netherlands, are reducing the propagation of onciidiinae hybrids.

Today, when *Phalaenopsis* is largely dominating the orchid pot-plant market and orchid sales are up to 95% *Phalaenopsis*, I wonder why the consumers are not yet overfed with these



hybrids. And how can orchid growers still maintain a sustainable business when the prices for *Phalaenopsis* go lower and lower, and the profit margins have been reduced to only cents per plant? It can only be compensated for by mass production, where growing *Phalaenopsis* in a specialized nursery is not different from growing tomatoes. The only difference is that there is probably a better profit margin if you grow tomatoes.

When I show friends and guests my little greenhouse full of onciidiinae species and hybrids, I often hear: "Wow, this is what orchids can be? I thought all orchids look like phalaenopsis!" Onciidiinae hybrids come in refreshing colors and shapes, and could revitalize the orchid pot-plant portfolio. Some avid orchid growers, like Andy Easton from New Horizon Orchids (now located in Colombia) still make fantastic hybrids in new colors, one more adorable than the other. I believe that — given its eventful history — there is a future for this great group of orchids. Onciidiinae species and hybrids — they will be back!

#### Further Reading

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 Rolfe, R. and C. Hurst. 1909/1986. *The Orchid Stud Book*. Bishen Singh Mahendraw Pal Singh, Dehra Dun, India.

— *Norbert Dank is an amateur orchid hobbyist from Germany who became addicted to orchids at the age of 15. He is mainly interested in orchids from Central and South America with special focus on the group of Onciidiinae, species and hybrids. He is member of the German Orchid Society as well as the AOS and IOA. His second passion is photography, and he*



[38] *Oncidium* (*Colmanara*) Jungle Monarch

[39] *Oncidopsis* Celtic Sun 'Blushed'

[40] *Tolumnia* Jairak Rainbow 'Charming'

[41] *Oncostele* (*Odontocidium*) Golden Trident

[42] *Leomesezia* (*Howeara*) Lava Burst

[43] *Rhynchostele* (*Odontoglossum*) Violetta von Holm

[44] *Psychopsis* Rio's Dandy

*likes to take pictures at exhibitions as well as nurseries, but also of orchids growing in the wild. His pictures can be found at [www.flickr.de/nurelias](http://www.flickr.de/nurelias).*

# Stolen Glory

The Largest "Rat-tail" Oncidium in the World

BY ROBERT FUCHS



AS A FREQUENT visitor to Central and South America, my father Fred Fuchs, Jr. knew many (if not most) of the orchid growers and collectors there. One of his contacts was Dr. Luis “Tata” Moreno of Santa Cruz, Bolivia, a retired military surgeon, who told Fred about some very unusual orchids that had been seen in the area. On a visit in the late 1960s, Fred met with Dr. Moreno and Mr. Jorge Gutiérrez, and discussed these orchids. Dr. Moreno showed him some photographs, and Fred was astonished at the size of the plants. The terete-leaved plants were huge — some with leaves more than a yard (meter) long — much larger than any of the other orchids in this group. Fred was sure this was an orchid unknown to science, and was certainly the largest “rat-tail” type *oncidium* ever discovered. Dr. Moreno gave several plants of this new species to Fred, who brought them back to Homestead, with photos of the flowers, and grew them. Fred later purchased a number of additional plants of this species and brought those to Homestead, too. He intended to send flowers to the Marie Selby Botanical Gardens for identification, as soon as one of the plants bloomed.

As the location of the habitat was remote and very difficult to get to, Dr. Moreno employed a local villager to collect more of these plants for him and he amassed a good-sized collection of them.

John Stacy, an American Orchid Society (AOS) judge and orchid grower from the northeastern United States, traveled to Central and South America frequently with Fred’s tour and collecting company. He was among the members of a group that visited Santa Cruz and Dr. Moreno in the very early 1970s. By then, Dr. Moreno had enough of the plants to give one to each of the members of Fred’s collecting group, as it was not practicable for the group to get to the habitat for collecting at that time. Everyone agreed that if this were indeed a new species, it should be named in honor of Dr. Moreno. Meanwhile, Stacy managed to purchase one more plant from a local villager, and he collected and pressed some flowers.

The group returned to the United States, and John Stacy was successful growing and flowering the new *oncidium* Moreno had given him. Other members of the group also reported success with their plants. But Stacy, without informing Fred, immediately submitted his pressed flowers to Dr. Lesley Garay, a botanist at Harvard, for identification. He claimed *he* had discovered the plant in Bolivia, and



FRED FUCHS



AWARD ARCHIVES



AWARD ARCHIVES

Garay wrote the botanical description of this new species, naming it *Oncidium stacyi* (in 2001, the rat-tail and “mule-ear” *oncidiums* were moved to the genus *Trichocentrum*) in honor of the purported discoverer and giving Stacy credit for the discovery.

Fred found out what Stacy had done when he sent flowers to Selby for identification. Botanists there informed him the plant had already been described, the description was published and it was “a done deal.” Fred contacted Stacy and asked him why he had sent flowers to Dr. Garay, when all had agreed the plant should be named in honor of Dr. Moreno. According to Fred, Stacy’s arrogant reply was, “Why not? The world’s largest rat-tail *oncidium* should be named for someone

- [1] One of the recently available seedlings of *Trichocentrum stacyi* from Peru. Photograph by Ron McHatton.
- [2] The author lends perspective to the potential size of these plants.
- [3] *Trichocentrum* Brazos Beauty ‘Cariad’s Cheetah’ HCC/AOS (Jason Fuchs x Maui Gold)
- [4] *Psychocentrum* Kristi Leigh ‘Mary’ AM/AOS (*Psychopsis papilio* x *Trichocentrum stacyi*)

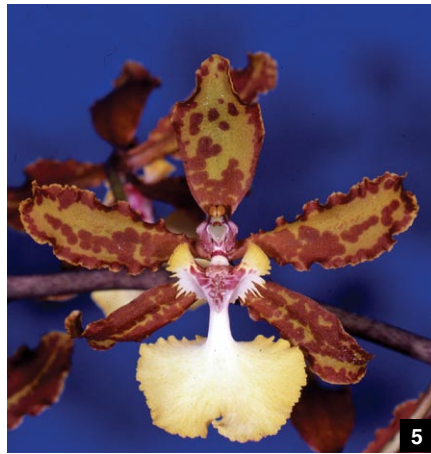
more important than Luis Moreno.”

So furious was Fred that, as his plants of *Onc. stacyi* bloomed and were recognized by the AOS, he expressed his anger by giving these plants particular cultivar names. The first of the AOS-awarded *Onc. stacyi* plants was ‘Stolen Glory’, granted an 80-point Certificate of Botanical Merit (CBM/AOS) in March of 1973. Later that year, *Onc. stacyi* ‘Greedy Gringo’ received an 81-point AOS Award of Merit (AM/AOS), for flower quality.

In 1974, *Onc. stacyi* ‘Schazam Fuchs’ (named for Fred’s dog Schazam) received an 82-point AM/AOS in August, and in September, ‘Boca Grande’ was recognized for flower quality (AM/AOS, 83 points) and culture (CCM/AOS, 88 points). In October, ‘Bandido Mentiroso’ received an 82-point AM, and ‘Boo Boo Grande’ received an 85-point CCM. The following year, Fuchs Orchids received AOS awards on *Onc. stacyi* ‘Brand X’ AM/AOS, ‘Watergate’ AM/AOS, ‘Muy Malo Juan’ AM/AOS, and ‘Shame Shame John’ AM/AOS.

Stacy and Garay collaborated on some articles about the genus *Oncidium* (published in a Brazilian botanical journal) and Stacy authored two papers in the *Harvard Botanical Museum Leaflet* series (1975 and 1978). Garay is alleged to have defended naming the species for Stacy (“his friend”), stating that the Bolivians had known about the orchid for many years and never bothered to have it identified. Dr. Moreno agreed but said at the time, neither he nor Gutiérrez had any means of having it identified, no knowledge of how to have it identified nor to whom they could have sent it.

After the discovery of *Onc. stacyi*, I traveled to the Santa Cruz area in 1975 with Peter Tilley and Steve and Sylvia Dolnick, orchid growers from Miami. We visited Dr. Moreno again, and because the group was small this time, we went collecting in an area where the local villagers had been collecting plants of *Onc. stacyi*. We split up, and I spotted a beautiful specimen in a tree, with about 15 leaves. Peter stood on my shoulders and used a knife and carefully remove the plant from the tree. We eased it down and wrapped it up. Several hours later we returned to the road and met up with the others in the group, and related the story of finding this magnificent plant. Steve (Dolnick) listened to the tale and then nonchalantly held up an even larger one, saying “Did it look as good as this one?” Steve and Sylvia’s plant was the largest we had ever seen, with leaves as thick as his little finger. It was massive



AWARD ARCHIVES



AWARD ARCHIVES



AWARD ARCHIVES



AWARD ARCHIVES



SALLIE DELAHOUSAYE

- [5] *Trichocentrum* Lillian Oka ‘Jungle Dancer’ AM/AOS (*stacyi* × *lanceanum*)
- [6] *Trichocentrum* Joshua Fuchs ‘Jonca’s Floridian Sunset’ AM/AOS (*lindenii* × *stacyi*)
- [7] *Trichocentrum* Lillian Oka ‘Special’ AM/AOS
- [8] *Trichocentrum* Jason Fuchs ‘Castle Arras’ CCM/AOS (*stacyi* × *jonesianum*)
- [9] *Trichocentrum* Jason Fuchs ‘Dixie’s Belle’ AM/AOS

(more than 60 leaves). I was delighted they had found it.

The plant I collected, *Onc. stacyi* 'Santa Cruz' AM-CCM/AOS, was recognized in 1980 with two awards from the American Orchid Society.

The 1975 implementation of the CITES treaty protecting endangered species put a damper on collecting orchids in the wild. The treaty restricted international commerce in wild-collected orchids (and many other plants and animals), so it was no longer possible to collect plants and bring them back to the United States without special export permits from the host country. These permits were issued to allow limited collecting in areas where the forest was being cleared, but after a few years even these permits were no longer available and wild-collected orchids became a thing of the past. The irony of this treaty is that the orchids are protected from commerce, but no longer protected from habitat destruction. Who knows how many undiscovered species have been destroyed in the name of progress?

