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Odontoglossum hunnewellianum and *Odontoglossum hunnewellianum fma. citrinum* Rediscovered.

Carlos Uribe-Velez[1] and Ruben P. Sauleda[2]
[1]Calle 115 #5-23 Bogota, Colombia
[2]222585 S. W. 187 Avenue, Miami, Fl 33170

Abstract

A history of the rediscovery of *Odontoglossum hunnewellianum* Rolfe in Colombia and description of *Odontoglossum hunnewellianum* fma. *citrinum*.

Robert Alan Rolfe (1889) described *Odontoglossum hunnewellianum* as "a new and very elegant species of *Odontoglossum,* discovered by Mr. Oscar Bobisch, near Bogota, New Granada, and imported by Messrs. F. Sander & Co., of St. Albans*".* Rolfe further states "It is none of those troublesome natural hybrids, but a good species, of which a large number of plants were sent; but it is said to travel badly, so that the stock has been somewhat reduced in bulk".

Rolfe stated that among imported plants of *Odontoglossum crispum* Lindl. and *O. hunnewellianum*, which occur together, plants were found what were intermediates between the two species. He further reports that the type plant of *O. x adrianae* L. Linden was imported and thereby a natural hybrid (Rolfe, 1898). Rolfe also states that the cross was made artificially (*O. crispum x O. hunnewellianum*), confirming that *O. x adrianae* is a natural hybrid of *O. crispum* and *O. hunnewellianum* and different from *O. hunnewellianum* (Rolfe, 1898).

Odontoglossum hunnewellianum has remained rare in collections. Several reports can be found in the early 1900's in The Orchid Review of plants being exhibited along with plants of *O. x adrianae*. It was obvious at the time to the exhibitors that *O. hunnewellianum* and the natural hybrid *O. x adrianae* along with several introgression hybrids were distinct.

The World Checklist of Selected Plant Families (WCSP, 2018) lists this species as *Odontoglossum* × *hunnewellianum* Rolfe, Gard. Chron., ser. 3, 6: 67 (1889), a natural hybrid, this is contrary to Rolfe's intentions, which he clearly states. In addition, the WCSP lists the accepted name as *Oncidium x adrianae* (L. Linden) M. W. Chase & N. H. Williams, Lindleyana 21 (3): 22 (2008).

Stig Dalström (2018b) presents a well-documented argument that *O. hunnewellianum* is a distinct species as Rolfe (1889) first indicated and not a natural hybrid. In addition, Dalström (2018a) makes an excellent argument for maintaining *Oncidium* and *Odontoglossum* as distinct genera. Dalström states that morphology in combination with other available features is necessary to distinguish *Odontoglossum* from *Oncidium*. "Traditional attempts of using a single feature (column-lip angle) have failed, so we have to look closer and we have to widen our scope considerably". Dalström also notes "molecular research has shown us that they belong to different branches/clades in the evolutionary tree, so they really are different". We here also add the comments of Kolanowska & Szlachetko (2016) concerning Chase's transfer of *Odontoglossum* to *Oncidium*. "Detailed analyses of morphology of the species included in phylogenetic

analyses conducted by Neubig *et al*. (2012) indicated that the *Odontoglossum* clade consists of some genera easily distinguishable morphologically. We propose to maintain *Cochlioda*, *Solenidiopsis*, *Collare-stuartense* Senghas & Bockemühl, *Symphyglossum* Schltr. and *Odontoglossum* as separate genera, and therefore we postulate to reject Chase *et al*.'s (2008) proposal to include the *Odontoglossum* complex in *Oncidium*." We totally agree with Dalström and Kolanowska & Szlachetko and consider *O*. *hunnewellianum* an *Odontoglossum* and not an *Oncidium.*

After a long period during which *O. hunnewellianum* was unknown in collections, Dalström observed a plant of *O. hunnewellianum* in the collection of Colomborquideas in 1989. However, no information was available as to the origin of the plant. A photograph received by the senior author from Jose Alexander Castillo of what was identified as *Odontoglossum x adrianae,* here pictured, sparked an exhaustive search by the senior author covering considerable territory in January 2018, for *O. hunnewellianum.* This photograph implied that *O. hunnewellianum* one of the parents, was present in the area. The senior author made seven trips to the area of La Belleza, Santander, where the photograph was taken, searching for *O. hunnewellianum* after being assured that the photograph was taken from a plant that occurred naturally in the area. During all of the trips plants of *O. hunnewellianum* were not found. In May 2018 a new search consisting of two groups of researchers, traveling in separate vehicles, began in La Cabrera and continued to Fusagasuga, San Bernardo, and Pacho in Cundinamarca. The search continued to La Belleza, Santander, which was used as a base. The search was then made in Jesus Maria and Sucre, Santander. Finally in the municipality of Sucre in the yard of a "casa campesina" a plant of *O. hunnewellianum* was discovered on May 2018. The senior author with Jose Alexander Castillo first discovered the plant in flower with two flower spikes, thereby alerting the second group of the discovery. What appeared to be a single plant turned out to be four plants grouped together. Four members of the group each received a plant. The senior author acquired the largest plant, with flowers in good condition. Subsequently, the senior author made an icon with this original plant, here pictured, originally printed in Dalström, *et al.* (2020). On a later date the senior author and members of the second group individually made trips back to the area where the original plants were located and acquired additional plants. At the time the exact locality where the plants were found was not known.

