Framework Support for Implementing the Strategic Plan of the IUCN Species Survival Commission
2014 Annual Report

to the Environment Agency - Abu Dhabi

Framework Support for Implementing the Strategic Plan of the IUCN Species Survival Commission

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The IUCN Species Survival Commission’s (SSC) was privileged to receive generous support through a framework agreement from Environment Agency Abu Dhabi (EAD) for a three-year period (2011-2013). The reports of the many activities supported through this funding can be found here for 2011, 2012 and 2013. This framework agreement has now been renewed by EAD for 2014-2016, and this report for 2014 is the first from the SSC under the new agreement.

Under the Memorandum of Agreement signed in December 2013, it is stated that “the funds will be used for the implementation of the SSC Strategic Plan, as adopted and agreed by the SSC Steering Committee in 2012. The funds will be allocated to particular items of work in the Strategic Plan at the discretion of the Chair of the SSC, in consultation with EAD and the Global Species Programme, focusing in particular on high-priority activities that are poorly funded from other sources”. The Strategic Plan is detailed in Annex 1 of the Memorandum of Agreement, and the sixteen activities selected for funding in this first year were chosen based on this plan.

The Activity Reports that follow cover a very broad range of issues. EAD support has been instrumental in helping to launch or grow six major global initiatives within the SSC. These are on:

- Sustainable use and livelihoods
- Red List training
- Plant Red List assessments
- Reptiles Red List assessments
- Invasive species
- Species conservation planning

In addition to these, EAD support has also been given to: Red Listing work on amphibians and bumblebees; surveying end-user needs for Key Biodiversity Areas; planning the work of the SSC Climate Change Specialist Group; advancing the Asian Species Action Partnership (focused on saving Critically Endangered terrestrial and freshwater vertebrates in Southeast Asia); increasing the number of popular Amazing Species profiles (as part of the celebrations of the 50th anniversary of the IUCN Red List); and supporting SSC engagement with the 6th World Parks Congress.

As is clear from all of the following reports, the implementation of this work is progressing very well. We have recently carried out an analysis of progress on all 414 targets in the SSC Strategic Plan, and the results are summarized in the figure below.

Of the 414 Targets, implementation is as follows:

- 65% of targets likely to be implemented by 2016;
- 72% of priority targets should be implemented by 2016;
- 144 targets still a priority but behind schedule.
While there are obvious improvements to be made, we are very pleased with the overall progress, especially given that SSC is largely a voluntary network. The main causes for delayed implementation in some of the targets are shown in the figure below. Essential, resource limitations (funding or people), are the most common reasons for failing to keep to time targets.

Of the 144 Priority Targets currently behind schedule, funding and personnel constraints are the most common reasons for delayed implementation.

It is very clear from this report that the most generous EAD support to SSC is one of the most important factors enabling the SSC to advance its work on some of our most important targets. We are hugely grateful for this, and, on behalf of the entire SSC, I would like to express our deepest appreciation and thanks to the EAD, and especially to its Secretary General, HE Razan Khalifa Al Mubarak.
The sand gecko *Stenodactylus doriae* ranges through much of the Arabian Peninsula and the Middle East. While locally threatened by habitat loss in some areas, it remains locally abundant within its Arabian range. © Phil Bowles
Sustainable Use and Livelihoods Specialist Group

Rosie Cooney, Chair, IUCN CEEP/SSC Sustainable Use and Livelihoods Specialist Group

Mike Murphree, Interim Chair, CEEP/SSC Sustainable Use and Livelihoods Specialist Group

Sarah Doornbos and Dan Challender, Programme Officers

Key achievements

• The Sustainable Use and Livelihoods Specialist Group (SULi) organized an international symposium “Beyond Enforcement: Communities, Governance, Incentives and Sustainable Use in Combating Wildlife Crime”.

• SULi developed an Analytical Framework for understanding how and where legal, sustainable wild resource trade can contribute to biodiversity conservation and to community livelihoods.

• SULi is representing IUCN in The Collaborative Partnership on Wildlife.

• SULi has continued to work on the Saker Falcon, seal management and policy, wildmeat, trophy hunting, and fisheries.

• SULi organized several sessions at the 6th Worlds Parks Congress.
SULi Mission

Promote both conservation and local livelihoods through enhancing equitable and sustainable use of wild species and their associated ecosystems.

Objectives

SULi’s objectives are to:

• Improve understanding and guidance on management of use of wild resources;
• Enhance equitable and effective governance of use; and
• Increase understanding of trade and markets for wild products and their implications for conservation and livelihoods.

These objectives are pursued through work across a number of thematic areas as set out below.

Highlights

• Lead organiser of an international symposium “Beyond Enforcement: Communities, Governance, Incentives and Sustainable Use in Combating Wildlife Crime”, Muldersdrift, South Africa, February 2015. This symposium brought together representatives of UN bodies, development agencies, community organisations, conservation NGOs, and researchers and developed path-breaking recommendations on the role of communities in combating global wildlife crime.
• Developed internationally relevant Analytic Framework for understanding how and where legal, sustainable wild resource trade can contribute to biodiversity conservation and to community livelihoods, working with International Trade Centre of the United Nations (UN).
• Played key role in the development of the work of the international Collaborative Partnership on Wildlife, including development and launch of factsheets to provide authoritative information on key topical wildlife management issues.
• Highlighting the importance of sustainable use of wild resources in supporting livelihoods and conservation at the World Parks Congress, through workshops, panel discussions, side-events, field trips, and publications.

Key activities and achievements

1. Trade in wildlife, conservation and local livelihoods

Exploring the role of communities in combating wildlife crime

Wildlife crime, or illegal wildlife trade (IWT), is at the top of the international conservation agenda. A surge in poaching for international trade is ravaging populations of iconic animals like rhinos and elephants and a host of lesser-known species of wildlife are also being decimated, such as pangolins, some birds, reptiles, primates, medicinal plants and timber species. However, the role of the local communities who live close to wildlife is currently being largely overlooked in the global policy responses to this threat.

A major current focus of work for SULi is highlighting and exploring the role of communities that live close to wildlife in responding to this threat.

Our major activity in this period was convening an international symposium called “Beyond Enforcement: Communities, Governance, Incentives and Sustainable Use in Combating Wildlife Crime”, which took place in February 2015, with partners the International Institute of Environment and Development (IIE), TRAFFIC, the Austrian Ministry of the Environment, and the Australian Research Council (ARC) Centre for Excellence in Environmental Decisions at the University of Queensland (see Box for more details).
SULi was the lead organiser of this international symposium, which brought together over 70 researchers, community representatives, government officials, UN agencies and NGOs from five continents.

The meeting was opened by the South African Minister of Environmental Affairs and was attended by representatives of key international organisations, including the Convention on Biological Diversity (CBD), the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), and the United Nations Development Programme (UNDP).

The symposium explored analyses and case studies from around the world on communities and wildlife crime, including the drivers and motivations for IWT, the problems with enforcement-driven responses, the economics of IWT, and many positive examples of successful community-based interventions that led to strong community support for conservation, community engagement in enforcement, and reduced poaching levels.

The symposium generated a set of key conclusions and recommendations, which SULi and partners are now taking forward in a number of policy and decision-making arenas.

The symposium was generously supported by the United States Agency for International Development (USAID), the Gesellschaft für Internationale Zusammenarbeit (GIZ), and the Austrian Ministry of the Environment.
This symposium built on previous SULi work on communities and wildlife crime, including:

- Working with IIED colleagues to produce an IIED briefing paper *The Elephant in the Room: sustainable use in the illegal wildlife trade debate* (more information can be found here), for the London Conference.
- Running a workshop (with IIED) at the World Parks Congress, Sydney, in November, exploring whether strengthened community rights to and benefits from wild resources could reduce wildlife crime.

**Understanding wildlife trade and its conservation and livelihood impact**

Wildlife trade is a major component of the livelihood strategies for many poor communities in rural and remote areas, and trade can provide important incentives for people to support and engage in conservation. However, many wildlife species are vulnerable to harvest and trade, and much trade is illegal, unsustainable and/or poorly governed. Currently there is very poor understanding of when and under what circumstances wildlife trade is likely to lead to positive conservation and livelihood outcomes, and when it is not.

SULi worked in partnership with the UN International Trade Centre to produce *Conservation and Livelihoods: An Analytic Framework for Understanding Impacts of International Wildlife Trade* (authors Rosie Cooney, Dilys Roe, Simon Milledge, Michael t’Sas-Rolfes from SULi, Katarina Nossal and Alexander Kasterine from ITC, and Douglas Macmillan from the Durrell Institute for Conservation and Ecology at the University of Canterbury). This report provides a framework for better understanding and assessing the impact of trade in wildlife products on conservation and local livelihoods. It explores the role of interrelated factors of relevance to particular species and their habitat, governance settings, the supply chain structure and the nature of the end market. We aim to take this analytical tool forward and encourage its use within a number of contexts, including CITES and its Livelihoods Working Group.

Working again with ITC, SULi (together with the SSC African Rhino Specialist Group) contributed to an ITC scoping paper *The proposed legal trade in the horn of Africa’s white rhinoceros: current knowledge and uncertainties*, due out in the next month. African rhinos are under intense poaching pressure, and the South African government has signaled that it is considering re-opening of legal trade in rhino horn. This paper seeks to lay out the most important uncertainties associated with such a move and its conservation and livelihood impacts, and makes recommendations to address them.

Captive breeding or cultivation of species for trade is one approach often used to reduce illegal harvest from the wild, but results are very mixed, with little understanding of the factors that lead to positive or negative outcomes. In China, bears are farmed to produce bile for use in Traditional Chinese Medicine, but the impact of this practice on the ongoing poaching of wild populations is unclear. SULi is participating in a process led by the State Forestry Administration of China and IUCN (led by the SSC Bear Specialist Group) to examine the impact of bear farming on poaching of bears for the bear bile trade, following up on a Resolution from the IUCN World Conservation Congress in Jeju in 2012. SULi Chair Rosie Cooney co-chairs one of the Working Groups established to carry out further research and analyses, and other SULi members are involved in this work. SULi is also working with the Centre for International Forestry Research (CIFOR), the University of Queensland and TRAFFIC in developing a project concept for increasing understanding of the conservation and livelihood implications of captive breeding for trade through case studies and a workshop. This will be taken forward in 2015.

2. Sustainable wildlife management

SULi’s work on sustainable wildlife (here understood as terrestrial vertebrates) management aims at ensuring that use of wildlife populations is sustainable in ecological terms while enabling a sustained flow of human benefits. Key areas of activity are outlined below.

**Improving international understanding and coordination on Sustainable Wildlife Management (SWM)**

SULi is leading for IUCN in the Collaborative Partnership for Wildlife (CPW), a body established under the Convention on Biological Diversity. SULi has played an important role in the development and the work of this body. SULi has contributed extensively to development of a CPW factsheet series - authoritative information summaries on topical and important global wildlife management issues. A series of six to ten factsheets is planned. The first (SWM and biodiversity) was launched at the CBD Conference of the Parties in October 2014, and the second (SWM and food security) at the IUCN World Parks Congress in November 2014. Two more are currently under development, with SULi co-leading the...
development of a factsheet on SWM and human-wildlife conflict. The CPW, with Food and Agriculture Organisation on the UN (FAO) taking the lead, is also developing a project on *Criteria and indicators for sustainable wildlife management: a key step towards a global certification system*. This project seeks to address a key gap in promoting and improving SWM - the lack of a clear and agreed set of criteria and indicators for gauging whether its objectives are being achieved. SULi is working with FAO and other CPW partners to develop this, along with a number of other CPW projects.

