

Orchid Research Newsletter No. 74

July 2019

Editorial

The 7th International Orchid Conservation Congress was held at Kew recently (28 May – 1 June 2019). Orchid researchers from all over the world swarmed to the Jodrell Laboratory to give a talk, to present a poster or to attend the lecture programme. There were hundreds of delegates, all with a more than common interest in orchids and their protection. They may have had very different cultural backgrounds, different mother tongues, different diets and different tastes in music, but they all shared a passion for orchids, and not a few had made it their life's mission to study them and to work for their conservation.

Orchid conservation is a truly multidisciplinary subject, as was apparent from the lecture topics, which ranged from the establishment of orchid reserves in the Andes, propagation and reintroduction of threatened species, studies on ecology and pollination, to mycorrhizal relationships, evolutionary biology and molecular analyses. You need a lot of information to effectively protect orchids. I thoroughly enjoyed the Congress, and, from what I've heard, so did most of the attendees.

At the same time, I couldn't help wondering what a complete outsider would make of this. For most people, an orchid is a kind of flower, and that is about the extent of their knowledge. How do you convince the average person that it is worth protecting orchids from extinction, often at considerable cost?

One thing we shouldn't do, as scientists, is to advance arguments that we know are false. Sooner or later this will be found out and then our credibility is gone. For example, we shouldn't say (as one often hears from well-meaning conservationists): 'This orchid is part of a complex ecosystem; if we take away this part the whole system might collapse.' That is most unlikely. Where orchid species have become locally extinct through over-collecting, but where the habitat is otherwise intact, we do not see big changes in the ecosystem. Most orchids are not that important. Sorry.

We also shouldn't make monetary arguments that are obviously unrealistic—for example, by claiming, 'Orchid X costs \$30 when you buy it from a nursery, therefore a population of 100,000 individuals in a forest is worth \$3000,000.' Imagine the owners of the forest deciding to collect all these orchids and putting them up for sale, in the belief that they will make \$3000,000. They would be in for a big disappointment. It may be possible to put a monetary value on an orchid population, but it isn't as simple as this. Avoid arguments that are easily shot down.

On the other hand, opponents of conservation will also make spurious arguments. They will say, 'Why spend such an amount on protecting flowers when we can use the money to buy new equipment for the local children's hospital?' This kind of argument is common and can be heard in many variations. At its core it comes down to creating a false dilemma. Governments spend their money on thousands of things; there is no direct choice between orchid protection and the children's hospital funding, in the sense that the latter can't happen because we choose to do the former.

The main barrier to acceptance of conservation measures is probably lack of awareness (the word 'ignorance' is best avoided). Most people just do not realize that some plants are more special than others. They probably know that a giant panda is more special and more in need of protection than a rabbit but they have no idea that

the same can be true of plants. Raising this awareness is one of the best things we can do, and it should be easy for us, because we are all passionate about orchids. This enthusiasm shines through and causes people to pay attention. It is much like learning to appreciate great art. The connoisseurs set the example for the rest of the population and if they have a good narrative they are listened to. Just as people in the late nineteenth century may have looked at a Monet in a shop window without thinking it was anything special, it takes the guiding hand of an expert to learn to recognize and appreciate Nature's masterpieces. Orchids are among Nature's masterpieces; I think we can agree on that.

Orchid amateurs and collectors should be and can be our allies. They are often vilified by conservationists, because some of them drive the illegal trade in endangered species. I have met many amateurs and there are very few who are not strongly in favour of conservation. Propagating orchids and making them available at modest prices will undermine the illegal trade more surely than bans that keep species rare in the wild as well as in cultivation. When a species is thriving in hundreds or even thousands of amateur collections all over the world it is clearly less at risk of complete extinction than when it is only found in one or two poorly protected sites in nature. Sustainable harvesting of seed from the wild by certified nurseries in the countries of origin could easily satisfy global demand, given that orchids can produce thousands of seeds in a single fruit.

There are lots of good arguments in favour of orchid conservation. One I like to use is that orchids are in general indicators of rich and fragile habitats. If you want to protect the orchids in situ you need to protect their habitats, and by doing so you protect thousands of other species as well. These may not depend directly on the orchids for their survival, but they share their dependence on a special and often visually attractive ecosystem. One thing is certain: orchids look at their best in their natural surroundings.

André Schuiteman
a.schuiteman@kew.org
Kew



Dendrobium gratiosissimum in Laos, an increasingly rare sight (photo André Schuiteman)

Upcoming Conferences

We welcome any news about future orchid conferences for promotion here. Please send details to the editor as far in advance of the event as possible, remembering that the *Orchid Research Newsletter* is published only in January and July of each year.

The **International Orchid Conference & Workshops for Young Scientists** will be held in the Environmental Field Station at Spała Village (Poland) from 24 to 28 September 2019. This event is addressed to young researchers studying various aspects of biology and ecology of Orchidaceae—students, doctoral students and researchers who received the doctoral degree in the last three years. We expect that during the conference about 25–30 oral presentations will be delivered. Additionally, it is planned to display 30 posters prepared by young scientists.

Workshops on 24–25 September will be hosted by Philip Seaton (Orchid Seed Science And Sustainable Use, UK), Dennis Whigham (Smithsonian Environmental Research Center, USA), Tiiu Kull (Institute of Agricultural and Environmental Sciences, Estonia), Raymond Tremblay (University of Puerto Rico-Humacao, Puerto Rico), and Spyros Tsiftsis (Eastern Macedonia & Thrace Institute of Technology, Greece).

We believe that for young researchers this will be an opportunity to exchange experiences and establish a long-term cooperation. For more information please visit our website www.iocw2019.com or Facebook profile (@OrchidConference). All abstracts must be submitted by May 30, 2019.

Marta Kolanowska

Jobs

We will be happy to announce job opportunities, provided they explicitly involve orchid research or conservation. Please send details to the editor.

Funding Opportunities

We will be happy to announce funding opportunities, provided they explicitly involve orchid research or conservation. Please send details to the editor.

The **American Orchid Society** is soliciting grant proposals for orchid research. Deadline is 1 March of each year. For application instructions see <http://www.aos.org/about-us/orchid-research/application-guidelines.aspx>

News from Correspondents

Please submit any news about recently completed research, future research plans and needs, change of address, upcoming or recent fieldwork, etc. to the editor. Graduate students are especially encouraged to share the subjects of their thesis or dissertation with the international community.

Obituaries

Jeffrey James Wood (1952–2019)

We last saw Jeffrey on 6 November 2018, when he visited Kew to meet Dudley Clayton, Datuk Chan Chew Lun and us. By then he had been living in retirement in Bristol for six years and had become an infrequent visitor to the place where he had worked for 42 years, the Herbarium at the Royal Botanic Gardens, Kew. There was no indication of poor health on that day in November, and his death on 2 February this year from complications following a flu-like infection came out of the blue to us, his former colleagues.

Jeffrey Wood was one of the foremost orchid taxonomists of his generation. His knowledge of the orchids of tropical Asia was unsurpassed and he was a prolific author of authoritative accounts of the orchids of the region. He was also the Chief Editor of the first ten volumes of the *Malesian Orchid Journal* (2008–2012).

His fascination with plants can be traced back to his childhood where, as an only child, he developed a passion for gardening and an excellent knowledge of garden plants and of the native British flora. With this background his choice of career was clearly preordained and, on leaving school at 18, Jeffrey immediately joined the staff of the Natural History Museum. A year later he transferred to the staff of the Royal Botanic Gardens, Kew, as assistant scientific officer in the Orchid Herbarium where he remained for the rest of his working life. He initially worked for Peter Hunt (1971), then Peter Taylor (1972–1985) and finally for Phillip Cribb (1985–2006), eventually succeeding the latter as the sixth curator of the Orchid Herbarium until his retirement in 2012.

His knowledge of the European orchid flora encouraged Desmond Meikle, a senior colleague, to ask Jeffrey to author the orchid account for his *Flora of Cyprus* (1977, 1985). His treatment of Cypriot orchids remains the most authoritative of the many subsequent accounts of this rich assemblage of orchids where recognising dozens of micro-species has become a major hobby.

Jeffrey's knowledge of tropical Asiatic orchids was encouraged early in his career by Eric Holttum, formerly Director of the Singapore Botanic Gardens and Professor at the University of Malaya (now National University of Singapore) before his retirement to Kew. He could not have chosen a better teacher because Holttum had written an influential account of the *Orchids of Malaya* (1953, second edition 1957, third edition 1964) and, with Eric Laycock, co-founded the Singapore orchid industry by hybridising native species and introducing modern propagation methods to the region.

In 1976, Jeffrey joined Martin Sands, a senior colleague and Begonia specialist, on a tough three-month expedition to Manus island and New Ireland in Papua New Guinea. The fine collections from these remote and previously almost unexplored islands now grace the Kew Herbarium. They include many novelties, a number of which were described as new to science by Jeffrey. Later expeditions, in

Sumatra with Jim Comber and in Borneo with Tony Lamb and Andrew Bacon, enhanced his already substantial knowledge of the orchids of the region. He worked closely with Gunnar Seidenfaden, the eminent Danish diplomat and botanist, and collaborated with him on the substantial *The Orchids of Peninsular Malaysia and Singapore* (Olsen & Olsen, Copenhagen, 1992).

On his visits to Sabah he met the naturalist and publisher Chan Chew Lun who became a close friend and supported Jeffrey's work for many years. He also began a lengthy collaboration with Tony Lamb and Professor John Beaman, then seconded from his university in Michigan to the Universiti Kebangsaan Malaysia (Sabah Campus) in Kota Kinabalu. John started his monumental account of *The Plants of Mount Kinabalu* and Jeffrey co-authored the orchid account (Wood, J.J., Beaman, R.S. & Beaman, J.H. 1993. Royal Botanic Gardens, Kew). This was eventually expanded into the magnificently illustrated two-volume account of the mountain's 850 or so orchid species for which he was the lead author (Wood, J.J., Beaman T.E., Lamb, A., Chan, C.L. & Beaman J.H. 2011. *The Orchids of Mount Kinabalu*. Natural History Publications (Borneo), Kota Kinabalu), which was brought out by Chan Chew Lun's publishing house.

In this productive period, Jeffrey co-authored *A Checklist of the Orchids of Borneo* (Wood, J.J. & Cribb, P.J. 1994. Royal Botanic Gardens, Kew). This was followed shortly afterwards by a further collaboration for *The Orchids of Sarawak* (Beaman, T.S., Wood, J.J., Beaman, R.S. & Beaman, J.H. 2001. Natural History Publications (Borneo), Kota Kinabalu & Royal Botanic Gardens, Kew), another well-illustrated and authoritative work.

Jeffrey was a major contributor to the four-volume series, *Orchids of Borneo*, where individual species were considered in detail (1991–2003. The Sabah Society, Kota Kinabalu and Royal Botanic Gardens, Kew). One of his most impressive works is his *Dendrochilum of Borneo* (2001. Natural History Publications (Borneo) in association with The Royal Botanic Gardens, Kew), a thorough and lavishly illustrated revision of 81 species, most of which were poorly known or even undescribed.

In 2004, Chan Chew Lun invited Jeffrey to be the Chief Editor for *Malesian Orchid Journal*, a new journal devoted to the orchids of Southeast Asia, especially the phytogeographical region known as Malesia. Jeffrey accepted and edited the first 10 volumes to a high standard.

His interest in British, European and Mediterranean orchids continued throughout this period, sustained by annual holidays in southern France and elsewhere in the Mediterranean where he could indulge his passion for plants and plant hunting. For many years he was the Botanical Society of the British Isles orchid specialist, identifying member's discoveries and responding to queries.

After his early collecting trips in several tropical countries, Jeffrey was no longer keen on long-distance travelling and he never became part of the conference circuit. He disliked lecturing or public speaking, although on the rare occasions when

he was more or less forced to do so he did it well. An intensely private person, he could make a stern impression on casual contact. In fact, he was kind and helpful if you came to know him better.

At Kew, he was the Health and Safety representative in the 1990s before taking over responsibility for the team mounting herbarium specimens. In 2006, he became the sixth curator of the orchid herbarium in 126 years, following in the footsteps, amongst others, of Robert Rolfe, founder of the *Orchid Review* and of the *Orchid Stud Book*, and Victor Summerhayes, whose writings on orchids have stimulated generations of British orchid enthusiasts.

As he approached his retirement, he received the Orchid Society of South-East Asia's fellowship and medal for his work on South-East Asian orchids, an award richly merited.

Jeffrey retired to Bristol in 2012 but continued to visit Kew regularly to work on *Dendrobium of Borneo*, a splendid 958-page tome, his swan song, which was finally published in 2014, two years after his retirement. Thereafter, he indulged in his passion for gardening and travel, enjoying classical music, albeit far too briefly. His increasingly rare trips to London were to meet up with his old friends from Southeast Asia when they visited Kew and former colleagues. His contribution to our knowledge of Asiatic orchids has been most substantial and he will be sorely missed by his friends and colleagues.

Phillip Cribb and André Schuiteman



Jeffrey Wood (photo Chan Chew Lun)

William Mark Whitten (1954–2019)

A friend and colleague to many of us, Mark Whitten passed away suddenly on 11 April 2019. The shock of his unexpected death is still echoing around the world, leaving a gap in our daily lives that cannot be filled. When he arrived for work in the morning, he was always looking forward to the new day with new possibilities and opportunities, whether it was in the laboratory to retrieve overnight DNA readouts for new genealogical trees or in the field to collect herbarium specimens or work with euglossine bees. He left behind a substantial body of work in systematics and pollination biology—more than a hundred papers plus manuscript reviews, grant proposals, and conference talks. His wry sense of humor complemented a quiet, easygoing, humble demeanor that facilitated research collaboration with absolutely anyone on plants or animals. To a person, they all found him giving and helpful, whether it was in the lab or mentoring students or leading field trips. He never sought the limelight and preferred to work quietly in the background.

Mark was born on 20 October 1954, in Memphis, Tennessee. He graduated from Bishop Byrne High School there in 1972 and then from Thomas More College in Covington, Kentucky, in 1976 with a bachelor's degree in biology. While in college he sampled phytoplankton in the Ohio River as a consultant to several environmental companies. He received his master's degree in botany from the University of Tennessee at Knoxville in 1979 with a thesis on the pollination biology of *Monarda* (Lamiaceae) species and hybrids in the southern Appalachian Mountains. It is not known when he decided to make the fateful switch to pollination biology of orchids, but he chose to work with Norris Williams, then at Florida State University, on euglossine bee-pollinated orchids, mostly in Stanhopeinae and Catasetinae beginning in 1979. Norris's other Ph.D. students at the time were James Ackerman, John Atwood, and me along with two master's candidates, Gilbert Newton and Karen Fritze. When Norris moved to the Florida Museum of Natural History at the University of Florida in Gainesville in 1981, Mark transferred there and spent a summer as a student intern at Marie Selby Botanical Gardens in the Orchid Identification Center. His dissertation in 1985 was titled 'Variation in floral fragrances and pollinators in the *Gongora quinquenervis* complex (Orchidaceae) in central Panama.' In addition to Norris, he received valuable guidance on that subject and so many others from Robert L. Dressler (Panama) and Calaway Dodson (Ecuador and Marie Selby Botanical Gardens); that triumvirate along with David Roubik of the Smithsonian Tropical Research Institute in Panama were then leading virtually all work on euglossine bees and the flowers they pollinate. Mark collaborated with them and later expanded their work with others to include osmophores, floral fragrance components, flight-cage experiments, and bee anatomy.

Exciting new developments in DNA sequencing in the 1990s led Mark into orchid systematics, first using nuclear ribosomal ITS and the plastid gene *rbcL* and then other plastid markers that he adapted for use on orchids. He learned DNA techniques in the laboratory of Mark Chase, first at the University of North Carolina and subsequently in the Molecular Systematics Laboratory at the Royal Botanic Gardens, Kew. The two Marks collaborated on a number of subsequent molecular projects.

He managed the molecular lab in the Herbarium and collaborated with researchers throughout the orchid community on systematics papers involving

Laeliinae, Stanhopeinae, Oncidiinae, Arethuseae, Angraecinae, Zygopetalinae, Vandae, Pleurothallidinae, Sobralieae, Spiranthinae, and particularly Maxillariinae for which he wrote most of the generic treatments for volume 5 of *Genera Orchidacearum*. Mark is commemorated in four binomials: *Epidendrum whittenii* Hágsater & Dodson, *Lepanthes whittenii* Pupulin & Bogarín, *Maxillaria whittenii* Dodson, and *Stanhopea whittenii* Soto Arenas, Salazar & G.Gerlach. He co-authored the genera *Brasilocynis* and *Nohawilliamsia*, a subgenus of *Houlletia*, 22 species, and one variety. His expertise in sequencing and his willingness to help everyone extended to other plant taxa such as Polygalaceae, Malvaceae, Ericaceae, Melastomataceae, Melanthyaceae, Zingiberaceae, the aquatic fern *Marsilea*, mammals (a study of retrieving DNA from small bones of dried specimens), and crassulacean acid metabolism. In fall 2013, Mark started a project to build a comprehensive species list and DNA-barcode plants in the Ordway-Swisher Biological Station in Florida, along with Kurt Neubig and Lucas Majure.

