

Fungal Conservation: Science, Infrastructure, Politics

This special meeting was organized in Whitby (North Yorkshire, UK) on 26-30 October 2009 by the European Mycological Association (EMA) on behalf of the International Union for Conservation of Nature (IUCN), and the following factors combined to make it of landmark importance in fungal conservation. It was the first IUCN meeting ever to be devoted exclusively to the fungi. It was also the first meeting of any sort to address the question of a global infrastructure for fungal conservation, and the first to take into account the fact that fungal conservation is not purely a scientific activity but also has a political dimension. Furthermore, the scientists who attended, from over 20 countries and every inhabited continent, contributed expertise covering an enormous range of fungi. Even two years ago, only Australasia and Europe had identifiable fungal conservation groups, but since then the scene has changed dramatically. A North American fungal conservation group was established by the Mycological Society of America in August 2008, and in November 2008 the Asociación Latino-Americana de Micología appointed a working party to form the equivalent in South America, while the African Mycological Association organized a fungal conservation group in January 2009. Representatives from all of these groups were present in Whitby. Only Asia still lacked a continental-level fungal conservation group.

The other big change was that in February 2009 the IUCN Species Survival Commission formally recognized fungi as different from animals and plants, and agreed to increase the number of its fungal specialist groups from two to five. The leaders of all five of these groups were also present in Whitby, together with the Chairman of the IUCN Species Survival Commission and two other IUCN staff members.

The meeting had several objectives: to launch the new IUCN Species Survival Commission fungal specialist groups, to hold a workshop on applying IUCN



criteria to fungi when evaluating their conservation status, to look at the current state of fungal conservation science, to look at how mycologists should approach political issues relating to fungal conservation, to review the current state of fungal conservation in each continent, and to discuss and decide a future infrastructure for fungal conservation.

The meeting began with words of welcome from EMA President David Minter, and various letters of support, including one from Pedro Crous, President of the IMA, and another from Baldomero Arroyo (organizer of the World Fungi meeting, Córdoba, Spain, in December 2007, an important precursor of the present event). There was then a session chaired by Simon Stuart, Chairman of the IUCN Species Survival Commission, with presentations by the leaders of each IUCN fungal specialist group: *Mildews, Moulds & Myxomycetes* (Mayra Camino, Cuba); *Rusts & Smuts* (Cvetomir Denchev, Bulgaria), *Non-lichen-forming Ascomycetes* (David Minter, UK), *Basidiomycetes - mushrooms, puffballs and relatives* (Greg Mueller, USA) and *Lichens* (Christoph Scheidegger, Switzerland).

A one-day workshop followed, in two parts, led by Craig Hilton-Taylor and Julie Griffin of IUCN, looking at how to apply IUCN red-listing criteria to fungi. The

mycological community has seen several such workshops over the past two or three years, but always led by mycologists themselves with no formal IUCN input or training. This was the first such workshop for mycologists led by professionals from IUCN. Interestingly, it was clear that the problems posed in evaluating fungi are often very different from those of animals and plants, and much was learned on all sides.

The science of fungal conservation, including a huge range of issues from sustainable harvesting through to *ex situ* conservation, was reviewed in a series of fascinating and exciting presentations: The red list of European macrofungi (Anders Dahlberg, Sweden); Rare and endemic fungi: how do we go about proving that they are rare and endemic (Jean Bérubé, Canada); Estimating the threat status of smut fungi (Cvetomir Denchev, Bulgaria); Endangered desert truffles (A.H. Moubasher, Egypt); Developing an approach for assessing macrofungi under IUCN red list criteria using recent data on their distributions and population structure (Greg Mueller, USA); The role of culture collections in fungal conservation (Nadya Psurtseva, Russia); Some basic aspects of lichen conservation biology (Christoph Scheidegger, Switzerland).

Mycologists, like conservationists in

general, enjoy field excursions, so one afternoon was devoted to an exploration of heathland, an ecosystem unusual to many of the participants, who were able to observe and photograph not only fungi but also animals and plants over a 3 km walk through the North York Moors National Park under the able leadership of Brian Walker, the local forester. This excursion was a superb opportunity for IUCN staff to enlarge their understanding of fungi, with animated discussions about fungi of different ecosystems, such as Ingoldian hyphomycetes in freshwater streams.