**Conservation and sustainable use of saker falcon**

SULi is heavily involved with efforts to conserve saker falcon, as part of the Saker Falcon Task Force (STF) established under the Convention on the Conservation of Migratory Species of Wild Animals (CMS). Working closely with the International Association for Falconry and Conservation of Birds of Prey (IAF) and the CMS-STF Secretariat, SULi members' engagement (led by Robert Kenward) has included: leading development and building of the new Stakeholder (Trust-building) Portal (launched March 2015); several SULi members sitting on the Steering Committee; engagement with drafting of the Saker Falcon Global Action Plan; and provision of analysis on current saker falcon populations, trends in trapping, and advice on how the Task Force can best engage with trappers to improve monitoring of populations and sustainability of harvest and trade.

**Seal management and policy**

SULi, working collaboratively with the IUCN Pinniped Specialist Group, has led a global study of seal management and policy. The study was commissioned by the International Fur Federation, and the primary objective of the study is to survey range state policy and management responses to growing and/or abundant seal populations. This unprecedented study brings together a wealth of information and analysis, and will provide a valuable resource to those concerned with seal conservation, management, and sustainable use globally. It is due out in April 2015.

In 2014 SULi (led by Shane Mahoney, Vice-Chair for North America) developed a letter sent from CEESP Chair Aroha Mead and SSC Chair Simon Stuart to the Secretariat of the Appellate Body of the World Trade Organisation in response to their decision upholding the European Union’s ban on the import of seal products on “public morality” grounds. The letter highlighted key principles of conservation and sustainable use and support for the livelihoods of resource-dependent indigenous and local communities, as laid out in various IUCN policy statements. The EU decision had, and continues to have, significant impacts on livelihoods of Inuit and non-Inuit seal harvesters in Canada, but has an indiscernible conservation rationale given the abundance of the relevant seal populations.

**Wild meat**

Globally, particularly in the tropics and subtropics, millions of people rely on wild animals as an important source of protein and fat. However, hunting, trapping and snaring for “bushmeat” is driving declines of many species, including primates and predators. SULi supported and provided technical input into an FAO-led study on wild meat in southern Africa, with Panthera and the ZSL/WCS Rangewide Programme for Cheetah and Wild Dog as further partners. This study was carried out by SULi member Peter Lindsey. Final outputs have been prepared, including a short accessible summary for policy-makers, underpinned by a scientific publication currently in review. When this publication is released it will be accompanied by communications efforts in order to disseminate its key findings and messages to key relevant decision-makers at the national level.

Even in some developed regions, however, wild meat makes an enormous – but poorly understood and typically overlooked – contribution to meeting food needs. SULi in North America is developing a study to assess and quantify the contribution that hunting makes to supplying the food needs, particularly of rural people. Initial planning and fundraising for this study has been ongoing throughout 2014 and early 2015 and it is expected to be initiated within the next year.

**Trophy hunting**

Trophy hunting continues to be a focus of activity for SULi, given its conservation and livelihood importance in certain contexts, and the sustained attacks it faces worldwide. SULi’s focus is working to seek to maintain and improve benefits for both conservation and local livelihoods from trophy hunting, particularly through strengthening the rights of indigenous and local communities to manage and benefit from their wildlife. We work to publicise and highlight the SSC Guidelines on Trophy Hunting as a Tool to Create Conservation Incentives. In 2014 SULi provided extensive technical input into various submissions to the Australian Government on proposed changes to laws around the import of hunting trophies, particularly of rhino and lion. While Australia is a very small market state for import of hunting trophies, its move to ban import of certain trophies sets a concerning precedent. It should be noted that IUCN is opposed to so-called “canned” hunting, where animals are hunted in confined areas without the opportunity to escape. “Canned” hunting is of particular relevance to lions in certain places.
3. Fisheries

The main focus of SULi’s engagement on fisheries is small scale fisheries, with a particular focus on strengthening participatory governance and management as a basis for sustainable use. SULi (led by Vivienne Solis) participated in a number of FAO meetings to provide technical input into the finalisation of the FAO’s new *Guidelines on Small Scale Fisheries*, which will be a key document for our future work in this area. The focus has now turned to implementation of these guidelines. SULi is now working with the IUCN Commission on Ecosystem Management’s Fisheries Expert Group developing plans to work with FAO on implementation, and specifically on three priorities:

1. How to achieve sustainable use;
2. The integration of traditional/local knowledge into management; and
3. Fisheries governance.

SULi has established a working group on recreational fisheries, initially in order to provide input into the development of the emerging SSC Guidelines on Sustainable Recreational Fishing of Endangered Species. SULi’s lead person in engaging with these Guidelines will be new member Roy Bealey, based in Nairobi, head of the African Billfish Foundation.

4. International policy and dialogue

SULi participates in many international and regional policy arenas to pursue its objectives, and many of these are mentioned above. The key global policy event in 2014 was the IUCN World Parks Congress, held in Sydney in November 2014.

The *World Parks Congress* (WPC) was a major focus of SULi’s work over 2014:

- SULi and its members organised many workshops and several side-events at the Parks Congress with various partners, as well as providing extensive input into the *Promise of Sydney*. Key event topics were: Governance, sustainable use of wild resources, and combating wildlife crime (in partnership with IIED); Community-based Natural Resource Management and food security; and Marine Protected Areas and small-scale fisheries (in partnership with FAO and the Commission on Ecosystem Management’s Fisheries Expert Group).
- A number of SULi members are authors of the chapter on “Resource Use in Protected Areas” in a key WPC output, the WCPA *Protected Area Governance and Management* book. This will be a key resource for PA managers in coming years. This book is available for free download [here](#).
- SULi partnered with the International Council for Game and Wildlife Conservation (CIC) to organise two field trips: on indigenous sustainable use and livelihoods in Ku Ring Gai National Park; and on recreational fisheries and marine protected areas in Sydney Harbour National Park. These field trips served to increase the understanding and awareness of Congress delegates regarding the importance of sustainable use and its contribution to livelihoods, recreational, economies, culture and conservation.

5. Building the SULi network: membership, communications and information resources

SULi’s main communication platform (using the Dgroups system) continues to function well, enabling information exchange and focused discussions among SULi members. SULi membership has steadily increased over this period. Membership qualifications are stringently reviewed to ensure members have excellent expertise and experience.

The SULi newsletter *SULiNews* was produced at four monthly intervals in 2014, and includes high quality reports and reviews from members and non-members around the globe. *SULiNews* receives generally excellent or very good ratings by readers by its built-in review system.

The SULi website has been further developed in late 2014, with plans to further extend it in 2015. Discussions have begun in early 2015 on ways to develop an online information repository on sustainable use in a way that is user-friendly, accessible and easy to maintain.

This will provide crucial resources both for practitioners in the field, but also for the public, the media, and for other parts of IUCN.
The IUCN Red List of Threatened Species in 2014

Caroline Pollock and Craig Hilton-Taylor, IUCN Red List Unit

Key achievements in Red List Training

• Increase in number of people enrolled on the online IUCN Red List Training course.
• French and Spanish versions of the online course released.
• Red List exam released.
• Advanced level exam now incorporated into the Red List Trainers’ course.
• Increased number of certified Red List Trainers actively providing training.
• Ten IUCN Red List Assessor Training events held in 2014, involving >202 participants.

Key achievements in 2014 Red List updates

• Over 6,000 assessments submitted and published in three updates of The IUCN Red List of Threatened Species™.
• Taxonomic coverage of plants and invertebrates on The IUCN Red List increased by over 1,000 species each; the Red List now includes 19,738 plants and 17,218 invertebrates.
• Automated integrity check system released in the Species Information Service (SIS)
• Heightened awareness of The IUCN Red List achieved through 50th anniversary events throughout 2014.
Background

Around the world, governments, conservation organizations and the private sector continue to rely on *The IUCN Red List of Threatened Species™* and regional and national Red Lists to help guide decision making and action planning. It is vital that IUCN Red List assessments are objective and have a scientific basis to ensure that they guide appropriate actions to prevent extinctions and conserve the integrity and diversity of nature. To achieve this, it is essential that high-quality Red List training is easily available to scientists around the world.

Throughout 2014, EAD funding has continued to help the IUCN Red List Unit to make good progress in improving training materials and access to these to a global community. Thanks to this support, understanding of The IUCN Red List Categories and Criteria and the Red List assessment process continues to improve, thus increasing the level of high-quality data being fed into The IUCN Red List and regional and national Red Lists.

There are three main components to the Red List Training initiative:

- IUCN Red List Assessor training curriculum
- IUCN Red List Trainer certificate course
- Online IUCN Red List training course

The IUCN Red List training curriculum was developed in 2011-2012. The online Red List training course and the Red List Trainer certificate course were both released in 2013. The main focus of our work in 2014 was to develop a final exam for the online course, extend the accessibility of training materials to non-English speakers, and to increase the number of certified Red List Trainers and improve advisory support for trainers.

Online IUCN Red List Training Course

The online IUCN Red List training course is hosted by The Nature Conservancy (TNC) on their ConservationTraining.org website (https://www.conservationtraining.org/mod/page/view.php?id=3756).

In 2014, approximately 800 new users registered for at least one of the seven course modules. By 31ˢᵗ March 2015, 1,814 people were enrolled on the course (Figure 1).

![Total online course enrolments](chart.png)

Total unique course users (31ˢᵗ March 2015): 1,814

**Figure 1.** Bar chart showing the increase in total users enrolled in all online course modules over the last year
Many people use specific course modules to learn or refresh their memories about specific aspects of The IUCN Red List. Each lesson in each module includes a series of questions to test the user’s understanding of the lesson. To complete the lesson successfully, the user must achieve a score of at least 70% for the end-of-lesson test. As of 31st March 2015, 124 people had successfully completed all six modules for the Global Assessor course and 123 had successfully completed all four modules for the Regional Assessor course (Figure 2).

Looking at the geographic distribution of course users, currently most users are based in North America, South America, Europe (particularly UK, Spain and Italy), India, South Africa, and Australia (Figure 3).
All of the course modules are now available in English, French and Spanish (see the section *Translation of Red List Training Materials* below).

In 2014 we also developed a short animated video summarizing the purpose, content and use of The IUCN Red List, *The IUCN Red List: A Barometer of Life*. This video has been added to Module 1 of the online course (Figure 4).

![Figure 4. Image from the animated video *The IUCN Red List: A Barometer of Life*](image)

**IUCN Red List Exam**

The final course exam was released on 1 April 2014, with different versions tailored for people intent on carrying out global Red List assessments, and those carrying out regional or national assessments. Each exam generates a list of 25 questions randomly selected from ‘question banks’ that currently contain a total of 290 questions on the various topics covered in the course.

After a user submits their exam, the system automatically checks their answers and returns the final score along with feedback on each question (including an indication of the correct answers). Users can retake the exam as many times as they want, however each time a new exam is generated, the list of questions will change to ensure that (1) the user does not enter an exam equipped with all of the answers; and (2) the answer options for multiple choice questions do not appear in the same order, so users cannot simply remember the order of previous answers (a, b, c, etc.).

