

Orchid Research Newsletter No. 52

When Phillip Cribb established the *Orchid Research Newsletter* in the early 1980s – in the last century and even the last millennium – it was typewritten, copied, stapled, and mailed out to more than 100 orchid scientists around the world. At that time, neologisms such as 'upload', 'e-mail', 'online', 'laptop', and 'defragmenting' were jargon used only by those with pocket protectors and inadequate trouser inseams; spam was only a meat product (Spam) and a parody by Monty Python ("Spamalot"). Almost 30 years later, those terms and a host of bewildering acronyms are used routinely in every office environment and home, and Spam (the meat product) is still not only on the shelves but by some accounts selling better than ever as a way to deal with inflationary food prices.

Eric Hoffer (1902-1983), the self-educated American longshoreman, self-styled philosopher, and author of *The True Believer* (1951), was a respected social commentator and analyst of mass movements. In the Hoffer corpus is one spellbinding observation that rings clear to those of us who have seen the revolutionary changes of the last 50 years: "In a time of drastic change it is the learners who inherit the future. The learned usually find themselves equipped to live in a world that no longer exists."

Digitization of our civilization over the course of the last few decades has been a blessing to learners but a bane to the learned. To be sure, e-mail is a mixed blessing for both. Although it has made communication instantaneous and thereby more effective, it has also increased our workload; it is not uncommon for someone, say, an orchid scientist, to receive more than 50 e-mails a day from colleagues, all of whom have come to expect an equally instantaneous reply.

The *Orchid Research Newsletter* became exclusively electronic in July 2003, saving the Royal Botanic Gardens, Kew, hundreds of pounds a year in international postage. Another advantage to this format was that it could not be lost in transit or hijacked in route by overzealous, orchidophilic postal carriers slaving to see the newest orchid names and references. Okay, that last bit may be exaggeration, but the point is that current and archived copies of the *ORN* can now be delivered by downloading directly, safely, cheaply, and literally in seconds all around the world from RBG Kew's website with only a few clicks. For some there may be a tactile need to turn a page manually or caress a book's binding, but, as any publisher suffering losses in book sales will tell you, sorry, those days are numbered. One media investment firm has predicted that Internet advertising spending will overtake print newspaper advertising in 2010 as the largest advertising category, as people increasingly go online for information and entertainment. The handwriting is on the (virtual) wall.

As reported below, holotypes and even entire herbaria have been and are being digitized and uploaded onto institutional websites, which will ensure at least their virtual existence in the event of natural disasters, warfare, insect damage and otherwise poor curation, theft, etc. The Missouri Botanical Garden and Harvard University are

also busy scanning literature of historical significance. At this writing in June 2008, Missouri's *Botanicus* (www.botanicus.org) has 395 titles (books/journals), 1,911 volumes, 876,885 pages, and 170,579 links to protologues online. Gustavo Romero of Harvard has informed me that "Google is currently digitizing all the books in the Orchid Library of Oakes Ames that do not have copyright issues." The value of these electronic versions is inestimable to the orchid researcher unable or unwilling to travel to examine type specimens or monographs in person.

Change is mainstream in every walk of life, and indeed history is simply a chronicle of changes through time. But in the 21st century, the rate of technological change itself is rising exponentially, raising the spectre of machines claiming the same civil rights as humans by 2029 according to the highly respected, consulted, and awarded futurist, Ray Kurzweil. His forecast for 2099? By then there will be no distinction between humans and computers, when humans will have acquired optical, cochlear, and neural implants and machines will have imported scans of the human brain. For more on these fascinating subjects, I encourage you to read his books, *The Age of Spiritual Machines* (1999) and *The Singularity Is Near* (2005). Paraphrasing Hoffer, how we deal with new technologies -- whether we embrace them or reject them in favour of the "better-the-devil-you-know" status quo -- will determine our level of success in the future, perhaps even our own survival as a species.

Alec Pridgeon

News from Correspondents

Please submit any news about newly completed research, future research plans and needs, change of address, upcoming or recent fieldwork, etc. to David Roberts (d.roberts@kew.org). Graduate students are especially encouraged to share the subjects of their thesis or dissertation with the international community. We will print submissions in the format used below. Many thanks to those who have contributed.

Acharya, Kamal Prasad (Department of Biology, Faculty of Mathematics and Natural Sciences, University of Bergen, Norway; e-mail: acharya.kamal@gmail.com) has recently completed his research on orchid species richness along a Himalayan elevation gradient. His study was based on orchids from Nepal, Tibet, Bhutan, and surrounding areas.

Dawson, Murray I. (Allan Herbarium, Landcare Research, P.O. Box 40, Lincoln 7640, New Zealand; e-mail: dawsonm@landcareresearch.co.nz) and his colleagues Brian Molloy and Ernst Beuzenberg recently published chromosome numbers for the majority of the New Zealand indigenous orchids (*New Zealand Journal of Botany* 45:

611-684. A much-shortened popular version in two parts has also been submitted to the *New Zealand Native Orchid Group Journal*.

About 75% of the species representing all 36 genera in New Zealand now have chromosome counts. Related chromosome counts are also provided from Australia, Lord Howe Island, and New Caledonia, and many species and genera are counted for the first time. A wide diversity of chromosome morphology and primary and secondary basic numbers among genera was reported (e.g., $x/x_2 = 11, 12, 13, 14, 15, 17, 18, 19, 20, 21, 22, 25, 26, 27$). They also reported on polyploidy (*Drymoanthus*, *Microtis*, *Nematoceras*), allopolyploidy (*Thelymitra*), and extensive aneuploidy. The chromosome data have proven informative and provided independent characters to test the integrity of the recent and extensive generic recircumscriptions of Australasian Orchidaceae based on plant macromorphology and DNA sequence data.