As noted above, this and a group of related species (formerly *Oncidium* section *Cebolletae*) were transferred by Mark Chase and Norris Williams to the genus *Trichocentrum* in 2001. This was based on DNA and other analyses, which proved that these orchids, while resembling *Oncidium* in some respects, were clearly not closely related. Their chromosome counts were significantly smaller, and there were important differences in floral and plant morphology. Mark Chase (pers. comm.) has suggested that there is some evidence "that the similarity in the floral features of the mule-ear and rat-tail species to those of species of *Oncidium* is due to parallel adaptations to pollen-collecting bees." The chromosome count difference was particularly important because it explained why fertile hybrids with other *Oncidium* species or hybrids proved impossible.

Indeed, the use of *Trichocentrum stacyi* in the hybridizing records is quite modest. For all the magnificence of the flowers, only a handful of hybrids have been registered, and of those, just a few have further progeny.

W.W. Goodale Moir made the first hybrid, *Psychocentrum* Kristi Leigh, and Patrick Kawamoto, Kawamoto Orchid Nursery in Hawaii, registered it in 1979. This is a cross of *Trt. stacyi* × *Psychopsis papilio*, and four cultivars have received AOS recognition. Award descriptions tell us that the flowers were typically yellow

with chestnut brown markings (not unlike either parent), but one award, 'Randy' CCM/AOS describes the "leaves of typical growth habit." Typical of which parent, one asks? *Psychopsis* plants resemble the mule-ear members of *Trichocentrum*, but the measurements in the description indicate a leaf span of 45¼ inches (115 cm). Surely this represents the "typical" size of a *Trt. stacyi* plant, where the terete leaves can easily grow to that size! So we have a hint here that *Trt. stacyi* is dominant for plant habit. However, *Pyc.* Kristi Leigh has no registered progeny, so we can speculate that the hybrid was sterile.

We crossed *Trt. stacyi* with *Trichocentrum lindenii* (a Mexican mule-ear) and in 1980 we registered this cross as *Trichocentrum* Joshua Fuchs. The cross received an Award of Quality in February of 1980, and the award description notes that the plants had "similar terete foliar growth." So here is another example of the dominance of *Trt. stacyi* for plant habit when crossed with the mule-ear members of the genus.

The year 1981 saw two *Trt. stacyi* hybrids registered, one more successful than the other. Barbara and Jim Wilkins of Wilkins Orchids in Homestead crossed *Psychopsis* Kalihi with *Trt. stacyi* and registered *Psychocentrum* King Tut. This cross, like Moir's *Pyc.* Kristi Leigh, has no further progeny. In that same year, we registered *Trichocentrum* Jason Fuchs, a cross of *Trt. stacyi* with *Trichocentrum jonesianum*. *Trichocentrum jonesianum* is another of the terete-leaved trichocentrums, although it is a smaller plant than *Trt. stacyi*, with shorter leaves. We would expect this hybrid to have long, terete foliage, and of the eight AOS awards to cultivars of *Trt.* Jason Fuchs, several CCM/AOS descriptions note that the plants are terete-leaved.

However, *Trt.* Jason Fuchs has only one registered hybrid, *Trichocentrum* Brazos Beauty, a cross with *Trichocentrum* Maui Gold. There is one AOS award to this grex, 'Cariad's Cheetah' HCC/AOS, but the description does not tell us anything about the plant habit. *Trichocentrum* Maui Gold is a mule-ear type.

The following year, 1982, Jon Oka in Hawaii registered *Trichocentrum* Lillian Oka, a cross of *Trt. stacyi* and *Trichocentrum lanceanum*, one of the mule-ear types. This is arguably the most successful of the *Trt. stacyi* hybrids, as there are a total of nine awards to cultivars of it, and four registered progeny. Seven of the awards are from the AOS, two were granted by

the South Florida Orchid Society, and all are for flower quality so we have no descriptions of the plant. However, the award image for *Trt.* Lillian Oka 'Jungle Gem' BM/SFOS includes a few obviously terete leaves, so we may conclude that the *Trt. stacyi* parent dominated for plant habit here as well.

All of the awarded cultivars have similar flowers, with a light greenish background, red-brown markings on the sepals and petals and a pale to bright yellow lip. Most are in the 2½ to just-over 3 inch (6.5–8.0 cm) range for natural spread, although the description for one, 'Special' AM/AOS, notes that it had "smaller flowers (2 inches [4.9 cm]) than previously awarded clone but far superior shape."

Only one of the registered hybrids with *Trt.* Lillian Oka as a parent has any award recognition, and none have registered progeny. In the early 1990s, S.Y. Alsagoff in Singapore registered several hybrids with *Trt.* Lillian Oka, and one, *Trichocentrum* American Express (× *lanceanum*), has an awarded cultivar 'Platinum Card' FCC/SAOC granted in South Africa.

Cultivars of *Trt. stacyi* continued to receive awards from the AOS, the most recent being 'Julia Sorenson' AM/AOS in 1998, the last (so far) of 28 AOS awards to this magnificent species. Several other organizations (South Florida Orchid Society, Deutsche Orchideen Gesellschaft) have also awarded cultivars of it, and a number of AOS awards have been for cultural merit. When well grown, these plants can be remarkably floriferous.

#### Acknowledgments

I thank Mark Chase and Wes Higgins for their taxonomic expertise, and note that taxonomic issues in the *Oncidiinae* are far from settled.

#### References

Williams N.H., M.W. Chase, T. Fulcher, and W.M. Whitten. 2001. Molecular Systematics of the *Oncidiinae* Based on Evidence From Four DNA Regions: Expanded Circumscriptions of *Cyrtocilium*, *Erycina*, *Otoglossum* and *Trichocentrum* and a New Genus (Orchidaceae). *Lindleyana* 16:113–139.

— Robert Fuchs is President of R.F. Orchids, Inc. in Homestead, Florida, an AOS vice-president and the chair of the West Palm Beach AOS judging center. 28100 SW 182 Ave., Homestead, FL 33030 ([www.rforchids.com](http://www.rforchids.com)).

# On the Road to the Sun

Bright Yellow Odontoglossums, Past and Future

BY RUSS VERNON





ODONTOGLOSSUMS ARE A large subgenus of *Oncidium* and grow in the Western Hemisphere. Many people who grow them recognize *Odontoglossum* as a standalone genus. Others maintain that *Odontoglossum* and many related genera should all be referred to as oncidiums. For horticultural reasons, I use the original taxonomic name *Odontoglossum*. If you attempt to grow a hybrid that has a lot of *Odontoglossum* in its background as an *Oncidium*, you may have problems, as they often have different cultural requirements.

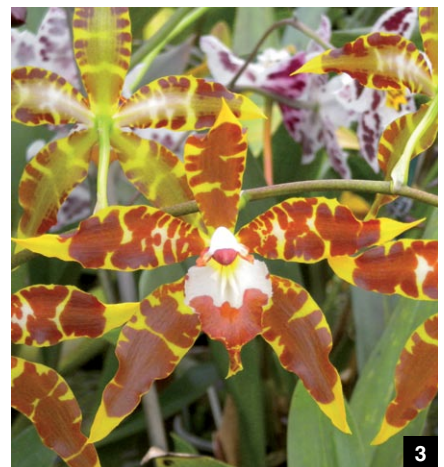
The first *Odontoglossum* was discovered in 1815 on an expedition by Baron von Humboldt and Aime Bonpland. It was named *Odontoglossum epidendroides*. Since that time, other species have been discovered, many of which are variations of green-to-yellow background with marks that range from tan to deep maroon to red. These marks can be in the form of spots or bars of varying densities. A few of these species (now all oncidiums) include *spectatissimum* (or *triumphans*), *hallii*, *luteopurpureum*, *harryanum* and *wyattianum*.

As orchid hunters began to explore more areas of the Andes Mountains, and at higher elevations, some white-background odontoglossums were found: *Odontoglossum naevium* in 1850 and *Odontoglossum nobile* (*pescatorei*) in 1852. Karl Hartwig discovered *Odontoglossum crispum* and, in 1863, the first one was flowered at Stuart Low & Co. in England. Few *Odontoglossum* species in cultivation survived before this time because of a poor understanding of habitat conditions. Orchid hunters finally began to supply this information to the nurseries they collected for and successful culture resulted. The flowering of *Odm. crispum* resulted in odontoglossum mania in Europe. Prices were high for them, especially for forms not typical of the average *Odm. crispum* such as the 'Premier' type, which is a natural tetraploid (4n) from a specific area of Colombia. *Odontoglossum crispum* 'Cream' AM/AOS is an example of the fine Premier type. Another rare color form is the xanthic form, which is white with egg-yolk-yellow marks and breeds as a recessive alba, as do other recessive albas in other orchid genera.

Hybridizing began in the 1880s and numerous crosses were made between the white species, such as the cross *Odontoglossum Ardentissimum* 'Ardent Vision' HCC/AOS (*crispum* × *nobile*), and later with the horticulturally



CHARLES MARDEN FITCH



RUSS VERNON



JUAN CARLOS



GREG ALLIKAS



JERRY SUFFOLK



RICHARD NOEL

- [1] *Odontoglossum* (*Onc.*) Stonehurst Yellow. Photograph by Norbert Dank.
- [2] *Odontoglossum* (*Onc.*) *epidendroides* 'Fox Den' CHM/AOS
- [3] *Odontoglossum* (*Onc.*) *spectatissimum*
- [4] *Odontoglossum* (*Onc.*) *hallii* 'Miki' AM/AOS
- [5] *Odontoglossum* (*Onc.*) *luteopurpureum* 'Paula'
- [6] *Odontoglossum* (*Onc.*) *wyattianum* 'Adele' HCC/AOS
- [7] *Odontoglossum* (*Onc.*) *harryanum* 'Harry's Vision' HCC/AOS

significant yellow-green species of *Odontoglossum*. Early lines of breeding for yellow odontoglossums crossed *Odm. crispum* and *Odm. nobile* with significant yellow species such as *Odontoglossum luteopurpureum*. Results were disappointing and not too dissimilar to early yellow breeding of *Phalaenopsis* and *Cattleya*. Pale to soft-yellow color in the sepals and petals resulted. They almost always faded to cream or to ivory-white. *Odontoglossum* Wilckeanum 'New Vision' AM/AOS (*crispum* × *luteopurpureum*) did produce some flowers of strong color but fading and weak color returned when crossed back to white odontoglossum species or white primary hybrids. Crosses with the xanthic form of *Odm. crispum* were expected to avoid this problem but also resulted in disappointment. Unknown to breeders then was the fact that the xanthic form is recessive. It was not until later, when the xanthic form and its hybrids were crossed back onto each other, that bright yellows resulted. True to breeding with recessive traits, yields of these "pure color" plants were small.