The current default pass mark for the exam is 75% (this applies to most course users). Assessment project management teams and Red List Trainers must pass an advanced-level exam, which has a pass mark set at 90%. Red List Authority Coordinators and assessment project staff in Red List Partner organizations are strongly encouraged to pass the online exam.

Over the first 12 months of its release (1 April 2014 to 31 March 2015), 189 people had attempted the default level exam. Out of the 135 people who completed the exam, 84 achieved a score of at least 75% (i.e., a pass rate of 62% of those completing the exam). Currently most users successfully pass the exam by their 3<sup>rd</sup> attempt.
IUCN Red List Trainers

We are well on the way to achieving our target of having at least 35 certified Red List Trainers by the year 2016. The third IUCN Red List Trainer workshop was held on 23-25 June 2014, resulting in another nine people receiving their Red List Trainer certificates.

Accounting for people who have moved on to new positions and are no longer being available to provide Red List Training on a regular basis, currently there are 31 active certified Red List Trainers, including 17 IUCN SSC Specialist Group members, six staff from Red List Partner organizations; seven IUCN Global Species Programme staff members; and four trainers based in IUCN Regional offices. Eight people who have been awarded Red List Trainer certificates since 2012 are no longer available to provide Red List Training on a regular basis and are therefore no longer included in the list of active certified Red List Trainers.

Since April 2014, it has been compulsory for all certified IUCN Red List Trainers to pass the advanced level online exam. Currently 18 trainers (58% of the active certified trainers) have passed the exam. The remaining 13 trainers are now being reminded on a monthly basis that they need to pass the exam; we aim for all Red List Trainers to pass the exam before the end of 2015.

We have also considered developing a password-protected website for Red List Trainers to use to access training materials and share training experiences. Currently, upgrading the IUCN Red List website itself is a major priority, and it would make sense to wait until this work has been done to allow any Red List Trainer website to be integrated properly with the Red List website. Meanwhile, we have set up a shared folder containing all current Red List training materials; all certified Red List Trainers have access to this folder and the Red List Unit is in regular contact with them to update them on any additional or edited materials.

IUCN Red List Assessor Training Workshops

Certified Red List Trainers facilitated 10 IUCN Red List Assessor Training workshops in 2014 (Figure 5). These workshops provided Red List training for 202 participants in Bangladesh, Lebanon, Mauritius, Mexico, Peru, Russia, and United Kingdom. This included four training workshops facilitated by Red List Unit staff: three in Bangladesh to support the Bangladesh national Red List assessment project being coordinated by the IUCN Bangladesh country office; and one workshop in collaboration with the Comisión Nacional para el Conocimiento y uso de la Biodiversidad (CONABIO), Mexico.

Since the start of 2012, a total of 59 IUCN Red List Assessor Training workshops have been held, providing Red List training for over 1,000 people.

Figure 5. Map showing geographic distribution of IUCN Red List Assessor Training workshops held in 2014. Darker shades indicate higher number of participants trained.
Translation of IUCN Red List Training Materials

French and Spanish Translations

French and Spanish versions of the online Red List Training course were released on 31 March 2014. Currently the figures and diagrams associated with the course modules are still displayed in English, but work is underway to translate all of these into French and Spanish for release in 2015.

Towards the end of 2014, work began to translate all 290 exam questions into French and Spanish, with the aim of releasing French and Spanish versions of the exam online in 2015.

Translation of all presentations for the IUCN Red List Assessor Training workshop into French and Spanish were completed in 2014 (Figure 6). The Spanish version has been used several times; the French version has been used once only and will require some modification to be considered final. Both versions of these presentations will be made available to Red List Trainers in 2015.

Translation of IUCN Red List Categories and Criteria into Arabic

Due to unforeseen circumstances, there have been further delays in completing the essential task of updating and revising the Arabic translations of the IUCN Red List Categories and Criteria and the Regional Guidelines booklets. In 2014, a group of experts convened to discuss and agree on difficult translation issues and the translations of two of the most controversial terms have been agreed. The remainder of the translation work will be carried out by one person, but in consultation with the wider group. Finding a suitable person and agreeing the cost and timeline to do this was a lengthier process than anticipated. However, a consultant was finally identified and a contract for the work was issued in December 2014 with an initial agreement to complete the translations by the end of February 2015.

The consultant did not manage to meet the deadline set for this work, and an extension was granted to complete this by 15 May 2015. In early April 2015 it became clear that the consultant would not manage to complete these translations; therefore the contract has had to be terminated. Currently we are looking into identifying and contracting a suitable replacement consultant to complete these translations before the end of 2015.
Red List Training: Next Steps for 2015

In 2015, we will continue to work toward Result 5 of the Red List Strategic Plan (IUCN Red Listing capacity built through expanding training programmes), building on the work that has already been completed. This will include:

- Holding at least one Red List Trainer workshop (currently scheduled for July 2015).
- Continue to monitor Red List Assessor Training workshops being facilitated by certified Red List Trainers.
- Maintain regular contact with Red List Trainers and continue to update the shared training folder with new materials (case studies, etc).
- Finalise French and Spanish versions of the IUCN Red List Assessor Training workshop materials and make these available to certified Red List Trainers.
- Prepare and release French and Spanish versions of the Red List exam.
- Complete and release French and Spanish versions of the Guidelines for Using the IUCN Red List Categories and Criteria.
- Identify a replacement consultant to complete the Arabic version and publish these before the end of 2015.
- Investigate potential new topics to add to the Red List Training curriculum and the online course and initiate work on these.

2014 Updates to the IUCN Red List

Each year, IUCN aims to publish at least two updates of The IUCN Red List. In 2014, EAD funding helped the Red List Unit to complete three updates, resulting in an increase in the number of assessed species from 70,289 (20,930 threatened) to 76,199 (22,413 threatened) (Figure 7).

![Graph showing increase in number of assessments on The IUCN Red List, 2000-2014]

**Figure 7. Increase in number of assessments on The IUCN Red List, 2000-2014**
Along with reassessments, the main focus of these updates continues to be on expanding taxonomic coverage on The IUCN Red List, particularly groups identified under Key Result 1 of the Species Strategic Plan. In 2014, 6,221 assessments were processed and published on The IUCN Red List; of these, 5,062 were new additions (first-time assessments).

A large proportion of the new additions to The IUCN Red List are invertebrates (1,309 species) and plants (1,466 species). The IUCN Red List now includes global assessments for 19,738 plant and 17,218 invertebrate species.

A major revision of bird taxonomy and what species are recognized is currently underway. The non-passerine birds were updated as a result in 2014 and this resulted in a significant increase in the number of bird species on The IUCN Red List; for many years the number has been around 10,000 but it has now increased to 10,425.

The number is set to rise even higher in the next few years as the revision of the passerines is completed.

Media releases accompanying each of the 2014 Red List updates highlighted the status of orchids, armadillos, eels and lemurs (found here), the newly recognized bird species (found here), and threatened high-profile marine species: Pacific Bluefin Tuna, Chinese Pufferfish and American Eel (found here).

These media releases generated significant media interest resulting in broad coverage in all media, helping to increase public awareness on species conservation issues and driving new and existing users to The IUCN Red List websites. In 2014, the main IUCN Red List website had over 3.5 million unique visitors, 5.5 million visits and almost 21 million page views.

Example of a plant added to the IUCN Red List in 2014: *Magnolia grandis* assessed as Critically Endangered due to loss of habitat to agricultural expansion and logging. © Weibang Sun, BGCI
Example of a bird added to The IUCN Red List in 2014 as a result of updated taxonomy: The Lilacine Amazon *Amazona lilacina*, assessed as Endangered due to trapping for the bird trade and loss of habitat. © Steve Wilson

Example of a marine species uplisted to threatened on The IUCN Red List in 2014: The Pacific Bluefin Tuna *Thunnus orientalis*, declining due to overexploitation. © Randy Wilder
Automated Integrity Checks and Submissions Process

Assessments for publication on The IUCN Red List are compiled, stored and managed in the online Species Information Service (SIS) database. In 2013, major progress was made in developing an automatic integrity check system to check for missing information in assessments before these are submitted for publication. In 2014, development of this system was completed and is now available to SIS users. This tool has greatly improved the process of checking submitted assessments, thus speeding up the journey from submission to publication on The IUCN Red List.

The automated submissions process has not yet been released to SIS users. The system is already in place, but some final work is required to decide on appropriate SIS user permissions for this system and to develop guidance on how to use the submissions system to accompany its release. We fully expect the automated submissions system to be made available to SIS users in 2015.

Example of an invertebrate added to The IUCN Red List in 2014: Lila Downs’ Friar Grasshopper Liladownsia fraile, a recently described species assessed as Endangered due to declines in its habitat quality because of grazing and forestry. © Derek Woller
The IUCN Red List continues to improve in size and quality, thanks to generous donations from EAD. 2014 marked the 50th anniversary of The IUCN Red List of Threatened Species™ and this occasion brought with it an excellent opportunity to increase awareness about the Red List and in particular to raise additional funds in order to take a significant step towards achieving our target of assessing 160,000 species by 2020.

The 50th Anniversary Campaign used a variety of approaches for this, including:

- **Production of a short film about The IUCN Red List** (by Mattius Klum, photographer and IUCN Goodwill Ambassador). More information can be found [here](#).

- **Art exhibitions and talks** were held at various venues in Europe and the USA (e.g., the *Here Today* exhibition). More information can be found [here](#).

Two photos showing examples of art installations from the *Here Today* art exhibition which opened in London, UK, in November 2014 to raise awareness and funds in support of The IUCN Red List.

- **The Biophilia Ball**. Hosted by Synchronicity Earth and held at The Natural History Museum, London, this masked ball created an impressively entertaining evening of dinner, speeches, musical and dance performances, and an auction of unique art pieces, all to highlight the amazing diversity of life on Earth and to honour The IUCN Red List’s 50th anniversary. More information can be found [here](#).

Photo of Biophilia Ball event held at the Natural History Museum, London, in November 2014.
• Development of a fundraising sub-site designed as a platform to support general and targeted fundraising campaigns for The IUCN Red List and to help raise the public profile of The IUCN Red List: https://support.iucnredlist.org/donate.

![Screenshot of the IUCN Red List Donation website](image)

• An ongoing social media campaign has raised the profile of The IUCN Red List through Facebook (followers up from 22,000 in December 2013 to 102,600 in April 2015) and Twitter (34,300 followers by April 2014). These tools continue to be used to promote The IUCN Red List through initiatives such as the ‘50 Fascinating Facts about the IUCN Red List’ and ‘Amazing Species’, as well as promoting relevant events such as the award to The IUCN Red List of the prestigious 2014 Fondation Prince Albert II de Monaco Award for Biodiversity.

![Screenshot of the IUCN Red List Facebook webpage](image)  ![Screenshot of the IUCN Red List Twitter webpage](image)
Key achievements

- Red List assessments for 60 *Nepenthes* pitcher plants were completed in 2014;
- Red List assessments have been started for the Sundews (genus *Drosera*).
Introduction

In 2014, the principal objectives and activities of the Carnivorous Plant Specialist group (CPSG) were threefold:

1. Recruitment and appointment of specialists for each of the 12 genera of carnivorous plants. The purpose of this is to ensure that relevant and appropriate expertise is available during the process of assessing all known carnivorous plant species for the IUCN Red List.