The importance of the political component of conservation was emphasized by EMA Vice-President Stephanos Diamandis (Greece) with a thought-provoking review of some of the political problems which have arisen in the Mediterranean as a result of unregulated harvesting of commercially valuable fungi. This provoked lively discussion about the absence from CITES (the convention on international trade of endangered species) of protection of fungi. The problems caused by public failure to distinguish mycology from botany were also highlighted. Public relations and relations with the press are two of the most important components in the politics of fungal conservation, and the meeting was fortunate to have very able presentations on these topics by Alan Bennell, Head of Visitor Services (Royal Botanic Garden Edinburgh) and Shauna Hay, Press Officer (Royal Botanic Garden Edinburgh). No-one viewing these presentations could doubt that the average mycologist has an enormous amount to learn if fungal conservation is to make real progress. A workshop – maybe even a “roadshow” – on these topics is needed for mycologists, teaching them how to relate to the public,

to the press, to politicians, and to donors. The EMA is now considering how to bring this about, and hopes other societies will act similarly.

Finally, sessions on infrastructure looked at the current situation, with reports on fungal conservation at a continental level in Africa (Mariëka Gryzenhout, South Africa), Asia (north Asia, Alexander Kovalenko, Russia; south Asia, Jin Jing, China), Australasia (Peter Buchanan, New Zealand), Europe (Beatrice Senn-Irlet, Switzerland), North America (Greg Mueller, USA), and South America (Julio Mena Portales, Cuba). All of these, except the reports for Asia, were presented by delegates representing their respective continental-level fungal conservation groups. Additional reports were received concerning fungal conservation in Antarctica (Paul Bridge, British Antarctic Survey) and the oceans (Jin Jing, China) and these, although not presented for lack of time, will be included in the proceedings to be published from the meeting. There were also national reports from Brazil (Robert Barreto), Bulgaria (Boris Assyov), Cuba (Julio Mena Portales), Ecuador (Rosario Briones), Finland (Heikki Kotiranta), Italy (Claudia Perini), Lithuania (Reda Irsenait), the UK (Shelley Evans), and the Ukraine (Vera Hayova). Finally, Robert Kenward presented an evaluation of some informational requirements for fungal conservation in Europe.

This review of infrastructure was followed by a discussion on what next steps should be taken. The first decision was that there should be a follow-up meeting, perhaps in 2010 in the UK at a time convenient to mycologists attending IMC9 in Edinburgh. Participants noted that conservation groups now exist in most continents, in some countries, and also occasionally at

a local level. There was a strong feeling that some structure should exist to pull them all together. Accordingly, a second decision was made to establish a global federation of fungal conservation groups. A steering committee was appointed to set this in motion, comprising Peter Buchanan, Mariëka Gryzenhout, David Minter (co-ordinator), Greg Mueller, and Tatyana Svetosheva. That committee will consult widely before making recommendations to the follow-up meeting. Finally, the meeting noted the absence of a fungal conservation committee for Asia, and instructed the steering committee co-ordinator to prepare a letter to the then forthcoming Asian Mycological Congress (Taiwan, November 2009) calling for the establishment of such a group. Finally, it was agreed that Peter Buchanan would present that letter and act as an ambassador for fungal conservation at the AMC.

Mycologists wishing to contribute to the work of the steering committee are invited to contact or otherwise send their suggestions to David Minter (www.cybert-ruffle.org.uk/people/dminter.htm). Further information about the Whitby meeting with a full list of participants is posted on www.cybert-ruffle.org.uk/whitbymycosynod. The meeting was supported by the UK Darwin Initiative (DEFRA), the Mohamed bin Zayed Species Conservation Fund, the British Council, the Royal Botanic Garden Edinburgh, the North York Moors National Park, the UK Forestry Commission, the Cybertruffle Foundation, and by various members of the Whitby Naturalists Society.