Upcoming Conferences

We welcome any news about future conferences for promotion here. Please send details to David Roberts (d.roberts@kew.org) 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.

4-8 February 2009

The Third Scientific Conference on Andean Orchids will be held 4-8 February 2009 in Quito, Ecuador. Three days of world-class talks on orchid systematics, ecology, and conservation science will be complemented by poster sessions, roundtable programs on a variety of subjects, a spectacular orchid show in the Itchimbia Cultural Center, and special evening dinner events. As for prior, highly successful Conferences in this series, there will be local tours and orchid tours operated by Ecuagenera, but what makes this event special is also the link for tours to the Galapagos. The impressive, bilingual Conference website (www.quitoorchidexpo2009.org) is now online to supply more information.

Digitization of Herbarium Specimens

Several institutions around the world are now scanning their herbaria to make specimens more accessible to scientists and the general public for systematics and conservation uses. One of the first orchid herbaria digitized was the Reichenbach Herbarium and available as a set of 265 microfiches, representing 9,000 sheets, from IDC publishers (www.idcpublishers.com) for a few thousand dollars.

The digital programme of the Herbarium at RBG Kew began in 2002. A subset of over 316,000 specimens and about 89,000 types out of the 7 million dried and liquid-preserved specimens altogether have been prioritized for scanning. To date, there are over 109,000 digital images (with collection data) of pressed and spirit-preserved

specimens; of these, almost 65,000 are types. To search for digital images online, go to <http://apps.kew.org/herbcat/navigator.do> and enter the query by family, scientific name, country or collector. You may also conduct more specific searches under Advanced Search. Searching under Orchidaceae now yields over 46,000 records. There are 4,300 type specimens among 364 genera now in the Catalogue, but not all have been scanned as yet. Records can also be downloaded, at no charge of course.

According to an article earlier this year in *The Linnean* (24: 8-11), the Linnean Society of London is responsible for curating 14,300 specimens in the Linnaean Herbarium. Digitization of those specimens began in January 2006 and was completed in August 2007. *A Catalogue of the Linnaean Herbarium* by Spencer Savage (1945) was previously put into electronic form in the 1990s to support this project. At www.linnean-online.org/, one can browse all 14,300 plant collections by genus from *Abroma* to *Zygophyllum*. The Flash-based Single Source Image (FSI) Viewer allows the user to zoom in and move around the image of a specimen, even measure where needed. You can also search using any of 10 different fields or all at once. Registration as a user on the site allows additional perks, such as saved searches, bookmarked items, and comments. Comments or questions can be directed to Julia Hoare at Julia@linnean.org.

Harvard University Herbaria have placed images of all of their types and specimens of historical or diagnostic value on the Internet, accompanied by label data and also in many cases by the protologue, original description of the species, and associated illustration(s). The digital collection of currently 20,820 entries can be accessed on the Harvard Herbaria Database at http://asaweb.huh.harvard.edu:8080/databases/specimen_index.html. According to Gustavo Romero, of the 20,820 entries, 8,786 are types of different categories. Workers have already digitized 8,607 of these types, the images of which can be found using the same search page indicated above. The orchid-type imaging project was financed by Harvard University's Library Digital Initiative.

If your institution has a similar project in progress or planned, please let us know by writing to David Roberts (d.roberts@kew.org). We would like to include that information in the next issue (January 2009) for the benefit of our readers.

Recent Orchid Nomenclature

New orchid names may now be accessed on the IPNI website:

(www.ipni.org/ipni/plantsearch?request_type=search&output_format=query&ret_defaults=on)

Click on "Show additional search items" on the right-hand side of the screen. After the search page appears, type in **Orchidaceae** under family name and (for example) **2005-11-30** under "Record date" and "Added since." This will pull up a list of all names added to the IPNI database since 30 November 2005.

Recent Literature

We are grateful to Ann McNeil, compiler of the Kew Record of Taxonomic Literature, and to Hannah Banks and Margaret Ramsay for drawing our attention to the following publications received between 4 January and 27 June 2008.

©Copyright: The following data are copyright © the Board of Trustees of the Royal Botanic Gardens, Kew. All rights reserved (see the Home page at www.kew.org/).

Bibliography and books

Du Puy, D. and Cribb, P. 2007. *The Genus Cymbidium*. 2nd ed. Royal Botanic Gardens, Kew.

Hermans, J., Hermans, C., Du Puy, D., Cribb, P., and Bosser J. 2007. *Orchids of Madagascar: Annotated Checklist*. 2nd ed. Royal Botanic Gardens, Kew.

Koniger, W. 2007. *Oncidium: Eine Monographie*. Bd 3. A Monograph. Vol. 3. Verlag Helga Koniger, Munchen.

Misra, S. 2007. *Orchids of India: A Glimpse*. BSMPS, Dehra Dun.

Anatomy and morphology

Abadie, J.-C., Püttsepp, U., Gebauer, G., Faccio, A., Bonfante, P., and Selosse, M.-A. 2006. *Cephalanthera longifolia* (Neottieae, Orchidaceae) is mixotrophic: a comparative study between green and nonphotosynthetic individuals. *Canad. J. Bot.* 84: 1462-1477.

Bernardello, G. 2007. A systematic survey of floral nectaries. In *Nectaries and Nectar* (ed. S. W. Nicolson, M. Nepi, and E. Pacini), pp. 19-128. Springer, Dordrecht, The Netherlands.

Bonatti, P. M., Sgarbi, E., and Del Prete, C. 2006. Gynostemium micromorphology and pollination in *Epipactis microphylla* (Orchidaceae). *J. Pl. Res.* 119: 431-437.

Davies, K. and Stpiczynska, M. 2007. Micromorphology of the labellum and floral spur of *Cryptocentrum* Benth. and *Sepalosaccus* Schltr. (Maxillariinae: Orchidaceae). *Ann. Bot.* 100: 797-805.