2. Completion of Red List assessments on a minimum of 60 taxa of the genus *Nepenthes*. In order to accelerate the process of conducting Red List assessments of *Nepenthes* taxa, a concerted effort has been made to assess almost half of the known taxa, with assessments entered into SIS complete with all supporting documentation and reviewed in conformance with the requirements of Annex I of the IUCN Red List Assessment Process 2013-2016.

3. Commencement of Red List assessments for genera of carnivorous plants other than *Nepenthes*, with an initial focus on the genus *Drosera*, as none of these have been assessed for the IUCN Red List previously.

This report provides details of the activities that were performed by the CPSG in 2014, with particular reference to these three primary objectives.

1. Recruitment of specialists

Presentations were given by Robert Cantley at the International Carnivorous Plant Society (ICPS) Conference in Cairns, Australia and again at the European Carnivorous Plant Exhibition (EEE) in Padua, Italy. Both these fora contained many of the cream of the world’s experts covering all genera of carnivorous plants. The focus of the presentations were to explain the current function and future goals of the CPSG and to build up to an appeal for expert volunteers to assist in many aspects of the CPSG. These range from website development to instigation and maintenance of social media and in particular to recruitment of a Specialist or sometimes two, for each genus of carnivorous plant. The primary role of these Specialists is to collect and collate pre-assessment data from other sometimes less qualified volunteers before passing this data to our Red List Focal Point to write the assessments. In some cases the Specialist will assist with future conservation measures that may be undertaken. We were successful in obtaining more than the required number of Specialist Volunteers and have already appointed, or are in the process of appointing, Specialists for each genus.

2. Completion of Red List assessments on a minimum of 60 taxa of the genus *Nepenthes*

Background

At present, the number of validly described, recognised *Nepenthes* species is approximately 150. More than 10 of these were described within the last year, mostly from the Philippines. It is difficult to determine at this stage whether all of the newly described taxa represent “good” species and further taxonomic research is needed, but regardless of this, it is clear that there are more than 120 *Nepenthes* species, and that number is likely to continue to increase in the short term. As new species are described and the number of recognised *Nepenthes* species increases, the task of the CPSG in providing accurate, current Red List assessments becomes more challenging, particularly as many of the newly described species are from remote or restive parts of Southeast Asia. Furthermore, the majority of species that were assessed previously (between 1999-2001) have yet to be re-assessed. Accurate, current data exists for many of these species, and in 2014 the CPSG determined that one of its major goals for the year would be to assess 60 *Nepenthes* species, in addition to the 28 that were assessed in 2013. This would bring the total number of assessed species almost to 100, thereby reducing the task of assessing the remaining *Nepenthes* species to a more manageable total. This would have the dual benefit of enabling the CPSG to start directing resources and expertise towards the assessment of carnivorous plant taxa that belong to other genera.
**Nepenthes species assessed in 2014**

Table 1 contains a list of the *Nepenthes* species that were assessed in 2014. These species have been reviewed and are ready for publication in the IUCN Red List.

In addition, a further eight newly described *Nepenthes* taxa were assessed as “Data Deficient”.

These taxa are as follows: *N. ultra*, *N. samar*, *N. negros*, *N. extincta*, *N. leyte*, *N. abgracilis*, *N. ramos* and *N. abalata*. These species were described on the basis of a small number of herbarium specimens only and have yet to be surveyed in the wild. In fact, some of them have not been seen in the wild since the original collections were made (in some instances, in the 1920s).

As a result, the only appropriate category on the Red List is DD, but there is an obvious need to make further observations on each of these taxa in the wild as soon as possible.

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Table 1. *Nepenthes* species assessed for the IUCN Red List in 2014
Of the 60 newly assessed species, only one was considered to be Critically Endangered (*N. talangensis*), six were considered to be Endangered, eight were assessed as Vulnerable, while the remainder (45 species) were assessed as Least Concern.

There were some intriguing changes in this round of assessments, compared to the previous round in 2000. For instance, *Nepenthes rajah* was assessed as EN in 2000, but as VU in 2014, reflecting improved understanding and amelioration of the threats this species faces.

By contrast, *Nepenthes bicalcarata* was assessed as VU in 2000, but as EN in 2014, due to widespread destruction and degradation of its primary habitat – the peat swamp forests of northwestern Borneo. Although several large subpopulations of this species remain, there has been a precipitous drop in numbers of mature plants over the last 15 years.

Almost 100 *Nepenthes* species have been assessed since 2012. Although another 30-50 taxa have yet to be (re-)assessed, the CPSG expects to complete assessments of nearly all *Nepenthes* taxa that can be safely accessed within the next 18 months.

### 3. Commencement of Red List assessments for genera of carnivorous plants other than *Nepenthes*

The genus *Drosera* (common name: Sundews) is one of the largest groups of carnivorous plants, yet no species have been formally assessed for the IUCN Red List in the past. As we have made steady progress in our primary task – the assessment of *Nepenthes* species – over the last two years, we are now able to turn our attention to assessing *Drosera* species.

To this end, Dr. Adam Cross has drafted assessments for a number of *Drosera* species from Southwest Australia (the centre of diversity for this genus). The majority of *Drosera* species are not well known to biologists, and we have encountered a number of minor complications in completing and reviewing the first draft assessments. This prevented us from completing any assessments prior to December 31, 2014. However, none of these obstacles are significant and we expect to be able to complete a significant number of assessments of *Drosera* taxa in 2015. Indeed, the first assessment of a *Drosera* species to be completed and made available for review (*Drosera lanata*) was completed in February 2015.

This assessment will serve as a useful guide to members of the CPSG on how to prepare Red List assessments for other *Drosera* species, and we anticipate completing at least 60 *Drosera* species assessments in 2015.
Crop Wild Relatives on The IUCN Red List

Shelagh Kell, Coordinator, IUCN SSC Crop Wild Relative Red List Authority
Nigel Maxted, Co-Chair, IUCN SSC Crop Wild Relative Specialist Group

Key achievements

• The Crop Wild Relative Specialist Group is assessing the IUCN Red List status of 330 species of crop wild relatives.
• The project is on schedule and it is expected that these assessments will be submitted to the IUCN Red List late in 2015.
Summary

Crop wild relatives (CWR) are wild plant species related to the many socio-economically important crops cultivated across the world for food, forage, fodder, beverages, food additives, oils, fibres, medicinal products, ornaments and timber, and which contain a wide pool of genetic diversity of value for crop improvement. CWR are therefore an important resource for the maintenance of food security and for safeguarding the world’s agricultural-based economy. However, despite their recognized value, the conservation of CWR has been largely neglected, in part due to the disconnection between the agencies responsible for the conservation of plant genetic resources for food and agriculture and those responsible for the conservation of wild plant populations in general or the habitats in which they grow. There is an imperative to develop and implement a comprehensive global strategy for complementary (in situ and ex situ) conservation of the most valuable CWR genetic resources because historically these taxa have fallen between the conservation priorities of both the agricultural and conservation communities. One step in this process is to ascertain the IUCN Red List status of global priority CWR in order to increase our knowledge of the status of in situ populations, raise the profile of CWR on the biodiversity conservation agenda, and to inform conservation planning.

In the first comprehensive assessment of the threatened status of CWR, 572 European species in 25 economically important crop gene pools/groups were assessed (Bliz et al. 2011, Kell et al. 2012a). Species endemic to the region (183) are published in the IUCN Red List of Threatened species but to date these are the only global Red List assessments of CWR published, apart from a relatively small number of species that have been assessed in the context of projects focusing on the assessment of wild plant species at national, regional or taxonomic levels, rather than because of their particular value as CWR. In the current project, Red List assessments of 330 global priority CWR species are underway as a component of the Plants for People initiative - the first comprehensive global assessment of these important socio-economic species.

Crop wild relatives: their value for food and economic security

Crop wild relatives are defined by their potential use as sources of beneficial traits for crop improvement, such as biotic and abiotic stress resistance, leading to improved yield and stability (Maxted et al. 2006). Modern crop varieties are often homogenous for husbandry and production characteristics and therefore tend to have a narrow genetic base, but CWR have not passed through the domestication bottleneck and retain their breadth of genetic diversity adapted to a wide range of environmental conditions. Crop varieties have always required enhancement or replacement to sustain food production, but with increasingly rapid changing environmental conditions affecting agricultural production systems, breeders are now looking beyond their conventional sources of novel traits for climate change mitigation and to maintain food security (Jones et al. 2003, Duveiller et al. 2007, FAO 2008, Deryng et al. 2011, Li et al. 2011, Luck et al. 2011). Failure to meet this challenge could have a devastating impact on the global economy and social well-being. The exploitation of a greater pool of genetic diversity offers insurance against the potentially negative impacts derived from climate change and other changes in abiotic and biotic conditions naturally or human induced (e.g., invasive species, collapse of pollinators, increased salination, pests and diseases arriving earlier in the plant’s life cycle). It has been estimated that the contribution of CWR to improving food production has an annual value of US$115-120 billion worldwide (Pimentel et al. 1997, PwC 2013) - a value which undoubtedly will have increased substantially today, given the evidence of the increased use of CWR in crop improvement (Maxted and Kell 2009) and recent extreme climate change-induced events causing serious crop losses in many parts of the world.

Threats to crop wild relatives

Like other wild plant species, CWR are increasingly threatened due to human mismanagement of the environment, whether it is the species existence per se or the genetic diversity being reduced or shifting in response to environmental changes. The Sampled Red List Index for Plants project (Brummitt and Backman 2010) estimated that 20% of all plants are currently threatened with extinction. However, this statistic does not take into account the potential impact of climate change which is also predicted to have a further and substantial impact on wild plant populations. For example, Thuiller et al. (2005) predicted that by 2080 climate change will cause a 27-42% loss of plant species within Europe and possible species turnover per 50 x 50 km of 45-63%. There are no comprehensive estimates of the impact of climate change on CWR diversity but the fact that CWR form a major component of any flora means that the impact is likely to be significant. A study of changes in potential range size and fragmentation of climatically suitable areas for groundnut (Arachis spp.), potato (Solanum spp.) and cowpea (Vigna spp.) wild relatives by Jarvis et al. (2008) concluded that 16-22% of CWR species would go extinct by 2055, that the majority of species are expected to lose greater than 50% distributional range, and that the populations that will remain will be highly fragmented, placing the species under greater threat of genetic erosion or extinction. Similar modelling of climate change scenarios in Mexico by Lira et al. (2009) highlighted that most of the eight wild cucurbit taxa studied are predicted not to survive under accepted climate change models. Maxted et al. (1997) emphasized the fact that the loss of genetic diversity must always be greater than the loss of spe-
cies because there will be genetic erosion from the species that remain extant. Therefore, species distribution modelling significantly under-estimates the loss of genetic diversity from CWR taxa. A potential further specific threat to CWR diversity is that many CWR of major crops are found in disturbed, pre-climax communities (Jain 1975), which themselves are the habitats that are most likely to be subject to increasing levels of anthropogenic change and destruction as a result of global change.

