

ORCHID CONSERVATION NEWS

The Newsletter of the Orchid Specialist Group of the IUCN Species Survival Commission

Issue 1

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PATHS TOWARD CONSERVATION PROGRESS



Orchid workshop at Bogotá Botanic Garden, Colombia in 2017

Editorial

At the time of this first Issue of 2021, many challenges still lie before us, lots of unknowns yet to be determined with the pandemic at the forefront of our thoughts. We are doing our best to continue our conservation work despite constraints whether it be project planning, data collection and management, seed banking, evaluating conservation strategies, or continuing studies of orchid populations over the long term. With the unpredictability and randomness of natural events that may threaten orchid ecosystems, long-term monitoring studies are being re-visited years, even decades after their initiation, to study what has been happening following severe disturbance. For example, Deschênes, Brice & Brisson (2019) have reported, after an initial loss of old-growth trees to an ice storm in 1998, “tree mortality was species-specific, lagged and persisted for several years after the disturbance, potentially resulting in long-term compositional changes in the forest”. Hughes, B.B. *et al.* (2017) draw attention to the value of long-term ecological studies, toward the better appreciation of the impact of climate change on ecosystem components where knowing more about what and why could benefit conservation efforts.

In this issue, we learn of different approaches to long-term conservation activities and research: seed banking (Phil Seaton), strategies comparing re-introduction and translocation outcomes with that of wild orchid populations (Brendan Janissen), and we hear from Fred Campbell who has studied orchids for much of his life. May all these efforts inspire and foster new approaches toward conservation progress.

Marilyn H.S. Light, Editor (mslight@distributel.net)

WHO IS STORING WHAT AND WHERE?

A message from Phil Seaton

I'm puzzled. Looking at the Plant Conservation Report 2020: A review of the progress towards the Global Strategy for Plant Conservation 2011-2020, Target 8, there is a table telling me that, for orchids, 38% of threatened taxa are in *ex situ* collections. See BGCI:

<https://www.bgci.org/our-work/plant-conservation/conservation-prioritisation/ex-situ-surveys/>

Why am I puzzled? Well firstly, I don't know where the figure of 38% has come from. Although encouraging progress is being made with Red Listing, I don't think we know how many species are threatened globally. Secondly, does just one individual plant count as an *ex situ* collection? Surely we need to be focusing on conserving as far as possible the genetic diversity within each species. Thirdly, the table doesn't tell me whether the collection is plants and/or seed.

The BGCI report asserts that botanical gardens are the main repository of orchid collections. I beg to differ. Our experience with Orchid Seed Science and Sustainable Use (OSSSU) is that there are a range of institutions where orchid seed is being stored around the world, including many universities. Likewise, amateur growers may maintain important living collections, such as the National Collections of orchids in the UK. Commercial nurseries may also hold important plant collections.

My current focus is finding out who is storing what and where in terms of orchid seed collections, and posting the information on the OSSSU web site (currently under construction). I would welcome information, advice and any comments from other members of the Orchid Specialist Group.
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OSG Ex Situ Conservation Group
<https://www.iucn.org/fr/node/24693>

A lifetime with orchids: Fred Campbell

Sweden, January 1st 2021

If I may I would like to tell you something about myself. I am now 82 but have been involved in orchids from the young age of 11, when I still lived in Coventry, UK. That was when I was shown my first orchid, the Early Purple Orchid – *Orchis mascula* in a Warwickshire wood followed quickly by the Green-veined orchid – *Anacamptis morio*, and the Bee Orchid – *Ophrys apifera*, during the many trips around

Warwickshire, Gloucestershire and Oxfordshire, especially in the Cotswolds, that were generously arranged by the late Herbert (Bert) Allen, a self-taught botanist.

I took this interest with me when I moved to Sweden in 1962 and although I lack the formal academic education as a botanist, but instead as a research metallurgist, I became a quite proficient “orchid botanist” much appreciated by and leading to many important assignments from various nature bodies, organisations and Regional Authorities especially in regards to certain species and nature conservation matters. I lived in the northern-central Swedish Provinces of Värmland and Dalarna/Dalecarlia between 1962 – 1992. The province of Dalarna was particularly rich in orchids. I was immediately interested in many orchids that I had not encountered in the UK, especially the beautiful Lady’s Slipper Orchid – *Cypripedium calceolus*, but also the Spurred Coral-root Orchid – *Epipogium aphyllum*. Although ALL orchids are highly protected in Sweden, it was felt necessary to monitor the sites especially those of *Cypripedium calceolus* so between 1969 – 2010 I had monitored more than 50 sites with a total of around 20 000 flowering plants. My assignments included preparation of the sites as nature reserves or as Natura 2000 areas, advise on maintenance plans, etc. in close cooperation with the land and forestry owners. (It might be of interest to note that Sweden has by far the largest population of *Cypripedium calceolus* in the whole of Europe, namely more than 1 million: the orchid is not regarded as a threatened species as in most of Europe.)