Silva, I. V., Meira, R. M. S. A., Azevedo, A. A., and Euclides, R. M. A. 2006. Estratégias anatómicas foliares de treze espécies de Orchidaceae ocorrentes em um campo de altitude no Parque Estadual de Serra do Brigadeiro (PESB) - MG, Brasil. (Anatomical foliar strategies of 13 species of Orchidaceae occurring in "high altitude grasslands" in the State Park of Serra do Brigadeiro (PESB) - Minas Gerais State, Brazil.) *Acta Bot. Bras.* 20: 741-750.

Sood, S. K., Kumar, N., and Singh, I. 2001-02. Embryology of the monandrous orchid *Eulophia hormusjii* Duth. (Epidendreae, Orchidaceae). *Acta Bot. Indica* 29-30: 15-18.

Swamy, K. K., Kumar, H. N. K., and Ramaswamy, S. N. 2007. Studies on seed morphometry of *Dendrobium* species. *Phytomorphology* 57: 33-43.

Tsutsumi, C., Yukawa, T., Lee, N. S., Lee, C. S., and Kato, M. 2007. Phylogeny and comparative seed morphology of epiphytic and terrestrial species of *Liparis* (Orchidaceae) in Japan. *J. Pl. Res.* 120: 405-412.

Vieira, M. F., Andrade, M. R. S., Bittencourt, Jr. N. S., and de Carvalho-Okano, R. M. 2007. Flowering phenology, nectary structure and breeding system in *Corymborkis flava* (Spiranthoideae: Tropicdieae), a terrestrial orchid from a Neotropical forest. *Austral. J. Bot.* 55: 635-642.

Cytogenetics

Jin, X. H., Zhang, T., Gu, Z. J., and Li, D. Z. 2007. Cytological studies on the genus *Holcoglossum* (Orchidaceae). *Bot. J. Linn. Soc.* 154: 283-288.

Vij, S. P., Vaidya, N., Pathak, P., and Verma, J. 2005. Karyomorphological studies in *Goodyera repens* R. Br. *J. Orchid Soc. India* 19: 1-9.

Ecology

Vieira, M. F., Andrade, M. R. S., Bittencourt, Jr. N. S., and de Carvalho-Okano, R. M. 2007. Flowering phenology, nectary structure and breeding system in *Corymborkis flava* (Spiranthoideae: Tropicdieae), a terrestrial orchid from a Neotropical forest. *Austral. J. Bot.* 55: 635-642.

Micropropagation/seed germination

Dutra, D., Johnson, T. R., Kauth, P. J., Stewart, S. L., Kane, M. E., and Richardson, L. 2008. Asymbiotic seed germination, *in vitro* seedling development, and greenhouse acclimatization of the threatened terrestrial orchid *Bletia purpurea*. *Pl. Cell Tissue Organ Cult.* 94: 11-21.

Johnson, T. R. and Kane, M. E. 2007. Asymbiotic germination of ornamental *Vanda*: *in vitro* germination and development of three hybrids. *Pl. Cell Tissue Organ Cult.* 91: 251-261.

Kauth, P. J., Johnson, T. R., Stewart, S. L., and Kane, M. E. 2008. A classroom exercise in hand pollination and *in vitro* asymbiotic orchid seed germination. *Pl. Cell Tissue Organ Cult.* 93: 223-230.

Lee-Espinosa, H. E., Murguia-Gonzalez, J., Garcia-Rosas, B., Cordova-Contreras, A. L., Laguna-Cerda, A., Mijangos-Cortes, J. O., Barahona-Perez, L. F., Iglesias-Andreu,

L. G., and Santana-Buzzy, N. 2008. *In vitro* clonal propagation of vanilla (*Vanilla planifolia* 'Andrews'). *HortScience* 43: 454-458.

Otero, J. T., Flanagan, N. S., Herre, E. A., Ackerman, J. D., and Bayman, P. 2007. Widespread mycorrhizal specificity correlates to mycorrhizal function in the neotropical, epiphytic orchid *Ionopsis utricularioides* (Orchidaceae). *Amer. J. Bot.* 94: 1944-1950.

Soguillon, S. and Rosario, T. L. 2007. Developmental characterization of pods of ground orchid *Spathoglottis plicata* 'Alba'. *Philipp. J. Crop Sci.* 32: 109-117.

Sungkumlong and Deb, C. R. 2008. Effects of different factors on immature embryo culture, PLBs differentiation and rapid mass multiplication of *Coelogyne suaveolens* (Lindl.) Hook. *Indian J. Exp. Biol.* 46: 243-248.

Vieira, J. G. Z., Yamakami, J. K., de Aguiar, R. S., Unemoto, L. K., and de Faria, R. T. 2007. Influence of hydrolized casein on the *Oncidium baueri* (Orchidaceae) *in vitro* cultivation. *Semina-Ciencias Agrarias* 28: 207-211.

Yagame, T., Yamato, M., Mii, M., Suzuki, A., and Iwase, K. 2007. Developmental processes of achlorophyllous orchid, *Epipogium roseum*: from seed germination to flowering under symbiotic cultivation with mycorrhizal fungus. *J. Pl. Res.* 120: 229-236.

Palynology

Hidayat, T., Yukawa, T., and Ito, M. 2006. Evolutionary analysis of pollinaria morphology of subtribe Aeridinae (Orchidaceae). *Reinwardtia* 12: 223-235.

Ramirez, S. R., Gravendeel, B., Singer, R. B., Marshall, C. R., and Pierce, N. E. 2007. Dating the origin of the Orchidaceae from a fossil orchid with its pollinator. *Nature* 448: 1042-1045.