Original photographs sent to the senior author by Jose Alexander Castillo, of *Odontoglossum x adrianae*, which sparked the beginning, by the senior author of the search for *Odontoglossum hunnewellianum* Rolfe.

In June of 2018, Juan G. Saldarriaga (of Bogota) visited the locality where the original plants were collected in Santander and photographed the plants in their natural habitat (exact locality not being disclosed).

The taxonomy of the genus *Odontoglossum* is complicated by the propensity of sympatric species to hybridize. Introgression also appears to be common. *Odontoglossum hunnewellianum* has hybridized with several of the species with which it is sympatric and possibly back crossed in both directions. However, pure forms of *O. hunnewellianum*, which demonstrate very little variation and match the type, have been found. Hybridization and introgression also appears to be common with *O. crispum* (Cabal, *et al*., 2021) and *Odontoglossum luteopurpureum* Lindl. (Dalström, 2019). In the populations of *O. x adrianae* some plants are clearly introgression hybrids

Hybridization in plants has been found to be common. Analyses of introgression (defined as the transfer of genes between species mediated primarily by backcrossing) in plants ranging from oaks to orchids have shown that a substantial fraction of their genomes are permeable to alleles from related species (Baack & Rieseberg, 2007).

Hybridization is a creative evolutionary process, allowing genetic novelties to accumulate faster than through mutation alone (Anderson & Hubricht, 1938; Martinsen *et al*., 2001). These changes in the genome can lead to rapid selection of new phenotypes. Mutations are rare, around 10^{-8} to 10^{-9} per generation per base pair (Abbott *et al.,* 2013). Thus, it is likely to take considerable time for novel adaptations to evolve via mutation and natural selection. Hybridization contributes to speciation through the formation of new hybrid taxa, whereas introgression of a few loci may promote adaptive divergence and so facilitate speciation (Mallet, 2005). Hybridization and introgression can lead to speciation in much less time.

It appears that *O. crispum*, *O. luteopurpureum* and *O. hunnewellianum* were involved in producing hybrid populations, which could have eventually evolved into new species prior to the intervention of plant collectors and destruction of habitat.

In the "New Garden Plants of the Year 1915." Bulletin of Miscellaneous Information (Royal Botanic Gardens, Kew) a plant of *Odontoglossum hunnewellianum citrinum* is listed as being exhibited by F. J. Hanbury. The plant is described as "Flowers a clear light citron-yellow, quite destitute of the characteristic brown markings. In addition, Rolfe in The Orchid Review (May, 1915) lists *Odontoglossum hunnewellianum citrinum* and states: "This is a charming variety from the collection of F. J. Hanbury, Esq., Brockhurst, East Grinstead, which we do not remember to have seen before. It is a case of albinism, the flowers having entirely lost the characteristic brown markings leaving the flower a clear light citron-yellow, hence the name. The species was introduced from the Bogota district over twenty-five years ago".

Rolfe first reported *O. hunnewellianum citrinum* but did not indicate any intension to describe it as a different taxon. We here present it as a new forma.

Odontoglossum hunnewellianum forma *citrinum* Uribe-Velez & Sauleda, fma. nov.

Type: Colombia, Department of Santander, near La Belleza in municipality of Jesus Maria. Specimen made November 28, 2021, from plant in cultivation. Holotype: HPUJ.

This plant was first observed in cultivation in a casa campesina by Alberto Diaz. After several attempts to buy the plant, the campesino finally sold the plant to Alberto Diaz, who in turn sold the plant to the present owners, the senior author and Frank Jordan (orchid grower in Bogota).

Diagnosis

Differs from the type in the citron-yellow color of the segments, totally lacking any brown markings.