One of the first yellow odontoglossum hybrids that was a breakthrough on flowers with good, nonfading color was *Odontoglossum* Golden Guinea. Stuart Low & Co. made the cross and flowered the first one in 1955. It was a combination of *Odontoglossum* Chilgrove and *Odontocidium* Apelles. Fifty percent of the seedlings are described as having a rich golden color, some approaching the color of a buttercup. The Apelles parent is heavily influenced by *Odm. crispum* but does contain *Odm. spectatissimum* and *Odm. nobile*. The other parent, Chilgrove, is the heavy hitter for color, with several inclusions of *Odm. harryanum* and appearances of *Odm. spectatissimum*, *Odm. hallii* and *Odm. luteopurpureum* in the pedigree. By looking at the registration records, there is no way to determine if the heavy use of *Odm. crispum* on both sides of Golden Guinea included xanthic forms.

Hybridizers were then shown the way to produce good, nonfading yellow flowers by making sure many colored *Odontoglossum* species were included in the background of both parents. Some examples of this line include hybrids: *Odontioda* Demie de Pas '#2' (*Odontioda* Mont Ube × *Odontoglossum* Panise), *Odontioda* (*Odontoglossum* × *Cochlioda*) Deloraine 'Jeune Vision' HCC/AOS (Paternoster × Avranches), *Odontioda* Marni Ris 'New Vision Orange' (Bombay × *Odontoglossum* Red



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TIM MORTON



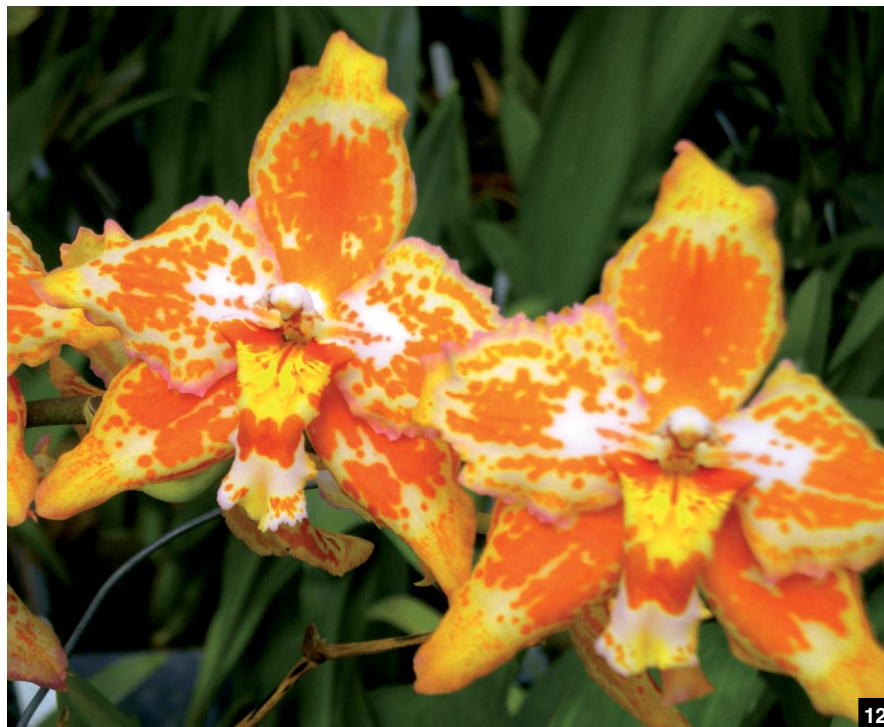
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VERN MCFARLAND



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RICHARD NOEL



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RICHARD NOEL



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RUSS VERNON

Nugget), *Odontoglossum* Stonehurst Yellow 'Stoned Vision' (Many Waters × Golden Guinea) and *Odontoglossum* Questions 'Questionable Vision' HCC/AOS (Natterjack × Somelle).

When the xanthic form of *Odm. crispum* was used early on in odontoglossum breeding, the results were not what hybridizers had hoped for. As generations of hybrids progressed, the potential of this form in a hybrid's background was lost because Royal Horticultural Society registration did not require forms of species to be included. When both parents of a hybrid included this form of *Odm. crispum* in their past, new and wonderful color forms appeared. Some were a bright white with varying amounts of egg-yolk marks, some a bright yellow with darker egg-yolk marks and still others had no marks at all. At first, only a few of the seedlings were like these new color forms. By combining these rarities, a greater number of these color forms were produced. "Xanthic" became the term used to refer to these flowers.

Examples of white-background, xanthic hybrids are *Odontioda* Eric Young 'Alan's Moon' HCC-AM/AOS (Golden Rialto × *Odontoglossum* Niamalto), *Odontioda* Electrifying 'Pure Friendship' AM/AOS (*Odontoglossum* Greve de Lecq × Eric Young) and *Odontioda* Avranches 'Snowy Vision' (*Odontoglossum* Augres × Eric Young). When yellow odontoglossums or odontiodas that had xanthic genes in their background were crossed to another such parent, or to a parent that already was xanthic yellow, many more yellow xanthic offspring resulted. Some examples of yellow-background xanthic hybrids are *Odontioda* Eric's Parade 'Mario's Magic' (*Odontoglossum* Parade × Eric Young), *Odontioda* Wearside Light 'Melissa' AM/AOS (*Odontoglossum* Kopan × Golden Rialto) and *Odontioda* George McMahon 'Sunshine Vision' AM/AOS (*Odm.* Parade × Golden Rialto).

Xanthic whites crossed on xanthic yellows produce what you might expect: a few yellows, a few whites and the heartbreakers: yellows that fade to cream/ivory. All are xanthic genetically, but for the most part do not result in strong pure-yellow flowers. *Odontioda* Quennevais 'Primose Beauty' AM/AOS (Eric Young × Samares) demonstrates this characteristic.

When *Oncidium* is thrown into the mix to make *Odontocidium* and *Wilsonara* (*Odontoglossum*, *Oncidium* and *Cochlioda* = *Wilsonara*), stronger colors that do not fade are the result. Examples of this line



RICHARD NOEL



RICHARD NOEL



AOS AWARD ARCHIVES



RUSS VERNON



MARY JO BRENNAN

- [8] *Odontoglossum* (*Onc.*) *naevium* 'Cassandra' CHM/AOS
- [9] *Odontoglossum* (*Onc.*) *nobile* 'Susan Lynn' CCM/AOS
- [10] *Odontoglossum* *crispum* (*Onc. alexandrae*) 'Cream' AM/AOS
- [11] *Odontoglossum* (*Onc.*) *Ardentissimum* 'Ardent Vision'
- [12] *Odontioda* (*Oncostele*) Marni Ris 'New Vision Orange'
- [13] *Odontioda* (*Onc.*) Deloraine 'Jeune Vision' HCC/AOS
- [14] *Odontoglossum* (*Onc.*) Questions 'Questionable Vision' HCC/AOS
- [15] *Odontioda* (*Onc.*) Eric's Moon 'Alan Moon' HCC/AOS
- [16] *Odontioda* (*Onc.*) Avranches 'Snowy Vision'
- [17] *Odontioda* (*Onc.*) Electrifying 'Pure Friendship' AM/AOS

of yellow often start with *Odontocidium* Tiger Hambühren (*Oncidium tigrinum* × *Odontoglossum* Golddrausch), then leading to *Odontocidium* Tiger Crow (Tiger Hambühren × *Odm.* Golden Guinea) and a wide array of hybrids such as *Odontocidium* Catamont 'Bright Vision' AM/AOS (Tiger Crow × *Odontoglossum* Michael Newman), *Odontocidium* Mayfair 'R.C.W.' FCC/AOS (Tiger Hambühren × *Odontoglossum* Herb Thoreson), *Wilsonara* Tiger Brew 'Pacific Holiday' AM/AOS (*Odontioda* Memoria Rudolf Pabst × *Odcdm.* Tiger Hambühren) and *Wilsonara* Fireglow 'Vision Memory' AM/AOS (*Odcdm.* Tiger Crow × *Odontioda* Remembrance).

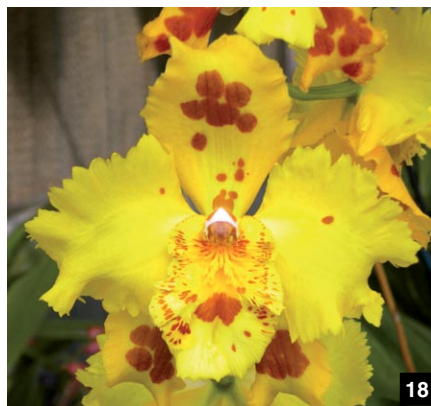
To add "new visions" to these lines, other species or hybrids can be included, such as *Miltoniopsis* to produce *Vuyksteeara* Solana Diane '#1' (*Odontonia* Diane × *Odontioda* Echanson) (*Miltoniopsis* × *Odontoglossum* × *Cochlioda*), *Cyrtochilum macranthum* 'Patience' AM/AOS to a whole host of other genera to make *Hamiltonara* (*Brassia* × *Odontoglossum* × *Cochlioda* × *Ada*) Golden Harry 'Golden Vision' AM/AOS (*Banfieldara* Gold Star × *Odontioda* Harry Baldwin). This is confusing, you may be thinking. But if this plant was yours, how would you grow it if you did not know it has *Odontoglossum*, *Cochlioda*, and *Cyrtochilum* in it, which are all cool growers?

The directions for breeding yellows are only restricted by imagination and the boundaries of the concept of what is considered "*Oncidium*." Have fun, expect the unexpected and be amazed at what you see in this fascinating world of orchids.