Pollination

Bonatti, P. M., Sgarbi, E., and Del Prete, C. 2006. Gynostemium micromorphology and pollination in *Epipactis microphylla* (Orchidaceae). *J. Pl. Res.* 119: 431-437.

Systematics and distribution

Averyanov, L. V. 2007. Variations of *Paphiopedilum callosum* in Vietnam. *Orchid Dig.* 71: 138-142.

Averyanov, L. V. 2007. Variation of *Paphiopedilum villosum* in Vietnam. *Orchid Dig.* 71: 143-147.

- Azevedo, C. and van den Berg, C. 2007. Lectotypifications in *Prescottia* (Orchidaceae-Orchidoideae). *Kew Bull.* 62: 651-655.
- Barbaro, A. and Kreutz, C. A. J. 2007. *Epipactis tallosii* A. Molnar & Robatsch subsp. *zaupolensis* Barbaro & Kreutz subsp. nov. (Orchidaceae) in Italia nord-orientale (Friuli Venezia Giulia). *J. Eur. Orchideen* 39: 587-597.
- Barros, F. de and Nogueira Batista, J. A. 2004. Variedades, formas e outras categorias infra-especificas em orquideas brasileiras. [Varieties, forms and other infra-specific ranks in Brazilian orchids.] In *Orquidologia Sul-Americana: Uma Compilacao Cientifica* (ed. F. de Barros, G. B. Kerbaudy, et al.), pp. 99-105. Governo do Estado de Sao Paulo, Secretaria do Meio Ambiente, Instituto de Botanica, Sao Paulo.
- Bartolo, G., Pulvirenti, S., and Santoro, M. L. 2007. Le orchidee della Valle dell'Ossena (Sicilia sud-orientale). *J. Eur. Orchideen* 39: 599-610.
- Becerra, E. 2007. *Ponthieva vasqueziae* Becerra: a correction. *Orchids* 76: 450.
- Becerra, E. and Catchpole, D. J. 2007. The genus *Brachionidium* Lindl. (Orchidaceae) in Peru with a new species endemic to the selva central. *Orchids* 76: 937-939.
- Bergfeld, D., Berlinghof, N., and Heitz, H. 2007. Erstfunde von *Epipactis leptochila* subsp. *neglecta* in Nord und Sudbaden. *J. Eur. Orchideen* 39: 663-667.
- Bhattacharjee, B., Dutta, B. K., and Hajra, P. K. 2005. *Paphiopedilum spicerianum* (Reichb. f.) Pfitz. - a fast disappearing lady's slipper orchid in Cachar district, Assam. *J. Orchid Soc. India* 19: 71-72.
- Bianchetti, L. B. and Batista, J. A. N. 2004. Esclarecimentos sobre as especies de *Cyrtopodium* coletadas pela "Comissao de Linhas Telegraficas e Estrategicas de Mato Grosso ao Amazonas". [Elucidation on the species of *Cyrtopodium* gathered by the Telegraphic and Strategic Lines from Mato Grosso to Amazonas.] In *Orquidologia Sul-Americana: Uma Compilacao Cientifica* (ed. F. de Barros, G. B. Kerbaudy, et al.), pp. 107-132. Governo do Estado de Sao Paulo, Secretaria do Meio Ambiente, Instituto de Botanica, Sao Paulo.
- Blanco, M. A., Carnevali, G., Whitten, W. M., Singer, R. B., Koehler, S., Williams, N. H., Ojeda, I., Neubig, K. M., and Endara, L. 2007. Generic realignments in Maxillariinae (Orchidaceae). *Lankesteriana* 7: 515-537.
- Blanco, M. A., Neubig, K. M., and Whitten, W. M. 2007. A new *Maxillaria* (Orchidaceae) from Panama and Colombia, and a Brazilian species found in Ecuador. *Orchids* 76: 451-456.
- Bogarín, D. 2007. A new *Lycaste* (Orchidaceae: Maxillariinae) from Costa Rica. *Lankesteriana* 7: 543-549.

- Bongiorni, L., De Vivo, R., Fori, S., and Romolini, R. 2007. *Epipactis ioessa* Bongiorni, De Vivo, Fori & Romolini spec. nov. (Orchidaceae) nel gruppo del Pollino (Sud Italia). [*Epipactis ioessa* Bongiorni, De Vivo, Fori & Romolini spec. nov. (Orchidaceae) in the Monte Pollino range (South Italy).] *J. Eur. Orchideen* 39: 551-566.
- Bosser, J. 2007. Contribution a l'etude des Orchidaceae de Madagascar, des Comores et des Mascareignes. XXXVI. Description d'un *Cynorkis* nouveau de la Reunion et d'un *Angraecum* nouveau de Madagascar. [Contribution to the study of the Orchidaceae from Madagascar, the Comoro Islands and the Mascarenes. XXXVI. Descriptions of a new *Cynorkis* from Reunion and a new *Angraecum* from Madagascar.] *Adansonia* 29: 13-17.
- Bytebier, B. Bellstedt, D. U., and Linder, H. P. 2007. A molecular phylogeny for the large African orchid genus *Disa*. *Molec. Phylogenet. Evol.* 43: 75-90.
- Bytebier, B., Oliver, E. G. H., and Liltved, W. R. 2007. *Disa linderiana* (Orchidaceae), a new orchid from the Western Cape of South Africa. *S. Afr. J. Bot.* 73: 558-562.
- Campacci, M. A. 2007. A new Brazilian natural hybrid of the Orchidaceae. *Bol. CAO* no 65: 28-31.
- Castro Neto, V. P. 2004. Estudo taxonomico de *Bifrenaria* secao *Stenocoryne* no Brasil. [Taxonomic study of the genus *Bifrenaria* section *Stenocoryne* in Brazil.] In *Orquidologia Sul-Americana: Uma Compilacao Cientifica* (ed. F. de Barros, G. B. Kerbaudy, et al.), pp. 91-97. Governo do Estado de Sao Paulo, Secretaria do Meio Ambiente, Instituto de Botanica, Sao Paulo.
- Castro, V. P. and Menezes, L. C. 2007. Un nouvel hybride naturel originaire de Bahia (Bresil) dans le genre *Hoffmannicattleya* (Orchidaceae). *Richardiana* 7: 70-74.
- Chiron, G. R. and Castro, V. P. 2007. Deux albinos du sud-est bresilien dans la tribu Maxillariae (Orchidaceae). *Richardiana* 7: 67-69.
- Christenson, E. 2007. Orchids of Peru: *Trichosalpinx nymphalis*. *Orchid Rev.* 115: 154-155.
- Christenson, E. A. 2007. Notes nomenclaturales. *Richardiana* 7: 75-78.
- Chung, S. W. and Lu, S. Y. 2007. *Dendrobium okinawense* Hatusima & Ida (Orchidaceae): a newly recorded species in Taiwan. *Taiwania* 52: 106-112.
- Colwell, A. E. L., Sheviak, C. J., and Moore, P. E. 2007. A new *Platanthera* (Orchidaceae) from Yosemite National Park, California. *Madrono* 54: 86-93.