During the 1969 – 2010 period, I was involved in quite a number of projects including one financed by the Swedish WWF Fund as well as for reports for publication by various botanical associations, etc. In 1992, I moved down to the very south of Sweden in the Province of Skåne/Scania. I was anxious and determined to pursue my interest in orchids even though, alas, *Cypripedium calceolus*, *Dactylorhiza viridis*, *Neottia cordata*, *Calypso bulbosa*, *Gymnadenia nigra*, *Cephalanthera rubra* and *Malaxis monophyllos*, *Dactylorhiza sambucina*, and *Dactylorhiza majalis* ssp. *sphagnicola* do not occur down here. Fortunately the province is very rich in different orchid species as is also the neighbouring (less than 1 and a half hour’s drive from my home) island of Öland off the SE coast

with “new” orchids such as *Neotinea ustulata*, *Anacamptis pyramidalis*, *Cephalanthera longifolia* and *Cephalanthera damasonium*. Just within a 30 minute drive from my home in Kristianstad, I have the possibility to see at least 20 different orchids in four great nature reserves each with 5 – 7 species including; *Anacamptis morio* (one site with more than 3000 plants) as well as a large colony of *Orchis mascula* at the same site, *Orchis militaris*, *Neottia ovata* and *Neottia nidus-avis*, *Dactylorhiza fuchsii*, *Dactylorhiza maculata*, *Dactylorhiza incarnata* and *Dactylorhiza incarnata* ssp. *ochroleuca* and *Dactylorhiza majalis* (more than 1500 plants on one site), *Herminium monorchis*, the rare *Liparis loeselii*, *Ophrys insectifera*, *Platanthera bifolia* and *Platanthera chlorantha*, *Gymnadenia conopsea*, *Epipactis helleborine*, *Epipactis helleborine* ssp. *orbicularis*, *Epipactis atrorubens*, *Epipactis palustris* and *Epipactis phyllanthes*, *Corallorrhiza trifida*, *Goodyera repens*, and even one site with *Epipogium aphyllum*. I have, by coincidence, my own orchid plant growing in my garden, Twayblade – *Neottia ovata*, which appeared mysteriously three years ago, possibly by seed carried by wind. The closest locality for this orchid is possibly 10 – 12 kms away from my home. It is great to be able to follow and observe its development from bud to flower to seed.

During the latter years, not least after my “official” retirement in the early 2000’s, even though I continued to work on various assignments as a business consultant and with various International projects, I began to write articles both in Swedish but also in English for various magazines and publication on various themes regarding orchids with everything from their history, distribution, culinary and medical uses, conservation and threats, but also about specific genera/species such as *Cypripedium calceolus*, *Epipogium aphyllum*, and the genus *Dactylorhiza*. This latter genus is particularly a very sensitive and touchy subject because many of the European “specialists” have their own thoughts and interpretations about what are species, subspecies, and varieties, and certainly don’t follow strictly, as I do, the Kew WCSP nomenclature. I was fortunate to come into contact with a number of flora experts for example; the author and orchid specialist Sven Birkedal and Mora Aronsson who works as a Government/European official with plant & species protection such and organisations here in Sweden but also with international experts, not only you all at Kew but also for example in

the US, such as the late Bill Summers, Missouri and Dr Robert Ferry (Texas) the editor of MIOS - the McAllen International Orchid Society Journal. I have had articles published in the Swedish Orchid Society's journal "Orkide" as well as ongoing in the MIOS Journal as well as a couple in the American Orchid Conference Journal. My latest assignment was as translator (from Swedish to English) of the book *Nordens orkideer/Nordic Orchids* by Sven Birkedal which was given out in 2020 by the Naturcentrum AB, Sweden.

It might be of interest to note that my work in marketing as Marketing and/or Export Manager meant extensive and frequent travelling throughout the world and in fact I managed to clock up no less than 54 countries in Europe (almost every country incl. Russia), Asia (particularly; Singapore, Hong Kong, Malaysia, S. Korea, Japan, Taiwan and Indonesia), Australasia (Australia & New Zealand), Africa (mainly N. Africa, Kenya, Ethiopia, Botswana and South Africa and N. America (Canada, Alaska, Hawaii and other States in USA) and C and S America (Puerto Rico, Brazil, Argentine and Uruguay). Wherever and whenever I got the opportunity I tried my utmost to pursue my "hunt" to see new, for me, orchids as well as visit some of the world's best Botanical Gardens. Apart from Kew, I visited enjoyed and absorbed the fantastic orchid collections in, for example, the Marie Selby Gardens, the Missouri Botanical Gardens, the Stellenbosch Botanical Gardens of Cape Town, South Africa, and especially the fantastic Orchid display in the Singapore Botanical Gardens. Needless to say, observing new wild orchids *in-situ* gave me enormous and untold pleasure and satisfaction of orchids such as; *Anacamptis papilionacea*, *Gymnadenia rubra*, *Himantoglossum hircinum*, *Serapias cordigera*, *Ophrys fuciflora* and *O. sphegodes* in the Alps and S. Europe; *Ansellia africana* in the Kenyan Highlands; *Disa uniflora* growing right on the top of Table Mountain, Cape Town, S. Africa; *Dendrobium* and *Phalaenopsis* species in the Chiang Mai mountains of Thailand; *Spiranthes sinensis* and *Arundina graminifolia* in the mountain Highlands of Peninsular Malaysia, and thanks to the late Dan Hatch *Dendrobium cunninghamii* and some of the species from the *Corybas* and *Pterostylis* genera in the North Island of New Zealand; some epiphytes in the hilly areas of Puerto Rico and, lastly thanks to the late Bill Summers, some of the genus *Cypripedium* in the St. Louis area of USA. Frederick Campbell