We already know that in Europe, at least 11.5% (66) of a sample of 572 CWR species are threatened, with 3.3% (19) of them being Critically Endangered, 4.4% (22) Endangered and 3.8% (25) Vulnerable (Bilz et al. 2011, Kell et al. 2012a). A further 4.5% (26) of the species are classified as Near Threatened and one species (Allium jubatum J.F. Macbr.) is Regionally Extinct. The remaining species were regionally assessed as Data Deficient (DD) (29%) or Least Concern (LC) (54.7%). However, of the species assessed as LC, around a third are threatened at the national level (Kell et al. 2012a). The same authors reported that of the 25 crop gene pools/groups for which the European CWR were assessed, at least 14 contain regionally and/or globally threatened (CR, EN or VU) or Near Threatened (NT) species (92 species in total, of which 65 are endemic to Europe), the highest number occurring in the brassica complex which in total contains 137 species native to and with a significant proportion of the global population in Europe. At least 8-50% of the species assessed in each of these crop gene pools/groups are threatened or NT and these percentages are likely to increase when the DD species are re-evaluated. Crop gene pools/groups of particular concern in terms of the percentage of regionally threatened wild species are brassica, beet, lettuce, wheat and allium.

Kell et al. (2012a) also analysed the factors threatening CWR diversity and reported 31 distinct threats, the most frequent being ‘livestock farming and ranching’, ‘tourism and recreation areas’ and ‘housing and urban areas’. However, the authors note that we should not conclude that farming per se is threatening CWR diversity - in fact, farmed areas (including arable land and pasture) are one of the primary habitats of CWR species. Rather it is unsustainable farming practices, such as severe overgrazing, conversion of land to monocultures, and the heavy application of fertilizers and herbicides that are the major threats to CWR that grow in agricultural areas (Kell et al. 2012a). IUCN Red List assessments do not directly assess threats posed by climate change as the impacts are often less direct and so cannot be unequivocally attributed to climate change. What is actually noted is overgrazing, increased fires or competition from alien species, each of which may have at its foundation changes in the biotic or abiotic environment themselves attributable to climate change.

**Conservation status**

Given their value and threatened status, it might be expected that CWR would have been the focus of specific, systematic conservation efforts but this is far from the case. For example, only around 7% of total germplasm accessions in European gene banks are of wild origin (S. Dias, pers. comm., Rome, 2013) and the breadth of coverage of crop gene pools is limited (Kell et al. 2008, 2012b). Furthermore, Kell et al. (2012b) found that most European priority CWR species are represented by very few ex situ accessions, are reported by only one gene bank, and have been collected from only a small part of the species’ range. At global level, FAO (2010), based on data provided by WIEWS (http://apps3.fao.org/wiews/wiews.jsp) reported that in 2009, 18% of accessions in germplasm collections were of wild species and that this was an increase of 3% since 1996 (Kell et al., 2015). However, the authors note that this increase was comparable with the increase in numbers of research/breeding materials and landrace accessions so may simply represent an increase in the number of accessions reported overall or a general increase in the size of collections of all types of germplasm. Further, the percentage of accessions alone is not an adequate indication of the ex situ conservation status of CWR. Information on the number of species, crop gene pool coverage and the genetic representativeness of the collections is needed in order to undertake a comprehensive assessment.

The situation is even less satisfactory for in situ CWR conservation. Recently a set of standards for genetic reserve in situ CWR conservation were established (Iriondo et al. 2012) but it is thought that no protected areas currently meet these standards and only a few claim to be actively conserving CWR diversity in situ (Anikster et al. 1997, Tan and Tan 2002, Avagyan 2008, Pinheiro de Carvalho et al. 2012). While most of the world’s national parks and other protected areas contain CWR populations, the protected areas were established to conserve particular habitats or charismatic species, thus, CWR are only conserved passively and individual CWR populations could decline or go extinct without the site managers being aware. There are only a handful of examples globally of active genetic reserve conservation where the site is being actively managed to maintain and maximize CWR diversity.

**Selection of CWR species for assessment**

Historically, many plant and animal species for which Red List assessments have been undertaken have a priori been identified as threatened in the general sense - either due to their inherent rarity or due to known population declines and/or specific threatening factors. However, apart from research undertaken by Maxted and Kell (2009) which highlighted some species related to globally important crops that are already known to be under threat and/or of limited range, we
currently have relatively little knowledge of the status of global priority CWR species *in situ* as it is only in the past ten years or so that these species have been given greater recognition on the international conservation agenda.

Further, CWR are valued specifically for the genetic diversity within populations, regardless of their threatened status. Therefore, the selection of species for assessment was based on two criteria which are now routinely applied when prioritizing CWR species for conservation assessment:

1. The socio-economic value of the crop to which they are related (Ford-Lloyd et al. 2008),
2. Their potential ease of use or known value in crop improvement programmes (Maxted and Kell 2009, Maxted et al. 2012).


For criterion 2, species were selected on the basis of their known or potential value for crop improvement based on existing studies by Maxted and Kell (2009), Vincent et al. (2013) and USDA, ARS, National Genetic Resources Program (2015).
Cassava (*Manihot esculenta* Crantz subsp. *esculenta*) is grown for its enlarged starch-filled roots, which contain nearly the maximum theoretical concentration of starch on a dry weight basis among food crops (O’Hair 1995). Cassava is an important food crop for more than 900 million people in the tropics and subtropics (Nassar 2006) and one of the two most important staples in sub-Saharan Africa (Nassar et al. 2008), where its resilience in marginal environments is particularly important for the rural poor (Ortiz 2007). In sub-Saharan Africa and Latin America the crop is mainly grown for human consumption, while in Asia and parts of Latin America, it is also used for animal feed and starch-based products (Nassar et al. 2008). Nair and Unnikrishnan (2007) reported that cassava is rapidly emerging as an important crop in India, where it produces a large amount of calories per unit area, has the ability to adapt to erratic climatic conditions, is resistant to several pests and diseases, is easy to cultivate, is not labour intensive, and has low production costs. As well as being important for human consumption in India, cassava also provides a cheap and nutritious feed for livestock (Nair and Unnikrishnan 2007).

All species in the genus *Manihot* are native to tropical regions of the New World and are particularly concentrated in Brazil and Mexico (Nassar et al. 2008) - species found in other tropical regions are introductions (Nassar 2007). Nassar (1978a) defined four centres of diversity of *Manihot*: 1) central Brazil, 2) northeastern Brazil, 3) southwestern Mexico, and 4) western Mato Grosso (Brazil) and Bolivia. Three micro-centres of diversity (areas where concentrations of 6-8 species occur in an area of no more than 200 km diameter) were defined by Nassar (1978b) in central Brazil - Chapada de Veiaideiros, Corumba de Goias-Pirenopolis and Goias Velho. Later, Nassar et al. (2008) redefined these micro-centres as areas of <50km diameter where large numbers of species are found, such as Goias Velho and Corumba de Goias. Thirty-eight of the 98 *Manihot* species are found in Central Brazil (southern Goias and eastern Minas Gerais), 17 in Mexico, 16 in northeast Brazil, and six in South Mato Grosso and Bolivia (Nassar et al. 2008).

Cassava wild relatives have long been used as a source of useful characters for crop improvement - such as high protein content, apomixis (production of seed without fertilization), resistance to mealybug and mosaic disease, drought tolerance (Nassar 2007, Nassar et al. 2008) and seed fertility (Nassar et al. 2008). Notable successes include the use of *M. glaziovii* to transfer resistance to mosaic disease in Tanzania in the 1930s (Nassar 2007), *M. oligantha* Pax & K. Hoffm. to improve protein content (Nassar and Dorea 1982) and *M. neusana* N.M.A. Nassar for transfer of apomixis genes (Nassar 2000, Nassar et al. 2000). However, according to Nair and Unnikrishnan (2007), cassava breeders have “not yet scratched the surface” in utilization of the wild relatives and there is an urgent need for international cooperation in the collection, maintenance, evaluation and exploitation of the vast diversity available in the gene pool of this crop.

Jennings (1995) reported that the genes of several species may offer resistance to environmental stresses (e.g., *M. aesculifolia* – greater robustness, particularly on limestone soils; *M. rubricaulis* I.M. Johnst. – high altitudes and cool temperatures; *M. davisiae* Croizat and *M. angustiloba* Mull. Arg. – drought tolerance). Bonierbale et al. (1997) used cassava wild relatives in breeding programs at the International Centre for Tropical Agriculture (CIAT) and the International Institute of Tropical Agriculture (IITA), particularly for high protein content and insect resistance. The same authors compiled a list of reported desirable characteristics of 50 cassava wild relatives.

CIAT (2006) reported success in using *M. walkerae* Croizat to introduce post-harvest physiological deterioration (PPD) tolerance. Interspecific hybridization of cassava with several wild relatives (including *M. caerulescens* Pohl, *M. tritis* Mull. Arg., *M. glaziovii*, *M. epruinosa*, *M. esculenta* var. *flabellifolia*, *M. esculenta* var. *peruviana*, *M. cathiponga* Ule, *M. dichotoma* and *M. pseudoglaziovii* Pax & K. Hoffm.) was also reported by Unnikrishnan et al. (2007) for cassava mosaic disease resistance at the Central Tuber Crops Research Institute CTCRI). *M. caerulescens* was found to exhibit high levels of resistance and accessions have been used as donor parents for transferring resistance to elite Indian cultivars (Nair and Unnikrishnan 2007).

The degree of relationship between cassava and its wild relatives is of less significance in terms of prioritizing taxa for conservation than for some other crop complexes because *M. esculenta* subsp. *esculenta* hybridizes naturally with many of the wild species (Nassar 2003) and a number of species in the secondary and tertiary gene pools have already been used in breeding programmes. Therefore, all 98 species in the gene pool require threat and conservation assessment. Maxted and Kell (2009) reported that there is an urgent need for a detailed study of the conservation status of cassava wild relatives and for immediate action to secure their conservation *in situ*. Nassar (2006) reported that in 2001, at least 18 *Manihot* taxa were no longer found at locations originally recorded in the 1960s and 70s, and appealed for action to conserve the remaining populations *in situ*. In particular, the three micro-centres of diversity (Chapada de Veiaideiros, Corumba de Goias-Pirenopolis and Goias Velho) are under threat from tourism (Nassar 2006).

**Box 1. Wild relatives of cassava, *Manihot* species (adapted from Maxted and Kell 2009)**
The application of the two prioritization criteria resulted in a list of 449 global priority CWR species. This was reviewed to ascertain which species have already been assessed or are in the process of assessment under the auspices of other projects.

Fifty-nine species are being assessed within the context of a student research project at the University of Birmingham and of the remaining 390 species, a small number have already been assessed within the context of other projects (such as the Sampled Red List Index of Plants project), or as components of national and/or taxonomic group assessments. Of the remaining species, 330 were selected for assessment in the current project (Table 1), with a view to assessing the remaining species when resources are available.