Corabi Adell, C. 2004. A tecnica de RAPD e sua aplicacao no estudio da variabilidade genetica de *Laelia* subgenero *Parviflorae*. [RAPD technology and its application for genetic variability study in *Laelia* subgenus *Parviflorae*.] In *Orquidologia Sul-Americana: Uma Compilacao Cientifica* (ed. F. de Barros, G. B. Kerbauy, *et al.*), pp. 61-73. Governo do Estado de Sao Paulo, Secretaria do Meio Ambiente, Instituto de Botanica, Sao Paulo.

Cribb, P. J., Hermans, J., and Roberts, D. L. 2007. *Erasanthe* (Orchidaceae, Epidendroideae, Vandeeae, Aerangidinae), a new endemic orchid genus from Madagascar. *Adansonia* 29: 27-30.

Delforge, P. 2007. Nouvelles contributions taxonomiques et nomenclaturales aux orchidees d'Europe. [New nomenclatural and taxonomical contributions to European orchids.] *Nat. Belges* 88 (orchid. 20): 245-248.

Delforge, P. and Saliaris, P. A. 2007. Contribution a la connaissance des orchidees des iles de Chios, Inousses et Psara (Nomos Chiou, Egee orientale, Grece). [Contribution to the knowledge of the orchids of the islands of Chios, Inousses and Psara (Chios district, eastern Aegean, Greece).] *Nat. Belges* 88 (orchid. 20): 41-227.

Diwaker, P. G., Agrawal, D. K., and Rasingam L. 2005. *Acampe* Lindl. (Orchidaceae): a new generic record for Andaman and Nicobar Islands, India. *J. Orchid Soc. India* 19: 63-66.

Doro, D. 2007. *Epipactis autumnalis* D.Doro spec. nova - una nuova specie di *Epipactis* rinvenuta in Veneto (Italia). [*Epipactis autumnalis* D.Doro spec. nova - a new species of *Epipactis* found in Veneto (Italy).] *J. Eur. Orchideen* 39: 567-586.

Dressler, R. L. and Bogarin, C. D. 2007. Two attractive new species of *Sobralia* from Panama. *Orchids* 76: 696-701.

Dressler, R. L. and Bogarin, D. 2007. *Elleanthus ligularis*, a name for a relatively common "new" species of *Elleanthus* sect. *Chloidelyna*. *Lankesteriana* 7: 539-542.

Efimov, P. G. 2006. Rod *Platanthera* (Orchidaceae) vo flore Rossii; 1. Vidy podseksii *Platanthera* seksii *Platanthera*. [The genus *Platanthera* (Orchidaceae) in the flora of Russia; 1. The species of the section *Platanthera*, subsection *Platanthera*.] *Bot. Zhurn.* 91: 1713-1731.

Fischer, G. A., Sieder, A., Cribb, P. J., and Kiehn, M. 2007. Description of two new species and one new section of *Bulbophyllum* (Orchidaceae) from Madagascar. *Adansonia* 29: 19-25.

Fohringer, F. and Fohringer, M. 2004. *Ophrys xmessinae* F. Fohringer & M. Fohringer - *hyb. nat. nov.* = *Ophrys argolica* H. Fleischmann x *Ophrys vernixia*

subsp. *orientalis* H.F. Paulus - eine neue Hybridart der Peloponnes. [*Ophrys* × *messinae* F. Fohringer & M. Fohringer - *hyb. nat. nov.* = *Ophrys argolica* H. Fleischmann × *Ophrys vernixia* subsp. *orientalis* H.F. Paulus - a new hybrid from the Peloponnese]. *Linz. Biol. Beitr.* 36: 567-571.

Fohringer, F. and Redl, K. 2004. *Nigritella* × *petzenensis* Fohringer & Redl - *hyb. nat. nov.* = *Nigritella lithopolitana* Ravnik × *Nigritella rhellicani* Teppner & Klein - eine neue Hybridart der Ost-Karawanken. [*Nigritella* × *petzenensis* Fohringer & Redl - *hyb. nat. nov.* = *Nigritella lithopolitana* Ravnik × *Nigritella rhellicani* Teppner & Klein - a new hybrid from east Karawanken.] *Linz. Biol. Beitr.* 36: 573-574.

Forster, W. and Souza, V. C. 2007. *Epidendrum caparaoense* (Orchidaceae), a new species from Minas Gerais, Brazil. *Bot. J. Linn. Soc.* 155: 157-159.