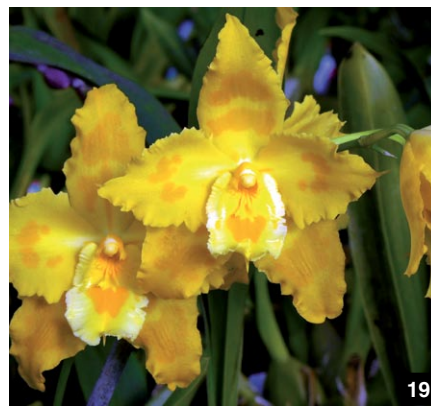
#### Acknowledgments

I thank my many odontoglossum friends for giving me their advice, divisions and pollen over many years and sharing their experiences and observations with hybridizing. I especially want to thank my friend and mentor Larry Sanford for his insight and patience over many appreciated years.

— Russ grew up in Cleveland, Ohio. Early on he had an interest in plants, helping in the yard and growing cacti purchased with his allowance. His parents and grandparents were all interested in various aspects of horticulture. When Russ was 12 years old, his uncle arrived with 6 orchids saying, "If you can grow those darned cacti, you ought to be able to grow these." And a career was launched. Russ is a graduate of Ohio State University majoring in horticulture/floriculture.



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RUSS VERNON



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24  
LUIS BRENES LOAIZA

- [18] *Odontoglossum* (*Onc.*) Stonehurst Yellow 'Stoned Vision'
- [19] *Odontioda* (*Onc.*) Eric's Parade 'Mario's Magic'
- [20] *Odontioda* (*Onc.*) Wearside Light 'Melissa'
- [21] *Odontioda* (*Onc.*) George McMahon 'Sunshine Vision' AM/AOS
- [22] *Odontioda* (*Onc.*) Quennevais 'Primrose Beauty' AM/AOS
- [23] *Odontocidium* (*Onc.*) Tiger Hambühren 'Hermann Pigors' AM/AOS
- [24] *Oncidium* Tiger Crow 'Pierre Bouchard' AM/AOS

In 2004, Russ and his wife Anita started New Vision Orchids. The company specializes in phalaenopsis, odontoglossums and their intergenerics, miltoniopsis, cattleyas, and lycastes. The biggest area of focus is hybridizing, wholesale and retail sales. Russ also lectures to various orchid societies across the country and conducts workshops on orchid culture. Russ is a judge of the American Orchid Society and is past president of the International Phalaenopsis Alliance, past president of the Mid-America Orchid Congress and serves on their Conservation Committee. He and Anita have two daughters, Liza and Zina (email: newvisionorchids@aol.com, website: newvisionorchids.com).



CHARLES MARDEN FITCH



KATIE PAYEUR



RUSS VERNON



RUSS VERNON



PAUL BUJAK



AOS AWARD ARCHIVES

- [25] *Odontocidium* Mayfair (*Onc.* Mayfair [1993] 'R.C.W.' FCC/AOS
- [26] *Odontocidium* (Catamount) Catamount 'Bright Vision' AM/AOS
- [27] *Wilsonara* (*Onc.*) Tiger Brew 'Pacific Holiday'
- [28] *Vuykstekeara* (*Oncidopsis*) Solana Diane '#1'
- [29] *Wilsonara* (*Onc.*) Fireglow (2009) 'Vision Memory' AM/AOS
- [30] *Hamiltonara* (*Brassidium*) Golden Harry 'Golden Vision' AM/AOS

# Oncidium tigrinum

## The Species and its Hybrids

BY JEAN ALLEN-IKESON

ALTHOUGH *ONCIDIUM TIGRINUM* is named for the tiger bars on its sepals and petals, it is the bright yellow lip, which widens beyond an isthmus into the shape of a wide paddle that attracts attention. The contrast can be stunning although the lip color on many clones can fade after a week or two. The sepals and petals often roll like a cigar and may somewhat recurve backwards at the tips. I am about to tell a story of a wonderful parent with an enticing name but, like *Oncidium fuscatum*, this species has other characteristics beyond a first look at a single flower that has made it a winner as a parent or grandparent.

*Oncidium tigrinum* is found in oak-pine forests of Jalisco and Michoacán, Mexico, at 5,249–7,218 feet (1,600–2,200 m) on mountainsides facing the Pacific Ocean (Wiard 1987). It blooms in fall in cool conditions, although it is generally thought to be warmer growing than odontoglossum-type species. Night temperatures are similar in their native habitats but the difference is the daytime high temperatures in the summer in which *Onc. tigrinum* thrives under intermediate or a bit warmer conditions. The ability to bloom on new growths under cool conditions, yet grow in the summer at the warm end of intermediate is what gives it and its hybrids temperature tolerance.

*Oncidium unguiculatum* is a similar species that has been confused with *Onc. tigrinum* on occasion (Andrew 1999). They both have large yellow lips, and the sepals and petals are both barred. Indeed, *Orchid Review*, in an article by Lawless (2005), published a photo labeled as *tigrinum* from the Royal Horticultural Society (RHS) that was actually *Onc. unguiculatum*. The “oops” was caught and corrected a few months later. The latter species differs by having smaller but more numerous flowers, a much longer isthmus in the lip and by having proximal branching on the inflorescence instead of branching closer to the end of the inflorescence in *tigrinum*. In addition, it lacks scent compared to *tigrinum*'s violet scent.



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ERIC HUNT

They apparently breed differently, although *unguiculatum* has been commended for “superior color retention in its hybrids” (Drozda 2005, p. 218–220). There are two hybrids where these two species were both crossed with the same parent, *Onc. unguiculatum*. In the first, *Onc. unguiculatum* was crossed with *Oncidium* Oreal, a classic odontoglossum-type complex hybrid by Mansell and Hatcher in England, to produce *Oncidium* Star Trail. This hybrid received a single award, which had 56 flowers and one bud on a single inflorescence. The flower width was 2.4 inches (6 cm). This can only be compared to photos in OrchidWiz (2019) for *Oncidium* Mivadeal ‘Provence’, the unawarded cross with *Onc. tigrinum*. The flowers appear to be more sparsely arranged on inflorescences and extrapolating from the pot and the label, it is estimated that the size is about 3 inches (7.6 cm). This is what you would expect: the *Onc. tigrinum* cross had fewer but larger flowers. The color on the sepals and petals and on the lips are nearly identical down to the two, large red-maroon spots in the lip, but the form of the lip is where they differ. The *Onc. unguiculatum* cross had an elongated and



2

ERIC HUNT

- [1] *Oncidium tigrinum*
- [2] *Oncidium unguiculatum*
- [3] *Oncidium* Pinotepa ‘Summerfield’s Gold Charm’ AM/AOS
- [4] *Oncidium* Hans Neuenhaus ‘Devine’ AM/AOS
- [5] *Oncidium* Tiger Hambühren ‘Mieki’ AM/AOS
- [6] *Oncidium* Tiger Hambühren ‘Yellow Bird’ AM/AOS

more ruffled lip with what appears to be a muddy overlay of maroon on yellow on the lower third. The *tigrinum* cross is fuller, and the lip is smoother and bright yellow, except for the spots, and more balanced without elongation.

The second hybrid where we can compare directly between the two species is with *Oncidium* Moselle, a former *Odontoglossum*. It was linebred from a classic-looking, full, round odontoglossum-type hybrid called *Oncidium* Ascania with a shot of *Oncidium spectatissimum* thrown in for glossy texture and a stronger yellow background. The resulting hybrid with *Onc. unguiculatum* is *Oncidium* Pinotepa made by Robert Dugger and registered in 1982. Dugger registered the most hybrids (nine) with this species, mainly in the 1980s, followed by Helmut Rohrl in the 1990s with eight. Only one of Dugger's was awarded, while none of Rohrl's were.

The comparable hybrid using *Onc. tigrinum* with *Onc. Moselle* was *Oncidium* Hans Neuenhaus, registered by Gerd Rollke from Germany in 1975. This hybrid received 23 AOS awards and has 10 F1 hybrids registered. With so many awards granted to clones over 30 years, it is surprising that authors have not rushed to praise it as a good example of a *tigrinum* hybrid. I suspect that it was eclipsed by *Oncidium* Tiger Hambühren, registered in 1976 by Artur Elle from Germany, because the yellow was nonfading, although overall the clones of *Onc. Hans Neuenhaus* appear to have fuller form in award photos.

But back to the comparison of these two species with *Onc. Moselle*. Only one clone of Hans Neuenhaus had comparable floriferousness per inflorescence as *Onc. Pinotepa*, the cross with *Onc. unguiculatum*. Most of the former hybrids averaged half that. The clones of the more successful *Onc. Hans Neuenhaus* averaged 23 percent larger. The most obvious difference, however, is that the long isthmus from *unguiculatum* strongly pinches the lip in *Pinotepa*, whereas the isthmus of *tigrinum* has little effect on Hans Neuenhaus. One of the main reasons for using *Onc. tigrinum* is the full lip where the form does not distract from the overall sense of round and full balance of the offsprings' flowers. Oddly enough, the yellow on the lip of the *tigrinum* is stronger than the light yellow of the *unguiculatum* cross.

The first hybrid registered by Charlesworth Ltd. in England using *Onc. tigrinum* was *Cyrtocidium* Hybridum



JAMES MCCULLOCH

3



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AWARD ARCHIVES

4



5

(1909) ( $\times$  *Cyrtocidium lamelligerum*). It was followed two years later from the same firm by a cross with *Gomesa forbesii* and is named *Oncidesa Janssenii*. Neither exerted influence on the orchid world and neither did the other, occasional hybrids made until 1960. At that point, David Sander's Orchids in England registered *Oncidium* Selsfield Gold ( $\times$  *Oncidium* Sunbelle), which was a cross of the species with a modern odontoglossum-type, large yellow hybrid (Andrew 1999). The clone 'Penn Valley' AM/AOS was awarded with 36 "canary yellow" flowers with chestnut markings and an "almost wholly yellow" lip on a single inflorescence. To have 36 flowers open suggests that the first flowers had been open for long enough to establish that they were nonfading yellows.

*Oncidium* Tiger Butter ( $\times$  Golden



AWARD ARCHIVES

6

Avalanche) registered by Rod McLellan Co. followed two years later. This grex has been awarded 43 times by the AOS and produced 102 F1 offspring. This did not happen overnight but rather over a period of 20 years. The first award was in 1966 to the clone 'Janet' AM/AOS. The odd thing about this award is that it was granted at a show in Brownsville, Texas, at the southern tip of the state. The exhibitor lived in Harlingen, another city in extreme-southern Texas that is hot and arid. So this is where I am scratching my head. The exhibitor must have been a wonderful grower, because although *Onc. tigrinum* improves heat tolerance over classic odontoglossums, this hybrid flowered in an unlikely environment. Maybe it perished shortly thereafter! However, Rehfield (1997) suggested that Tiger Butter displayed good heat tolerance and "good resistance to adverse growing conditions" (p, 206). This is even with the Golden Avalanche parent that was a direct cross of *Oncidium alexandrae* (formerly *Odontoglossum crispum*). This makes the heat tolerance even more impressive. So although *Onc. tigrinum* has had mixed reviews for vigor, it does have a reputation for imparting vigor and warmth tolerance to at least some of its hybrids.