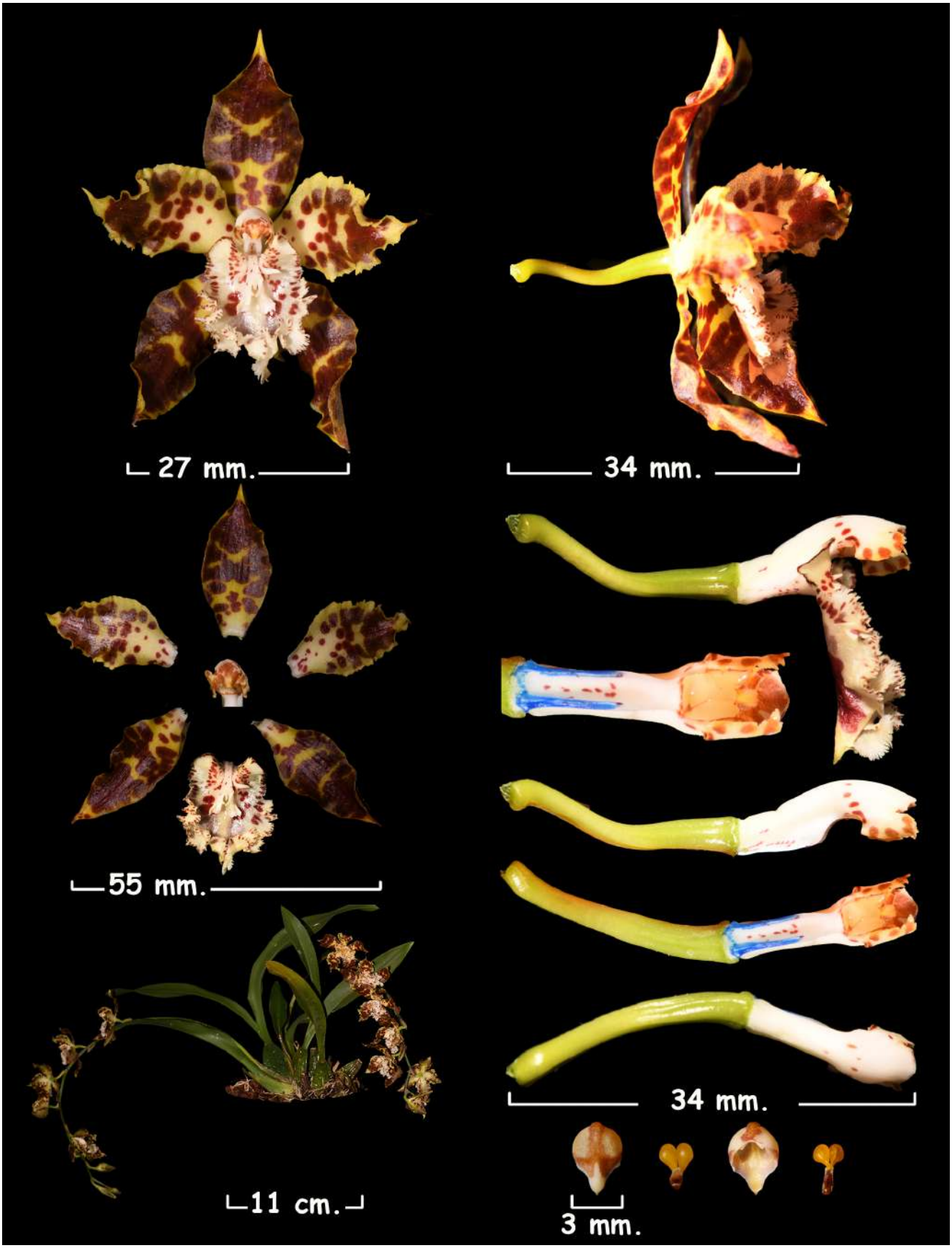
Description

Plants epiphytic to 55 cm tall; pseudobulbs caespitose, oblong ovoid, compressed, bifoliate, to 5 cm tall, 2 cm wide, basally surrounded by distichous sheaths with the uppermost foliaceous; leaves elongate narrowly elliptic, acute, arching to 37 cm long, 2.8 cm wide; inflorescence arching, paniculate, to 40 cm long, to 10 flowers; pedicel with ovary, to 1.8 cm long; flowers stellate, sepals and petals yellow with dark yellow-orange spots, white at base; sepals elliptic, acute to 2.4 cm long, 0.8 cm wide; petals obovate to lanceolate to 2.2 cm long, 0.7 cm wide; labellum white to pale yellow with dark yellow spots, to 2.2 cm long, 1.8 cm wide, pandurate, margins fimbriate, midlobe with two thick keels, one short thin central keel and basally 3-4 thin short keels; column white becoming yellow towards apex, to 1.7 cm long, with a pair of short truncate wings; anther cap yellow.

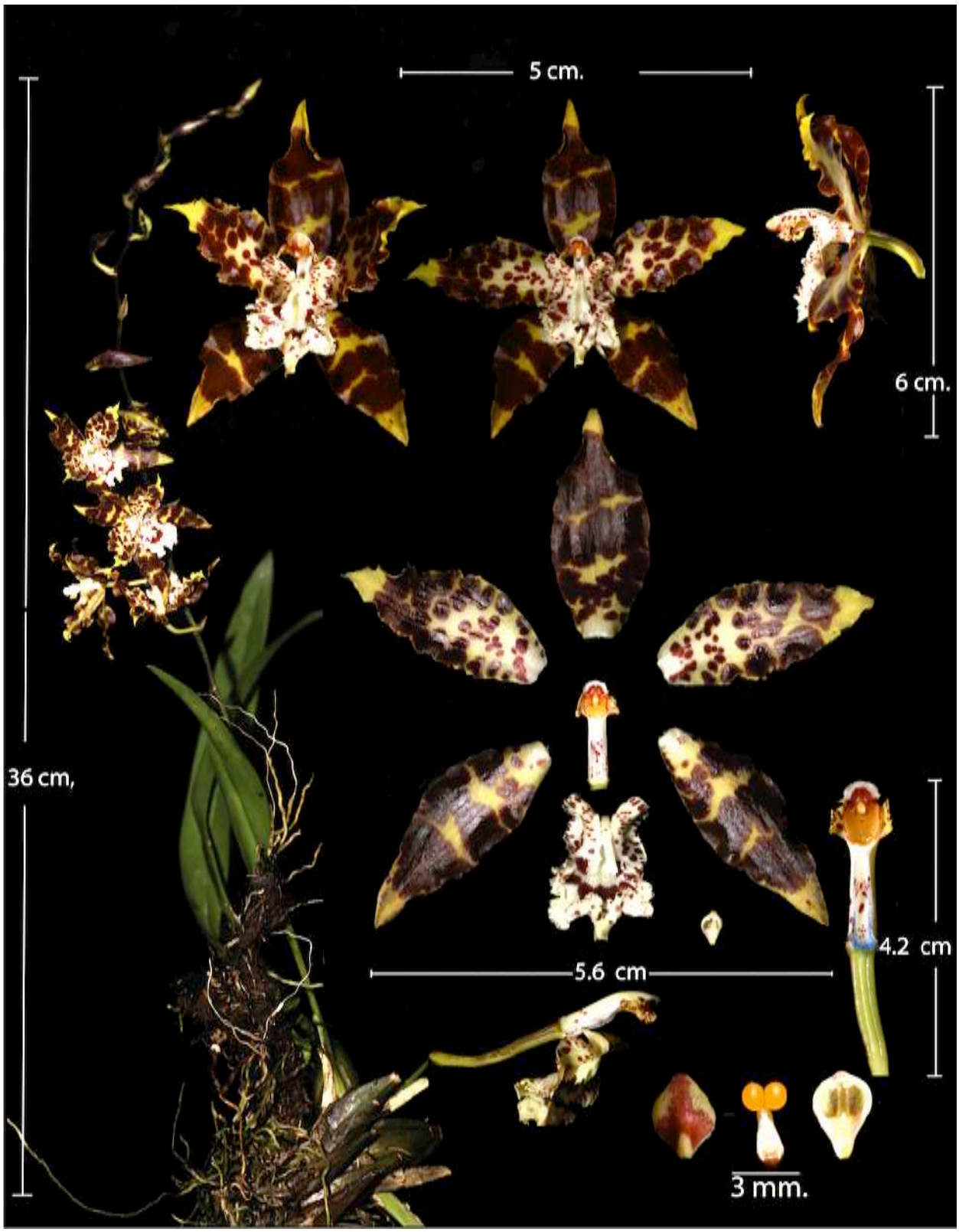
Odontoglossum hunnewellianum Rolfe flower of plant from original discovery.