Gale, S., Yukawa, T., and Kuroiwa, N. 2007. Studies in Asian *Nervilia* (Orchidaceae). 1: neotypification and circumscription of *N. nipponica* in Japan. *Kew Bull.* 62: 85-94.

Golz, P., Gugel, E., Wagner, R., Wagner, M., and Zaiss, H. W. 2007. Über die Orchideenflora des Iran (2. Teil) und Turkmenistans. [On the orchid flora of Iran (part 2) and Turkmenistan.] *J. Eur. Orchideen* 39: 297-322.

Grasso, M. P. 2006 [2007]. *Epipactis muellerei* ssp. *cerritae* ein Synonym? Anmerkungen. *Orchidee* 57: 696-697.

Grobler, L. 2007. The genus *Polystachya* in Africa. *Orchid Dig.* 71: 128-135.

Gruss, O. 2006 [2007]. Anmerkungen zu *Paphiopedilum micranthum* f. *glanzeanum* (Gruss et Roeth) Gruss et Roeth. *Orchidee* 57: 702-706.

Gugel, E. and Wucherpfennig, W. 2007. Was ist *Ophrys pectus* Mutel? [What is *Ophrys pectus* Mutel?] *J. Eur. Orchideen* 39: 323-340.

Hermans, J. and Cribb, P. 2007. *Cynorkis* from Madagascar. *Orchid Rev.* 115: 248-255.

Hirth, M. 2007. Beiträge zur Kenntnis der Orchideenflora Albaniens. [Contributions to the knowledge of the orchid flora of Albania.] *J. Eur. Orchideen* 39: 465-488.

Iamwiriyakul, P. and Kaewphuang, T. 2008. *Diplomeris pulchella*: newly recorded in Thailand. *Orchid Rev.* 116: 44-50.

Jenny, R. 2008. *Stanhopea jenischiana*. *Orchid Rev.* 116: 34-39.

Jia, X. H. and Li, H. 2007. *Listera fugongensis* (Orchidaceae), a new species from Yunnan, China. *Brittonia* 59: 243-244.

Kollmann, L. J. C. and Fontana, A. P. 2006. *Acianthera fornograndensis* L.Kollmann & A.P.Fontana (Orchidaceae), uma nova especie da Floresta Atlantica do Estado do Espirito Santo, Brasil. [*Acianthera fornograndensis* L. Kollmann & A.P. Fontana (Orchidaceae), a new species of the Forest Atlantica of the district of Espirito Santo, Brazil.] *Bol. Mus. Biol. Mello Leitao*, n.s. no 20: 27-31.

Koopowitz, H. 2007. *Paphiopedilum kolopakingii* forma *katherinae* Koop., a new albino form. *Orchid Dig.* 71: 137.

Kreutz, C. A. J. 2007. Beitrag zur Taxonomie und Nomenklatur europaischer, mediterraner, nordafrikanischer und vorderasiatischer Orchideen. *Ber. Arbeitskr. Heim. Orch.* 24: 77-141.

Kreutz, C. A. J. 2007. Neukombinationen und Ergänzungen zu verschiedenen europaischen Orchideentaxa. [New combinations and additions regarding various European orchid taxonomies.] *Ber. Arbeitskr. Heim. Orch.* 24: 142-186.

Kreutz, C. A. J., Lowe, M. R., and Wucherpfennig, W. 2007. *Ophrys lutea* subsp. *quarteirae* Kreutz, M.R.Lowe & Wucherpfennig, eine neue *Ophrys*-Sippe aus Sudportugal (Algarve) und Sudspanien (Andalusien). [*Ophrys lutea* subsp. *quarteirae* Kreutz, M.R.Lowe & Wucherpfennig, a new *Ophrys*-[sub]species from Portugal (Algarve) and Spain (Andalusia).] *J. Eur. Orchideen* 39: 625-636.

Li, D. M. and Liu, C. D. 2007. *Gastrodia wuyishanensis*, a new species of Orchidaceae from Fujian, China. *Novon* 17: 355-356.

Liu, Z. J. and Chen, S. C. 2007. (*Paphiopedilum xyingjiangense*, a new hybrid of Orchidaceae from China.) *Acta Bot. Yunnanica* 29: 289-290.

Liu, Z. J., Chen, S. C., and Ru, Z. Z. 2007. *Vanilla shenzhenica* Z. J. Liu & S. C. Chen, the first new species of Orchidaceae found in Shenzhen, South China. *Acta Phytotax. Sin.* 45: 301-303.

Lopez Velazquez, G., Solano Gomez, R., and Perez-Farrera, M. A. 2007. Primer registro de *Phloeophila* (Orchidaceae: Pleurothallidinae) para la flora de Mexico. [First record of *Phloeophila* (Orchidaceae; Pleurothallidinae) for the flora of Mexico.] *Acta Bot. Mex.* 78: 77-83.

Lorenz, K. and Lorenz, R. 2007. *Orchis morio* subsp. *caucasica* × *Serapias bergonii*, ein neuer Bastard der Nothogattung *Orchiserapias*. [*Orchis morio* subsp. *caucasica* × *Serapias bergonii*, a new hybrid of the nothogenus *Orchiserapias*.] *J. Eur. Orchideen* 39: 527-542.