Fred Campbell (Sweden) was an acknowledged contributor of plant material for the following project.

Reference

Fay, M.F., Bone, R., Cook, P., Kahandawala, I., Greensmith, J., Harris, S., Pedersen, H. AE., Ingrouille, M.J., and C. Lexer (2009). Genetic diversity in *Cypripedium calceolus* (Orchidaceae) with a focus on north-western Europe, as revealed by plastid DNA length polymorphisms. *Annals of Botany* 104: 517 – 525. doi: 19.1093/aob/mcp116

The long-term efficacy of conservation strategies with an endangered orchid, *Caladenia amoena*

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Re-introduction and translocation are common strategies often employed for the conservation of declining wild orchid populations, but their long-term efficacy as conservation strategies is widely debated. The aim of this study was to investigate the long-term efficacy of re-introduction and translocation strategies for an endangered orchid as its climate changed. Re-introduction and translocation are often used synonymously. For the purpose of this study, re-introduction was planting *ex-situ* propagated plants while translocation was moving wild plants from one location to another. Emergence and flowering from 2008 and 2019 of the wild, re-introduced and translocated populations of an endangered terrestrial orchid, *Caladenia amoena*, were compared. Population dynamics were also compared to rainfall and temperature. Emergence and flowering declined at significantly faster rates in the translocated and re-introduced populations than in the wild population. Emergence and flowering declined as mean maximum temperatures rose, while flowering rose with rainfall.



Caladenia amoena from the *in situ* wild population

Both emergence and flowering were positively correlated with the length of the growing season, which decreased by >33% during the study period. The relevant orchid mycorrhizal fungi (OMF) (*Serendipita* sp.) were more abundant in soil at the wild population than at the translocated or re-introduced populations. This is the first long-term study to investigate the differences in population dynamics among wild, re-introduced and translocated orchid populations and their differential responses to climate. This study suggests that translocation and re-introduction may not be effective long-term solutions for *C. amoena*. More research is required to see if other orchid taxa, common or threatened, are experiencing similar long-term responses. Future research should focus on understanding plant requirements, such as OMF, climate and seed dormancy, to optimise recovery efforts of *C. amoena* and possibly other threatened orchid taxa.

Reference: Janissen, B. et al (2021). *Australian Journal of Botany* 69 (1) : 9–20.

From around the Web

Orchid Specialist Group Global Trade Programme

Check out the blogs from around the world at:
<https://globalorchidtrade.wixsite.com/home/blog-1>

Orchid Conservation Coalition

www.orchidconservationcoalition.org

Read about interesting conservation initiatives:

Orchid Habitat Restoration and Preservation

Fiona Stanley Hospital Site Terrestrial Orchids

<https://www.orchidconservationcoalition.org/pr/fionastanleyhospital.html>

In 2008, when the Fiona Stanley Hospital was to be built, the Western Australian Environment Protection Authority wished to preserve some of the native plants, including *Caladenia flava* and *Thelymitra crinita*, for replanting on the site once the hospital was completed. Many terrestrial orchids were removed and maintained over the next five years. In 2013, some of the orchids were replanted in the site, others being reserved until survival of the first group had been assessed. We look forward to learning more about the outcome of this preservation effort.

North American Orchid Conservation Center

<https://goorchids.northamericanorchidcenter.org/>

Go Orchids is a site focusing on wild orchids of the USA and Canada. Many species are found in both the adjoining countries. Species are being added so check periodically for additions.

Food for Thought

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Mark your calendar

Botanical Society of America

Botany 2021 will take place online July 19 – 23, 2021. Visit www.botanyconference.org for more information, including 2021 registration rates.

23rd World Orchid Conference Taiwan

now rescheduled for 2024.

IOCC - News and dates TBA

Changes to contact information?

To maintain effective communication, we need to know of any changes in contact information. Please inform the OSG Chair, Mike Fay. (M.Fay@kew.org)

Call for conservation news

Members are invited to provide news of their recent conservation activities for publication in the OSG Conservation News. Please submit material in Microsoft Word, and illustrations, if any, as separate jpeg files. If applicable, please include suggested captions and photographic credits. Send news to Marilyn Light, Editor, (mslight@distributel.net)



Phil Seaton demonstrating pollination using a cut flower of *Cattleya trianae* at Bogotá Botanic Garden

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