Additional plants of *Odontoglossum hunnewellianum* Rolfe demonstrating the low level of variation in the species.



Odontoglossum hunnewellianum Rolfe.

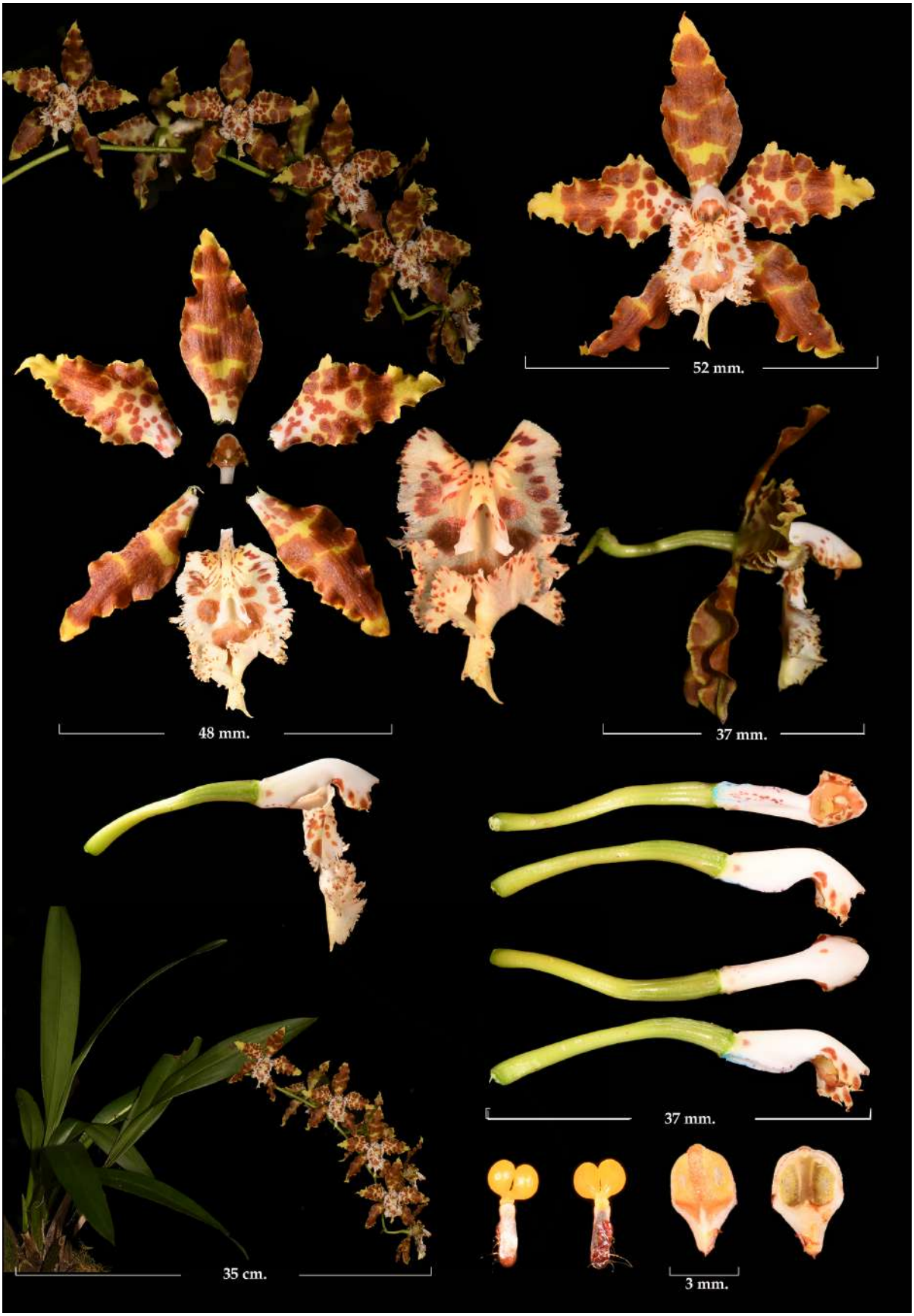


Icon made by senior author from original plant discovered by senior author. Icon published originally in Dalström, Stig, W. E. Higgins and G. Deburghgraeve. 2020. The *Odontoglossum* Story. Koeltz Boranical Books. Kapellenbergstr. 75 DE- 61389 Oberreifenberg.