Always looking for new horizons, Mark joined the Laboratory of Molecular Systematics and Evolutionary Genetics at the Museum in 2015 and was deeply involved in their National Science Foundation grant to determine how historical constraints, local adaptation, and species interactions shape biodiversity across the ancient floristic disjunction between southeast China and the eastern United States. He led the field work and sampling and was also active in the lab. Mark had an enormous impact in the Soltis lab beyond that one project. He took undergraduates, graduate students, and visitors into the field, collected samples requested by colleagues in labs around the world, worked in the greenhouse, gave sage advice to students, and developed new methods for the isolation of high-molecular-weight DNA. He seemed to be everywhere. Mark had also recently begun a floristics project at the Etoniah Creek State Forest and was there at least once every week. He was never happier than when he was out collecting plants and building our knowledge of biodiversity.

Mark had recently been honored for 25 years of service as a research scientist in the Florida Museum. Doug Soltis said, 'One thing we will treasure is that he often said the last five years working in the lab had rejuvenated him and made him very happy, that he was not yet ready to retire.' On the other side of the building, Lucas Majure (Assistant Curator of the Herbarium) said what all who knew Mark are thinking: 'He made the herbarium an incredibly happy and loving place to work. He will be greatly missed and is irreplaceable.'

I thank Doug and Pam Soltis, Lucas Majure, Kent Perkins, Lorena Endara, Mark Chase, Norris Williams, and Mark's brother Michael and sister-in-law Sherry for their help in remembering him and his manifold contributions to science.

Alec Pridgeon



Mark Whitten (photo Lorena Endara)

Review

Kreutz, K. 2019. *Orchideeën van de Benelux*. 2 vols, 1295 pp. Kreutz Publishers, Sint Geertruid. ISBN 978-90-806626-8-1. In Dutch. Price €19. The book can be ordered from the author at karel.kreutz@naturalis.nl.

The Benelux is formed by the three small countries of Belgium, the Netherlands and Luxemburg, also known as the Low Countries. The first two are among the most thoroughly botanized in the world (Luxemburg less so); their floras are known in great detail, and there is ample historical documentation. Not surprisingly, many of the orchid species occurring in this densely populated part of north-western Europe are quite rare. Growing up in the Netherlands, it was often a source of frustration for me that most good orchid sites were inaccessible because you needed special permits to enter. The reader of this book, impressed by photos of fields full of orchids, should realize that most are surrounded by barbed wire or are at least situated behind signs that say *verboden toegang* ('no trespassing'), or the equivalent in French.

About 65 orchid species occur or occurred in the Benelux, according to the author, Karel Kreutz, a well-known specialist of European orchids. Ten of these are extinct, although they still occur elsewhere in Europe. A few others are doubtfully native, and some are clearly not indigenous, including two North American *Spiranthes* species that in recent years have escaped from cultivation and have the potential to develop into invasive species. I would agree with those who argue for removing them from uncultivated sites.

All species are documented with numerous excellent photographs made in situ, demonstrating the range of variation of the species while also giving a good impression of their habitat. The text focusses on recognition, habitat and site information for each of the three countries, with detailed discussions of historical observations, often with images of old herbarium specimens. Every species is also illustrated with a fine watercolour by Wolfgang Plecher, whose name is somewhat hidden in the text but should have been stated in a more prominent place.

It is unfortunate, in my opinion, that the author has decided not to follow *Genera Orchidacearum*, but has adopted a classification where, for example, *Anacamptis* has been split in five genera (*Anacamptis*, *Anteriorchis*, *Herorchis*, *Paludorchis*, and *Vermeulenia*, the last not occurring in the Benelux), which I consider pointless. It is a serious omission that the more widely accepted names under *Anacamptis* are not even mentioned.

The author recognizes a large number of varieties and some subspecies. These infraspecific taxa are in many cases hard to identify and one wonders if several of these taxa were worth naming in the first place. For example, in *Liparis loeselii* there is a variety *ovata* which is said to be distinguished by the very wide, obtuse leaves. But when I compare the lower photo on p. 872 (var. *loeselii*) with the one on p. 879 (var. *ovata*) I fail to see any difference worth mentioning.

These criticisms apart, this is by far the most thorough book on the orchids of the Low Countries ever published and it is likely to remain the best reference for a long time to come. The standard of production is excellent and even if you can't read Dutch it is a pleasure to see so many photos of plants in habitats that are inaccessible without permits. At least now I know what is behind some of those *verboden toegang* signs.

André Schuiteman

Correction

Grünanger, P. and Hennecke, M. 2018. *Bibliography of European and Mediterranean Orchids. 3rd Supplement, 2002–2015*. 256 pp. GIROS Orchidee Spontanee d'Europa—European Native Orchids, Supplemento—Special Issue 1 (2018). ISSN 2281-6437. Price €25. Available from: Int. Bookseller Andreas Kleinsteuber, Weißdornweg 35, D-76149 Karlsruhe, Germany.

The price was incorrectly listed as €35 in the previous issue of the ORN.

Recent Orchid Nomenclature

New orchid names may be retrieved from the IPNI website: <http://www.ipni.org/ipni/plantnamesearchpage.do>. Click on 'Show additional search terms' on the right-hand side of the screen. After the search page appears, type in **Orchidaceae** under family name and (for example) **2010-11-30** under 'Record date' and 'Added since.' This will pull up a list of all names added to the IPNI database since 30 November 2010. Also be sure to check the World Checklist of Selected Plant Families (<http://apps.kew.org/wcsp/>) for accepted names and synonyms as well as for building your own checklists.

Recent Literature

If you are aware of any relevant citations published between July 2018 and June 2019 not listed here or in the previous issue, please send them—in the exact style below—to the editor for publication in the next issue (January 2020). Write 'ORN references' in the subject line of the email. Book citations should include author(s), year of publication, title, publisher, and place of publication (in that order). Journal titles should be spelled out in full.

Anatomy and morphology

Filimonova, E. I., Lukina, N. V., Glazyrina, M. A., Borisova, G. G., Maleva, M. G., and Chukina, N. V. 2019. Endangered orchid plant *Epipactis atrorubens* on serpentine and granite outcrops of Middle Urals, Russia: A comparative morphophysiological study. *AIP Conference Proceedings* 2063: art. 040016 (doi: 10.1063/1.5087348).

Gurudeva, M. R. 2018. Ontogeny of microsporangium and development of male gametophyte in *Peristylus plantagineus* Lindl. *Journal of the Orchid Society of India* 32: 1–8.

Gurudeva, M. R. 2018. Ontogeny of microsporangium and development of male gametophyte in *Bulbophyllum fimbriatum* (Lindl.) Reichb. f. (= *Cirrhopetalum fimbriatum* Lindl.). *Journal of the Orchid Society of India* 32: 67–72.

Janeczko, C., Martelli, C., Canning, J., and Dutra, G. 2019. Assessment of orchid surfaces using top-down contact angle mapping. *IEEE Access* 7: 31364–31375 (doi: 10.1109/ACCESS.2019.2902730).

Jose, L. and Thomas, A. 2018. Morphological and anatomical studies in *Oberonia tenuis* Lindl. *Journal of the Orchid Society of India* 32: 63–65.

Kasutjianingati, K. and Firgiyanto, R. 2018. Characterization of morphology from orchid *Vanda* sp. as a genetic information source for preservation and agribusiness of orchids in Indonesia. *IOP Conference Series: Earth and Environmental Science* 207: art. 012006 (doi: 10.1088/1755-1315/207/1/012006).

Ketjarun, K., Traiperm, P., Suddee, S., Watthana, S., and Gale, S. W. 2019. Labellar anatomy of the *Nervilia plicata* complex (Orchidaceae: Epidendroideae) in tropical Asia. *Kew Bulletin* 74(1): art. 1 (doi: 10.1007/s12225-018-9788-8).

Kolomeitseva, G. L., Ryabchenko, A. S., and Babosha, A. V. 2019. The first stages of *Liparis parviflora* (Orchidaceae) embryogenesis. *Russian Journal of Developmental Biology* 50(3): 136–145 (doi: 10.1134/S1062360419030032).

Li, Y. Y., Meng, Z. X., Zhang, Y., Guo, S. X., and Lee, Y. I. 2019. Embryology of *Anoectochilus roxburghii*: seed and embryo development. *Botanical Studies* 60(1): art. 6 (doi: 10.1186/s40529-019-0254-1).

Ramudu, J. and Khasim, S. M. 2018. Root anatomical studies in some species of Coelogyneae (Orchidaceae) with reference to ecological adaptations. *Journal of the Orchid Society of India* 32: 33–39.

Ruiz de Gopegui, J. A., Lueders, U. R., and Garcia, L. 2018. Morphological notes on *Dactylorhiza cantabrica*, a fertile hybrid of *D. insularis* × *sambucina* from Palencia, Spain. *Journal Europäischer Orchideen* 50(2–4): 345–366.

Verma, J., Thakur, K., Kusum, Sembi, J. K., and Pathak, P. 2018. Leaf micromorphology of some *Habenaria* Willd. *sensu lato* (Orchidaceae) species from western Himalaya. *Journal of the Orchid Society of India* 32: 103–112.

Wijaya, I. M. S., Daryono, B. S., and Purnomo. 2018. Morphological variations of terrestrial orchid *Thelymitra Javanica* Blume (Orchidaceae: Orchidoideae) in Mount Arjuno, Lawu, and Sumbing, Java – Indonesia. *Floribunda* 6(1): 22–31 (doi: 10.32556/floribunda.v6i1.2018.221).

Books

Archila, F., Szlachetko, D. L., Chiron, G., Lipinska, M., Mystkowska, K., and Bertolini, V. 2018. *Orchid Genera and Species in Guatemala*. Koeltz Botanical Books, Oberreifenberg.

Buscail, R., Dabonneville, F., Lewin, J.-M., and Nicole, M. 2019. *A la Découverte des Orchidées en Languedoc et Pays Catalan*. Biotope Editions, Mèze.

Coronado Martínez, A. and Soto Pérez, E. 2019. *Orchids of Central Spain (Cuenca Province)—A Field Guide*. Jolube Consultor Botánico y Editor, Jaca.

- Jenny, R. 2018. *The Paphinia Book*. Imprenta Mariscal, Quito.
- Kreutz, C. A. J. 2019. *Orchideeën van de Benelux*. 2 vols. Kreutz Publishers, Sint Geertruid [in Dutch].
- Kühn, R., Pedersen, H. Æ., and Cribb, P. 2019. *Field Guide to the Orchids of Europe and the Mediterranean*. Kew Publishing, Royal Botanic Gardens, Kew.
- Lafarge, D. 2019. *Phalaenopsis—Une Orchidée Méconnue*. Naturalia Publications, Turriers [in French].
- Prasad, K., Karuppusamy, S., and Pullaiah, T. 2019. *Orchids of Eastern Ghats (India)*. Scientific Publishers, Jodhpur.
- Rice, R. 2019. *Photo Intro to: Asian Bulbophyllum, Coelogyne & Dendrobium orchids (with Floristic Observations of Subtribe Coelogyneinae)*. Nature & Travel Books, Lismore, Australia.

Conservation

- Adams, P. B. 2018. Destructive effect of fire on terrestrial orchid populations at Warrandyte, Victoria. *Victorian Naturalist* 135(6): 171–177.
- De, L. C. and Pathak, P. 2018. Conservation, management, and utilization of orchid genetic resources. *Journal of the Orchid Society of India* 32: 81–91.
- Fay, M. F. 2019. Conservation des Orchidées: comment faire face aux défis du XXI^e siècle? *l'Orchidophile* 50(220): 17–24.
- Gabel, R. 2019. Dealing with CITES—A response to Harold Koopowitz's article in the Orchid Digest vol. 82-4. *Orchid Digest* 83(1): 54–59.
- Hirtz, A. 2018. Ecuador: a model system for outlining the problems of survival of orchids in the wild. *Journal of the Orchid Society of India* 32: 9–15.
- Janakiram, T. and Baskaran, V. 2018. Commercialisation and conservation aspects of orchids. *Journal of the Orchid Society of India* 32: 55–61.
- Kupec, P. and Škvareninová, L. 2019. Tourism and recreational potential in Solomon Islands exceeding the benefits of logging sector. *Public Recreation and Landscape Protection—With Sense Hand in Hand... Conference Proceeding*: 434–437.
- Löki, V., Molnár V, A., Süveges, K., Heimeier, H., Takács, A., Nagy, T., Fekete, R., Lovas-Kiss, Á, Kreutz, K. C. A. J., Sramkó, G., and Tökölyi, J. 2019. Predictors of conservation value of Turkish cemeteries: A case study using orchids. *Landscape and Urban Planning* 186: 36–44 (doi: 10.1016/j.landurbplan.2019.02.016).

Stewart, R., Zhelev, Y., and Monova-Zheleva, M. 2018. Orchis—Technology in help of botanists and foresters on both sides of the border. *Digital Presentation and Preservation of Cultural and Scientific Heritage* 8: 225–231.

Tsiftsis, S., Djordjević, V., and Tsiripidis, I. 2019. *Neottia cordata* (Orchidaceae) at its southernmost distribution border in Europe: Threat status and effectiveness of Natura 2000 Network for its conservation. *Journal for Nature Conservation* 48: 27–35 (doi: 10.1016/j.jnc.2019.01.006).

Veldman, S., Kim, S. J., van Anandel, T. R., Font, M. B., Bone, R. E., Bytebier, B., Chuba, D., Gravendeel, B., Martos, F., Mpatwa, G., Ngugi, G., Vinya, R., Wightman, N., Yokoya, K., and de Boer, H. J. 2018. Trade in Zambian edible orchids—DNA barcoding reveals the use of unexpected orchid taxa for chikanda. *Genes* 9(12): art. 595 (doi: 10.3390/genes9120595).

Wraith, J. and Pickering, C. 2019. A continental scale analysis of threats to orchids. *Biological Conservation* 234: 7–17 (doi: 10.1016/j.biocon.2019.03.015).

Cytogenetics and horticultural genetics

Bateman, R. M., Guy, J. J., Rudall, P. J., Leitch, I. J., Pellicer, J., and Leitch, A. R. 2018. Evolutionary and functional potential of ploidy increase within individual plants: Somatic ploidy mapping of the complex labellum of sexually deceptive bee orchids. *Annals of Botany* 122(1): 133–150 (doi: 10.1093/aob/mcy048) [*Ophrys*].

Choopeng, S., Te-Chato, S., and Khawnium, T. 2019. Effect of colchicine on survival rate and ploidy level of hybrid between *Dendrobium* Santana × *D. friedericksianum* orchid. *International Journal of Agricultural Technology* 15(2): 249–260.

Huy, N. P., Tam, D. T. T., Luan, V. Q., Tung, H. T., Hien, V. T., Ngan, H. T. M., Duy, P. N., and Nhut, D. T. 2019. In vitro polyploid induction of *Paphiopedilum villosum* using colchicine. *Scientia Horticulturae* 252: 283–290 (doi: 10.1016/j.scienta.2019.03.063).

Pintajam, P., Bundithya, W., and Potapohn, N. 2018. Intraspecific and interspecific crossability of some *Eulophia* species. *Maejo International Journal of Science and Technology* 12(3): 241–250.

Sharma, S. K., Yamamoto, M., and Mukai, Y. 2018. Delineation of methylation and histone modification: the epigenetic regulatory marks show slightly altered distribution with the elevation in ploidy level in the orchid *Dendrobium nobile*. *Nucleus (India)* 61(3): 183–193 (doi: 10.1007/s13237-018-0231-1).

Ecology

Crain, B. J., Tremblay, R. L., and Ferguson, J. M. 2019. Sheltered from the storm? Population viability analysis of a rare endemic under periodic catastrophe regimes. *Population Ecology* 61(1): 74–92 (doi: 10.1002/1438-390X.1002) [*Lepanthes caritensis*].

Fardeeva, M. B. and Chizhikova, N. A. 2019. Features of spatial and temporal dynamics of tuberous orchid populations. *Contemporary Problems of Ecology* 12(1): 71–82 (doi: 10.1134/S1995425519010062) [*Dactylorhiza incarnata*, *Neottianthe cucullata*].

Fekete, R., Löki, V., Urgyán, R., Süveges, K., Lovas-Kiss, Á., Vincze, O., and Molnár, A. V. 2019. Roadside verges and cemeteries: Comparative analysis of anthropogenic orchid habitats in the Eastern Mediterranean. *Ecology and Evolution* 9(11): 6655–6664 (doi: 10.1002/ece3.5245).