Many of the later-awarded clones of Tiger Butter display rich color enhanced by a glossy texture. An HCC-CCM/AOS was granted to the clone 'Ivanhoe' with 67 flowers on two inflorescences. There were other clones with more flowers per inflorescence that received quality awards, although the majority had 16 or less.

Of the 102 offspring to Tiger Butter, no fewer than 38 received AOS awards and 28 have registered offspring. Animal breeders talk about prepotency of genes, meaning that a particular parent or grandparent or great grandparent is more dominant in the offspring than one might expect. The high percentage of offspring with awards and that went on to produce offspring of their own demonstrates a good breeding parent with the desired dominance for good traits. When crossed with another good parent, the results can be rather pleasing. One such cross is *Oncidium* Michoacan registered by Robert Dugger. The other parent was *Oncidium* Lippstern, which is a richly colored, odontoglossum-type hybrid whose par-ents came from the great breeder of oncidiums and odontoglossums, Charlesworth Ltd. This grex had sepals and petals that were mostly covered with versions of quite



AWARD ARCHIVES



AWARD ARCHIVES



AWARD ARCHIVES



AWARD ARCHIVES



JAMES MCCULLOCH

- [7] *Oncidium* Tiger Butter 'Chocolate Crunch' HCC/AOS
- [8] *Oncidium* Michoacan 'Mariposa' AM/AOS
- [9] *Oncidium* Mariposa 'Mariposa' HCC/AOS
- [10] *Brassidium* Pagan Lovesong 'Chocolate Thunder' HCC/AOS
- [11] *Brassidium* Hansruedi Isler 'Elmore's Chocolate' AM/AOS
- [12] *Oncidium* Tiger Point 'Marsha D.' AM/AOS
- [13] *Oncidium* Tiger Parade 'Larry Sanford' HCC/AOS
- [14] *Oncidium* Tiger Parade 'Golden Unicorn' HCC/AOS
- [15] A collection of *Oncidium* Jacobert 'Everglades' AM/AOS. Inserts counter-clockwise from the upper left: 'Flourish' HCC/AOS, 'Taylor 76' AM/AOS and 'Debbie' AM/AOS. All photographs from the AOS award archives.
- [16] *Oncidium* Rustic Tiger 'Ontario' AM/AOS

deep red: claret, burgundy, mahogany or blood red. Michoacan benefited from these stronger red markings and the fuller form but inherited almost double the floriferousness with even heavier substance and glossy texture from Tiger Butter. Such substance and texture raise the quality of color as we perceive it over more matte flowers. There is no substitute for good parents.

The most successful offspring of Tiger Butter was no doubt *Brassidium* Pagan Lovesong (x *Brassia verrucosa*). Why? The form was not better, the color was not better but Pagan Lovesong averaged 1.6 inches (4 cm) larger than Tiger Butter clones. The arrangement was reasonably good so the flowers displayed well. Although Pagan Lovesong was registered



in 1978 by Rod McLellan, this is a hybrid that keeps being mericloned. Many of us have it in our collections and I admit that I do along with another Tiger Butter cross, *Oncidium* Tiger Point. That says something about long-term vigor. You tend to keep things that bloom vigorously every year even if they are not the latest new thing.

Tiger Butter was bred back to *Brsdm.* Pagan Lovesong to produce *Brassidium* Hansruedi Isler. This hybrid has mostly lost the twisting of the petals that comes from *Brs. verrucosa*, which has improved the form. But the trade off is that most of the size gain from the *Brassia* parent has been lost.

*Oncidium* Tiger Parade is another nice hybrid of Tiger Butter and *Oncidium* Parade, which is a yellow hybrid. The most recent award (2011) was to 'Larry Sanford' HCC/AOS, which had a strong yellow background and yellow lip with brown markings, a glossy and full flat form on 3-inch (7.6-cm) flowers. There are, unfortunately, no offspring for Tiger Parade.

One of the best-known hybrids of Tiger Butter was *Oncidium* Jacobert, which garnered 23 awards from 1974 to 1987. Its greatest claim to fame was that the flowers were large for the type and the awards averaged 3.3 inches (8.5 cm) with the clone 'Debbie' AM/AOS at 3.9 inches (10 cm). Many of the Jacobert clones had "muddy" colors rather than clear yellows or reds, or were heavily blotched and barred with brown, which renders a muddy appearance. This sort of outcome appears to be a fault of Tiger Butter hybrids. However, what may be one person's mud may be another's charm: the clone 'Taylor 76' AM/AOS had burnt-orange sepals and petals, 'Linwood' HCC/AOS had dark-bronze-butterscotch sepals and petals and 'Everglades' AM/AOS had "rich, rust-red with concolor, iridescent sepals and petals." Even in the old award photo of the Florida-grown 'Everglades' clone, the color shimmers with reflectiveness.

As mentioned previously, it is *Onc.* Tiger Hambühren that is considered to be the foremost offspring of *Onc. tigrinum* in large part because the important clones and their offspring often had nonfading-yellow backgrounds to the sepals, petals and lips. The tendency for odontoglossum-type hybrids in the yellow lines was for them to fade. The risk of using *tigrinum* in such hybrids was risky given that many *tigrinum* clones have a lip that fades as well. Rohrl (Drozda 2005) suggested that the reason that Tiger Hambühren did not



MICHAEL MACCONNAILL



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AWARD ARCHIVES



15

fade is that Artur Elle, the hybridizer, used a nonfading clone of *tigrinum*. It is just as likely that it was the *Oncidium* Golden Guinea parent of *Oncidium* Golddrausch (1975), also the other parent of Tiger Hambühren, which accounted for the nonfading. Golden Guinea's claim to fame was that it was the first good, nonfading, odontoglossum-type yellow hybrid (1959) that had a significant influence on yellow breeding. Three other offspring of the only 12 that were registered from Golden Guinea are *Oncidium* Stonehurst Yellow, *Oncidium* Hambühren Gold and the still influential *Oncidium* Crowborough (1965), the parent of *Oncostele* Wildcat, the most awarded hybrid in the *Oncidiinae*. Of these three, the first two were Golden Guinea bred back to an offspring of Golden Guinea.

While Tiger Hambühren is an attractive flower itself and retained the large yellow lip of *Onc. tigrinum*, which acts as a beautiful pedestal on top of which sits a bouquet of distinct color and strong spots in the sepals and petals, the wonderful offspring that it produced is its shining glory.

While not all clones and offspring retain the desirable, nonfading crisp yellow, it is the 4n 'Mieki' AM/AOS clone of Tiger Hambühren (Easton pers. comm.) that is responsible for many of the outstanding hybrids previously placed in *Wilsonara*, which was a combination of *Cochlioda*, *Odontoglossum*, and *Oncidium* and are now lumped into *Oncidium*. *Wilsonaras* were long the bread and butter of *Oncidiinae* hybrids because of the strong color, nice form and other characteristics such as floriferousness. Spots, blotches and picotees are common in sepals and petals that often look like a kaleidoscope. A good example is *Oncidium* (aka *Wilsonara*) Rustic Tiger 'Golden Gate' AM/AOS, a cross of Tiger Hambühren and *Oncidium* Rustic Red (from the wonderful odontoglossum parent, Lippestern, with its deep red-to-burgundy strong markings on a white background), with its rich-yellow lip botched with reddish-brown and patterned sepals and petals with a yellow background outlined with a richer-yellow picotee and red-brown patterned, kaleidoscopic overlays.

There are close to 30 awards to Tiger Hambühren with the highest to the clone 'Yellow Bird' AM/AOS (83). It was 3.6 inches (9.1 cm), as was the important 4n clone 'Mieki' AM/AOS (82). Strangely enough, 'Mieki' AM/AOS was described as having two flowers and 28 buds on two inflorescences. The award photo shows



AWARD ARCHIVES



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- [17] *Oncidium* Tiger Glow 'Tewksbury Big Bird' AM/AOS
- [18] *Oncidium* Mayfair 'R.C.W.' FCC/AOS
- [19] *Oncostele* Tiger Barb 'Micki' AM/AOS. Photograph by Lynn O'Shaughnessy. inset photograph by James McCulloch of 'Tiffany' AM/AOS.
- [20] *Oncostele* Golden Trident 'Golden Gate' HCC/AOS
- [21] *Oncidium* Tiger Brew 'Parkside' AM/AOS. Photograph by Mitch Paroly. Inset photograph by Maurice Marietti of 'Janet Bernhardt' AM/AOS.
- [22] *Oncidium* Gold Bar 'R.C.W.' AM/AOS

at least nine flowers. Me thinks someone got that backwards somewhere down the line. Nevertheless, both these clones have large flowers that must have made an impressive show

You can look at significant hybrids from two directions: number of awards or number of offspring. Awards can tell you that a hybrid has a lot of consistency such as *Ons. Wildcat* or that it has a high number of offspring beyond F1 suggesting that there is at least one and likely more that are highly fertile clones. *Oncidium Tiger Glow* has 10 AOS awards but only one first-generation hybrid. My favorite clone for contrast is 'Tewksbury Big Bird' AM/AOS. The sepals and petals are almost entirely rich rust with a contrasting yellow lip and column with a lighter rust blotch on the lip that is almost heart shaped. It was described as having "striking contrast." The red is hardly surprising, given that *Lippester* is a grandparent on the other side.

*Oncidium Mayfair* (1993), also made by Tom Perlite of Golden Gate Orchids, has 10 AOS awards and are stunning yellows described as bright canary yellow, iridescent pale daffodil yellow, or golden yellow with more or less oxblood spots. The clone 'R.C.W.' received an FCC/AOS with 23, 3.3-inch (8.4-cm) flowers on a single inflorescence with "beautiful arrangement." There are only three offspring.