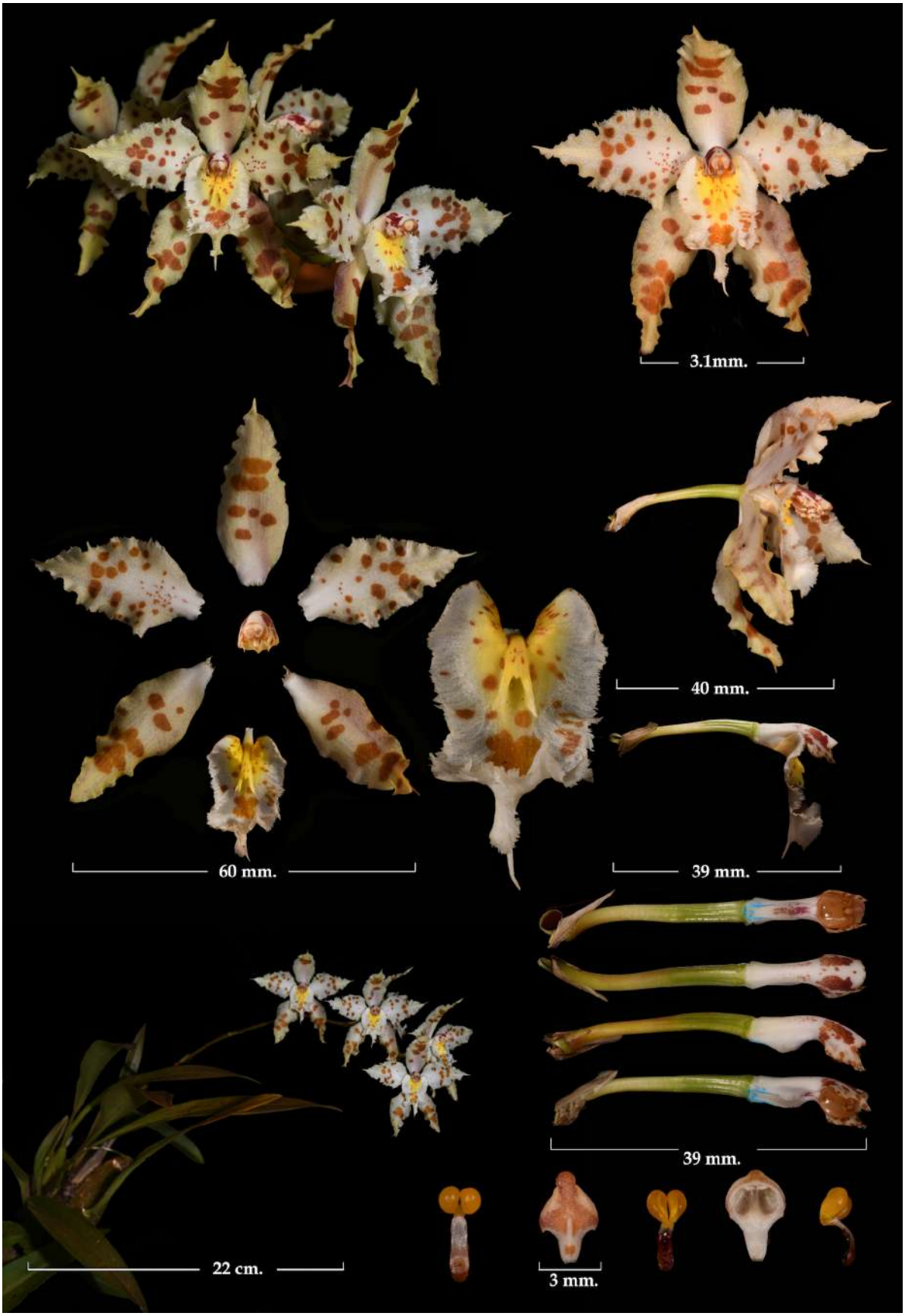
Odontoglossum hunnewellianum Rolfe in natural habitat. Photograph by Juan G. Saldarriaga.

Odontoglossum hunnewellianum Rolfe in natural habitat. Photographs by Juan G. Saldarriaga.

Odontoglossum x adrianae L. Linden, the natural hybrid of *O. crispum* and *O. hunnewellianum*.



Odontoglossum x adrianae L. Linden.



Odontoglossum x adrianae L. Linden.