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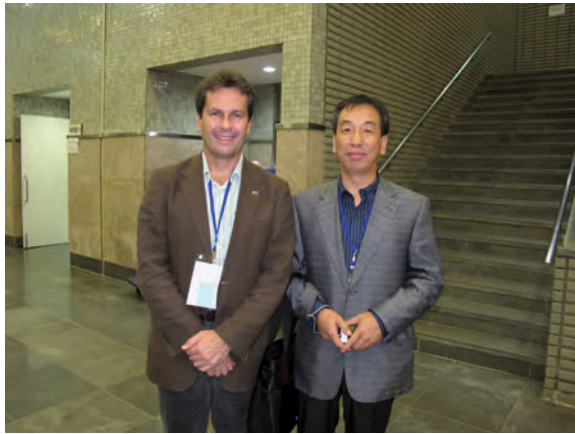
Asian Mycological Congress (AMC2009), Taichung, Taiwan

The 2009 Asian Mycological Congress took place in the National Museum of Natural Science, Taichung, Taiwan from 15-19th 2009. Attendance exceeded all expectations with over 400 delegates from 23 countries.

The largest group was from Taiwan itself, while 74 delegates came from mainland China. Large numbers of Koreans and Japanese also attended. There were also delegates from Australia, Canada, Germany, India, Indonesia, Iran, Mexico, New

Zealand, Philippines, Russia, Thailand, UK and USA.

The venue was excellent. The National Museum has excellent conference facilities and except for the first keynote, which was held in a rather large hall with poor



projecting facilities, but the lectures theatres and audio visual quality was superb. The theatres were also close to each other,

close to the posters, and close to the tea and coffee. The latter was available all the time but the cakes and snacks weren't opened until the correct time! The "helpers" were amazing, I am sure no one ever got lost, presentations were loaded and easy to find, time keeping was excellent, and even the hotel was good value. One thing that needs special mention is the food. There was food, food and more food. Food at registration, food at morning coffee and afternoon tea and food at the reception and dinners. The food was delicious and so plentiful – I am sure that I put on a few pounds in four days!

Although at the risk of being politically incorrect, I have only one complaint.

There should have been Taiwan beer at the welcoming reception and conference dinner - for those of us like a such things – Korea please take note!

It was a very busy week and we had little time to rest. Notable events were the opera at the conference dinner and musicians at the opening ceremony. There was also an evening trip to the night market.

The sessions were also great covering a wide range of topics from *Colletotrichum* to ascomycete taxonomy and phylogenetics, from medical to applied, from teaching to pure research. The standard of nearly all talks was very high and the posters were excellent.

I would like to use the forum for once again thanking the committee for putting together an excellence meeting. Their hard work paid off and this was surely one of the best Asian Mycological Congresses ever.

The next congress will be in Korea in 2011 (no date fixed yet) and we all look forward to this meeting.

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Third International Barcode of Life Conference, Mexico City, Mexico

The **Third International Barcode of Life Conference** was held in Mexico City on 11-13 November 2009 and 350 participants from about 50 countries participated. **Audio recordings and all PowerPoint presentations** are now available online and some fungal presentations are among them. Tom Bruns (Berkeley) gave one of the plenary lectures on "The Promise and Challenge of Environmental Sequences -an Example from the Fungi". You can **see his presentation** and **listen to the talk** on a new Facebook like **social network for DNA barcoding**. The "Connect" community network (<http://connect.barcodeoflife.net>) was created

by the Consortium for the Barcode of Life (CBOL) as a way to promote the growth of barcoding projects on local, national, regional and global scales. IMA President Pedro Crous (CBS, Utrecht) joined CBOL's Executive Committee in November 2009 and he has been promoting barcoding in Europe as well as fungal barcoding.

One of CBOL's highest priorities is the formal selection of the standard DNA barcode for fungi. CBOL has formed a Fungal Working Group, chaired by Conrad Schoch (NCBI) with the goal of repeating the success of the Plant Working Group which established the **standard barcode for land plants** last year. Like

for land plants, there's no perfect barcode region that discriminates fungal species in all major groups. Conrad is planning and will coordinate a large-scale comparative analysis of candidate barcode regions across all major fungal groups. If you'd like to be involved, join the Connect Community Network and the Fungal Working Group discussion area.

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