Hemrová, L., Kotlínek, M., Konečná, M., Paulič, R., Jersáková, J., Těšitelová, T., Knappová, J., and Münzbergová, Z. 2019. Identification of drivers of landscape distribution of forest orchids using germination experiment and species distribution models. *Oecologia* 190(2): 411–423 (doi: 10.1007/s00442-019-04427-8) [*Cephalanthera rubra*, *Epipactis atrorubens*, *Epipactis helleborine*, *Neottia nidus-avis*].

Horth, L. 2019. Understanding the impact of plant–arthropod interactions, pollination, and canopy light on the rare orchid, small whorled pogonia (*Isotria medeoloides*). *Plant Ecology* 220(6): 563–576 (doi: 10.1007/s11258-019-00936-x).

Konowalik, K. and Kolanowska, M. 2018. Climatic niche shift and possible future spread of the invasive South African orchid *Disa bracteata* in Australia and adjacent areas. *PeerJ* 6(12): art. e6107 (doi: 10.7717/peerj.6107).

Naranjo, C., Iriondo, J. M., Riofrio, M. L., and Lara-Romero, C. 2019. Evaluating the structure of commensalistic epiphyte–phorophyte networks: A comparative perspective of biotic interactions. *AoB PLANTS* 11(2): art. plz011 (doi: 10.1093/aobpla/plz011).

Sand-Jensen, K., Jørgensen, H., and Larsen, J. R. 2019. Long-term influence of hay-cutting on plant species richness, biodiversity and soil fertility in a Danish fen. *Ecological Engineering* 134: 93–100 (doi: 10.1016/j.ecoleng.2019.05.009).

Sodjinou, K. E., Radji, R. A., Adjonou, K., Quashie, M.-I. A., Adjossou, K., Abotsi, K. E., and Kokou, K. 2019. Ecological characterization of epiphytes orchids in the meridional zone of Mount Togo. *Journal of Horticulture* 6: 252 (doi: 10.24105/2376-0354.1000252).

Ethnobotany/(Ethno)pharmacology

Auberon, F., Olatunji, O. J., Waffo-Teguo, P., Adekoya, A. E., Bonté, F., Mérillon, J. M., and Lobstein, A. 2019. New glucosyloxybenzyl 2R-benzylmalate derivatives from the undergrounds parts of *Arundina graminifolia* (Orchidaceae). *Fitoterapia* 135: 33–43 (doi: 10.1016/j.fitote.2019.03.030).

Bhattacharyya, P., Kumar, V., Grúz, J., Doležal, K., and Van Staden, J. 2019. Deciphering the phenolic acid reserves and antioxidant activity within the protocorm like bodies of *Ansellia africana*: A vulnerable medicinal orchid. *Industrial Crops and Products* 135: 21–29 (doi: 10.1016/j.indcrop.2019.03.024).

Chen, M. F., Liou, S. S., Hong, T. Y., Kao, S. T., and Liu, I. M. 2019. Gigantol has protective effects against high glucose-evoked nephrotoxicity in mouse glomerulus mesangial cells by suppressing ROS/MAPK/NF-κB signaling pathways. *Molecules* 24(1): art. 80 (doi: 10.3390/molecules24010080).

Fonge, B. A., Essomo, S. E., Bechem, T. E., Tabot, P. T., Arrey, B. D., Afanga, Y., and Assoua, E. M. 2019. Market trends and ethnobotany of orchids of Mount Cameroon. *Journal of Ethnobiology and Ethnomedicine* 15(1): art. 29 (doi: 10.1186/s13002-019-0308-1).

Liang, W., Guo, X., Nagle, D. G., Zhang, W. D., and Tian, X. H. 2019. Genus *Liparis*: A review of its traditional uses in China, phytochemistry and pharmacology. *Journal of Ethnopharmacology* 234: 154–171 (doi: 10.1016/j.jep.2019.01.021).

Prakash, B., Bais, R. T., and Sahu, R. K. 2018. Screening of antioxidant and antidepressant activity of *Vanda tessellata* leaves extract. *International Journal of Green Pharmacy* 12(4): S829–S834 (doi: 10.22377/ijgp.v12i04.2262).

Sarkar, N., Saha, B., Singh, S., and Ghosal, S. 2018. *Tropidia curculioides*[sic]: Secondary metabolites and derivatives with antimycobacterial and leishmanicidal activity. *Pharmacognosy Magazine* 14(59): S535–S538 (doi: 10.4103/pm.pm_196_18).

Singh, D. R., Pamarthi, R. K., Kumar, R., Rai, D., Meitei, A. L., and Babu, P. K. 2019. Traditional artifacts from dried leaves of *Cymbidium* species (Orchidaceae) in Indian state of Sikkim. *Indian Journal of Traditional Knowledge* 18(2): 390–394.

Yang, G., Zeng, X., Li, J., Leung, C. K., Zhang, D., Hong, S., He, Y., Huang, J., Li, L., and Li, Z. 2019. Protective effect of gastrodin against methamphetamine-induced autophagy in human dopaminergic neuroblastoma SH-SY5Y cells via the AKT/mTOR signaling pathway. *Neuroscience Letters* 707: art. 134287 (doi: 10.1016/j.neulet.2019.134287) [*Gastrodia elata*].

Zhang, X. Q., Zhao, T. M., Liu, J., Zhao, R. X., Zheng, S. G., Chun, Z., and Hu, Y. D. 2018. Advances in chemical compounds and pharmacological effects of *Dendrobium Caulis*. *Chinese Traditional and Herbal Drugs* 49(13): 3174–3182 (doi: 10.7501/j.issn.0253-2670.2018.13.033) [*Dendrobium* spp.].

History

Jenny, R. 2018. *Bulbophyllum imbricatum*, Justin Gillett & Carl Ludwig Ledermann. *OrchideenJournal* 25(3): 117–125.

Jenny, R. 2018. Notas sobre *Dichaea dammeriana*, Carl (Karl) Leberecht[,] Udo Dammer y Herbert Huntington Smith | Notes on *Dichaea dammeriana* and Carl (Karl) Leberecht[,] Udo Dammer y[sic] Herbert Huntington Smith *Orquideología* 35(2): 152–162.

Jenny, R. 2019. *Cypripedium guttatum* and Johann Amman. *Orchids, the Bulletin of the American Orchid Society* 88(3): 208–211.

Jenny, R. 2019. *Steveniella* and Christian von Steven. *Orchid Digest* 83(1): 24–29.

Neiryneck, R. 2018. Théodore Pauwels—vóór, tijdens en na WO1 I. *Het Venusschoentje* 39(4): 90–98.

Micropropagation/seed germination

Billore, V., Mirajkar, S. J., Suprasanna, P., and Jain, M. 2019. Gamma irradiation induced effects on in vitro shoot cultures and influence of monochromatic light regimes on irradiated shoot cultures of *Dendrobium Sonia* orchid. *Biotechnology Reports* 22: art. e00343 (doi: 10.1016/j.btre.2019.e00343).

Decruse, S. W. and Gangaprasad, A. 2018. Restoration of *Smithsonia maculata* (Dalz.) Saldanha, an endemic and vulnerable orchid of Western Ghats through in vitro propagation. *Journal of the Orchid Society of India* 32: 25–32.

Farinacio, R., Galdiano, R. F., and Lemos, E. G. M. 2018. *Cattleya* orchids seedlings in vitro performance under artificial and natural light. *Acta Horticulturae* 1224: 45–49 (doi: 10.17660/ActaHortic.2018.1224.7).

Ferreira, W. D. M., Oliveira, S. P. D., Suzuki, R. M., Silva, K. L. F., and Júnior, J. W. P. S. 2018. Germinação, crescimento e desenvolvimento morfoanatômico de *Catasetum macrocarpum* (Orchidaceae) in vitro. *Rodriguesia* 69(4): 2137–2151 (doi: 10.1590/2175-7860201869442).

Galdiano Júnior, R. F., Mantovani, C., and Lemos, E. G. M. 2018. Carbohydrates on the growth of *Cattleya schilleriana* Reichb.f. seedlings (Orchidaceae). *Ciencia Rural* 48(7): art. e20160977 (doi: 10.1590/0103-8478cr20160977).

Galdiano, R. F. and Lemos, E. G. M. 2018. Encapsulation-vitrification and encapsulation-dehydration cryopreservation of *Cattleya labiata* Lindley, a threatened Brazilian orchid. *Acta Horticulturae* 1224: 135–138 (doi: 10.17660/ActaHortic.2018.1224.18).

Hughes, B. A. and Kane, M. E. 2018. Seed cryopreservation of selected Florida native orchid species. *Seed Science and Technology* 46(3): 431–446 (doi: 10.15258/sst.2018.46.3.01).

Jitsopakul, N., Sangyojarn, P., Homchan, P., and Thammasiri, K. 2019. Efficiency of aluminum cryo-plates for cryopreservation of *Dendrobium signatum* Rchb.f. pollinia. *Acta Horticulturae* 1234: 279–286 (doi: 10.17660/ActaHortic.2019.1234.36).

Juras, M. C. R., Jorge, J., Pescador, R., De Melo Ferreira, W., Tamaki, V., and Suzuki, R. M. 2019. In vitro culture and acclimatization of *Cattleya xanthina* (Orchidaceae), an endangered orchid of the Brazilian Atlantic Rainforest. *Rodriguesia* 70: art. e01422017 (doi: 10.1590/2175-7860201970014).

Kaur, S. 2019. Cryopreservation of orchids—A review. *Recent patents on biotechnology* 13(2): 114–123 (doi: 10.2174/1872208313666181127143058).

- Khotskova, L. V., Stepanyuk, G. Y., Yamburov, M. S., Astafurova, T. P., and Turanov, S. B. 2019. The influence of light spectrum on morphogenesis of orchid germs in vitro. *IOP Conference Series: Materials Science and Engineering* 510: art. 012032 (doi: 10.1088/1757-899X/510/1/012032).
- Kim, D. H., Kang, K. W., Enkhtaivan, G., Jan, U., and Sivanesan, I. 2019. Impact of activated charcoal, culture medium strength and thidiazuron on non-symbiotic in vitro seed germination of *Pecteilis radiata* (Thunb.) Raf. *South African Journal of Botany* 124: 144–150 (doi: 10.1016/j.sajb.2019.04.015).
- Laishram, H., Rocky, T., Sachin, S., Lakshmi, H., and Preema, D. M. 2019. In vitro conservation and asymbiotic propagation of *Dendrobium nobile* Lindl.: A rare threatened orchid of Northeast India. *Research Journal of Biotechnology* 14(2): 16–20.
- Lekshmi, S. and Decruse, S. W. 2018. In vitro symbiotic seed germination of *Vanda spathulata* (L.) Spreng., a vulnerable orchid of Western Ghats. *Journal of the Orchid Society of India* 32: 113–119.
- Mantovani, C., de Souza, J. P., Prado, R. M., and Pivetta, K. F. L. 2019. Toxicity of salicylic acid in *Cymbidium atropurpureo*[sic] and *Phalaenopsis* Golden Peoker cultivated in vitro. *HortScience* 54(2): 344–347 (doi: 10.21273/HORTSCI13671-18).
- Mantovani, C., Galdiano, R. F., Delgado, J. M., Prado, R. M., and Pivetta, K. F. L. 2018. In vitro growth of *Cattleya guttata* and *Epidendrum schomburgkii* with acid silicate. *Acta Horticulturae* 1224: 51–55 (doi: 10.17660/ActaHortic.2018.1224.8).
- Menezes-Sá, T. S. A., Arrigoni-Blank, M. F., da Costa, A. S., Feitosa-Alcantara, R. B., Blank, A. F., and Luz, J. M. Q. 2019. In vitro conservation and acclimatization of Epidendroideae (Orchidaceae) from Sergipe, Brazil. *Bioscience Journal* 35(2): 356–366 (doi: 10.14393/BJ-v35n2a2019-38776).
- Meng, Y. Y., Shao, S. C., Liu, S. J., and Gao, J. Y. 2019. Do the fungi associated with roots of adult plants support seed germination? A case study on *Dendrobium exile* (Orchidaceae). *Global Ecology and Conservation* 17: art. e00582 (doi: 10.1016/j.gecco.2019.e00582).
- Mo, Y. Q., Zheng, F., Fang, L., Li, L., Jiang, N., Wu, K. L., and Zeng, S. J. 2018. Tissue culture and rapid propagation of *Dendrobium kingianum* Bidwill. *Zhiwu Shengli Xuebao/Plant Physiology Journal* 54(4): 677–685 (doi: 10.13592/j.cnki.ppj.2018.0005).
- Nikishina, T. V., Kozlova, O. N., Levitskaya, G. E., and Vysotskaya, O. N. 2019. Study of *Dactylorhiza* seeds (*D. baltica* and *D. maculata*) from the orchid collection of the cryobank at Timiryazev Institute of Plant Physiology, Russian Academy of Sciences. *Biology Bulletin* 46(3): 242–250 (doi: 10.1134/S1062359019030063).

Paris, L., García-Caparrós, P., Llanderal, A., da Silva, J. T., Reca, J., and Lao, M. T. 2019. Plant regeneration from nodal segments and protocorm-like bodies (PLBs) derived from *Cattleya maxima* J. Lindley in response to chitosan and coconut water. *Propagation of Ornamental Plants* 19(1): 18–23.

Petrus, E., Ripin, R., Molidin, D., and Aziz, Z. A. 2019. Cryopreservation of *Paphiopedilum javanicum* seeds by encapsulation-dehydration. *Acta Horticulturae* 1234: 181–188 (doi: 10.17660/ActaHortic.2019.1234.24).

Prasongsom, S., Thammasiri, K., Narangajavana, J., Thitamadee, S., Chuenboonngarm, N., and Panvisavas, N. 2019. Vitrification-based cryopreservation of *Dendrobium cruentum* Rchb.f. seeds. *Acta Horticulturae* 1234: 157–166 (doi: 10.17660/ActaHortic.2019.1234.21).

Rittirat, S., Klaocheed, S., Suppapan, J., Chaithada, P., Kalawong, S., and Thammasiri, K. 2019. Cryopreservation of an endangered pharmaceutically important orchid, *Cymbidium finlaysonianum* Lindl. using vitrification technique. *Acta Horticulturae* 1234: 125–132 (doi: 10.17660/ActaHortic.2019.1234.16).

Sahagun, J., Kongbangkerd, A., and Ratanasut, K. 2018. Organogenic potential of *Dendrobium* floral tissues for stable transformation applications. *Philippine Journal of Science* 147(4): 667–676.

Sharma, V. 2018. Regenerative competence of thin cell layer (Epidermal peel) for in vitro propagation of *Cattleya* ‘almakee’. *Asian Journal of Microbiology, Biotechnology and Environmental Sciences* 20(October): S65–S69.

Sharma, V. 2019. Regenerative competence in root explants of *Rhynchostylis gigantea*, an endangered genera[sic]: An in vitro study. *International Journal of Conservation Science* 10(1): 133–138.

Sinumporn, P., Narumi-Kawasaki, T., and Fukai, S. 2019. Cryopreservation of *Habenaria radiata* and *Habenaria rhodocheila* seeds using the aluminum cryo-plate vitrification method. *Acta Horticulturae* 1234: 309–316 (doi: 10.17660/ActaHortic.2019.1234.40).

Sipayung, P., Matanari, J., Lafau, M. B., Sulastri, Y. S., Ginting, B. B., Sihombing, D. R., Pandiangan, M., and Giawa, T. 2018. The effect of activated charcoal dose and benzyl amino purine concentration on the growth of orchid plantlets in Murashige and Skoog media in vitro. *IOP Conference Series: Earth and Environmental Science* 205: art. 012025 (doi: 10.1088/1755-1315/205/1/012025).

Soonthornkalump, S., Nakkanong, K., and Meesawat, U. 2019. In vitro cloning via direct somatic embryogenesis and genetic stability assessment of *Paphiopedilum niveum* (Rchb.f.) Stein: the endangered Venus’s slipper orchid. *In Vitro Cellular and Developmental Biology - Plant* 55(3): 265–276 (doi: 10.1007/s11627-019-09981-7).

Sousa, K. C. I., De Araújo, L. G., De Sousa Silva, C., De Carvalho, J. C. B., Sibov, S. T., De Almeida Gonçalves, L., Pereira, M. C., Gonçalves, F. J., and Da Corsi De Filippi, M. C. 2019. Seed germination and development of orchid seedlings (*Cyrtopodium saintlegerianum*) with fungi. *Rodriguesia* 70: art. e02302016 (doi: 10.1590/2175-7860201970004).

Teixeira da Silva, J. A. and Dobránszki, J. 2019. Recent advances and novelties in the thin cell layer-based plant biotechnology—a mini-review. *Biotechnologia* 100(1): 89–96 (doi: 10.5114/bta.2019.83215).