- Lowe, M. R., Gugel, E., and Kreutz, C. A. J. 2007. *Ophrys carpitana* M.R.Lowe, Gugel & Kreutz, a new species from Tunisia. [*Ophrys carpitana* M.R.Lowe, Gugel & Kreutz, eine neue Art aus Tunesien.] *J. Eur. Orchideen* 39: 637-646.
- Lowe, M. R., Piera, J., And Crespo, M. B. 2007. Novedades en híbridos de *Ophrys* L. (Orchidaceae) para la flora de Alicante. [Data on hybrids of *Ophrys* L. (Orchidaceae) from the Alicante flora.] *Flora Montiberica* 36: 19-26.
- Maity, D., Pradhan, N., and Maiti, G. 2007. *Myrmechis bakhimensis* D. Maity, N. Pradhan & G. G. Maiti, a new species of Orchidaceae from Sikkim Himalaya. *Acta Phytotax. Sin.* 45: 321-323.
- Margonska, H. B. 2007. Nouvelle combinaison, nouveau synonyme et lectotype dans le genre *Lisowskia* Szlachetko (Orchidaceae, Malaxidinae). *Richardiana* 7: 50-52.
- Menezes, L. C. and Castro Neto, V. P. 2007. Un nouvel hybride naturel de *Cattleya* (Orchidaceae) de Roraima (Bresil). [A new natural hybrid in *Cattleya* (Orchidaceae) from Roraima (Brazil).] *Richardiana* 7: 185-191.
- Mytnik-Ejsmont, J. 2007. Contribution a la revision de Polystachyinae Schlechter (Orchidaceae). 1-Szlachetkoella Mytnik. *Richardiana* 7: 55-60.
- Mytnik-Ejsmont, J. and Szlachetko, D. L. 2007. Contributions a la revision de Polystachyinae Schlechter (Orchidaceae). 2-Geerinckia Mytnik & Szlachetko. *Richardiana* 7: 61-63.
- Mytnik Ejsmont, J. and Szlachetko, D. L. 2007. Contribution a la revision de Polystachyinae Schlechter (Orchidaceae). 3-Disperanthoceros Mytnik & Szlachetko. *Richardiana* 7: 64-66.
- O'Byrne, P. 2006. A tale of two Tans. *Malayan Orchid Rev.* 40: 95-97, 111-112.
- O'Byrne, P. and Vermeulen J. 2007. Three new species of *Tuberolabium* from Sulawesi. *Orchid Rev.* 115: 274-281.
- O'Byrne, P. and Vermeulen, J. 2006. The buttercup orchids of Sulawesi, and other related *Malaxis* species. *Malayan Orchid Rev.* 40: 98-110.
- O'Byrne, P. and Vermeulen, J. 2006. Two *Cheirostylis* species and a new *Dipodium*. *Malayan Orchid Rev.* 40: 91-94, 113-116.
- O'Byrne, P. and Vermeulen, J. 2008. *Vanda furva* - partly resolved. *Orchid Rev.* 116: 9-11.
- O'Byrne, P. and Wood, J. J. 2007. A new species of *Dendrobium* from Borneo. *Orchid Rev.* 115: 144-147.

Ormerod, P. 2007. New taxa of *Dendrobium* Swartz section *Biloba* J.J.Smith from New Guinea. *Orchadian* 15: 418-425.

Ossenbach, C., Pupulin, F., and Dressler, R. L. 2007. *Orquideas del Istmo Centroamericano: Catalogo y Estado de Conservacion. Orchids of the Central American isthmus: Checklist and Conservation Status*. Editorial 25 de Mayo, Sabanilla.

Pedersen, H. A. 2007. Taxonomic revision of the *Dactylorhiza majalis* subsp. *purpurella* complex (Orchidaceae): a morphometric approach. *J. Eur. Orchideen* 39: 341-366.

Perko, M. L. 2007. Anmerkungen zu *Dactylorhiza maculata* agg. (Orchidaceae) in Nord-Skandinavien, inkl. *Dactylorhiza andoeyana* M.L.Perko, spec. nov. (Norwegen, Insel Andoya, Vesteralen). *Ber. Arbeitskr. Heim. Orch.* 24: 34-44.

Perner, H. 2006 [2007]. *Cypripedium froschii*, zu einem Synonym von *Cyp. tibeticum*. Nachtrag. *Orchidee* 57: 771-776.

Perner, H. 2007. *Cypripediums* in China. Part V: sections *Arietina* and *Obtusipetala*. *Orchids* 76: 436-445.

Pinheiro, F. and Barros, F. de. 2006. *Epidendrum puniceoluteum*, uma nova especie de Orchidaceae do litoral brasileiro. [*Epidendrum puniceoluteum*, a new species of Orchidaceae from the Brazilian coastal vegetation.] *Hoehnea* 33: 247-250.

Presser, H. 2007. Zur Kenntnis der Gattung *Epipactis* in Spanien. *Ber. Arbeitskr. Heim. Orch.* 24: 45-76.

Pupulin, F. and Zuniga, J. D. 2007. The upside-down *Pleurothallis* (Orchidaceae) of Mesoamerica, with a new species from Costa Rica. *Orchids* 76: 690-695.

Ramirez, S. R., Gravendeel, B., Singer, R. B., Marshall, C. R., and Pierce, N. E. 2007. Dating the origin of the Orchidaceae from a fossil orchid with its pollinator. *Nature* 448: 1042-1045.

Rasingam, L., Pandey, R. P., Wood, J. J., and Srivastava, S. K. 2007. A new species of *Vanilla* from the Andaman Islands. *Orchid Rev.* 115: 350-351.

Rice, R. 2007. *Habenaria tuanae* - a new species of Orchidaceae from Burma. *Oasis* 3: 2-4.

Rodriguez Salas, M., Benavides Ranilla, J., and Espinoza, J. R. 2007. Genetic relationships of *Phragmipedium* species (Orchidaceae) using amplified fragment length polymorphism (AFLP) analysis. *Lankesteriana* 7: 493-496.

Rysy, W. 2007. *Zootrophion* Luer 1982 - Übersicht über die Gattung und Beschreibung einer neuen Art. [*Zootrophion* Luer 1982 - general overview of the genus and description of a new species.] *Orchidee* 58: 241-249.