Yet another successful Tiger Hambühren hybrid from Tom Perlite is *Oncostele Tiger Barb* (× *Rhynchostele maculata*). This hybrid has returned to the spots, for which *Onc. tigrinum* is named, thanks to the interesting concentric spots that often appear on the petals and lip of *Rst. maculata* and have worked synergistically with *tigrinum*. The large yellow lip of *tigrinum* is still present with some help from *maculata*. Unfortunately, it only has a single hybrid.

*Oncostele Golden Trident* (× *Rhynchostele bicktoniensis*), *Oncidium Tiger Brew* (× *Memoria Rudolf Pabst*) and *Oncidium Gold Bar* (× *Michoacan*) followed the same pattern as the previous hybrids producing colorful yellow backgrounds with pleasing patterns or spots on flowers with slightly narrowed-segment, classic odontoglossum-type hybrids. All seem to be essentially breeding deadends.

*Oncidium Tiger Crow*, a cross of Tiger Hambühren with the other good parent, *Onc. Crowborough* (1965), produced few awards but 12 offspring, although only two produced offspring themselves and then only one apiece. Two of the



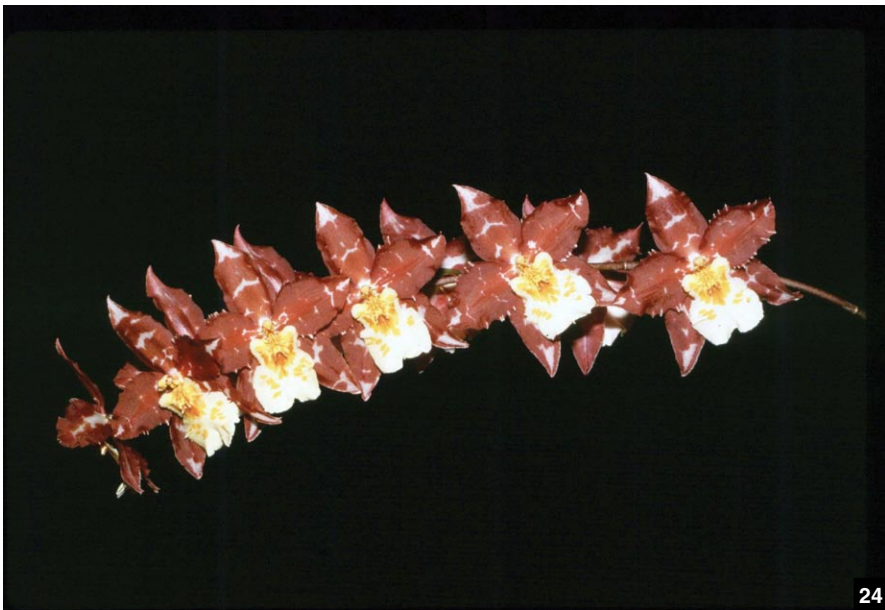
LARRY LIVINGSTON



22 CHARLES POWDEN



23 ERIC HUNT



24 AWARD ARCHIVES



25 LEWIS ELLSWORTH



26 JAMES HARRIS

- [23] *Oncidium* Debra Atwood 'Jake' HCC/AOS
- [24] *Oncidium* Hambühren Stern 'Ilia Lin' AM/AOS
- [25] *Oncidium* Russiker Tiger 'MAJ' HCC/AOS
- [26] *Oncidium* Russiker Tiger 'Woodlands' AM/AOS
- [27] *Oncidesa* Tiger Gold 'Chocolate Splash' HCC/AOS
- [28] *Oncidesa* Yankee Boy 'Luridus' AM/AOS
- [29] *Oncidium* Kendrick Williams 'Goldthwait' HCC/AOS
- [30] *Oncidium* Kendrick Williams 'Sardonix' HCC/AOS
- [31] *Oncidium* Tigersette 'La Jolla' AM/AOS

awards are described as having heavier substance with waxy or glistening texture — characteristics that enhance the golden yellow color with burgundy or maroon markings.

One of the prettiest awards for color contrast to the offspring went to *Oncidium* Debra Atwood 'Jake' (Tiger Crow × California Sunset), which only received a 76 HCC/AOS probably due to small number of flowers and buds (three and five) on a single inflorescence. California Sunset did, however, add large, near-solid areas of red mahogany to the golden-yellow background.

This lack of depth in further generations of progeny is disappointing for *Onc. tigrinum*. "Going back to species" in the hybrids has not solved the problem generally — if it is one of infertility.

*Oncidium* Hambühren Stern (*tigrinum* × Lippestern) is another Artur Elle hybrid. It has an off-white background on the sepals and petals heavily overlaid with mahogany — not surprising given the Lippestern parent. Some clones had twisting and rolling of the lip, while 'Ilia Lin' AM/AOS (85) had a flat lip with good color and wonderful arrangement on the inflorescences, all of which arose from a single pseudobulb. The ability to produce multiple inflorescences per pseudobulb is a highly prized characteristic.

Hambühren Stern was bred back to another *tigrinum* hybrid, Tiger Butter to produce *Oncidium* Russiker Tiger, bred by the Swiss hybridizer, Isler. As would be expected from two parents that were hybrids of *tigrinum* and outstanding odontoglossum hybrids (Lippestern and Golden Avalanche), the color was strongly overlaid with mahogany and the substance and texture were heavy and glossy, which makes the color pop. The *tigrinum* lip is evident as is the influence of narrower sepals and petals than the odontoglossum parents, although the clone 'Woodlands' AM/AOS has lovely form and was grown in North Carolina. The other awarded clone, 'MAJ' HCC/AOS, came from MAJ Orchids in Florida, which suggests that this cross does well in warm climates and has warm tolerance.

After a number of decades of numerous hybrids being made, the use of *tigrinum* has declined although a flush of hybrids were registered by Hwuluduen Orchids in Taiwan 10–15 years ago. Most of these were crosses with oncidiums with *Onc. fuscatum* breeding or brassia breeding, which resulted in hybrids with narrower, although well-marked sepals and petals. A few were with



AWARD ARCHIVES



AWARD ARCHIVES



CHARLES MARDEN FITCH



AWARD ARCHIVES

odontoglossum-type hybrids suggesting some warmth tolerance was hoped for. Unfortunately these hybrids have not been awarded under the AOS judging system and most were not used in creating further generations.

McBean's also registered four hybrids in the last five or six years using *tigrinum*. All were with odontoglossum-type, complex hybrids.

So where do breeders go from here? A number of hybrids exist with *Gomesa* as a parent or grandparent but none are in the AOS award system. Perhaps with the improved breeding and wonderful *gomesa* hybrids that have heat tolerance, which have been made and are still being made in Australia, could be crossed with *tigrinum* or its successful hybrids. Rod McLellan Co. did try this in the early 1980s with some interesting results with hybrids like *Oncidesa* Tiger Gold 'Chocolate Splash' HCC/AOS (*Onc. Tiger Butter* × *Gomesa imperatoris-maximiliana*), whose best trait is the strong chocolate tiger bars

and blotches on the sepals and petals and *Oncidesa* Yankee Boy 'Luridus' AM/AOS (*Onc. Tiger Butter* × *Gomesa forbesii*), which had chartreuse sepals and petals almost completely covered with wide brownish-red bars. Both *Gomesa* parents were mainly butterscotch or chestnut brown.

*Gomesa varicosa* and its hybrids, which are so popular in Australia, have large, brilliant-yellow lips, which are the dominant feature. Vacherot-Lecoufle in France tried the cross with *Onc. tigrinum* in the middle of the Great Depression in 1934 and registered it as *Oncidesa* Matador. Note that most of these *gomesa* parents have been separated from the genus *Oncidium*. Unfortunately, no photos exist that I know of. I suspect that there are better *varicosas* and hybrids of *varicosa* such as *Gomesa* Palmyre, so popular in Australian breeding, and the ever-popular, lemon-yellow *Oncidesa* Sweet Sugar that could be used in breeding. There is one hybrid called *Oncidesa* Treasure Galleon

with Palmyre and a *tigrinum* F1 hybrid called *Oncidium* Autumn that was made, not surprisingly, by Rod McLellan Co. but no photos exist that I know of. These hybrids suggest that *tigrinum* will cross with gomesas and that at least two of the great orchid hybridizers thought it was a worthwhile line to try. *Oncidium* Autumn had sepals and petals with autumn colors overlaying almost the entirety of the segment. The lips were yellow but it produced inflorescences up to 4-feet (1.2-m) long! It produced another rather nice wilsonara hybrid that seems to have been lost to obscurity called *Oncidium* Kendrick Williams. It received a significant number of AOS with colors also in the autumn range and one even described as rust orange. This line produced 19 F1s and most were not carried further, although *Brascidoste* Cirque de Soleil is an F4 with several infusions of *Brassia* along the way. Perhaps given the success of Pagan Lovesong, more brassia hybrids with their larger flowers might be another direction for the future.

Of course, there are always new odontoglossum-type hybrids being made — some new type crosses within or outcrossed from odontoglossums — that may offer new directions or simply more avenues for *tigrinum* crosses. Of course, such crosses have been the bread and butter of *tigrinum* breeding producing numerous well-shaped and colorful hybrids and have been a rich source of nominees and winners for the Robert Dugger Award.

While reading this article, you may get the impression that *tigrinum* hybrids are all variations of yellows, reds and browns. Contrary to this impression, one of the more popular hybrids of *tigrinum* was *Oncidium* Tigrsette (× Carissette, an odontoglossum-type, complex hybrid likely with white, pink and violet patterning based on the offspring) ‘Wylde Court’ AM/AOS (should have been Wylde Court!!!) was described as “sepals and petals white with maroon blotches and violet margins” and a white lip with a few smaller maroon blotches proximally and a yellow callus. The trick with this and hybrids lacking brown is to have a white base rather than a yellow one. The browns become purples, violets and burgundy-reds.