<table>
<thead>
<tr>
<th>Crop/crop group</th>
<th>Crop genus (or genera)</th>
<th>No. of species being assessed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beans</td>
<td>Phaseolus</td>
<td>11</td>
</tr>
<tr>
<td>Brassicas(^2)</td>
<td>Coincya, Diplotaxis, Erucastrum, Orychophragmus, Sinapis</td>
<td>7</td>
</tr>
<tr>
<td>Cassava</td>
<td>Manihot</td>
<td>98</td>
</tr>
<tr>
<td>Common millet, pearl millet, foxtail millet</td>
<td>Panicum, Pennisetum, Setaria</td>
<td>22</td>
</tr>
<tr>
<td>Cotton</td>
<td>Gossypium</td>
<td>19</td>
</tr>
<tr>
<td>Potato</td>
<td>Solanum</td>
<td>95</td>
</tr>
<tr>
<td>Rye</td>
<td>Secale</td>
<td>3</td>
</tr>
<tr>
<td>Sorghum</td>
<td>Sorghum</td>
<td>17</td>
</tr>
<tr>
<td>Soybean</td>
<td>Glycine</td>
<td>4</td>
</tr>
<tr>
<td>Sweet potato</td>
<td>Ipomoea</td>
<td>12</td>
</tr>
<tr>
<td>Wheat</td>
<td>Aegilops, Agropyron, Elymus, Triticum</td>
<td>20</td>
</tr>
<tr>
<td>Yam</td>
<td>Dioscorea</td>
<td>21</td>
</tr>
<tr>
<td>Olive</td>
<td>Olea</td>
<td>1</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td><strong>330</strong></td>
</tr>
</tbody>
</table>

Table 1. Selected global priority food crops, genera containing CWR and the number of species for which Red List assessments are being undertaken

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\(^1\) The CWRSG is either re-assessing or reviewing these assessments.

\(^2\) Rapeseed, cabbage, cauliflower, broccoli and other brassicas. Priority species in the genus *Brassica* will be included in a future batch of assessments.
Assessment process

A review of the selected species was undertaken to assign the most widely accepted taxon concept for each species based on four online sources:

i. GRIN Taxonomy for Plants (www.ars-grin.gov/cgi-bin/npgs/html/index.pl?language=en);

ii. The Harlan and De Wet Crop Wild Relative Inventory (www.cwrdiversity.org/checklist);

iii. The Plant List (www.theplantlist.org); and

iv. World Checklist of Selected Plant Families (http://apps.kew.org/wcsp/home.do)

and a working set established in the Species Information Service (SIS). Systematic data entry to SIS is ongoing for the selected species using a variety of data sources, one of the most notable being GRIN Taxonomy for Plants which is the most comprehensive online database providing nomenclatural, distribution and economic use data for socio-economically important plant species, including CWR.

We have good quality geo-referenced occurrence data available for many of the species which were generated in the context of the project, ‘Adapting agriculture to climate change: collecting, protecting, and preparing crop wild relatives’ (see CWR and Climate Change 2013, Dempewolf et al. 2014) and access to a range of publications and online resources providing information on habitats and ecology, and ex situ conservation status.

The main challenges we face are:

a. Lack of knowledge of the status of individual populations, and

b. Obtaining sufficient information and commitment from national or taxon experts in order to complete robust assessments.

Nonetheless, with the data already available from the above sources, combined with the knowledge and expertise available within the CWRSG membership and broader wild plant species networks, we will be able to produce a highly valuable first overview of the IUCN Red List status of a significant number of global priority CWR. The results of this initiative will be a vital component in global, regional and national efforts to increase our knowledge of priority CWR and raise their profile within both the agrobiodiversity and the wider biodiversity conservation communities, with the ultimate aim of effectively conserving these genetic resources which are critical for future food security and economic growth.

_Glycine soja_ (Siebold & Zucc.), a primary wild relative of soybean, _G. max_ (L.) Merr. subsp. _soja_ (Siebold & Zucc.) H. Ohashi. The species has been used to confer traits for drought and cold tolerance, protein content, early ripening, yield improvement and improved root development. © Chen Bin
References


USDA, ARS, National Genetic Resources Program (2015) Germplasm Resources Information Network – (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland. www.ars-grin.gov/

Key achievements

- Assessed the status of all species (52) in the genus *Cypripedium* (these assessments were published on the IUCN Red List website in mid 2014 and were one of the groups highlighted in the associated press release).
- Assessed the status of species (88) in the genus *Paphiopedilum* (these assessments were submitted for publication on the IUCN Red List website).
- Assessed the status of the genus *Mexipedium* (the single assessment is completed and will be submitted for publication on the IUCN Red List website).
- Compiled data for *Phragmipedium* species (25 species) to enter into the IUCN Red List data management system (SIS: Species Information Service).
Background

There are approximately 160 species of slipper orchids worldwide, and they are instantly recognisable because of their slipper-like flowers. They receive much interest due to their fascinating flowers and the environments in which they grow, and hybrids derived from the wild species are becoming increasingly affordable for horticulturalists. However, many of the species are at risk in the wild due to habitat destruction and over-collection.

There are five genera of slipper orchids: *Cypripedium* with 52 species distributed across the northern temperate regions, *Paphiopedilum* with 88 species in Southeast Asia, *Phragmipedium* with 25 species in Central and South America, *Selenipedium* with five species in Central and South America and *Mexipedium* with a single species that is endemic to Mexico and may already be extinct in the wild.

Many slipper orchids are severely threatened by habitat destruction and over-collection by collectors and growers. Although habitat destruction affects all species, over-collecting is a particularly serious threat to those species that are important in trade, and it can lead to the near extinction of a species in the wild within a few years of discovery.

In this project we aim to create and complete the assessment of all slipper orchid species and to publish the final, reviewed accounts on the IUCN Red List of Threatened Species.

Key achievements

- Assessment of the genus *Cypripedium* completed and published: 52 new assessments published on the IUCN Red List of Threatened Species.
- Assessment of the genus *Paphiopedilum* completed and submitted to IUCN: 88 new assessments.
- Assessment of the genus *Mexipedium* completed.
- Data compilation for all the *Phragmipedium* species (25 species).

Major threats

Most slipper orchids, including species of *Cypripedium, Paphiopedilum* and *Mexipedium*, require particular environments and are sensitive to environmental change. Threats include ruthless collection for regional and international trade, exploitation for horticultural purposes, logging, deforestation, trampling, recreation, ecological disturbance, fires, mining, leisure activities, infrastructure development and management activities.
Summary results of Red List assessments

The Red List assessments for *Cypripedium* showed that 79% of species are threatened; only 21% are not threatened. The threatened categories for *Cypripedium* are: 8% Critically Endangered, 46% Endangered, 25% Vulnerable. A further 8% were assessed as Near Threatened (Figure 1). This is clearly an extremely high level of threat.

![Figure 1. The threat status of *Cypripedium* (52 species)](image1)

The Red List assessments for *Paphiopedilum* showed that all but one species (99%) are threatened; only one species is not threatened. The threatened categories for *Paphiopedilum* are: 56% Critically Endangered, 41% Endangered, 2% Vulnerable. The remaining species (1.13%) was assessed as Near Threatened (Figure 2).

This makes *Paphiopedilum* one of the most seriously threatened groups of species globally.

![Figure 2. The threat status of *Paphiopedilum* (88 species)](image2)
The Red List assessment for *Mexipedium* genus showed that the species is Critically Endangered and probably Extinct in the Wild.

The project is on course for completion to the agreed schedule. Having completed the *Cypripedium, Paphiopedilum* and *Mexipedium* accounts, we have initiated work on assessments for all remaining slipper orchids (*Phragmipedium* and *Selenipedium*) and the assessments will be published on the IUCN Red List of Threatened Species by the end of 2015.

Together these assessments will cover a complete subfamily of orchids, the largest family of flowering plants; this will represent a major achievement and will allow us to carry out analyses on threats to slipper orchids and provide recommendations for their conservation.
Key achievements

- Reptile assessment workshops completed in 2014 for East Africa, the Horn of Africa and the Sudans, New Guinea, Ecuador, Peru, Bolivia, Argentina, Paraguay, Uruguay and the Guianas, and globally for chameleons.
- Reptile assessments for Venezuela completed in March 2015.
- Reptile assessments published for the reptiles of East Africa, and for remaining chameleons.
The Global Reptile Assessment: Summary of Progress to Date

- 4,085 published reptile assessments since 2004.
- Review underway for approximately 2,000 additional species with completed assessments.
- Global assessments published for all sea turtles, sea snakes and chameleons, and for most iguanas.

Background

With approximately 10,200 known species, reptiles (lizards, snakes, turtles, crocodiles and the New Zealand tuatara) may be the most diverse group of terrestrial vertebrates, though in the absence of a completed global assessment the group as a whole remains poorly-known, lacking information on the distributions and conservation status of each species. Information on threats to the world’s reptiles consequently lags behind that available for birds, mammals and amphibians, all of which have completed global Red List assessments for each known species.

The Global Reptile Assessment (GRA) is currently underway, with assessments published for approximately 40% of the world’s recognised reptile species (Figure 1). A further 2,000 species have complete draft assessments, representing regions of the world whose reptiles have been assessed but which have not yet completed the rigorous review process required prior to final publication on the IUCN Red List.

The year 2014 was extremely productive for the IUCN reptile assessments, with no fewer than six workshops (five region-focused, and one taxonomic workshop focused on completing the global assessment of chameleons), in addition to a meeting between Phil Bowles of the Biodiversity Assessment Unit, (responsible for leading the GRA) and a leading regional specialist for Ethiopia, to assess the reptiles of the Horn of Africa. A similar small-scale meeting was held in March 2015, with remote support from Phil Bowles, to complete reptile assessments for Venezuela.

![Figure 1. Summary of current global coverage of the Global Reptile Assessment](image-url)
Reptile Assessment Workshops

Key achievements

• Workshops held during 2014 (Figure 2) to assess the reptiles of East Africa, the Northern Andes, New Guinea, the Southern Cone and the Amazon Basin.

• Phil Bowles led the assessment of the reptiles of the Horn of Africa.

• Support provided and species lists finalised for forthcoming workshops to assess the reptiles of Chile and the Caribbean.

With generous support for staff time provided by the Environment Agency Abu Dhabi, three assessment workshops were held in 2014 to progress the Global Reptile Assessment.

A workshop was held in Bagamoyo, Tanzania on 21-27 January, supported by WWF and in collaboration with IUCN’s Climate Change Unit (which used the workshop to collect data on species’ traits reflecting sensitivity to climate impacts), to conduct species assessments for the snakes and lizards of East Africa. A total of 386 species occur in Kenya, Tanzania, Burundi, Rwanda and Uganda. This workshop was attended by five international specialists and five herpetologists from Kenya and Tanzania, ensuring that as wide as possible a range of expertise contributed to the extinction risk assessments.

In late February, Phil Bowles travelled to Quito as a facilitator at a NatureServe-organised workshop to complete Red List assessments for the reptiles of the Northern Andes. This region encompasses the Andes of Ecuador, Peru and Bolivia. In addition, non-Andean snakes and lizards endemic to these countries (including the Galapagos) were included in this assessment workshop so that a total of 396 species were assessed.

From 21-25 July, a workshop was held in Hilo, Hawaii – organised by Phil Bowles with support from Allen Allison of the Bishop Museum – to assess 308 species of snakes and lizards found on the island of New Guinea. This workshop brought together six international specialists. Following the successful completion of this workshop the post-workshop accounts were cleaned. These and the associated maps were put onto an online review forum in collaboration with iNaturalist, and the workshop specialists invited to confirm that the final accounts were correct or offer corrections as appropriate. Due to technical issues with the implementation of the forum, the review process was delayed and is currently underway with the intent to publish the New Guinea accounts in the second Red List update of 2015.