Thammasiri, K., Prasongsom, S., Kongsawadworakul, P., Chuenboonngarm, N., Jenjittikul, T., Soonthornchainaksaeng, P., Viboonjun, U., and Muangkroot, A. 2019. Cryopreservation of *Arundina graminifolia* (D. Don) Hochr. seeds using D cryo-plate method. *Acta Horticulturae* 1234: 301–308 (doi: 10.17660/ActaHortic.2019.1234.39).

Torrezan, M. A., da Silva, M. A. V., de Paiva Neto, V. B., Padilha, D. R. C., and Santos, A. J. S. 2018. Florescimento precoce de plantas oriundas de sementes de *Cycnoches haagii* germinadas in vitro na presença de fungos micorrízicos | Precocious flowering of plants resulting from in vitro germination of *Cycnoches haagii* seeds on mycorrhizal fungi presence. *Pesquisa Agropecuaria Tropical* 48(4): 468–475 (doi: 10.1590/1983-40632018V48I53396).

Utami, E. S. W. and Hariyanto, S. 2019. In vitro seed germination and seedling development of a rare Indonesian native orchid *Phalaenopsis amboinensis* J.J.Sm. *Scientifica* 2019: art. 8105138 (doi: 10.1155/2019/8105138).

Molecular biology

Cao, Y., Meng, D., Han, Y., Chen, T., Jiao, C., Chen, Y., Jin, Q., and Cai, Y. 2019. Comparative analysis of B-BOX genes and their expression pattern analysis under various treatments in *Dendrobium officinale*. *BMC Plant Biology* 19(1): art. 245 (doi: 10.1186/s12870-019-1851-6).

Chen, Y. Q., Lan, S. R., Liu, Z. J., and Zhai, J. W. 2019. The complete chloroplast genome sequence of *Calanthe delavayi* (Orchidaceae), an endemic to China. *Mitochondrial DNA Part B: Resources* 4(1): 1562–1563 (doi: 10.1080/23802359.2019.1601513).

Chen, Y. T., Chang, C. C., Chen, C. W., Chen, K. C., and Chu, Y. W. 2019. MADS-box gene classification in angiosperms by clustering and machine learning approaches. *Frontiers in Genetics* 10: 08 January 2019 (doi: 10.3389/fgene.2018.00707) [*Phalaenopsis aphrodite*].

Choopeng, S., Te-chato, S., and Khawnium, T. 2019. The use of RAPD marker for verification of *Dendrobium* hybrid, *D. Santana* × *D. friedericksianum* orchid. *International Journal of Agricultural Technology* 15(3): 399–408.

Dirks-Mulder, A., Ahmed, I., uit het Broek, M., Krol, L., Menger, N., Snier, J., van Winzum, A., de Wolf, A., van't Wout, M., Zeegers, J. J., Butôt, R., Heijungs, R., van Heuven, B. J., Kruizinga, J., Langelaan, R., Smets, E. F., Star, W., Bemmer, M., and Gravendeel, B. 2019. Morphological and molecular characterization of orchid fruit development. *Frontiers in Plant Science* 10: art. 137 (doi: 10.3389/fpls.2019.00137).

He, C., Si, C., Teixeira Da Silva, J. A., Li, M., and Duan, J. 2019. Genome-wide identification and classification of MIKC-type MADS-box genes in streptophyte lineages and expression analyses to reveal their role in seed germination of orchid[sic]. *BMC Plant Biology* 19(1): art. 223 (doi: 10.1186/s12870-019-1836-5).

Hsu, C. C., Lai, P. H., Chen, T. C., Tsai, W. C., Hsu, J. L., Hsiao, Y. Y., Wu, W. L., Tsai, C. H., Chen, W. H., and Chen, H. H. 2019. PePIF1, a P-lineage of PIF-like transposable element identified in protocorm-like bodies of *Phalaenopsis* orchids. *BMC genomics* 20(1): 25 (doi: 10.1186/s12864-018-5420-4).

Jiang, M. T., Chao, W. C., Huang, C. L., Lan, S. R., Liu, Z. J., and Wu, S. S. 2019. The complete chloroplast genome of *Pleione formosana* (Orchidaceae). *Mitochondrial DNA Part B: Resources* 4(1): 1044–1046 (doi: 10.1080/23802359.2019.1584063).

Kamba, J. and Deb, C. R. 2018. A new simple and efficient DNA extraction protocol for orchid without liquid nitrogen and phenol. *Plant Cell Biotechnology and Molecular Biology* 19(3–4): 143–147.

Kim, Y. K., Jo, S., Cheon, S. H., Joo, M. J., Hong, J. R., Kwak, M. H., and Kim, K. J. 2019. Extensive losses of photosynthesis genes in the plastome of a mycoheterotrophic orchid, *Cyrtosia septentrionalis* (Vanilloideae: Orchidaceae). *Genome Biology and Evolution* 11(2): 565–571 (doi: 10.1093/gbe/evz024).

Kuo, Y. T., Chao, Y. T., Chen, W. C., Shih, M. C., and Chang, S. B. 2019. Segmental and tandem chromosome duplications led to divergent evolution of the chalcone synthase gene family in *Phalaenopsis* orchids. *Annals of botany* 123(1): 69–77 (doi: 10.1093/aob/mcy136).

Lee, C. Y., Viswanath, K. K., Huang, J. Z., Lee, C. P., Lin, C. P., Cheng, T. C., Chang, B. C., Chin, S. W., and Chen, F. C. 2018. PhaLDB: A comprehensive database for molecular mining of the *Phalaenopsis* genome, transcriptome and miRNome. *Genetics and Molecular Research* 17(4): art. gmr18051 (doi: 10.4238/gmr18051).

Li, Y., Li, Z., Hu, Q., Zhai, J., Liu, Z., and Wu, S. 2019. Complete plastid genome of *Apostasia shenzhenica* (Orchidaceae). *Mitochondrial DNA Part B: Resources* 4(1): 1388–1389 (doi: 10.1080/23802359.2019.1591192).

Oh, S. H., Suh, H. J., Park, J., Kim, Y., and Kim, S. 2019. The complete chloroplast genome sequence of a morphotype of *Goodyera schlechtendaliana* (Orchidaceae) with the column appendages. *Mitochondrial DNA Part B: Resources* 4(1): 626–627 (doi: 10.1080/23802359.2018.1564390).

Ping, C. Y., Chen, F. C., Cheng, T. C., Lin, H. L., Lin, T. S., Yang, W. J., and Lee, Y. I. 2018. Expression profiles of phosphoenolpyruvate carboxylase and phosphoenolpyruvate carboxylase kinase genes in *Phalaenopsis*, implications for regulating the performance of crassulacean acid metabolism. *Advances in Intelligent Systems and Computing* 871: art. 1587 (doi: 10.3389/fpls.2018.01587).

Rajaram, M. C., Yong, C. S. Y., Gansau, J. A., and Go, R. 2019. DNA barcoding of endangered *Paphiopedilum* species (Orchidaceae) of Peninsular Malaysia. *Phytotaxa* 387(2): 094–104 (doi: 10.11646/phytotaxa.387.2.2).

Ramkumar, T. R., Kanchan, M., Upadhyay, S. K., and Sembi, J. K. 2018. Identification and characterization of WUSCHEL-related homeobox (WOX) gene family in economically important orchid species *Phalaenopsis equestris* and *Dendrobium catenatum*. *Plant Gene* 14: 37–45 (doi: 10.1016/j.plgene.2018.04.004).

Sirithetawee, P., Damrianant, S., Thanananta, T., and Thanananta, N. 2018. Genetic relationship assessment and identification of strap-leaf *Paphiopedilum* using HAT-RAPD markers. *Science and Technology Asia* 23(1): 17–22 (doi: 10.14456/scitechasia.2018.3).

Tikendra, L., Koijam, A. S., and Nongdam, P. 2019. Molecular markers based genetic fidelity assessment of micropropagated *Dendrobium chrysotoxum* Lindl. *Meta Gene* 20: art. 100562 (doi: 10.1016/j.mgene.2019.100562).

Valoroso, M. C., Censullo, M. C., and Aceto, S. 2019. The MADS-box genes expressed in the inflorescence of *Orchis italica* (Orchidaceae). *PLoS ONE* 14(3): art. e0213185 (doi: 10.1371/journal.pone.0213185).

Wan, X., Zou, L. H., Zheng, B. Q., and Wang, Y. 2019. Circadian regulation of alternative splicing of drought-associated CIPK genes in *Dendrobium catenatum* (Orchidaceae). *International journal of molecular sciences* 20(3): art. 688 (doi: 10.3390/ijms20030688).

Xu, Q., Wang, S., Hong, H., and Zhou, Y. 2019. Transcriptomic profiling of the flower scent biosynthesis pathway of *Cymbidium faberi* Rolfe and functional characterization of its jasmonic acid carboxyl methyltransferase gene. *BMC Genomics* 20(1): art. 125 (doi: 10.1186/s12864-019-5501-z).

Yang, F., Zhu, G., Wei, Y., Gao, J., Liang, G., Peng, L., Lu, C., and Jin, J. 2019. Low-temperature-induced changes in the transcriptome reveal a major role of CgSVP genes in regulating flowering of *Cymbidium goeringii*. *BMC Genomics* 20(1): art. 53 (doi: 10.1186/s12864-019-5425-7).

Yang, Q. Y., Wang, T., Liang, L. X., Li, L. B., and Liu, L. 2018. Genome-wide analysis of CaM/CML gene family in two Orchidaceae species. *Forest Research* 31(6): 15–25 (doi: 10.13275/j.cnki.lykxyj.2018.06.003) [*Dendrobium officinale*, *Phalaenopsis equestris*].

Zeng, X., Ling, H., Chen, X., and Guo, S. 2019. Genome-wide identification, phylogeny and function analysis of GRAS gene family in *Dendrobium catenatum* (Orchidaceae). *Gene* 705: 5–15 (doi: 10.1016/j.gene.2019.04.038).

Zhang, N., Liu, L. L., Li, H., Hei, X. B., Bai, Q. Q., Zheng, L., Guo, S. X., and Zhang, G. 2018. Cloning and expression analysis on a protein phosphatase encoding gene DoPP2C1 in *Dendrobium officinale*. *Chinese Traditional and Herbal Drugs* 49(7): 1661–1666 (doi: 10.7501/j.issn.0253-2670.2018.07.026).

Zheng, J., Ma, Y., Zhang, M., Lyu, M., Yuan, Y., and Wu, B. 2019. Expression pattern of FT/TFL1 and miR156-targeted SPL genes associated with developmental stages in *Dendrobium catenatum*. *International journal of molecular sciences* 20(11): art. 2725 (doi: 10.3390/ijms20112725).

Mycorrhiza and endophytes

Cevallos, S., Declerck, S., and Suárez, J. P. 2018. In situ orchid seedling-trap experiment shows few keystone and many randomly associated mycorrhizal fungal species during early plant colonization. *Advances in Intelligent Systems and Computing* 871: art. 1664 (doi: 10.3389/fpls.2018.01664) [*Cyrtorchilum retusum*, *Epidendrum macrum*].

Fujimori, S., Abe, J. P., Okane, I., and Yamaoka, Y. 2019. Three new species in the genus *Tulasnella* isolated from orchid mycorrhiza of *Spiranthes sinensis* var. *amoena* (Orchidaceae). *Mycoscience* 60(1): 71–81 (doi: 10.1016/j.myc.2018.09.003).

Idris, N. A., Zuhir, Z. M., Radzuan, N. A. M., Muda, N. S., and Rosli, R. I. 2019. In vitro response of fungi isolated from orchids in Bris, Setiu wetland and mangrove in Morib, to different concentrations of lead. *Malaysian Applied Biology* 48(1): 229–233.

Lee, B. H. and Eom, A. H. 2018. Diversity of endophytic fungi associated with roots of *Calanthe discolor* and *Cephalanthera longibracteata* in Korea. *Korean Journal of Mycology* 14(4): 427–435 (doi: 10.4489/KJM.20180047).

Ma, X., Nontachaiyapoom, S., Jayawardena, R. S., Hyde, K. D., Gentekaki, E., Zhou, S., Qian, Y., Wen, T., and Kang, J. 2018. Endophytic *Colletotrichum* species from *Dendrobium* spp. in China and northern Thailand. *MycKeys* 43: 23–57 (doi: 10.3897/mycokeys.43.25081).

McAuliffe, S., Ackerman, J. D., and Tremblay, R. L. 2018. Land use legacy for a tropical myco-heterotroph: How spatial patterns of abundance, reproductive effort and success vary. *Journal of Plant Ecology* 12(2): 367–375 (doi: 10.1093/jpe/rtz029) [*Wulfschlaegelia calcarata*].

Nurul, A., Siti Noradila, A. G., Zaiti, M. Z., and Fatin Syakirah, S. 2019. In vitro tolerance of rice pathogen *Rhizoctonia solani* by orchid mycorrhizal fungi isolated from orchids in Bris, Setiu Wetlands. *Malaysian Applied Biology* 48(1): 1–6.

Shah, S., Shrestha, R., Maharjan, S., Selosse, M. A., and Pant, B. 2019. Isolation and characterization of plant growth-promoting endophytic fungi from the roots of *Dendrobium moniliforme*. *Plants* 8(1): art. 5 (doi: 10.3390/plants8010005).

Swift, S., Munroe, S., Im, C., Tipton, L., and Hynson, N. A. 2019. Remote tropical island colonization does not preclude symbiotic specialists: New evidence of mycorrhizal specificity across the geographic distribution of the Hawaiian endemic orchid *Anoectochilus sandvicensis*. *Annals of Botany* 123(4): 657–666 (doi: 10.1093/aob/mcy198).

Yeh, C. M., Chung, K., Liang, C. K., and Tsai, W. C. 2019. New insights into the symbiotic relationship between orchids and fungi. *Applied Sciences (Switzerland)* 9(3): art. 585 (doi: 10.3390/app9030585).

Pathology

Khamtham, J. and Akarapisan, A. 2019. *Acidovorax avenae* subsp. *cattleyae* causes bacterial brown spot disease on terrestrial orchid *Habenaria lindleyana* in Thailand. *Journal of Plant Pathology* 101(1): 31–37 (doi: 10.1007/s42161-018-0135-6).

Komínek, P., Massart, S., Pham, K., van Leeuwen, P., and Komínková, M. 2019. Characterisation of a novel virus infecting orchids of the genus *Pleione*. *Virus Research* 261: 56–59 (doi: 10.1016/j.virusres.2018.12.009).

Nokkrut, B., Pisuttipiched, S., Khantayanuwong, S., and Puangsin, B. 2019. Silver nanoparticle-based paper packaging to combat black anther disease in orchid flowers. *Coatings* 9(1): art. 40 (doi: 10.3390/coatings9010040).

Rentz, D. and Su, Y. N. 2019. Studies in Australian Tettigoniidae: Three New Species of Agraeciini from North-eastern Australia Orthoptera: Tettigoniidae; Conocephalinae; Agraeciini. *Zootaxa* 4623(2): 283–305 (doi: 10.11646/zootaxa.4623.2.4).

Sangu, S. S., Nor, N. M. I. M., Zakaria, L., Mohamad, A., and Subramaniam, S. 2019. Preliminary study on the effects of fusaric acid treated protocorm-like bodies of *Dendrobium* hybrid against *Fusarium proliferatum* and *Fusarium oxysporum*. *Malaysian Journal of Microbiology* 15(2): 152–158 (doi: 10.21161/mjm.180109).

Suetsugu, K. and Nakahama, N. 2019. Infestation of *Phalaenopsis aphrodite* Rchb.f. (Asparagales: Orchidaceae) flower buds by *Japanagromyza tokunagai* (Sasakawa) (Diptera: Agromyzidae) in a greenhouse on Shikoku Island, Japan. *Journal of Asia-Pacific Entomology* 22(3): 816–819 (doi: 10.1016/j.aspen.2019.06.014).

Suga, M., Yamashita, Y., Suetsugu, K., Yukawa, T., Tokuda, M., and Ogura-Tsujita, Y. 2018. Identification of flies infesting wild orchid flowers and fruits in Japan. *Japanese Journal of Applied Entomology and Zoology* 62(4): 249–255 (doi: 10.1303/jjaez.2018.249).

Yu, L., Zhou, S., Nie, Q., Hsiang, T., Zhang, K., Sun, Z., and Zhou, Y. 2019. First report of *Sclerotium rolfsii* causing southern blight of *Bletilla* orchid in China. *Plant Disease* 103(4): 762 (doi: 10.1094/PDIS-08-18-1370-PDN).

Physiology/Phytochemistry

Cassola, F., Nunes, C. E. P., Lusa, M. G., Garcia, V. L., and Mayer, J. L. S. 2019. Deep in the jelly: Histochemical and functional aspects of mucilage-secreting floral colleters in the orchids *Elleanthus brasiliensis* and *E. crinipes*. *Frontiers in Plant Science* 10: art. 518 (doi: 10.3389/fpls.2019.00518).