Salazar, G. A. and de Santiago, R. 2007. A new species of *Malaxis* (Orchidaceae) from Guerrero, Mexico. *Brittonia* 59: 238-242.

Smidt, E. C. and Borba, E. L. 2007. A new *Bulbophyllum* species (Orchidaceae), named in honor of F. C. Hoehne. *Orchids* 76: 934-936.

Song, X. Q., Meng, Q. W., and Luo, Y. B. 2007. New records of orchids from Hainan, China. *Acta Phytotax. Sin.* 45: 324-328.

Sosa, V. 2007. A molecular and morphological phylogenetic study of subtribe Bletiinae (Epidendreae, Orchidaceae). *Syst. Bot.* 32: 34-42.

Soto Arenas, M. A., Salazar, G., and van den Berg, C. 2007. New combinations in *Domingoa*, *Homalopetalum* (Orchidaceae: Laeliinae), and *Nemaconia* (Orchidaceae: Ponerinae). *Neodiversity* 2: 7-9.

Stewart, T., Parmentier, I., and Droissart, V. 2007. Deux espèces nouvelles de *Polystachya* (Orchidaceae) de Guinée Equatoriale. [Two new species of *Polystachya* (Orchidaceae) from Equatorial Guinea.] *Adansonia* 29: 31-38.

Suarez, W. and Cootes, J. 2007. A new species of *Malleola* (Orchidaceae) from the Philippines. *Austral. Orchid Rev.* 72: 18.

Szlachetko, D. L. 2007. Contribution a la revision generique de Bulbophyllinae (Epidendroideae). 1-*Lepanthanthe* (Schlechter) Szlachetko. *Richardiana* 7: 79-84.

Szlachetko, D. L. 2007. Contribution a la revision generique de Bulbophyllinae (Epidendroideae). 2-*Trachyrhachis* (Schlechter) Szlachetko. *Richardiana* 7: 85-87.

Szlachetko, D. L. 2007. Contribution a la revision generique de Bulbophyllinae (Epidendroideae). 3-*Hordeanthos* Szlachetko. *Richardiana* 7: 88-89.

Szlachetko, D. L. 2007. Notes sur l'alliance *Stanhopea* (Stanhopeinae, Vandoideae). *Richardiana* 7: 45-49.

Szlachetko, D. L. and Kras, M. 2007. Contribution a la revision generique de Bulbophyllinae (Epidendroideae). 5- *Tripudianthes* (Seidenfaden) Szlachetko & Kras. *Richardiana* 7: 94-96.

Szlachetko, D. L. and Kulak, M. 2007. Contribution a la revision generique de Bulbophyllinae (Epidendroideae). 4-*Pelma* Finet. *Richardiana* 7: 90-93.

- Szlachetko, D. L. and Romowicz, A. 2007. *Dolabrifolia*, un nouveau genre d'orchidees de l'alliance *Angraecum*. *Richardiana* 7: 53-54.
- Thiele, G. and Thiele, W. 2007. Wieder einmal Orchideen der Zagoria (Griechenland) - ein Reisebericht. [Once again orchids of Zagoria (Greece) - a travel story.] *J. Eur. Orchideen* 39: 273-295.
- Toscano de Brito, A. L. V. 2007. A taxonomic revision of the genus *Phymatidium* (Orchidaceae: Oncidiinae). *Kew Bull.* 62: 529-560.
- Tsiftsis, S., Karagiannakidou, V., and Tsiripidis, I. 2007. The orchid flora of East Macedonia (NE Greece). *J. Eur. Orchideen* 39: 489-526.
- Venhuis, C., Venhuis, P., Oostermeijer, J. G. B., and van Tienderen, P. H. 2007. Morphological systematics of *Serapias* L. (Orchidaceae) in southwest Europe. *Pl. Syst. Evol.* 265: 165-177.
- Vermeulen, J. J. and Vogel, A. 2007. *Bulbophyllum breimerianum* (Orchidaceae), a new species from Borneo. *Blumea* 52: 1-3.
- Vij, S. P. and Verma, J. 2005. *Eulophia dabia* (D. Don) Hochr.: a new orchid record for Haryana state, India. *J. Orchid Soc. India* 19: 47-49.
- Watthana, S., Hidayat, T., Ito, M., and Yukawa, T. 2006. Phylogeny of the genus *Pomatocalpa* Breda (Orchidaceae). *Gard. Bull. Singapore* 58: 55-79.
- Weyland, H. 2007. *Ophrys episcopalis* Poiret auf der Peloponnes (Griechenland). [*Ophrys episcopalis* Poiret on Peloponnese (Greece).] *J. Eur. Orchideen* 39: 543-550.
- Wood, H. P. 2007. *Dendrobium* section *Herbacea*. *Orchids* 76: 910-911.
- Wood, J. J. 2008. Four new species of *Dendrobium* from Borneo. *Orchid Rev.* 116: 16-23.
- Wucherpfennig, W. 2007. Die Orchidee des Jahres 2007: das Schwarze Kohlröschen *Nigritella nigra* subsp. *rhellicani*, ein Kleinod der Berg. *Ber. Arbeitskr. Heim. Orch.* 24: 24-33.
- Zelesny, H. and Kreutz, C. A. J. 2007. *Ophrys holoserica* (N.L.Burman) Greuter subsp. *laxiflora* Zelesny & Kreutz, eine neue Unterart der Hummelragwurz in Kroatien und weitere Anmerkungen zur Orchideenflora Kroatiens. [*Ophrys holoserica* (N.L.Burman) Greuter subsp. *laxiflora* Zelesny & Kreutz, a new *Ophrys*-[sub]species from Croatia and some remarks about the orchid flora of Croatia.] *J. Eur. Orchideen* 39: 447-464.