Phil Bowles arranged a visit to Norwich, UK, to work with Steve Spawls, an expert in north-eastern African reptiles, to review the Red List accounts and maps for 316 reptiles of the Horn of Africa, defined to include Ethiopia, Eritrea, Djibouti, Somalia, Sudan and South Sudan. The meeting went ahead over the weekend of 12-14 September, and obtained new data on, corrected maps for and determined Red List categories for the majority of these species, including all species found in Ethiopia, Eritrea, Djibouti and the Sudans. Further remote follow-up is underway for Somalia with Thomas Mazuch, a Czech specialist on Somali reptiles. This and post-workshop clean-up and review of the Horn accounts is currently in progress, to allow publication of the final accounts in the second Red List update of 2015.

Workshop Support and Species Lists

In support of the ongoing reptile assessments of the Neotropics, Phil Bowles prepared species lists and checked the taxonomy for the reptiles of Uruguay, Paraguay, Argentina, Venezuela, the Guianas and Chile, coordinating these with the recently completed national Red List assessments for the reptiles of Brazil, and an overall species list of the mainland Neotropics was compiled from these and previously-prepared species lists for the region.

© Philip Bowles Enyalioides laticeps

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Two workshops were organized by NatureServe and took place in November-December 2014: one in Argentina to assess the reptiles of that country, Paraguay and Uruguay; and one in Ecuador to assess widespread species in Amazonia, and the reptiles of Venezuela and the Guiana Shield. Phil Bowles provided remote logistical support for these assessments, which were prepared by NatureServe’s team, and organised the review process following the workshops, which is presently underway.

Due to time constraints in the Amazonian workshop, Bruce Young of NatureServe hosted an additional meeting with Venezuelan specialists in March 2015; this work was again supported remotely by Phil Bowles, who identified the assessment issues and species still outstanding.

![Figure 2. Coverage of reptile assessment workshops held in 2014](image)

**Reptile Assessment Forum: an update**

- Experiences in 2014 suggest that an online forum is a less suitable tool than anticipated for rapidly assessing large numbers of species.

- Instead, efforts will be focused on using the forum to make post-workshop accounts and maps available for specialist review.

In June 2013, with funding support from the Environment Agency Abu Dhabi, the development of a general Red List assessment forum was completed in association with iNaturalist. The associated website was made also available online in June 2013 by BAU staff.

The Horn of Africa reptile assessment was put online in 2013 as a test case in running a large (316 species) assessment remotely. While the forum tool offers an ideal way to add data to accounts via an online discussion without the need for regional workshops, uptake was limited and email discussions proved a better way of exchanging much of the relevant data, including locality records. The particular region chosen initially appeared suitable because of the limited number of specialists for this area and logistical difficulties in hosting a regional workshop focusing on the Horn of Africa, but in retrospect may have been poorly-chosen precisely because there is so little expertise for this region.

It was always anticipated that the forum might need to be supplemented by BAU staff travelling to the region to liaise with key specialists in person; in the event the Horn of Africa assessment described above collected almost the entirety of its data from a meeting in person.
The chameleon assessments were also made available on the online forum, but much of the work involved in finalizing these and liaising with specialists was conducted via email exchanges between experts and Krystal Tolley, Red List Authority Coordinator of the Chameleon Specialist Group.

Although the forum did not prove suitable for hosting workshop-scale assessments, following an assessment workshop and prior to their final review and submission, Red List accounts and maps are made available to workshop attendees to verify that the information captured is correct, and to provide a final opportunity for experts to add new data and offer amendments or corrections. Previous efforts to make these data available online for reptile assessments, via ftp sites or shared drives, have proven unsatisfactory and have attracted limited uptake.

The forum offers the potential to make these post-workshop accounts available for review in a more accessible form, and crucially will enable the accounts to be reviewed by invited specialists who were unable to attend the associated assessment workshop. The first reptile review forum, for the reptiles of New Guinea following a workshop in July, was set up in late 2014 and the review process is currently underway.

**Red List Submissions and Publication**

- 85 chameleon species added to the IUCN Red List as a joint project between the Biodiversity Assessment Unit and the SSC Chameleon Specialist Group.
- 53 snake and lizard species were added to the IUCN Red List for Central America, representing all assessed species endemic to this region not previously published.
- 84 species endemic to East Africa were submitted in 2014 and 2015, with 74 of these now published.
- 23 additional species published in 2014, most representing recent descriptions from Southeast Asia.

Phil Bowles of the Biodiversity Assessment Unit liaised with Krystal Tolley of the Chameleon Specialist Group to ensure the completion of the Global Chameleon Assessment in time for the second Red List update of 2014. This involved the review and submission of 85 chameleon species, including 20 from East Africa, 12 from the Horn of Africa and one from South Asia that were assessed in 2014 in preparation for this submission. These accounts were published in the final Red List update of 2014. Globally, all but 16 chameleon species have now been fully assessed, the remainder being nine from South Africa linked to that country’s national atlas project and seven, mainly from Cameroon, for which consultation with experts is still ongoing.

Following the successful completion of the Bagamoyo workshop, the accounts produced at the workshop were cleaned up and reviewed, and the map shapefiles edited to reflect amendments made at the workshop. The results were incorporated into a report to WWF and 74 accounts for species endemic to East Africa were submitted for publication on the Red List in the second Red List update of 2014; ten further species with outstanding queries were subsequently resolved and submitted to the Red List in advance of the first update of 2015.

An additional 77 species had their reviews finalised and were submitted to the Red List, including 53 outstanding assessments for Central America and 23 from Southeast Asia, the latter including new descriptions and the Endangered crocodile lizard *Shinisaurus crocodilurus*.

**Publications**

The data collected from recent reptile assessment workshops provided the basis for two forthcoming publications. The first is an updated checklist to the reptiles of Colombia, together with the provisional Red List assessment status, in which Phil Bowles actively collaborated with Colombian authors both to provide data and clarify outstanding taxonomic issues. Despite having a particularly diverse reptile fauna (538 species) this is the first attempt to synthesise information on Colombia’s reptiles into a single national checklist with a comprehensive literature review and bibliography.

The East African reptile assessment workshop produced both extinction risk assessments and a database on species traits linked to climate change vulnerability. IUCN’s Climate Change Unit, in partnership with Phil Bowles and Neil Cox from the Biodiversity Assessment Unit, has now completed an analysis of the resulting data to be published in a paper documenting the diversity, threats and extinction risk ‘hotspots’ for Tanzania’s reptiles, the first such synthesis to be conducted for this country.

A third publication, the first national checklists for the reptiles of Sudan and South Sudan, is still in preparation pend-
The BAU’s collaboration with NatureServe to complete the Neotropical assessments is ongoing. Assessment workshops will be held to assess the reptiles of Chile in May 2015, and the reptiles of the Caribbean (excluding Cuba) in July 2015. Financial support is currently being sought to host workshops on the reptiles of Central Asia, whose draft Red List accounts were prepared in 2013-2014, the lizards of China, and the reptiles of Wallacea. Discussions, led at IUCN’s end by SSC Chair Simon Stuart, are underway regarding the assessment of Australia’s reptiles, the single largest region yet to be assessed.

Due to the intensity of assessment activity in 2014, much of the GRA’s focus for 2015 will be on completing reviews for the regions assessed in 2014 (and the outstanding review of the Colombian reptile assessments). With the goal of completing the Global Reptile Assessment by the end of 2016, Phil Bowles is in the process of setting out a road map to complete the outstanding regions within this time frame.
Tortoises and Freshwater Turtles on The IUCN Red List

Anders G.J. Rhodin, Coordinator, IUCN SSC Tortoise and Freshwater Turtle Red List Authority

Peter Paul van Dijk, Co-Chair, IUCN SSC Tortoise and Freshwater Turtle Specialist Group

Key achievements

• Reinvigorated the process to finish the back-log of draft assessments for tortoises and freshwater turtles.
• Successfully reached out to Specialist Group membership to take a more active role in preparing assessments.
Background

Tortoises and freshwater turtles have featured in the Red List process from its inception, and are currently understood to be among the most threatened groups of species. The last comprehensive global assessment of tortoises and freshwater turtles was in 1996, using the previous 3.0 criteria, and without recording assessments that did not fall in the ‘Threatened’ categories. Assessments have since been carried out using the Version 3.1 criteria for almost all regions of the world except Central America and the Caribbean.

Nearly all Red List global assessments for freshwater turtles and tortoises from Asia, North America, Europe and Madagascar have been entered into the Red List SIS database and accepted into the IUCN Red List website. Draft assessments have been prepared for the turtle species of Africa, Australia and South America, and many of these have now also been entered into the Red List SIS database. Draft assessments generally are at the same or greater levels of threat than assessments currently in the Red List. A total of 382 freshwater turtle and tortoise assessments (covering ca. 325 species, several separate subspecies, and a few regional populations) are currently in the SIS database, with varying degrees of completeness. Several of these assessments are currently up to date on the Red List, but of the 325 recognized turtle and tortoise species, approximately 260 need updating (either as reassessments or initial assessments).

The Red List at present contains assessments for 223 tortoise and freshwater turtle species, of which 129 (57.8%) are listed in the Threatened categories. Of the world’s 328 total species, 8 are extinct, and draft assessments indicate that 161 species (50.3%) warrant listing in the Threatened categories. With about half of all currently extant chelonian species threatened, updating and completing the Red List assessments for the world’s tortoise and freshwater turtle species is a priority.

Activities and Results – 2014 to March 2015

In order to address the backlog of assessments more effectively, changes were made to the Red List Authority for tortoises and freshwater turtles, with the former Tortoise and Freshwater Turtle Specialist Group (TFTSG) Chair Anders Rhodin taking on the responsibility of TFTSG RLA Coordinator, while previous Red List Focal Point and current Co-Chair Peter Paul van Dijk now focuses on researching and drafting assessments and entering data into the Species Information System (SIS) database. The TFTSG RLA Coordinator and the TFTSG Co-Chair have been contracted to produce and review assessments for these 260 species for formal submission to the Red List by the end of April 2016. The generous contribution of the EAD is gratefully acknowledged as enabling these developments.

The formal review process within the TFTSG to produce finalized assessments for publishing on the IUCN Red List is currently in progress, being led by the TFTSG RLA Coordinator. An initial interim target date for the production of 130 finalized assessments by 30 April 2015 has unfortunately not been met due to other commitments, but is currently in active progress, with a targeted date for completion of the first 130 assessments now projected for 31 October 2015. No change is anticipated in the final production date of 260 assessments by 30 April 2016.

A renewed effort was made to engage the TFTSG membership in preparing and reviewing draft assessments, with some success, and a number of new or updated assessments are in the final stages of approval and submission.

In addition, distribution maps for all ca. 325 turtle and tortoise species have recently been prepared by Anders Rhodin, edited by TFTSG membership, and published by the TFTSG Turtle Taxonomy Working Group in their 2014 checklist of turtles of the world as part of the Conservation Biology of Freshwater Turtles and Tortoises monograph project.
These GIS maps are based on Hydroshed cell occurrences, analogous to how the distribution of African and other freshwater taxa is mapped in the Red List, and we are in the process of incorporating these maps into global Red List assessments. All these Red List-focused activities occur in synergy with the annual production of a detailed Checklist of the world’s turtles, with full synonymies, distribution data and conservation status summaries. The current 2014 Checklist, prepared by the TFTSG’s Turtle Taxonomy Working Group, provides an invaluable foundation for taxonomy and distribution data used in the respective Red List accounts, and is freely available on the web: http://www.iucn-tftsg.org/checklist/. An updated and revised 2015 checklist is currently in draft stage and projected to be published by mid-year.