Chen, D. H., Shen, R. S., Chang, T. R., Lin, P. S., and Wang, T. Y. 2019. The sensor calibration and growth parameters monitoring for *Phalaenopsis* cultivation. *Advances in Intelligent Systems and Computing* 927: 793–802 (doi: 10.1007/978-3-030-15035-8_77).

Cho, A. R., Song, S. J., Chung, S. W., and Kim, Y. J. 2019. CO₂ enrichment with higher light level Improves flowering quality of *Phalaenopsis* Queen Beer 'Mantefon'. *Scientia Horticulturae* 247: 356–361 (doi: 10.1016/j.scienta.2018.12.030).

Díaz-Álvarez, E. A., Felix, J. D., and de la Barrera, E. 2019. Elemental and isotopic assessment for Colombian orchids from a montane cloud forest: a baseline for global environmental change. *Acta Physiologiae Plantarum* 41(6): art. 99 (doi: 10.1007/s11738-019-2893-y).

Joseph, M., Jose, L., and Sequeira, S. 2018. A comparative phytochemical screening of four epidendroid orchids of Kerala, India. *Journal of the Orchid Society of India* 32: 41–43.

Kaveriamma, M. M., Rajeevan, P. K., Valsalakumari, P. K., and Geetha, C. K. 2018. Effect of inflorescence pruning in *Phalaenopsis* orchid. *Journal of the Orchid Society of India* 32: 99–101.

Khunmuang, S., Kanlayanarat, S., Wongchaochant, S., Wongs-Aree, C., Meir, S., and Buanong, M. 2018. Development of means for delaying senescence and prolonging the vase life of cut flowers of *Vanda* orchid 'Sansai Blue'. *Acta Horticulturae* 1213: 581–586 (doi: 10.17660/ActaHortic.2018.1213.88).

Li, J. W. and Zhang, S. B. 2019. Physiological responses of orchid pseudobulbs to drought stress are related to their age and plant life form. *Plant Ecology* 220(1): 83–96 (doi: 10.1007/s11258-018-00904-x).

Lin, J. A., Susilo, H., Lei, J. Y., and Chang, Y. C. A. 2019. Effects of fertilizer nitrogen shortly before forcing through flowering on carbon-nitrogen composition and flowering of *Phalaenopsis*. *Scientia Horticulturae* 252: 61–70 (doi: 10.1016/j.scienta.2019.02.006).

Ma, N. L., Khoo, S. C., Loke, L. K., Lam, S. S., and Tan, S. H. 2019. Growth media derived from solid waste for orchid *Dendrobium kingianum* culture. *Malaysian Applied Biology* 48(1): 73–78.

Mantovani, C., Prado, R. M., and Pivetta, K. F. L. 2018. Impact of nitrate and ammonium ratio on nutrition and growth of two epiphytic orchids. *Anais da Academia Brasileira de Ciências* 90(4): 3423–3431 (doi: 10.1590/0001-3765201820171008) [*Phalaenopsis* Golden Peoker, *Dendrobium* Valentine].

Oliveira, P. M. R., Rodrigues, M. A., Gonçalves, A. Z., and Kerbauy, G. B. 2019. Exposure of *Catasetum fimbriatum* aerial roots to light coordinates carbon partitioning between source and sink organs in an auxin dependent manner. *Plant Physiology and Biochemistry* 135: 341–347 (doi: 10.1016/j.plaphy.2018.12.022).

Olosunde, O. M., Aiyelaagbe, I. O. O., and Hammed, L. A. 2018. Growth and flowering of scorpion orchid to growing medium and light quality. *Acta Horticulturae* 1225: 161–165 (doi: 10.17660/ActaHortic.2018.1225.21) [*Arachnis maingayi*].

Soni, D. K., Shahi, S. K., Khandel, P., Mahobiya, D., Singh, R., Yadaw, R. K., and Kanwar, L. 2018. Extraction and estimation of chlorophylls from epiphytic orchids and their antioxidants scavenging activity analysis. *Plant Archives* 18(2): 2448–2452.

Tay, S., He, J., and Yam, T. W. 2019. CAM plasticity in epiphytic tropical orchid species responding to environmental stress. *Botanical Studies* 60(1): art. 7 (doi: 10.1186/s40529-019-0255-0).

Tejeda-Sartorius, O., Trejo-Téllez, L. I., Téllez-Velasco, M. Á. A., and Gómez-Merino, F. C. 2018. Nutrient concentration in vegetative organs of the orchid *Laelia anceps* subsp. *anceps* based on mineral fertilization and biofertilization. *Horticulture Journal* 87(4): 541–548 (doi: 10.2503/hortj.OKD-148).

Wang, Y., Zuo, Z. T., Huang, H. Y., and Wang, Y. Z. 2019. Original plant traceability of *Dendrobium* species using multi-spectroscopy fusion and mathematical models. *Royal Society Open Science* 6(5): art. 190399 (doi: 10.1098/rsos.190399).

Wilde, A. S., Frandsen, H. L., Fromberg, A., Smedsgaard, J., and Greule, M. 2019. Isotopic characterization of vanillin ex glucose by GC-IRMS—New challenge for natural vanilla flavour authentication? *Food Control* 106: art. 106735 (doi: 10.1016/j.foodcont.2019.106735).

Pollination, population genetics, and seed dispersal

Balducci, M. G., Van der Niet, T., and Johnson, S. D. 2019. Butterfly pollination of *Bonatea cassidea* (Orchidaceae): Solving a puzzle from the Darwin era. *South African Journal of Botany* 123: 308–316 (doi: 10.1016/j.sajb.2019.03.030).

Belogradova, I., Grauda, D., Lapiņa, L., Jakobsone, G., Roze, D., Ornicans, R., Fokina, O., and Rashal, I. 2018. Genetic diversity of *Liparis loeselii* in Latvia. *Proceedings of the Latvian Academy of Sciences, Section B: Natural, Exact, and Applied Sciences* 72(6): 341–348 (doi: 10.2478/prolas-2018-0042).

Besse, P., Grisoni, M., and Requiston, M. 2019. La pollinisation de la Vanille: de la forêt au champ. *l'Orchidophile* 50(221): 117–123 [*Vanilla*].

Bohman, B., Weinstein, A. M., Phillips, R. D., Peakall, R., and Flematti, G. R. 2019. 2-(Tetrahydrofuran-2-yl)acetic acid and ester derivatives as long-range pollinator attractants in the sexually deceptive orchid *Cryptostylis ovata*. *Journal of Natural Products* 82(5): 1107–1113 (doi: 10.1021/acs.jnatprod.8b00772).

Claessens, J. and Kleynen, J. 2019. La photographie des pollinisateurs d'orchidées. *l'Orchidophile* 50(221): 165–170.

Claessens, J. and Kleynen, J. 2019. La pollinisation des orchidées européennes. *l'Orchidophile* 50(221): 125–158.

de Jager, M. L. and Peakall, R. 2019. Experimental examination of pollinator-mediated selection in a sexually deceptive orchid. *Annals of botany* 123(2): 347–354 (doi: 10.1093/aob/mcy083) [*Chiloglottis trapeziformis*].

Dyer, A. G., Boyd-Gerny, S., Shrestha, M., Garcia, J. E., van der Kooi, C. J., and Wong, B. B. M. 2019. Colour preferences of *Tetragonula carbonaria* Sm. stingless bees for colour morphs of the Australian native orchid *Caladenia carnea*. *Journal of Comparative Physiology A: Neuroethology, Sensory, Neural, and Behavioral Physiology* 205(3): 347–361 (doi: 10.1007/s00359-019-01346-0).

Ferreira, N. P., Chiavelli, L. U. R., Savaris, C. R., Oliveira, S. M., Lucca, D. L., Milaneze-Gutierrez, M. A., Faria, R. T., and Pomini, A. M. 2019. Chemical study of the flowers of the orchid *Oncidium baueri* Lindley and their visiting bees *Trigona spinipes* Fabricius. *Biochemical Systematics and Ecology* 86: art. 103918 (doi: 10.1016/j.bse.2019.103918).

Fiedler, M., Hirth, M., and Paulus, H. F. 2018. Ein Bestäuber für *Ophrys samia* von Samos. *Journal Europäischer Orchideen* 50(2–4): 185–196.

Gilián, L. D., Endrédi, A., Zsinka, B., Neményi, A., and Nagy, J. G. 2019. Morphological and reproductive trait-variability of a food deceptive orchid, *Cephalanthera rubra* along different altitudes. *Applied Ecology and Environmental Research* 17(3): 5619–5639 (doi: 10.15666/aeer/1703_56195639).

Henneresse, T., Kaiser, A., Wesselingh, R. A., and Tyteca, D. 2019. Do local conspecific density and floral display size influence fruit set via pollinator visitation in *Orchis militaris*? *Nordic Journal of Botany* 37(4): art. e02308 (doi: 10.1111/njb.02308).

Hurskainen, S., Alahuhta, K., Hens, H., Jäkäläniemi, A., Kull, T., Shefferson, R. P., and Tuomi, J. 2018. Vegetative dormancy in orchids incurs absolute and relative demographic costs in large but not in small plants. *Botanical Journal of the Linnean Society* 188(4): 426–437 (doi: 10.1093/botlinnean/boy065) [*Calypso bulbosa*, *Cypripedium calceolus*, *Epipactis atrorubens*].

Hurskainen, S., Jäkäläniemi, A., Kaitala, V., Kull, T., Möttep, M., Ramula, S., and Tuomi, J. 2018. Corrigendum: Temporal cycles and spatial asynchrony in the reproduction and growth of a rare nectarless orchid (*Cypripedium calceolus* ((2017) 1832 (316-326) DOI: 10.1093/botlinnean/bow008). *Botanical Journal of the Linnean Society* 188(4): 438–440 (doi: 10.1093/botlinnean/boy069).

Kellenberger, R. T., Byers, K. J. R. P., De Brito Francisco, R. M., Staedler, Y. M., LaFountain, A. M., Schönenberger, J., Schiestl, F. P., and Schlüter, P. M. 2019. Emergence of a floral colour polymorphism by pollinator-mediated overdominance. *Nature Communications* 10(1): art. 63 (doi: 10.1038/s41467-018-07936-x) [*Gymnadenia rhellicani*].

Krahl, A. H., de Holanda, A. S. S., Krahl, D. R. P., Martucci, M. E. P., Gobbo-Neto, L., Webber, A. C., and Pansarin, E. R. 2019. Study of the reproductive biology of an Amazonian *Heterotaxis* (Orchidaceae) demonstrates the collection of resin-like material by stingless bees. *Plant Systematics and Evolution* 305(4): 281–291 (doi: 10.1007/s00606-019-01571-9).

Machaka-Houri, N., Hour, A., Knio, K. M., and Westbury, D. B. 2018. Ecological interactions of the sexually deceptive orchid *Orchis galilaea*. *Journal of Plant Interactions* 13(1): 315–320 (doi: 10.1080/17429145.2018.1478005).

Matsuda, Y. and Sugiura, N. 2019. Specialized pollination by honeybees in *Cymbidium dayanum*, a fall–winter flowering orchid. *Plant Species Biology* 34(1): 19–26 (doi: 10.1111/1442-1984.12231).

Möller, H. 2018. *Cantharis livida* (L.) ist ein effektiver Bestäuber von *Neottia nidus-avis* (L.) Rich. *Berichte aus den Arbeitskreisen Heimische Orchideen* 35(1): 232–236.

Ong, P. T. and Tam, S. M. 2019. Pollination notes for seven *Bulbophyllum* species (section *Ephippium*) from Peninsular Malaysia. *Malesian Orchid Journal* 23: 87–96.

Paulus, H. F. 2018. Ein neuer Fall von Hummelbestäubung auf der Ionischen Insel Kefalonia: *Ophrys mavromata*. *Journal Europäischer Orchideen* 50(2–4): 247–263.

Paulus, H. F. 2019. Speciation, pattern recognition and the maximization of pollination: general questions and answers given by the reproductive biology of the orchid genus *Ophrys*. *Journal of Comparative Physiology A: Neuroethology, Sensory, Neural, and Behavioral Physiology* 205(3): 285–300 (doi: 10.1007/s00359-019-01350-4).

Ray, H. A., Stuhl, C. J., Kane, M. E., Ellis, J. D., Daniels, J. C., and Gillett-Kaufman, J. L. 2019. Aspects of the pollination biology of *Encyclia tampensis*, the commercially exploited Butterfly Orchid, and *Prosthechea cochleata*, the endangered Clamshell Orchid, in South Florida. *Florida Entomologist* 102(1): 154–160 (doi: 10.1653/024.102.0125).

Reiter, N., Bohman, B., Batley, M., and Phillips, R. D. 2019. Pollination of an endangered *Caladenia* species (Orchidaceae) by nectar-foraging behaviour of a widespread species of colletid bee. *Botanical Journal of the Linnean Society* 189(1): 83–98 (doi: 10.1093/botlinnean/boy074).

Romero-González, G. A. 2018. Charles Darwin on Catasetinae (Cymbidieae, Orchidaceae). *Harvard Papers in Botany* 23(2): 339–379 (doi: 10.3100/hpib.v23iss2.2018.n18).

Scaccabarozzi, D., Cozzolino, S., Guzzetti, L., Galimberti, A., Milne, L., Dixon, K. W., and Phillips, R. D. 2019. Masquerading as pea plants: Behavioural and morphological evidence for mimicry of multiple models in an Australian orchid. *Annals of Botany* 122(6): 1061–1073 (doi: 10.1093/aob/mcy166) [*Diuris brumalis*].

Scaccabarozzi, D., Cozzolino, S., Guzzetti, L., Galimberti, A., Milne, L., Dixon, K. W., and Phillips, R. D. 2019. Erratum: Masquerading as pea plants: Behavioural and morphological evidence for mimicry of multiple models in an Australian orchid (Annals of Botany (2019) 123 (743-746) DOI: 10.1093/aob/mcy166). *Annals of Botany* 123(4): 743–746 (doi: 10.1093/aob/mcy205).

Son, H. D., Im, H. T., and Choi, S. W. 2019. Pollination of *Cleisostoma scolopendrifolium* (Orchidaceae) by megachilid bees and determinants of fruit set in southern South Korea. *Journal of Ecology and Environment* 43(1): art. 3 (doi: 10.1186/s41610-018-0102-3).

Suetsugu, K., Tetsu, S., Hiraiwa, M. K., and Tsutsumi, T. 2019. Les thrips, pollinisateurs secondaires d'un orchidée à pollinies granulaires: est-ce un mutualisme? *l'Orchidophile* 50(221): 159–164 [*Epipactis thunbergii*].

Sugiura, N. 2019. Consistent pollination services to *Cypripedium macranthos* var. *rebunense* (Orchidaceae) by *Bombus pseudobaicalensis*. *Plant Species Biology* 34(1): 38–42 (doi: 10.1111/1442-1984.12232).

Whitehead, M. R., Gaskett, A. C., and Johnson, S. D. 2019. Floral community predicts pollinators' color preference: Implications for Batesian floral mimicry. *Behavioral Ecology* 30(1): 213–222 (doi: 10.1093/beheco/ary138) [South African orchids].

Wilcox, Y. 2019. La pollinisation d'*Anacamptis pyramidalis* (Linné) L.C.M.Richard: adaptations morphologiques et stratégies d'attraction. *l'Orchidophile* 50(221): 171–184.

Systematics and distribution

AFRICA (excluding NORTH AFRICA, including the southern part of the ARABIAN PENINSULA)

Bytebier, B. 2019. *Cynorkis citrata* is the correct name for *Cynorkis citrina* (Orchidaceae, Orchidoideae). *Phytotaxa* 409(1): 046–048 (doi: 10.11646/phytotaxa.409.1.6).

Bytebier, B. and Pailler, T. 2019. A new combination in *Cynorkis* (Orchidaceae, Orchidoideae) for the Mascarenes. *Phytotaxa* 394(4): 299–300 (doi: 10.11646/phytotaxa.394.4.7).

Droissart, V., Lachenaud, O., Dauby, G., Dessein, S., Kamdem, G., Charlemagne Nguembou, K., Simo-Droissart, M., Stévant, T., Taedoumg, H., and Sonké, B. 2019. Mine versus wild: A plant conservation checklist of the rich iron-ore Ngovayang Massif area (South Cameroon). *Plant Ecology and Evolution* 152(1): 8–29 (doi: 10.5091/plecevo.2019.1547).

Fibeck, W. and Phiri, V. 2018. Ökologische Betrachtungen zur simbabwischen Orchideenflora, Teil 6: Die Gattung *Oeceoclades* Lindl. *Die Orchidee* 70(2): 108–114.