Numerous experiments have been made with smaller oncidiums, which unfortunately often have poor form, that have not been particularly successful. Crosses with other oncidiums have not generally gone far either except for *Oncidium* Mexico (× *leucochilum*) that



31

AWARD ARCHIVES



32

AWARD ARCHIVES



33

TOM HANSKNECHT



34

GREG ALLIKAS

- [32] *Oncidium* Mexico ‘Carimo’ HCC/AOS
- [33] *Oncidium* Macmex ‘Helen Cady’ AM/AOS
- [34] *Oncidium* Crispy Mac ‘Everglades’ HCC/AOS
- [35] *Oncidium* Pui Chin ‘Flying Tiger’ AM/AOS
- [36] *Oncidium* Matoaka Road ‘Ruth’ AM/AOS
- [37] *Oncidium* Matoaka Road ‘Ana Patricia’ AM/AOS
- [38] *Oncidium* Matoaka Road ‘Orchifollajes’ HCC/AOS

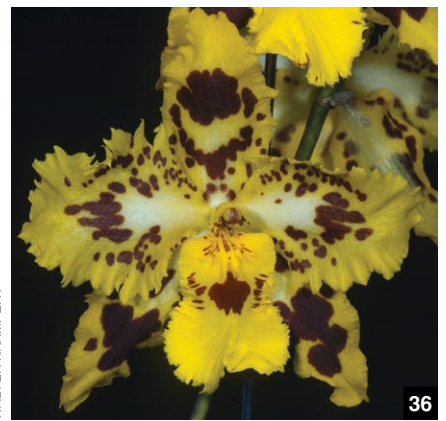
is charming, quite floriferous and often branching, and with the high gloss and substance you would expect from this cross. It likely has more warm tolerance than *tigrinum*. Mexico was then crossed with *Oncidium maculatum* to produce *Oncidium* Macmex. The clone, 'Helen Cady' AM/AOS, had exceptional patterning that resembles a patterning cross between tigers and giraffes. The glossy texture sets the color off spectacularly. Any hybrid with a wonderful pattern like some of the clones would be something that I would always reach for on a vendors table. In addition, all three awarded clones were grown in the Southeast so it is obviously heat tolerant. And it breeds. *Oncidium* Crispy Mac 'Everglades' HCC/AOS was also grown by Milton Carpenter in Florida and surprisingly is a cross with *Onc. alexandrae*, a key parent in odontoglossum breeding known for being cool growing. Crispy Mac also has unusual markings, which usually are lines of small spots parallel to the length of the sepals and petals. The flowers were pale chartreuse with chestnut red-brown markings and the only real loss was that the lip is white, although in this cross the lip is charming. This hybrid was made by Woodland Orchids in North Carolina and registered in 2004, so is relatively recent. So sometimes going back to species does work, rather than using complex odontoglossums, because the offspring of *Onc. Mexico* are fertile for at least four generations from *tigrinum* and warm tolerant — two characteristics that are useful. Careful study of pedigrees may suggest other worthwhile breeding lines such as these of which modern hybridizers may be able to make use.

Are *tigrinum* hybrids the gift that keeps on giving? The 2017 Robert Dugger Award for the best example of odontoglossum breeding awarded during 2017 went to *Oncidium* Pui Chin (*tigrinum* × Golden Dawn [1980]) 'Flying Tiger' AM/AOS (88) with 31 flat flowers on a single, branched inflorescence. The flowers were golden yellow with mahogany markings and a yellow lip with a few markings and was described as having "very heavy substance and waxy texture." This hybrid was made by Robert Hamilton and was grown by Russ Vernon of New Vision Orchids, who also has an article on, appropriately, yellow odontoglossum breeding lines. The Dugger Award was also won by a Tiger Hambühren hybrid, *Oncidium* Matoaka Road 'Ruth' AM/AOS in 2002.

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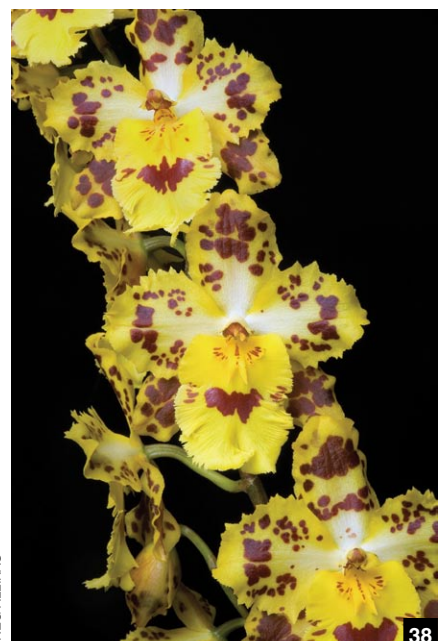


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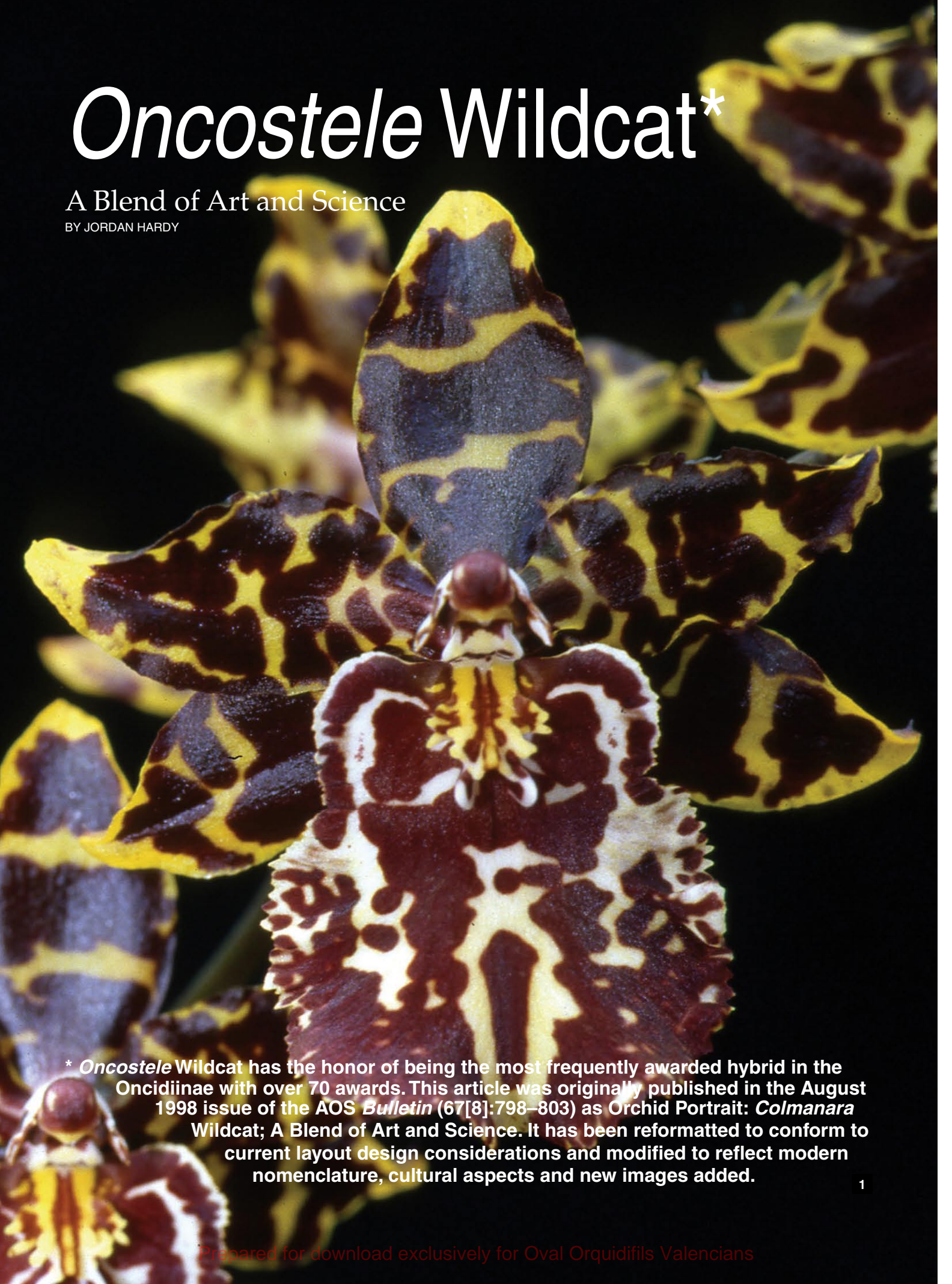


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# *Oncostele* Wildcat\*

A Blend of Art and Science

BY JORDAN HARDY



\* *Oncostele* Wildcat has the honor of being the most frequently awarded hybrid in the Oncidiinae with over 70 awards. This article was originally published in the August 1998 issue of the AOS *Bulletin* (67[8]:798–803) as Orchid Portrait: *Colmanara* Wildcat; A Blend of Art and Science. It has been reformatted to conform to current layout design considerations and modified to reflect modern nomenclature, cultural aspects and new images added.



IN THE MID-1980s, orchids were beginning to move from the exclusive realm of the orchid enthusiast out into the potted-plant world. Phalaenopsis were the orchids seen most often in the stores, but also often found was *Oncidesa* Gower Ramsey. The market was ready for the next orchid suitable for potted-plant production—something vigorous in growth, like *Oncsa*. Gower Ramsey, but different in colors. *Oncostele* Wildcat was created to fill this role, and first flowered for us in 1989. The qualities of this plant were immediately apparent.

- It grows consistently, quickly and cleanly.
- It has a sensational spike habit, with perfect branching and is the right height.
- Its well-shaped flowers possess outstanding color intensity, balance and patterning.
- It grows and flowers well in a wide variety of temperature conditions.
- It has a variable or nonseasonal bloom habit, flowering more than once a year.

MILTON WITTMANN



For the novice or grower new to oncidiums, *Ons.* Wildcat is an excellent choice because of its vigor and ease of growth and flowering in a wide range of temperatures. We have seen plants of *Ons.* Wildcat flourishing indoors under lights and also outdoors in Thailand, though we recommend a range of temperatures between 50 and 85 F (10–29 C).

For the commercial grower, the best of *Ons.* Wildcat's excellent qualities may well be its vigorous growth habit. This attribute is quite uniform within a group of seedlings. Also, *Ons.* Wildcat tends to grow two spikes on a mature pseudobulb, sometimes twice a year. The spike habit is strong, with a symmetrical branching pattern. And *Ons.* Wildcat has a greater number of flowers per spike than odontoglossums and brassias and better flower size than most oncidiums.