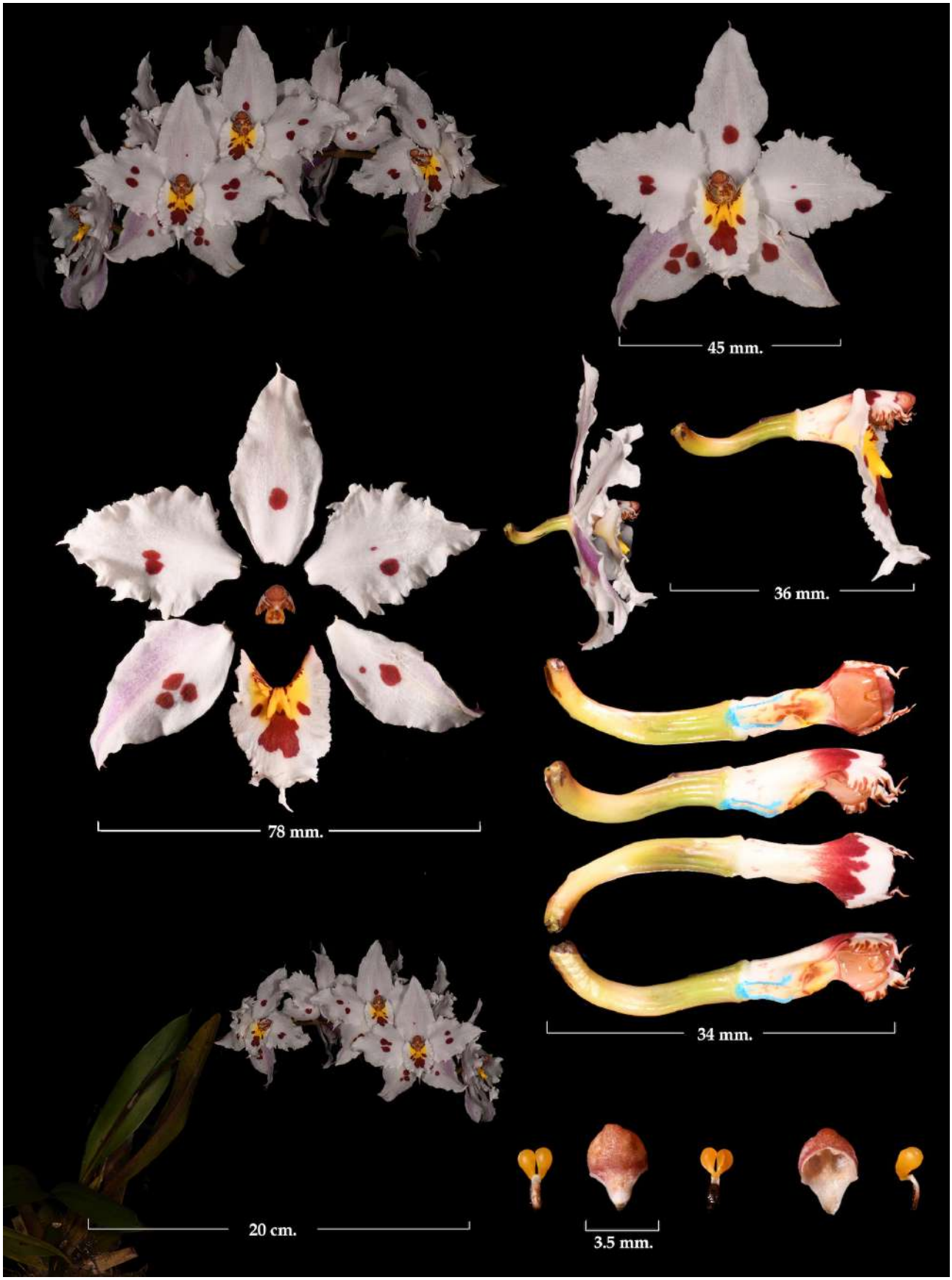
Odontoglossum hunnewellianum forma *citrinum*