Gamarra, R., Galán Cela, P., and Ortúñez, E. 2019. Orchidaceae in Equatorial Guinea (West Tropical Africa): nomenclatural and taxonomic notes, new records and critical taxa. *Kew Bulletin* 74(1): art. 2 (doi: 10.1007/s12225-018-9787-9).

Koopowitz, H. and Cribb, P. 2019. *Oeceoclades splendida*, a new species from Madagascar (Epidendroideae, Cymbidieae, Eulophiinae; Orchidaceae). *Orchid Digest* 83(1): 41–45.

Simo-Droissart, M. and Stévant, T. 2019. A new combination in *Dolabrifolia* (Angraecinae, Orchidaceae). *Phytotaxa* 404(7): 295–296 (doi: 10.11646/phytotaxa.404.7.4).

Tian, J., Huang, W.-C., Mbuni, Y. M., Kamau, P., Mwachala, G., Malombe, I., Hu, G.-W., and Wang, Q.-F. 2019. *Polystachya danielana* (Orchidaceae: Polystachyinae), a new species from Kenya. *Phytotaxa* 405(4): 195–202 (doi: 10.11646/phytotaxa.405.4.3).

AMERICA

Acuña-Tarazona, M., Hagsater, E., and Santiago Ayala, E. 2019. *Epidendrum choccei* (Orchidaceae), a new species from Northern Peru. *Phytotaxa* 394(1): 24–41 (doi: 10.11646/phytotaxa.394.1.7).

Baquero R., L. E. and Verkovitch, D. G. 2019. Two new species and new records of *Platystele* (Pleurothallidinae: Orchidaceae) from Los Cedros Reserve in Ecuador. *Lankesteriana* 19(1): 5–13 (doi: 10.15517/lank.v19i1.36900).

Baumbach, N. 2018. *Mesadenus lucayanus* an der Nordküste von Kuba. *Die Orchidee* 70(1): 61–63.

Campacci, M. A., Silva, C. R. M., Rosim, M. S., Castro, V. P., and Menezes, E. L. F. M. 2018. Novas espécies (e híbridos naturais). *Coletânea de Orquídeas Brasileiras* 14: 545–584.

Cascante-Marín, A. and Hernández, C. T. 2019. Diversidad y vulnerabilidad de la flora orquideológica de un bosque montano nuboso del Valle Central de Costa Rica. *Lankesteriana* 19(1): 31–55 (doi: 10.15517/lank.v19i1.37031).

Chiron, G. R. and Marçal, S. 2019. Une seizième espèce de *Catasetum* (Orchidaceae) de Bahia (Brésil). *Richardiana, nouv. sér.* 3: 31–38.

Chiron, G. R. and Marçal, S. 2019. Une seconde espèce de *Coryanthes* sect. *Lamellungis* (Orchidaceae) pour l'état de Bahia, Brésil. *Richardiana, nouv. sér.* 3: 92–99.

Dalström, S. and Deburghgraeve, G. 2018. Ein gut bekanntes, aber falsch bestimmtes *Odontoglossum* (Orchidaceae; Oncidiinae) offenbart sich letztendlich als neue Art | A well-known but misidentified *Odontoglossum* (Orchidaceae; Oncidiinae) is finally revealed as a new species. *OrchideenJournal* 25(4): 136–145.

Dalström, S. and Deburghgraeve, G. 2019. Ein kleinblütiges, aber farbenfrohes *Odontoglossum* (Orchidaceae: Oncidiinae) aus Bolivien | A new small-flowered but colorful *Odontoglossum* (Orchidaceae: Oncidiinae) from Bolivia. *OrchideenJournal* 26(1): 4–13.

Dalström, S. and Higgins, W. E. 2019. A new small-flowered natural *Odontoglossum* hybrid (Orchidaceae: Oncidiinae) from Ecuador. *Lankesteriana* 19(1): 15–20 (doi: 10.15517/lank.v19i1.36899).

Díaz-Morales, M. and Pupulin, F. 2019. The New Refugium Botanicum—*Phragmipedium schlimii* f. *manzurii*. *Orchids, the Bulletin of the American Orchid Society* 88(3): 172–174.

Estrada Sánchez, I., García-Cruz, J., and Adolfo Espejo-Serna, G. L.-O. 2019. Identification of areas of endemism in the Mexican cloud forests based on the distribution of endemic epiphytic bromeliads and orchids. *Phytotaxa* 397(2): 129–145 (doi: 10.11646/phytotaxa.397.2.1).

Ferreira, U. L. C. 2019. Two new natural hybrids in *Catasetum* (Orchidaceae) from Centre-West Brazil. *Richardiana, nouv. sér.* 3: 80–91.

Ferreira, U. L. C. and de C. Filho, R. M. 2019. Two new natural hybrids in *Catasetum* (Orchidaceae) from Brazil. *Richardiana, nouv. sér.* 3: 39–49.

Gerlach, G. 2019. Die Coeliopsidinae—Eine Subtribus mit Parfümblumensyndrom aus der Neotropis. *OrchideenJournal* 26(1): 25–29.

Gomes, G. C., Molina, A. R., Guarino, E. S. G., de Freitas, T. C., and Perleberg, T. D. 2018. New records and range extension of *Habenaria dutrae* Schltr. (Orchidaceae) in southern Rio Grande do Sul, Brazil. *Check List* 14(6): 1083–1087 (doi: 10.15560/14.6.1083).

Guimarães, L. R. S., Salazar, G. A., and De Barros, F. 2019. Lectotypifications and taxonomic notes in the *Stenorrhynchos* clade (Spiranthinae, Orchidaceae). *Phytotaxa* 394(1): 111–117 (doi: 10.11646/phytotaxa.394.1.9).

- Hornung-Leoni, C. T., Chavarria-Olmedo, Y. J., and Ramírez-Morillo, I. M. 2019. The Reserva de la Biosfera Barranca de Metztlán (Hidalgo): An illustrated checklist of bromeliads and orchids and their high levels of Mexican endemisms. *PhytoKeys* 118: 105–123 (doi: 10.3897/phytokeys.118.31603).
- Karremans, A. P., Aguilar-Sandí, D., Artavia-Solís, M., Cedeño-Fonseca, M., Chinchilla, I. F., Gil-Amaya, K., Rojas-Alvarado, G., Solano-Guindon, N., and Villegas-Murillo, J. 2019. Nomenclatural notes in the Pleurothallidinae (Orchidaceae): miscellaneous. *Phytotaxa* 406(5): 259–270 (doi: 10.11646/phytotaxa.406.5.1).
- Klein, V. P., Pessoa, E. M., Demarchi, L. O., Sader, M., and Piedade, M. T. F. 2019. *Encyclia*, *Epidendrum*, or *Prosthechea*? Clarifying the phylogenetic position of a rare Amazonian orchid (Laeliinae-Epidendroideae-Orchidaceae). *Systematic Botany* 44(2): 297–309 (doi: 10.1600/036364419X15562054132983) [*Epidendrum apuahuense*].
- Klein, V. P., Zago, V., Buzatto, C. R., and Lüdtkke, R. 2018. Floristic composition and distribution of Orchidaceae in a riparian forest in Rio Grande do Sul state. *Rodriguesia* 69(4): 1927–1936 (doi: 10.1590/2175-7860201869427).
- Kolanowska, M., Baranow, P., and Fuentes, A. F. 2019. A new species of *Ponthieva* (Cranichidinae, Orchidaceae) from Bolivia. *Phytotaxa* 397(2): 186–192 (doi: 10.11646/phytotaxa.397.2.6).
- Kolanowska, M. and Szlachetko, D. L. 2019. Notes on the genus *Quekettia* (Orchidaceae) with descriptions of two new species from Colombia and Guyana. *Nordic Journal of Botany* 37(5): art. e02250 (doi: 10.1111/njb.02250).
- Luer, C. A. 2018. Icones Stelidarum (Orchidaceae) Colombiae VI. *Harvard Papers in Botany* 23(2): 139–178 (doi: 10.3100/hpib.v23iss2.2018.n2) [*Stelis*].
- Marçal, S. and Chiron, G. R. 2019. *Coryanthes lanata* (Orchidaceae), une nouvelle espèce de Bahia. *Richardiana, nouv. sér.* 3: 1–9.
- Medina, H., Portilla, J., and Portilla, I. 2019. *Rodriguezia dodsoniana*—A new species of *Rodriguezia* (Orchidaceae: Oncidiinae) from Ecuador. *Orchids, the Bulletin of the American Orchid Society* 88(3): 228–231.
- Morales, A., Chiron, G. R., and Villatoro, R. R. 2019. A new *Restrepia* (Orchidaceae) species, epiphyte on *Magnolia*. *Richardiana, nouv. sér.* 3: 10–16.
- Morales, F. A., Menchaca, R., and Chiron, G. R. 2019. Notes on Mesoamerican orchids. I: *Vanilla*, with a new species. *Richardiana, nouv. sér.* 3: 71–79.
- Morales, F. A., Szlachetko, D. L., Veliz, M., Chiron, G., and Pérez-García, E. A. 2019. *Cuitlauzina* (Orchidaceae): a new species and a new record for Guatemala. *Richardiana, nouv. sér.* 3: 50–59.
- Ormerod, P. 2018. Studies in *Fernandezia* Ruiz & Pav. (Orchidaceae: Oncidiinae). *Harvard Papers in Botany* 23(2): 217–268 (doi: 10.3100/hpib.v23iss2.2018.n9).

- Pessoa, E. M., Brito, V., Ralf-Neto, F., Costa, W. T., Holanda, G., and Alves, M. 2019. Expanding the distribution of *Macroclinium* (Oncidiinae, Orchidaceae) and rediscovery of *M. roseum*. *Brittonia* 71(2): 129–133 (doi: 10.1007/s12228-018-9557-x).
- Ponert, J., Chumová, Z., Mandáková, T., and Trávníček, P. 2019. A new species of *Acianthera* (Pleurothallidinae, Orchidaceae) from Brazil. *Phytotaxa* 402(1): 029–037 (doi: 10.11646/phytotaxa.402.1.4).
- Pupulin, F. 2018. The New Refugium Botanicum—*Oncidium cheirophorum*. *Orchids, the Bulletin of the American Orchid Society* 87(12): 898–900.
- Pupulin, F. 2019. The New Refugium Botanicum—*Stenotyla lankesteriana*. *Orchids, the Bulletin of the American Orchid Society* 88(1): 24–26.
- Pupulin, F. and Moreno, A. 2018. On the identity of *Trichocentrum orthoplectron* (Orchidaceae: Oncidiinae), with a new species from Bolivia. *Harvard Papers in Botany* 23(2): 285–293 (doi: 10.3100/hpib.v23iss2.2018.n13).
- Salguero, G. and Pupulin, F. 2018. The New Refugium Botanicum—*Aspasia psittacina*. *Orchids, the Bulletin of the American Orchid Society* 87(11): 810–812.
- Salguero, G. and Pupulin, F. 2019. The New Refugium Botanicum—*Eriopsis wercklei*. *Orchids, the Bulletin of the American Orchid Society* 88(4): 252–255.
- Sambin, A. and Doekoe, F. 2019. Une nouvelle espèce de *Gongora* (Orchidaceae) de Guyane. *Richardiana, nouv. sér.* 3: 60–70.
- Sauleda, R. P. 2018. *Encyclia garzonensis* Withner (Orchidaceae) un sinónimo de *Encyclia replicata* (Lindl. & Paxt.) Schltr. | *Encyclia garzonensis* Withner (Orchidaceae) a synonym of *Encyclia replicata* (Lindl. & Paxt.) Schltr. *Orquideología* 35(2): 206–211.
- Sauleda, R. P. and Esperon, P. 2018. El nombre correcto para una especie de *Encyclia* Hooker de Centro y Sudamérica | The proper name for a Central and South American species of *Encyclia* Hooker. *Orquideología* 35(2): 220–230.
- Solano, R., Huerta-Espinoza, H., Cruz-García, G., and Ortiz-Riveros, F. 2019. A new natural hybrid in the genus *Laelia* (Orchidaceae) from Oaxaca, Mexico. *Phytotaxa* 402(5): 232–240 (doi: 10.11646/phytotaxa.402.5.2).
- Szlachetko, D. L., Chiron, G., and Kolanowska, M. 2018. A new species of *Gomesa* (Orchidaceae-Oncidiinae) from southern Brazil. *Phyton, Annales Rei Botanicae, Horn* 58(2): 123–125.
- Szlachetko, D. L. and Kolanowska, M. 2018. *Stellilabium colombianum* Szlach. & Kolan. sp. nov. (Orchidaceae), a new species from Colombia. *Wulfenia* 25: 173–178.

Szlachetko, D. L., Kolanowska, M., and Eichmann, A. 2018. A new species of *Ponthieva* (Orchidaceae-Spiranθοideae) from northern Ecuador. *Phyton, Annales Rei Botanicae, Horn* 58(2): 131–133.

Szlachetko, D. L., Kolanowska, M., and Lipińska, M. 2018. New species of *Telipogon* (Orchidaceae) with glabrous gynostemium from South America. *Wulfenia* 25: 25–30.

Szlachetko, D. L., Kolanowska, M., and Mystkowska, K. 2018. Notes on the genus *Caluera* (Orchidaceae) with description of a new species. *Phyton, Annales Rei Botanicae, Horn* 58(2): 127–129.

Szlachetko, D. L., Kolanowska, M., and Rykaczewski, M. 2018. Notes on the genus *Fronðaria* (Orchidaceae) with description of new species. *Turkish Journal of Botany* 42(6): 773–779 (doi: 10.3906/bot-1803-2).

Thoerle, L. and Karremans, A. P. 2019. The genus *Muscarella* (Orchidaceae): two new synonyms. *Phytotaxa* 395(1): 48–50 (doi: 10.11646/phytotaxa.395.1.6).

Valsko, J. J., Krahl, A. H., Petini-Benelli, A., and Chiron, G. 2019. *Catasetum sophiae*, a new species of Orchidaceae (Catasetinae) from northern Brazil. *Phytotaxa* 402(2): 104–120 (doi: 10.11646/phytotaxa.402.2.5).

Vieira-Urube, S. and Karremans, A. P. 2018. La *Specklinia* (Orchidaceae) con señuelo, una asombrosa nueva especie de los Andes occidentales en Colombia | The anglerfish *Specklinia* (Orchidaceae), an astonishing new species from the western Andes in Colombia. *Orquideología* 35(2): 163–172.

Vieira-Urube, S. and Moreno, J. S. 2018. Dos nuevas especies de *Lepanthes* (Orchidaceae: Pleurothallidinae) del Parque Nacional Natural Tatamá en Colombia | Two new species of *Lepanthes* (Orchidaceae: Pleurothallidinae) from the Tatamá National Natural park in Colombia. *Orquideología* 35(2): 174–195.

ASIA - PACIFIC (excluding the MIDDLE EAST, AUSTRALIA, and NEW ZEALAND)

Alappat, J. P. 2018. *Bulbophyllum aberrans* (Orchidaceae)—An addition to the orchid flora of India. *Journal of Japanese Botany* 93(3): 220–222.

Alappatt, J. P. 2018. *Bulbophyllum sarcophyllum* (King & Pantl.) J.J.Sm. (Orchidaceae): A new distributional record for Andamn[sic—Andaman] and Nicobar Islands. *Indian Forester* 144(9): 877–878.

Arigela, R. K., Singh, R. K., and Jalal, J. S. 2019. Typification and a new synonym of *Liparis atropurpurea* (Orchidaceae). *Phytotaxa* 402(4): 216–218 (doi: 10.11646/phytotaxa.402.4.5).

Averyanov, L. V., Averyanova, A. L., Nguyen, K. S., Orlov, N. L., Maisak, T. V., and Nguyen, H. T. 2018. New and rare orchid species (Orchidaceae) in the flora of Cambodia and Laos. *Novitates Systematicae Plantarum Vascularium* 49(1): 24–41 (doi: 10.31111/novitates/2018.49.24).