The orchid grower interested in show ribbons or quality awards will especially appreciate that in addition to having a vigorous growth habit, *Ons.* Wildcat has the great form, balance and intensity of color that catch the eyes of the judges. Plants are floriferous, with flower counts of up to 50 or more. There is also wide color variation among individual plants. Generally, the sepals and petals are warm-to-cool yellow with an overlay of mahogany marks. The lip can be white, red or pink with bright-red marks or bars; often the lip is edged with yellow or white. Flower substance tends to

be heavy and texture waxy.

THE ART To achieve an orchid this versatile, *Oncostele* Rustic Bridge (*Oncidium fuscatum* × *Rhynchostele ureskinneri*) was crossed with *Oncidium* Crowborough (1965) (*leucochilum* × Golden Guinea) on three separate occasions, using two different clones of Rustic Bridge. The original intent was to create an improved *Oncostele* Bittersweet (*Rhynchostele bictoniensis* × *Onc.* Crowborough [1965]). *Oncostele* Rustic Bridge was chosen to impart red coloring and an improved lip size and shape, and *Onc.* Crowborough (1965) for flower size, rich color and perfect spike habit. The first time the cross was made was in 1985, when *Ons.* Rustic Bridge 'Mephisto' was crossed with *Onc.* Crowborough (1965) 'Spice Island', AM/AOS. The next two times, the cross was made between *Ons.* Rustic Bridge 'Hot Lips' and *Onc.* Crowborough (1965) 'Spice Island' AM/AOS. In the background of *Ons.* Rustic Bridge, *Rst. ureskinneri* carries intense red coloring, while *Onc. fuscatum* adds improved spike habit and branching, ease and frequency of flowering and a large, flat lip. *Oncostele* Rustic Bridge 'Mephisto' has exceptionally deep-red lip coloration, but it has some drawbacks—it is a slower and weaker grower than its siblings. Its sister, *Ons.* Rustic Bridge 'Hot Lips' grows much more vigorously, and possesses a better spike habit, excellent branching and a larger, flatter lip. However,



AWARD ARCHIVES

- [1] Of the three general color groups of *Oncostele* Wildcat, 'Clown Alley II' HCC/AOS is a good representative of the group with yellow sepals and petals and white lip, all heavily overlaid with dark bars and splotches. Photograph by Rhonda Peters.
- [2] *Oncostele* Wildcat 'Yellow Bather Fly' AM/AOS is one of the bright, cheerfully colored yellow forms.
- [3] *Oncostele* Wildcat 'Bobcat' AM/AOS — one of the original solid-colored clones.

the flowers are less intense in color. *Oncidium* Crowborough (1965) 'Spice Island' AM/AOS is a steady, compact grower with an excellent spike habit. It has attractive butterscotch-colored flowers with white lips and more importantly, a distinguished record as a parent. *Oncidium leucochilum* gives *Onc.* Crowborough (1965) adaptability to a variety of growing conditions and a nonseasonal flowering habit, while *Onc.* Golden Guinea imparts color intensity and flower size.

**THE SCIENCE** The hoped-for result was a plant that would grow vigorously and produce desirable spikes of red-patterned flowers on a gold background. For the first cross, *Ons.* Rustic Bridge 'Mephisto' was selected to give better color intensity. However, just a few seeds were produced and only about 20 percent of them germinated in the laboratory. Of the 150 final plants in bottles, about 125 survived: those that did survive grew with astonishing uniformity and vigor. In 1989, the plants began to spike beautifully with a high percentage of plants producing two spikes on the first flowering.

The second crossing, using *Ons.* Rustic Bridge 'Hot Lips', was much more prolific, yielding a 75-percent germination rate with 1,500 final plants in bottles. The plants grew even faster and began flowering in 1991, producing high numbers of elegant flowers on strong, well-branched spikes. The cross was remade that year, again with 'Hot Lips', and the resulting capsule yielded a 90-percent seed germination rate.

The best of the plants of *Ons.* Wildcat were saved for mericlone or future breeding. There have been basically three color forms: first, solid, dark-mahogany-red lip, and petals and sepals the same dark mahogany red with touches of yellow on the tips, as exemplified by the mericlone 'Bobcat' AM/AOS. Secondly, cream-to-white lip with few or no red spots, and butter-yellow sepals and petals lightly dotted with red. Third, white-to-golden-yellow lips overlaid with red-to-reddish-mahogany markings; the butterscotch-to-yellow sepals and petals overlaid with various mahogany-red spots or bars, as exemplified by mericlones 'Lynx', 'Ocelot' and 'Panther'.

**RELATED HYBRIDS** We continue to use both *Ons.* Rustic Bridge and *Onc.* Crowborough (1965) in our hybridizing program with excellent results. Favorite crosses so far are *Oncostele* Hot Lips (Rustic Bridge × *Oncidium sotoanum*), *Oncidium* Elizabeth John Jubilee (Crowborough (1965) × *Oncidium tigrinum*) and *Oncostele* Lorraine's Fourteenth WOC (Rustic Bridge ×

*Onc.* Debutante). These all have exceptional color, superior spike habit, vigorous growth and broad temperature tolerance. Also notable, but less successful, are the hybrids *Oncostele* Rustic Tiger (Rustic Bridge × *Onc. tigrinum*), which grows and flowers perfectly but lacks vibrant color, and the beautifully flowered *Oncostele* Shirley Pozzato (Rustic Bridge × *Oncidium* Saint Clement), which grows and flowers more erratically than is preferred.

**AWARDS** *Oncostele* Wildcat has had success at judgments and shows. Overall, the plants make a good presentation; those that receive awards are usually more floriferous than average, with better spike habit and better flower color, intensity, patterning and flatness. Awarded plants tend to have 30 or more flowers per spike, with flower widths greater than 2 inches (5.1 cm).

Of the 28 awards received so far from the American Orchid Society (Editor's note: as of 1997), 16 were Highly Commended Certificates (HCC), 10 were Awards of Merit (AM) and two were Certificates of Cultural Merit (CCM). The highest award given so far has been a CCM of 87 points to *Ons.* Wildcat 'Tower of Power' in California. The next two highest-awarded plants, *Ons.* Wildcat 'Pride of Niagara' AM/AOS in New York, and *Ons.* Wildcat 'Soroa Gato Rojo' AM/AOS in Florida, received 84 points each. The majority of awards given so far have been in California, Florida and Hawaii.

**A BLEND** The goal in creating *Ons.* Wildcat was to produce a beautiful orchid potted plant that would appeal to everyone. The qualities it was felt orchid enthusiasts, commercial growers and judges would most appreciate were blended together. For the enthusiast, it was easy care; for the grower, vigor and consistency; and for the show table, high flower quality. We try to not only hybridize with scientific knowledge, but also with an artistic eye. Before a cross is attempted, related crosses and parent history are researched, and slides of past results with similar crosses are examined. In addition, we also talk to people who have experience with the plants that we are interested in using for our own hybridizing program. With *Ons.* Wildcat, science, art and nature all came together to create an exciting new orchid for everyone.

— Jordan Hardy was involved with the orchid-hybridizing program at the former Rod McLellan Company in California and provided sales support and customer service for the Orchid Sales and Marketing Department.

## Care Instructions

Plants of *Oncostele* Wildcat are a wonderful choice for the beginning orchid enthusiast. They are easy to grow in the home environment and flower for an average of three months. Plants can be found on plant-society sales tables, at orchid shows and through commercial growers.

**LIGHT AND AIR** This orchid does best when it receives 35 to 50 percent of the intensity of full sunlight. Choose the brightest room in your house, usually with west- or south-facing windows. If your window is too sunny and provides more than a half day of sunlight, place the plant farther back from the window or shade with curtains or mini-blinds. Air movement and a relative humidity of 60 percent are essential, as they are for most other orchids. To easily create humidity, simply grow your plants on humidity trays (a tray filled with pea gravel and water that comes to within a half inch of the top of the gravel). Space the plants so that their leaves do not touch those of the next plant.

**WATERING** Allow plants to become nearly dry between waterings. Only water if the container feels light when you lift it. Always water in the morning and give plenty of water so that it drains out of the holes in the bottom of the container. (Editor's note: sufficient water should be given to prevent shriveling of the pseudobulbs.)

**TEMPERATURE** *Oncostele* Wildcat grows easily in a wide range of temperatures. It performs well with night temperatures of 55 to 65 F (12.8-18.3) and day temperatures of 70 to 90 F (21.1-32.2 C).

**FERTILIZING** Choose a balanced orchid fertilizer and follow the directions. Use a high-growth formula after flowering for about six months and then a high-bloom fertilizer for the next six months until the new flowers all open.

**POTTING** Repot plants every two years after they have finished flowering—just as new growth begins to emerge. Although many mixes work well, we recommend using medium fir bark. (Editor's note: in drier homes or climates, water-holding additives such as chopped sphagnum moss or perlite can be added).

— Jordan Hardy

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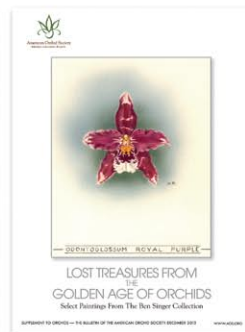
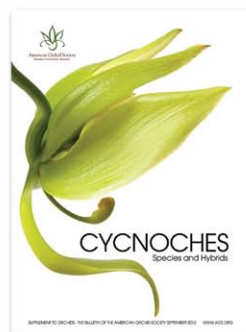
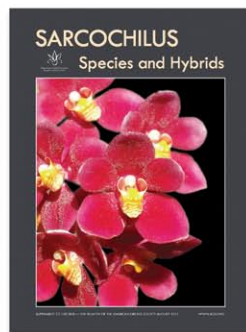
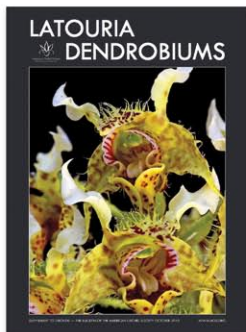
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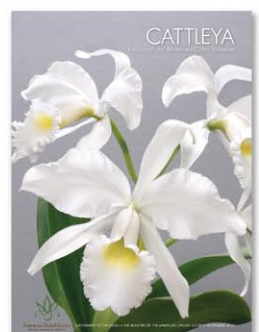


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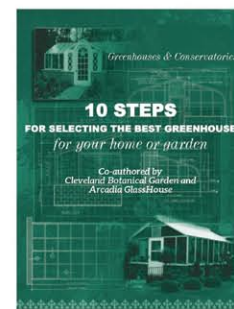


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