Odontoglossum hunnewellianum

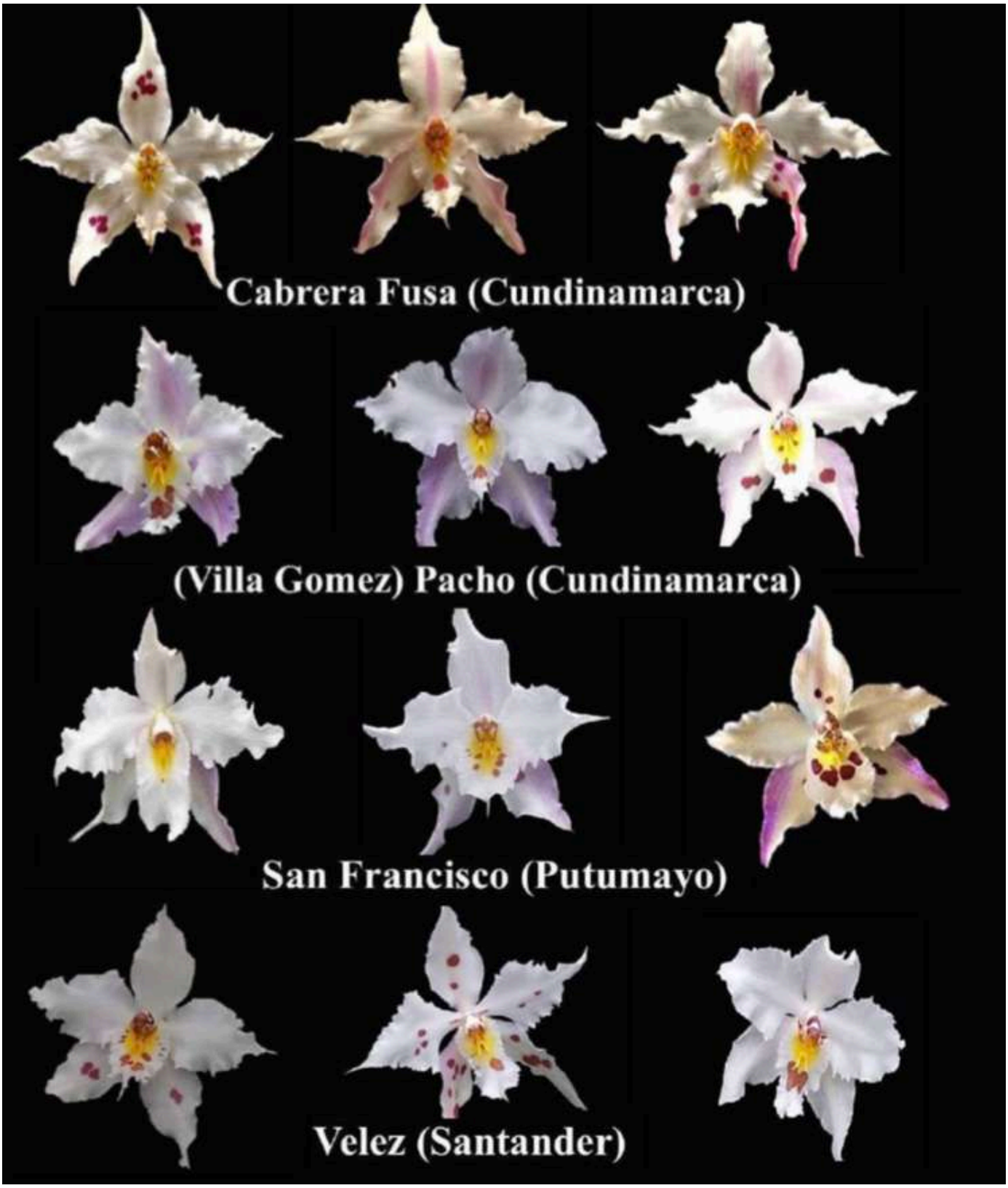
Odontoglossum crispum

Odontoglossum x adrianae

Odontoglossum x adrianae



Odontoglossum crispum Lindl. sympatric with *Odontoglossum hunnewellianum*.



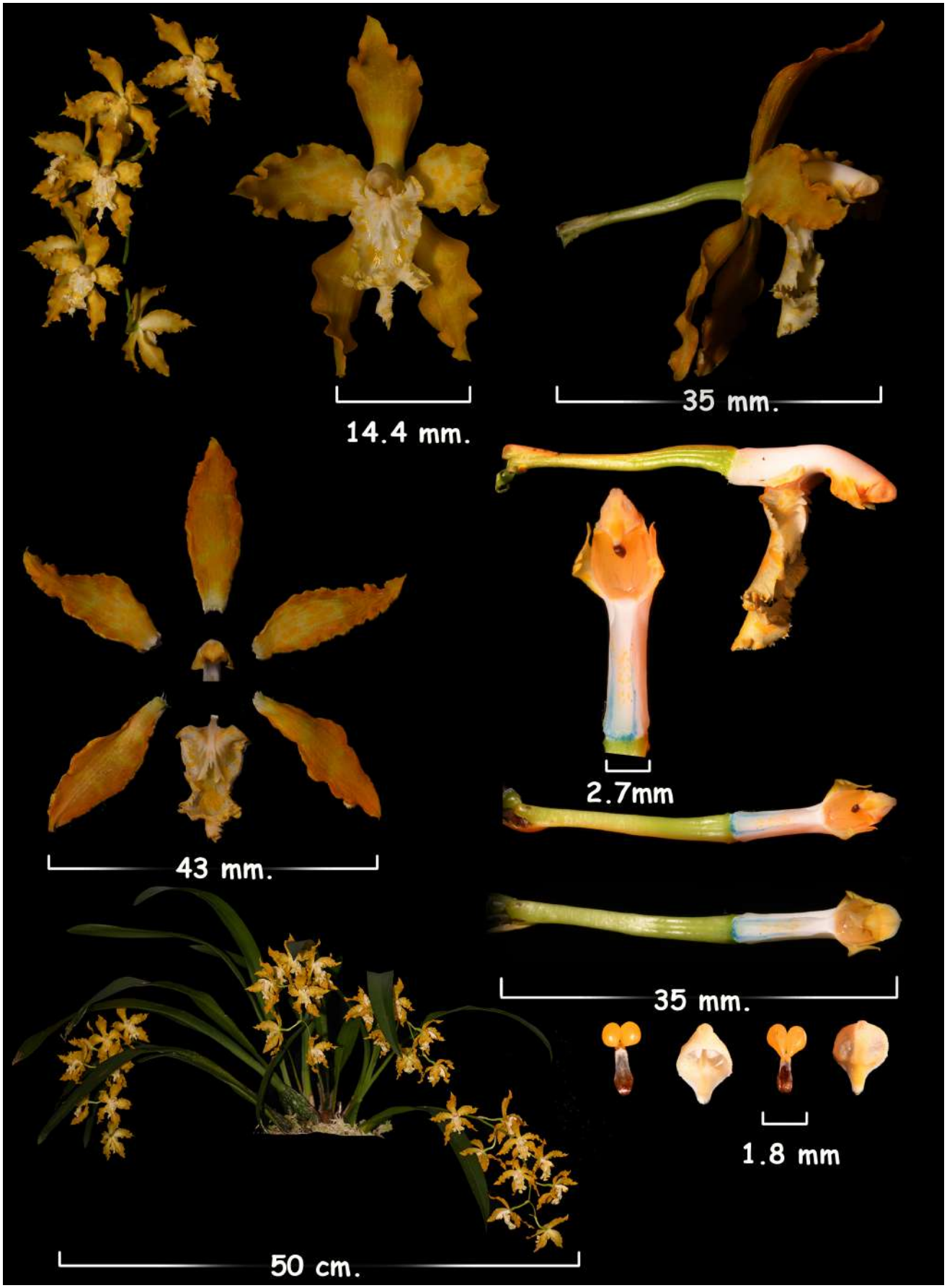
Variation in *Odontoglossum crispum* Lindl. From Cabal Torrente, Julian, Sauleda, R. & Saldarriaga, J. 2021. A Comparative Analysis of Four Populations of *Odontoglossum crispum* Lindl. in Colombia. New World Orchidaceae, Nomenclatural Note, Issue no. 94.