- Averyanov, L. V. and Gruss, O. 2018. Neu entdeckte Orchideen in Vietnam. *OrchideenJournal* 25(4): 149–160.
- Averyanov, L. V. and Gruss, O. 2018. *Biermannia longicheila*—Eine neue attraktive Orchidee aus Südvietnam. *OrchideenJournal* 25(3): 104–108.
- Averyanov, L. V., Nguyen, K. S., Truong, B. V., Nguyen, V. C., Maisak, T. V., Thai, T. H., Dat, P. T. T., and Tu, B. N. 2019. New species of *Bulbophyllum* (Orchidaceae) in the flora of Vietnam II. *Phytotaxa* 404(6): 231–244 (doi: 10.11646/phytotaxa.404.6.2).
- Averyanov, L. V., Nguyen, V. C., Nguyen, K. S., Maisak, T. V., and Truong, B. V. 2019. New orchids (Orchidaceae) in the flora of Vietnam I. epidendroideae. *Taiwania* 64(2): 176–188 (doi: 10.6165/tai.2019.64.176).
- Averyanov, L. V., Nuraliev, M. S., Maisak, T. V., Kuznetsov, A. N., and Kuznetsova, S. P. 2019. *Didymoplexis holochelia*[sic] (Orchidaceae, Gastrodiinae), a new species from northern Vietnam. *Phytotaxa* 405(1): 054–060 (doi: 10.11646/phytotaxa.405.1.5).
- Bhandari, P. K., Thakur, J., Sharma, S., and Uniyal, P. L. 2018. Orchid diversity in Basukedar region (Rudraprayag District) of Uttarakhand. *Journal of the Orchid Society of India* 32: 73–79.
- Cabactulan, D., De Leon, M. D., Pimentel, R., and Cootes, J. 2018. Drie neue Orchideenarten der Inseln Mindanao und Palawan, Philippinen. *OrchideenJournal* 25(4): 168–172.
- Cavestro, W. 2018. *Bulbophyllum nafisae* Cavestro (Orchidaceae: Dendrobieae): Eine neue *Bulbophyllum*-Art aus Westjava, Indonesien | *Bulbophyllum nafisae* Cavestro (Orchidaceae: Dendrobieae): A new *Bulbophyllum* species from West-Java, Indonesia. *Die Orchidee* 70(2): 139–143.
- Chen, G.-Z., Chen, L.-J., Rao, W.-H., Zheng, F., Liu, W.-R., Zhang, P.-W., and Chen, J.-B. 2019. *Cheirostylis wenshanensis*, a new species of Orchidaceae from Yunan, China. *Phytotaxa* 404(2): 074–078 (doi: 10.11646/phytotaxa.404.2.2).
- Chen, G.-Z., Zhang, G.-Q., Huang, J., Wang, M., Rao, W.-H., and Chen, L.-J. 2019. *Cymbidium shidianense* (Orchidaceae: Epidendroideae), a new species from China: evidence from morphology and molecular data. *Phytotaxa* 399(1): 100–108 (doi: 10.11646/phytotaxa.399.1.10).
- Cootes, J. and Clements, M. A. 2018. *Euphlebium papilionaceum* Cootes et M.A.Clem (Orchidaceae; Epidendroideae; Dendrobiinae)—ein neuer Name für eine gut bekannte Orchidee von den Philippinen | *Euphlebium papilionaceum* Cootes et M.A.Clem (Orchidaceae; Epidendroideae; Dendrobiinae)—a new name for a well-known orchids from the Philippines. *Die Orchidee* 70(1): 66–69.
- Devi, K., Samant, S. S., Puri, S., and Dutt, S. 2018. Diversity, distribution pattern, and indigenous uses of orchids in Kanawar Wildlife Sanctuary of Himachal Pradesh, northwestern Himalaya. *Journal of the Orchid Society of India* 32: 17–23.

- Gonçalves, G. F., Mauad, A. V. S. R., Taques, G., Smidt, E. C., and Barros, F. D. 2019. Molecular and morphological phylogenetic analysis and taxonomic revision of the genus *Orleanesia* (Laeliinae, Epidendroideae, Orchidaceae). *Phytotaxa* 392(1): 001–018 (doi: 10.11646/phytotaxa.392.1.1).
- Gruss, O., Nguyen, H. T., and Chu, X. C. 2018. *Paphiopedilum jackii* forma *virescences*. *OrchideenJournal* 25(3): 125–127.
- Gyeltshen, C., Dalström, S., Gyeltshen, N., and Tobgay, K. 2019. A new spotted *Chiloschista* (Orchidaceae: Aeridinae) from Buthan. *Lankesteriana* 19(1): 23–29 (doi: 10.15517/lank.v19i1.37030).
- Hartini, S. 2019. Orchids diversity in the sicikeh-cikeh forest, North Sumatra, Indonesia. *Biodiversitas* 20(4): 1087–1096 (doi: 10.13057/biodiv/d200421).
- He, H. 2019. *Cymbidium dianlan*, nom. nov. for *C. yunnanensis* G.Q.Zhang & S.R.Lan (Orchidaceae) from China. *Phytotaxa* 391(2): 149 (doi: 10.11646/phytotaxa.391.2.9).
- Huang, J., Wang, M., Chen, L.-J., Huang, Z.-C., Rao, W.-H., Zhang, Y.-Q., Chen, J.-B., and Chen, G.-Z. 2019. *Bletilla guizhouensis* (Orchidaceae; Epidendroideae), a new species from Guizhou China: evidence from morphological and molecular analyses. *Phytotaxa* 406(5): 279–286 (doi: 10.11646/phytotaxa.406.5.3).
- Jalal, J. S. and Jayanthi, J. 2019. *Pecteilis korigadensis* (Orchidaceae: Orchidoideae), a new terrestrial orchid from the northern Western Ghats, India. *Phytotaxa* 388(2): 167–173 (doi: 10.11646/phytotaxa.388.2.3).
- Jenny, R. 2019. Die Gattung *Esmeralda* Rchb.f. 1862. *Die Orchidee* 70(3): 182–191.
- Jenny, R. 2019. A new species of *Bulbophyllum*. *Orchid Review* 127(1325): 33–35.
- Jenny, R. 2019. *Bulbophyllum championii*, a new species. *Orchid Review* 127(1326): 91–95.
- Kang, D. H., Cho, S. H., Ong, H. G., Ling, S. M., Kyaw, N. O., Kim, Y. D., and Kurzweil, H. 2019. Two new generic records in the orchid flora of Myanmar. *Korean Journal of Plant Taxonomy* 49(1): 96–99 (doi: 10.11110/kjpt.2019.49.1.96) [*Disperis*, *Thuniopsis*].
- Karuppusamy, S. and Ravichandran, V. 2019. A new species of *Luisia* (Orchidaceae: Epidendroideae: Vandeae) from the Western Ghats of India. *Phytotaxa* 387(4): 295–299 (doi: 10.11646/phytotaxa.387.4.3).
- Kocyan, A., Kocyan, S. M., Jumian, J., Sraban, S., and Joshi, J. 2019. A rare myco-heterotrophic orchid from Borneo: *Platanthera saprophytica* J.J.Sm. *Malesian Orchid Journal* 23: 97–102.
- Kumar, A., Krishna, G., and Ranjan, V. 2019. A third species of *Epipogium* (Orchidaceae) added to the Indian flora. *Richardiana, nouv. sér.* 3: 17–24.

- Kumar, A., Samant, S. S., Tewari, L. M., and Paul, S. 2018. Diversity, distribution, indigenous uses, and status of orchids in Kalatop-Khajjiar Wildlife Sanctuary, Chambal District, Himachal Pradesh. *Journal of the Orchid Society of India* 32: 93–98.
- Li, J.-W., Wang, X.-L., Wang, C.-W., Pan, B., Song, Z.-Q., and Jin, X.-H. 2019. *Bulbophyllum yarlungzangboense* (Orchidaceae; Epidendroideae; Malaxideae), a new species from Tibet, China. *Phytotaxa* 404(2): 079–084 (doi: 10.11646/phytotaxa.404.2.3).
- Li, L., Chung, S.-W., Li, B., Zeng, S.-J., Yan, H.-F., and Li, S.-J. 2019. *Liparis napoensis* (Orchidaceae), a new species from Guangxi, China. *PhytoKeys* 119: 31–37 (doi: 10.3897/phytokeys.119.32041).
- Liao, X.-Y., Zhang, D.-Y., Lan, S.-R., and Liu, Z.-J. 2019. *Paphiopedilum erythroanthum*, a new species of slipper orchid (Cypripedioideae, Orchidaceae) from China based on morphological and molecular data. *Phytotaxa* 406(5): 271–278 (doi: 10.11646/phytotaxa.406.5.2).
- Liu, Q., Kumar, P., and Gao, J.-Y. 2019. Notes on *Gastrochilus gongshanensis* (Orchidaceae). *Kew Bulletin* 74(2): art. 21 (doi: 10.1007/s12225-019-9808-3).
- Liu, Q., Song, Y., Jin, X. H., and Gao, J. Y. 2019. Phylogenetic relationships of *Gastrochilus* (Orchidaceae) based on nuclear and plastid DNA data. *Botanical Journal of the Linnean Society* 189(3): 228–243 (doi: 10.1093/botlinnean/boy084).
- Liu, Y. W., Zhou, X. X., Schuiteman, A., Kumar, P., Hermans, J., Chung, S. W., and Tian, H. Z. 2019. Taxonomic notes on *Goodyera* (Goodyerinae, Cranichideae, Orchidoideae, Orchidaceae) in China and an addition to orchid flora of Vietnam. *Phytotaxa* 395(1): 27–34 (doi: 10.11646/phytotaxa.395.1.3).
- Ma, L., Chen, X.-Y., Liu, J.-F., and Chen, S.-P. 2019. *Gastrodia fujianensis* (Orchidaceae, Epidendroideae, Gastrodieae), a new species from China. *Phytotaxa* 391(4): 269–272 (doi: 10.11646/phytotaxa.391.4.5).
- Mishra, S., Vivek, C. P., Ekka, G. A., and Singh, L. J. 2019. Taxonomic notes on *Grosourdia muriculata* (Orchidaceae: Epidendroideae: Vandaeae: Aeridinae), a little known endemic orchid from the Andaman & Nicobar Islands, India. *Journal of Threatened Taxa* 11(1): 13162–13167 (doi: 10.11609/jot.3842.11.1.13162-13167).
- Munawaroh, E. and Yuzammi. 2019. Species diversity of orchids in Bukit Barisan Selatan national park, Lampung, Indonesia. *Biodiversitas* 20(1): 343–349 (doi: 10.13057/biodiv/d200140).
- Naive, M. A., De Leon, M. D., and Cootes, J. 2019. *Bulbophyllum amorosum* (Orchidaceae): eine kleine neue Art aus Bukidnon, Philippinen | *Bulbophyllum amorosum* (Orchidaceae): a small new species from Bukidnon, Philippines *Die Orchidee* 70(3): 228–231.

- Naive, M. A. K., Calaramo, M. A., and Alejandro, G. J. D. 2019. Four new combinations of the genera *Bulbophyllum* and *Dendrobium* (Orchidaceae) from the Philippines. *Lankesteriana* 19(1): 21–22 (doi: 10.15517/lank.v19i1.37029).
- Nguyen, H. T., Gruss, O., and Chu, X. C. 2018. *Dendrobium* × *tungchii*—Eine neue Naturhybride aus Vietnam. *OrchideenJournal* 25(3): 128–130.
- Nguyen, H. T., Gruss, O., Chu, X. C., and Vuong, T. B. 2019. *Cymbidium aloifolium*—Zwei neue Farbformen aus Vietnam. *OrchideenJournal* 26(1): 36–40.
- O'Byrne, P. 2019. *Dendrobium* section *Crinifera* in Peninsular Malaysia—Precursory notes. *Malesian Orchid Journal* 23: 17–62.
- O'Byrne, P. and Vermeulen, J. J. 2018. *Grosourdyia reflexicalcar*—Eine neue Orchideenart aus Sulawesi | *Grosourdyia reflexicalcar*—A new orchid species from Sulawesi. *OrchideenJournal* 25(3): 100–105.
- O'Byrne, P. and Vermeulen, J. J. 2019. *Dendrobium* in Sulawesi—New species, subspecies and records. Part 1: *Grastidium* and *Diplocaulobium*. *Malesian Orchid Journal* 23: 65–85.
- Odyuo, N., Roy, D. K., Bhattacharjee, A., and Ormerod, P. 2019. *Rhomboda monensis* (Orchidaceae), a new species of terrestrial orchid from India. *Phytotaxa* 405(1): 061–064 (doi: 10.11646/phytotaxa.405.1.5).
- Ong, P. T. 2018. *Chiloschista exuperei*, a new orchid record for Peninsular Malaysia from the Perlis limestone hills. *Malayan Orchid Review* 52: 65–68.
- Ong, P. T. 2019. *Bromheadia obyrneorum* and *B. scirpoidea* subsp. *dilatata*, two new orchid taxa from Peninsular Malaysia. *Malesian Orchid Journal* 23: 103–111.
- Ormerod, P. 2018. Notes on *Zeuxine* Lindl. (Orchidaceae: Goodyerinae). *Harvard Papers in Botany* 23(2): 269–277 (doi: 10.3100/hpib.v23iss2.2018.n10).
- Ormerod, P. 2018. Notes on Asiatic *Tropidia* (Orchidaceae: Tropidieae) [erratum]. *Harvard Papers in Botany* 23(2): 279 (doi: 10.3100/hpib.v23iss2.2018.n11).
- Ormerod, P. 2018. Four new Papuan species of *Dendrobium* section *Grastidium*. *The Orchadian* 19(6): 267–275.
- Ormerod, P. and Kumar, C. S. 2018. New names in Indian and Sri Lankan orchids. *Harvard Papers in Botany* 23(2): 281–284 (doi: 10.3100/hpib.v23iss2.2018.n12).
- Peng, Y.-L., Zhou, Z., Lan, S.-R., and Liu, Z.-J. 2019. *Cymbidium jiangchengense* (Orchidaceae; Epidendroideae; Cymbidiinae), a new species from China: evidence from morphology and DNA sequences. *Phytotaxa* 408(1): 077–084 (doi: 10.11646/phytotaxa.408.1.6).

Phueakhlai, O., Suddee, S., Hodkinson, T. R., Pedersen, H. Æ., Srisom, P., and Sungkaew, S. 2018. *Dendrobium chrysocrepis* (Orchidaceae), a new record for Thailand. *Thai Forest Bulletin* 46(2): 134–137 (doi: 10.20531/tfb.2018.46.2.04).

Prakash, O., Samant, S. S., Yadava, A. K., Kumar, V., and Dutt, S. 2018. Orchid diversity at Pangi Valley of Himachal Pradesh, northwestern Himalaya. *Journal of the Orchid Society of India* 32: 45–54.

Priyadarshana, T. S., Atthanagoda, A. G., Wijewardhane, I. H., Siriweera, K. S., Aberathna, N., and Kumar, P. 2019. *Pteroceras dalaputtuwa* (Orchidaceae: Epidendroideae: Vandeeae: Aeridinae), a new species from Sri Lanka and re-collection of *Pteroceras viridiflorum* after 150 years. *Phytotaxa* 399(1): 065–076 (doi: 10.11646/phytotaxa.399.1.7).

Pupulin, F. 2019. The New Refugium Botanicum—*Phalaenopsis japonica*. *Orchids, the Bulletin of the American Orchid Society* 88(2): 106–109.

Rao, A. N. and Kumar, V. 2018. Updated checklist of orchid flora of Manipur. *Turczaninowia* 21(4): 109–134 (doi: 10.14258/turczaninowia.21.4.12).

Raskoti, B. B. and Ale, R. 2019. New species of orchids and notes on Orchidaceae of Nepal. *Phytotaxa* 394(4): 257–266 (doi: 10.11646/phytotaxa.394.4.3).

Ravichandran, V., Manikandan, M., and Murugan, C. 2019. *Habenaria richardiana* (Orchidaceae), a little known endemic orchid from Nilgiri Biosphere Reserve (India). *Richardiana, nouv. sér.* 3: 25–30.

Schuiteman, A., Luang Aphay, S., and Iio, S. 2018. *Paphiopedilum papilio-laoticus* (Orchidaceae), eine neue Art aus Laos. *OrchideenJournal* 25(3): 92–94.

Siegel, C. 2019. The orchids of the Hawaiian islands. *Orchid Digest* 83(1): 12–23.

Souvannakhoummane, K., Kumar, P., Gale, S. W., Lanorsavanh, S., and Lamxay, V. 2018. Three new additions to the orchid flora of Lao PDR. *Thai Journal of Botany* 10(2): 145–151.

Suetsugu, K. and Hayakawa, H. 2019. A new variety of *Goodyera schlechtendaliana* (Orchidaceae) from Yakushima and Okinawa, Japan. *Acta Phytotaxonomica et Geobotanica* 70(1): 49–55 (doi: 10.18942/apg.201814).

Suetsugu, K. and Hsu, T.-C. 2019. New combinations in the genus *Didymoplexis* (Orchidaceae; Epidendroideae; Gastrodieae), with a new variety of *D. siamensis* from Amami-Oshima Island, Japan. *Phytotaxa* 388(2): 174–178 (doi: 10.11646/phytotaxa.388.2.4).

Suetsugu, K., Kaida, S., Hsu, T.-C., and Sawa, S. 2019. *Lecanorchis moritae* (Orchidaceae, Vanilloideae), a new mycoheterotrophic species from Amami-Oshima Island, Japan, based on morphological and molecular data. *Phytotaxa* 404(4): 137–145 (doi: 10.11646/phytotaxa.404.4.2).

Truong, B. V., Ormerod, P., Cootes, J., and Le, M. D. 2019. New records for the orchid flora of Vietnam from Phu Quoc National Park. *Malesian Orchid Journal* 23: 113–119.

Truong, B. V., Von Raab-Straube, E., Hein, P., Duwe, V. K., Bui, V. H., Tu, B. N., Tran, H. D., and Luong, D. T. 2019. Orchideen botanisieren in den Wolken—Auf der Jagd nach seltenen Orchideen im Bach Mã National Park, Vietnam | Orchidizing through the cloud—A trip to hunt for rare orchids in Bach Mã National Park, Vietnam. *OrchideenJournal* 26(1): 30–37.

Truong, V. B., Vermeulen, J. J., and Truon, T. Q. 2019. A new record of *Bulbophyllum* section *Aeschynanthoides* from Vietnam. *Lankesteriana* 19(1): 1–4 (doi: 10.15517/lank.v19i1.36164).

Yelianti, U., Gemita, E., and Schue, S. 2018. Inventarization and conservation of indigenous orchids in Harapan rain forest Jambi Province. *Journal of Physics: Conference Series* 1116: art. 052078 (doi: 10.1088/1742-6596/1116/5/052078) [Sumatra].

Zhang, G.-Q., Chen, G.-Z., Chen, L.-J., and Lan, S.-R. 2019. *Cymbidium yunnanensis*[sic]: a new orchid species (Orchidaceae; Epidendroideae) from China based on morphological and molecular evidence. *Phytotaxa* 387(2): 149–147 (doi: 10.11646/phytotaxa.387.2.7).

AUSTRALIA & NEW ZEALAND

Adair, R. J., Tonkinson, D., Harris, S., and Piko, D. 2017. A census and significance of the vascular flora of Mount Cannibal, Victoria. *Victorian Naturalist* 134(6): 160–176.

Bates, R. J. 2019. A new species of pink finger orchid *Caladenia* (Orchidaceae) from South Australia. *Australian Orchid Review* 84(2): 43–44.

Bates, R. J. 2019. *Thelymitra tubulina* a new species of sun orchid (Orchidaceae) from South Australia. *Australian Orchid Review* 84(1): 34–36.

Brown, A. 2019. Orchids of Western Australia's eastern granites (Lake Johnston to Balladonia). *The Orchadian* 19(7): 294–303.

Jones, D. L. 2017. *Oligochaetochilus brinsleyi* (Pterostylidinae), a new but possibly extinct species from the Central Coast of New South Wales. *Australian Orchid Review* 82(1): 29–33.

Jones, D. L. 2018. Six new species of *Plumatichilos* (Orchidaceae: Pterostylidinae) from south-eastern Australia and a new species from New Zealand. *Australian Orchid Review* 83(4): 26–44.

Jones, D. L. 2019. Two new species of *Prasophyllum* R.Br. in the *P. patens* R.Br. / *P. odoratum* R.S.Rogers complex from south-eastern New South Wales and Australian Capital Territory. *Australian Orchid Review* 84(2): 35–39.

Jones, D. L. and Banks, D. P. 2019. *Sarcochilus niveus* (Orchidaceae: Aeridinae), a new species from New South Wales and south-eastern Queensland. *Australian Orchid Review* 84(2): 11–22.

Jones, D. L. and Clements, M. A. 2018. *Pterostylis* × *ralphcranei*, a striking new natural hybrid from south-eastern Queensland. *Australian Orchid Review* 83(5): 44–45.

Jones, D. L. and Clements, M. A. 2018. *Danhatchia novaehollandiae* (Orchidaceae: Goodyerinae), a new species from south-eastern Australia. *Australian Orchid Review* 83(4): 56–58.

Jones, D. L. and Clements, M. A. 2019. New combinations in Australian Orchidaceae. *Australian Orchid Review* 84(1): 19–20.

Jones, D. L. and Copeland, L. M. 2018. *Prasophyllum albovirens* (Orchidaceae: Prasophyllinae), a new species from northern New South Wales. *Australian Orchid Review* 83(5): 46–49.

Jones, D. L. and Copeland, L. M. 2019. *Corysanthes longituba* (Orchidaceae: Acianthiinae[sic]), a new species from northern New South Wales. *Australian Orchid Review* 83(6): 56–58.

Jones, D. L. and French, C. J. 2017. *Plumatichilos heberlei* (Pterostylidinae), a new species of Bearded Greenhood from Western Australia. *Australian Orchid Review* 82(1): 50–53.

Jones, D. L. and French, C. J. 2018. New combinations in the Pterostylidinae. *Australian Orchid Review* 83(4): 55.

Jones, D. L. and French, C. J. 2019. *Diuris brockmanii*, a new species in the *Diuris corymbosa* complex (Orchidaceae: Diurideae) from Western Australia with affinities to *Diuris brumalis*. *Australian Orchid Review* 84(2): 32–34.

Jones, D. L. and French, C. J. 2019. New species in the *Diplodium nanum* (R.Br.) D.L.Jones & M.A.Clem. complex (Orchidaceae) from Western Australia. *Australian Orchid Review* 84(1): 21–32.

Jones, D. L. and Rouse, D. T. 2018. *Prasophyllum argillaceum* (Orchidaceae: Prasophyllinae), a new species in the *Prasophyllum campestre* R.J.Bates & D.L.Jones / *Prasophyllum petilum* D.L.Jones & R.J.Bates complex. *Australian Orchid Review* 83(5): 50–53.

Whinray, J. 2019. The Tasmanian records of the short spider-orchid *Caladenia brachyscapa* G.W. Carr and of two closely related specimens. *Victorian Naturalist* 136(1): 21–24.

EUROPE, NORTH AFRICA & THE MIDDLE EAST (excluding the southern part of the ARABIAN PENINSULA)

Authier, P., Bordes, N., and Dussarrat, M.-L. 2019. Une orchidée nord-méditerranéenne: *Orchis quadripunctata* Cirillo ex Tenore. *l'Orchidophile* 50(220): 77–84.

Babali, B., Bouzza, M., and Hanaoui-Benammar, H. 2018. Sur la découverte et redécouverte des taxa de *Ophrys atlantica* dans la région de Tlemcen-Algérie. *Journal Europäischer Orchideen* 50(2–4): 88–100.

Bateman, R. M. 2018. Two bees or not two bees? An overview of *Ophrys* systematics. *Berichte aus den Arbeitskreisen Heimische Orchideen* 35(1): 5–46.

Bergfeld, D. 2018. Ergänzungen zur Orchideenflora der italienischen Regionen Abruzzen und Molise. *Journal Europäischer Orchideen* 50(2–4): 273–298.

Bergfeld, D. 2018. *Neotinea ustulata* var. *aestivalis* im Vergleich zur Nominatsippe—eine Zusammenfassung des aktuellen Kenntnisstandes. *Journal Europäischer Orchideen* 50(2–4): 3–42.

Bergfeld, D., et al. 2019. Die Orchideen Baden-Württembergs—Arten, Unterarten, Varietäten, Verbreitung. Eine Bestandsaufnahme zum 50-jährigen Jubiläum des AHO Baden-Württemberg. *Journal Europäischer Orchideen* 51(1–2): 3–307.

Brandrud, M. K., Paun, O., Lorenz, R., Baar, J., and Hedrén, M. 2019. Restriction-site associated DNA sequencing supports a sister group relationship of *Nigritella* and *Gymnadenia* (Orchidaceae). *Molecular Phylogenetics and Evolution* 136: 21–28 (doi: 10.1016/j.ympev.2019.03.018).

Emmrich, R. 2018. Orchideen in Sachsen—gestern und heute. *Berichte aus den Arbeitskreisen Heimische Orchideen* 35(1): 221–231.

Foelsche, W. 2018. *Nigritella graciliflora*, das schmalblütige Kohlröschen, eine weitere apomiktische Sippe des Trenchlings in der Hochschwabgruppe. *Berichte aus den Arbeitskreisen Heimische Orchideen* 35(1): 153–170.

Foelsche, W., Wüest, R., Merz, E., Gerbaud, M., and Gerbaud, O. 2018. *Nigritella lithopolitanica* und *Nigritella karawankarum* spec. nov., das Steiner Alpen-Kohlröschen und das neue Karawanken-Kohlröschen. *Berichte aus den Arbeitskreisen Heimische Orchideen* 35(1): 47–121.

Galanos, C. J. 2018. *Epipactis densiflora*, verified for the first time from Rhodes Island, SE Aegean, Greece. *Journal Europäischer Orchideen* 50(2–4): 264–272.

Girardi, E., Boillat, C., Boillat, V., Costa, P., Koegl, C., Stockner, W., Tratter, W., Wilhelm, T., and Lorenz, R. 2018. Über Funde von *Corallorhiza trifida* auf aussergewöhnlicher Höhe in den Zentralalpen. *Journal Europäischer Orchideen* 50(2–4): 367–387.

Hamel, T., Meddad-Hamza, A., De Belair, G., Boulemtafes, A., Slimani, A., and Bellili, A. 2018. Sur la découverte des nouvelles stations d'Orchidées rares dans le Djebel Taya (Guelma, Nord-Est algérien). *Journal Europäischer Orchideen* 50(2–4): 299–314.

Hennigs, S. 2018, publ. 2019. Notizen zum aktuellen Kenntnisstand von *Epipactis albensis*; *Epipactis atrorubens* subsp. *triploidea* und *Epipactis distans* in Brandenburg. *Berichte aus den Arbeitskreisen Heimische Orchideen* 35(2): 148–178.

Hertel, S. and Presser, H. 2018. Bemerkenswerte Orchideenfunde in Albanien und Süd-Griechenland. *Berichte aus den Arbeitskreisen Heimische Orchideen* 35(1): 122–152.

Jakely, D. and Könighofer, H. 2018. \times *Dactylitella alto-ovirensis* Jakely & Könighofer = *Dactylorhiza fuchsii* (Druce) Soo \times *Nigritella lithopolitanica* Ravnik, eine neue Gattungshybride aus Kärnten, Österreich. *Berichte aus den Arbeitskreisen Heimische Orchideen* 35(1): 207–220.

Kliebe, A. 2018. Beobachtungen an einem auf den Lahnbergen bei Marburg entdeckten Vorkommen des Blattlosen Widerbart (*Epipogium aphyllum* Swartz). *Berichte aus den Arbeitskreisen Heimische Orchideen* 35(1): 185–206.

Lewis, L. 2018. *Orchis* \times *apollinaris* (*Orchis italica* \times *simia*) on Cyprus. *Journal Europäischer Orchideen* 50(2–4): 227–234.

Lewis, L. 2018. Named yellow and white variants of *Neottia nidus-avis*. *Journal Europäischer Orchideen* 50(2–4): 221–226.

Machaka-Houri, N., Hourri, A., Westbury, D. B., and Ibarhim, M. 2018. Predicting potential distribution of *Orchis galilaea* in Lebanon using geographic information system. *International Multidisciplinary Scientific GeoConference Surveying Geology and Mining Ecology Management, SGEM* 18: 749–756.

Magrini, S., Rempicci, M., Gransinigh, E., Antonj, M., and Buono, S. 2018. A new locality of *Ophrys passionis* subsp. *majellensis* from Latium (central Italy) with a new lower altitudinal limit. *Journal Europäischer Orchideen* 50(2–4): 61–66.

Nicole, M., Casiez, C., Constant, J.-L., and Soca, R. 2019. Trois hybrides rares en Languedoc. *l'Orchidophile* 50(220): 65–69.

Paušič, I., Dakskobler, I., Surina, B., and Dolinar, B. 2018. Taxonomic revision and morphological analysis of red vanilla orchid, *Nigritella miniata* (Crantz) Janchen 1960 (Orchidaceae-Orchideae) in the Julian and Dinaric Alps (Slovenia). *Wulfenia* 25: 179–208.

Poppei, M., Ristow, M., Geissler, K., and Metz, J. 2018, publ. 2019. Die Bestandssituation des Breitblättrigen Knabenkrautes (*Dactylorhiza majalis* (Rchb.) Hunt et Summerhayes subsp. *majalis*) in ausgewählten Schutzgebieten Brandenburgs. *Berichte aus den Arbeitskreisen Heimische Orchideen* 35(2): 179–196.

Presser, H. 2018. Eine neue Art aus den *Ophrys oestrifera*-Formenkreis in Nordgriechenland. *Berichte aus den Arbeitskreisen Heimische Orchideen* 35(1): 171–184.

Rempicci, M., Buono, S., Gransinigh, E., Antonj, M., and Magrini, S. 2018. *Ophrys* × *marsilii*, a new natural hybrid from Italy. *Journal Europäischer Orchideen* 50(2–4): 388–392.

Rohmer, M. 2018. *Ophrys argolica* im Nordwest-Epirus (Griechenland), weit ausserhalb ihres bekannten Verbreitungsgebietes. *Journal Europäischer Orchideen* 50(2–4): 197–201.

Rohmer, M. 2018. *Limodorum trabutianum*, first report from Western Macedonia (Greece). *Journal Europäischer Orchideen* 50(2–4): 339–344.

Tyteca, D. and Esposito, F. 2018. Recent proposals in *Platanthera* systematics in Western Europe, with focus on intermediate looking plants. *Journal Europäischer Orchideen* 50(2–4): 393–208.

Tyteca, D., Pessoa, J., Pereira, A., Pereira, C., Borges, L., Delaunay Caperta, A., Areias, F., and Monteiro, J. 2018. The orchid flora of Portugal—Addendum n. 7—*Gymnadenia borealis* new for Portugal and Galicia?—New localities of *Spiranthes aestivalis* and *Neottia nidus-avis*. *Journal Europäischer Orchideen* 50(2–4): 235–246.

Veya, P. and Tande, A. 2018. *Ophrys homeri* × *Ophrys phrygia*—a new hybrid of Chios. *Journal Europäischer Orchideen* 50(2–4): 203–206.

Zimmermann, F. 2018, publ. 2019. Die Orchideen Brandenburgs—Verbreitung, Gefährdung, Schutz. *Berichte aus den Arbeitskreisen Heimische Orchideen* 35(2): 4–147.

GENERAL

Chen, S. P., Tian, H. Z., Guan, Q. X., Zhai, J. W., Zhang, G. Q., Chen, L. J., Liu, Z. J., Lan, S. R., and Li, M. H. 2019. Molecular systematics of Goodyerinae (Cranichideae, Orchidoideae, Orchidaceae) based on multiple nuclear and plastid regions. *Molecular Phylogenetics and Evolution* 139: art. 106542 (doi: 10.1016/j.ympev.2019.106542).

Clements, M. A. and Jones, D. L. 2019. *Pecteilis* Raf. (Orchideae): a molecular phylogenetic based determination of their status in Australian Orchidaceae. *Australian Orchid Review* 83(6): 50–55.

Clements, M. A. and Jones, D. L. 2019. Notes on Australasian orchids 3: Nomenclatural adjustments in the tribe Gastrodieae (Orchidaceae); new combinations in *Demorchis* and *Neoclemensia* and the erection of the new genus *Leptogastrodia*. *Australian Orchid Review* 84(1): 37–44.

Clements, M. A., Jones, D. L., and Banks, D. P. 2019. Notes on Australasian orchids 4: Subtribe Aeridinae. *Australian Orchid Review* 84(2): 27–31.

Gamisch, A. and Comes, H. P. 2019. Clade-age-dependent diversification under high species turnover shapes species richness disparities among tropical rainforest lineages of *Bulbophyllum* (Orchidaceae). *BMC Evolutionary Biology* 19(1): art. 93 (doi: 10.1186/s12862-019-1416-1).

Gargiulo, R., Pironon, S., Zheleznaya, E., Sanchez, M. D., Balázs, Z. R., Podar, D., Wilkinson, T., Jäkäläniemi, A., Kull, T., Väre, H., and Fay, M. F. 2019. Phylogeography and post-glacial dynamics in the clonal-sexual orchid *Cypripedium calceolus* L. *Journal of Biogeography* 46(3): 526–538 (doi: 10.1111/jbi.13528).

Gołaszewska, E., Gadziszewska, J., and Latałowa, M. 2019. First record of orchid subfossil seeds—The abundant occurrence of *Epipactis palustris* (L.) Crantz and *Dactylorhiza* spp. seeds in early Holocene sediments from Central Europe. *Review of Palaeobotany and Palynology* 265: 1–12 (doi: 10.1016/j.revpalbo.2019.03.001).

Li, Y. X., Li, Z. H., Schuiteman, A., Chase, M. W., Li, J. W., Huang, W. C., Hidayat, A., Wu, S. S., and Jin, X. H. 2019. Phylogenomics of Orchidaceae based on plastid and mitochondrial genomes. *Molecular Phylogenetics and Evolution* 139: art. 106540 (doi: 10.1016/j.ympev.2019.106540).

Mackay-Smith, T. H. and Roberts, D. L. 2019. Accuracy in the identification of orchids of the genus *Angraecum* by taxonomists and non-taxonomists. *Kew Bulletin* 74(2): art. 27 (doi: 10.1007/s12225-019-9813-6).