Photograph of the senior author, second from left, with Jose Alexander Castillo on his left and the members of the second group.

Original plant of *Odontoglossum hunnewellianum* Rolfe discovered in yard of casa campesina.

Odontoglossum hunnewellianum forma *citrinum* Uribe-Velez & Sauleda.

Odontoglossum hunnewellianum forma *citrinum* Uribe-Velez & Sauleda.



Odontoglossum hunnewellianum forma *citrinum* Uribe-Velez & Sauleda.

Literature Cited

"New Garden Plants of the Year 1915. Bulletin of Miscellaneous Information (Royal Botanic Gardens, Kew), vol. 1916, [Royal Botanic Gardens, Kew, Springer], 1916, pp. 53–72, http://www.jstor.org/stable/4115434.

Abbott, R. J., Barton, N. H., and J. M. Good. 2013. Hybridization and speciation. J. Evol. Biol. 26: 229–246.

Anderson, E., and L. Hubricht. 1938. Hybridization in Tradescantia. The evidence for introgressive hybridization. Am. J. Bot. 25: 396–402.

Baack, Eric J. and L. H. Rieseberg. 2007. A genomic view of introgression and hybrid speciation. Curr. Opin. Genet. Dev. 17(6): 513–518.

Cabal Torrente, Julian, Sauleda, R. and Saldarriaga, J. 2021. A Comparative Analysis of Four Populations of *Odontoglossum crispum* Lindl. in Colombia. New World Orchidaceae, Nomenclatural Note, Issue no. 94. ePublished.

Chase, M. W., N. H. Williams, K. M. Neubig & W. M. Whitten. 2008. Taxonomic transfers in *Oncidiinae* to accord with Genera orchidacearum, vol. 5. Lindleyana 21(3), in Orchids (West Palm Beach) 77(12): 20-31.

Dalström, Stig. 2018a. *Odontoglossum* vs. *Oncidium*. The International *Odontoglossum* Alliance Newsletter. Summer 2018.

Dalström, Stig. 2018b. *Odontoglossum hunnewellianum* finally re-discovered. The International *Odontoglossum* Alliance Newsletter. Fall/Winter 2018,

Dalström, Stig. 2019. *Odontoglossum luteopurpureum*, alias *Odontoglossum sceptrum*. The International *Odontoglossum* Alliance Newsletter. Fall/Winter 2019.

Dalström, Stig, W. E. Higgins and G. Deburghgraeve. 2020. The *Odontoglossum* Story. Koeltz Boranical Books. Kapellenbergstr. 75 DE- 61389 Oberreifenberg.

Kolanowska, M. and D. L. Szlanchetko. 2016. Problems with generic delimitation in the *Odontoglossum* complex (Orchidaceae, *Oncidiinae*) and an attempt for a solution. Plant Syst. Evol. (2016) 302: 203-217.

Mallet, J. 2005. Hybridization as an invasion of the genome. Trends Ecol. Evol. 20: 229–237.

Martinsen, G. D., T. G. Whitham, R. J. Turek, and P. Keim. 2001. Hybrid populations selectively filter gene introgression between species. Evolution 55: 1325–1335.

Neubig, K. M., Whitten, W. M., Williams, N. H., Blanco, M. A., Endara, L., Burleigh, J. G., Silvera, K., Cushman, J. C. and Chase, M. W. 2012. Generic recircumscriptions of *Oncidiinae* (Orchidaceae: *Cymbidieae*) based on maximum likelihood analysis of combined DNA datasets. Bot. J. Linn. Soc. 168:117–146.

Rolfe, R. A. 1889. *Odontoglossum hunnewellianum*. New or Noteworthy Plants. Gard. Chron. 3 (6): 67.

Rolfe, R. A. 1898. *Odontoglossum x pauwelsianum.* Orchids at Ghent. Orchid Rev. 6 (65): 137–142.

Rolfe, R. A. 1907. *Odontoglossum x adrianae*. Orchid Rev. 15(171): 93.