In addition, a new checklist and review of the world’s recently extinct turtles has also been prepared by the TFTSG’s Turtle Extinctions Working Group, and has just been published (see Figure 1 for map of extinct turtle and tortoise species). This major analysis of extinction patterns affecting turtles and tortoises during the global rise and spread of humanity, dating back to the Pleistocene, has shed light on the historical and current patterns of chelonian exploitation and the notable vulnerability of terrestrial and insular taxa. Understanding and documenting these patterns of past presence and current loss of these animals in their ecosystems informs our ongoing conservation efforts on protecting surviving taxa and providing new impetus for ecological restoration efforts and the importance of terrestrial tortoises as ecosystem engineers.

Future activities

Top priority of the project is to finalize draft assessments for tortoises and freshwater turtles that have emerged from recent Red Listing workshops and sessions for Sub-Saharan Africa, Southern South America, the Galápagos Islands, as well as the assessments of the large tropical river turtles of South America and Asia. Next priority are the few remaining North American species and the Australian taxa, after which a round of updating the existing assessments for Asia and the Mediterranean is planned.

In parallel, a workshop to assess Central America and the Caribbean, the last remaining region whose turtles have not been comprehensively assessed, is envisaged for late 2015, subject to arranging a suitable venue and available funding being raised for this.
Batagur borneoensis male from Perak, Malaysia, in breeding colour © Doug Hendrie

Astrochelys yniphora female from Baly Bay N.P., Madagascar © Anders G.J. Rhodin
Amphibians on The IUCN Red List

Ariadne Angulo, Coordinator, IUCN SSC Amphibian Red List Authority

Jennifer Luedtke, Deputy Coordinator, IUCN SSC Amphibian Red List Authority

Key achievements

• Between January 2014 and March 2015, the ARLA published 370 assessments on the IUCN Red List;

• In November 2014, 47 newly described species were assessed and 21 Data Deficient species were reassessed at the ACSAM2 meeting held in Ranomafana, Madagascar;

• In December, a one-day workshop was held in Cambridge to assess 12 African Eastern Afromontane species;

• The ARLA participated in the joint project “Red List Indices for biodiversity hotspots receiving support from the Critical Ecosystem Partnership Fund” with Birdlife International and the Sapienza University of Rome;

• Dr Rachunliu Kamei stepped down from the position of coordinator for the ARLA Mainland South Asia Working Group and Mr Gururaja K.V. has accepted this position;

• Dr Ariadne Angulo stepped down as Coordinator of the Red List Authority and Jennifer Luedtke was appointed to take her place;

• The Central Coordination Team appointed a new Programme Officer, Louise Hobin, and intern, Duncan Sharp, to support the activities of the ARLA.
This second year of the 2013-2016 IUCN Quadrennium saw encouraging progress in the assessment of amphibians for the IUCN Red List and training of the global herpetological network made possible by the support of the Environment Agency – Abu Dhabi. Herein we report on the developments, activities and outputs of the SSC Amphibian Red List Authority (ARLA).

**Fundraising**

Given the need for increased resources, the ARLA explored online crowd-funding options and launched its first public online crowd-funding campaign *Keep Madagascar Hopping!* (https://www.indiegogo.com/projects/keep-madagascar-hopping/x/8060622) on July 2, 2014 (Figure 1).


This campaign was designed to support the first-time assessment of 60 newly described Malagasy amphibian species since 2007.

Funding raised from the crowd-funding campaign allowed Jennifer Luedtke to run an assessment workshop for these species at the second meeting of A Conservation Strategy for the Amphibians of Madagascar (ACSAM 2, Figure 2) held at Centre ValBio in the Parc National de Ranomafana, Madagascar on 18-22 November.
In addition to the above, the ARLA Central Coordination team (Jennifer Luedtke and Ariadne Angulo) also travelled to Austin, Texas in early July to attend a meeting with Don Church (Amphibian Survival Alliance) and Tom Lacher (Texas A & M University) to explore the possibility of support for the IUCN Red List amphibian database. The possibility discussed is currently still in development.

Towards the end of 2014, the ARLA Australia Working Group received a grant from the Australian Department of Environment for a 12-month project to evaluate the conservation status of all Australian amphibian species. Work is currently underway and we hope to begin submitting assessments to IUCN Red List version 2015.3.

The ARLA Southeast Asia Working Group received a grant from the Australian Museum Foundation to employ an ARLA intern, Timothy Cutajar, for one day a week for 12 months to assess more than 70 species.

Vampire Frog *Rhacophorus vampyrus*, described in 2010, has been assessed as Endangered B1ab(i,iii)

© Jodi Rowley
Meetings and other initiatives


The II Simpósio Gaúcho de Herpetologia was held from 24-26 September 2014 in Porto Alegre, Brazil. This event was attended by over 150 participants. Ariadne Angulo gave the opening speech at the symposium, which focused on amphibian and reptile conservation at the global level. Within the context of the symposium, an introductory workshop on IUCN Red List assessments was offered to 36 participants. More information can be found here.

Outputs and workshops

In 2014, the ARLA published 309 assessments on the IUCN Red List. Of those published, 296 were reassessments and 13 were assessed for the first time.

In March 2015, the ARLA submitted 61 assessments for the upcoming 2015.1 version of the IUCN Red List.

At the assessment workshop run in parallel to the ACSAM2 meeting held in Ranomafana, Madagascar, 47 newly described species were assessed and 21 Data Deficient species were reassessed. Following external-review, we plan to submit these species for IUCN Red List version 2015.2.

The ARLA participated in the joint project “Red List Indices for biodiversity hotspots receiving support from the Critical Ecosystem Partnership Fund” with Birdlife International and the Sapienza University of Rome. IUCN Red List Indices (RLI) were developed to inform monitoring of the impact of CEPF’s investments to support biodiversity conservation in over 20 hotspots since 2000, specifically for birds, mammals and amphibians.
As part of a special project on amphibians receiving habitat protection (funded from an earlier donation by George Rabb), an amphibian assessment forum has been launched for species that have received such protection since their last assessment (more information can be found here).

The ARLA Colombia Working Group has recently launched its online forum (Figure 3) to reassess the extinction risk of Colombian amphibians (more information can be found here).

![Figure 3. Screenshot of ARLA Colombia Working Group online forum](image)

In October, the RLA ran an online Red List training course with two interns from Sydney, Australia who worked to update the maps and assessments of Mainland Southeast Asian amphibians, and a participant from Bath, UK who worked alongside Jennifer Luedtke to prepare assessments for ACSAM2. Two additional participants joined in from Durrell Wildlife Conservation Trust in preparation for the updating of Red List assessments from other taxonomic groups. In December, a one-day workshop was held in Cambridge to assess 12 African Eastern Afromontane species.

**Membership and Partnerships**

A new coordinator for the ARLA Mainland South Asia Working Group was appointed. Dr Rachunliu Kamei stepped down from this position and Mr Gururaja K.V. has accepted this position.

The ARLA, in partnership with Detroit Zoological Society (DZS), has initiated the reassessment process of Amazonian amphibians, which comprise a substantial proportion of amphibian species richness in South America. DZS has kindly agreed to spearhead this process and has started with a list of 228 Least Concern (LC) species, with the goal of addressing species sequentially by extinction risk category.
Publications


Central Coordination Team

Finally, the leadership of the ARLA underwent changes in January 2015. Having been appointed Co-Chair of the Amphibian Specialist Group in June 2014, Ariadne Angulo has stepped down as Coordinator of the Red List Authority. Jennifer Luedtke was appointed to take her place for the remainder of the Quadrennium.

In addition, the Central Coordination Team has a new Programme Officer, Louise Hobin, and intern, Duncan Sharp, to support the activities of the ARLA.
Key achievements

- Produced maps and compiled information on taxonomy, distribution, population status, habitats and ecology, use and trade, threats, conservation actions, and rationale for assigning each Red List Category for 46 species of North American bumblebees and entered that information into SIS.

- Submitted Global IUCN Red List assessments for 33 species of bumblebees that occur in North America.

- Reviewed 24 draft South American bumblebee species assessments and provided feedback to the South American regional coordinator and others involved in the assessments.

- Planned a meeting of North American, Meso-American, and South American members of the IUCN Bumblebee Specialist Group, which will occur April 20-22, 2015 in Chiapas, Mexico, to finish data analyses, assign a Red List Category to every bumblebee species that occurs in the Americas, and lay the groundwork to complete Red List assessments for all species.
Activities of 2014

Summary

In 2014, the IUCN SSC Bumblebee Specialist Group produced maps and compiled information on taxonomy, distribution, population status, habitats and ecology, use and trade, threats, conservation actions, and rationale for assigning each Red List Category for 46 species of North American bumblebees and entered that information into the IUCN Species Information Service (SIS).

We submitted global IUCN Red List assessments for 33 species of bumblebees that occur in North America. Fourteen of these assessments were published on the IUCN Red List in the November 2014 update; we anticipate that the remaining 19 assessments will be published on the IUCN Red List in the June 2015 update. Two of the species assessments were delayed due to taxonomic uncertainty, but will be submitted by the summer of 2015.

For the remaining ten species that occur broadly in the northern hemisphere including North America, we have entered all information into SIS for populations of these species that occur in North America and Europe. Although we have completed an analysis of the conservation status and extinction risk of New World populations of these species, they have global distributions, and the status and trends of Old World populations of these species will require further investigation.

In addition, we reviewed 24 draft South American bumblebee species assessments and provided feedback to the South American regional coordinator and others involved in the assessments. Additional information is needed before these species can be included on the IUCN Red List.

Our analyses of bumblebee data from North America suggest that more than one-fourth of North America’s bumblebee fauna is of conservation concern - that is species ranging from Near Threatened to Critically Endangered (Figure 1) - and that North America’s cuckoo bumblebees appear to be especially imperiled. Of the five bumblebee species that are designated as Critically Endangered, three of them are cuckoo bumblebees.

Although this finding is new, it is not surprising, since cuckoo bumblebees are parasites on other bumblebees, and some of the most seriously threatened cuckoo bees rely on host species of bumblebees that are also at elevated risk of extinction.

![Figure 1. Pie chart depicting the number of North American bumblebee species in each IUCN Red List Category](image-url)
What we have accomplished

Using a database of nearly 300,000 electronic North American bumblebee records assembled from approximately 150 academic, research, citizen science, and private collections, we evaluated changes over the past decade in each species’ Extent of Occurrence (EOO), persistence, and relative abundance. We used the results of these analyses to apply the IUCN Red List Criteria and assign Red List Categories to 46 species of North American bumblebees. We invited peer-review of the analytical methods and application of the IUCN Red List Criteria from the Chair and the 20 North American members of the IUCN Bumblebee Specialist Group and adjusted our analyses and/or interpretation of those analyses based on that feedback. We have also coordinated with bumblebee specialists in Central America to obtain all available distribution information for the six species that occur in both North and Central America. Using this information, we evaluated the entire geographic range of these species.

We have now produced maps and compiled information on taxonomy, distribution, population status, habitats and ecology, use and trade, threats, conservation actions, and rationale for assigning each Red List Category for 46 species of North American bumblebees and entered that information into SIS. We have submitted all 33 species assessments (including a narrative and shape files with distribution maps) to the IUCN Red List Unit for review. Fourteen of those assessments were published in the November 2014 update of the IUCN Red List; we anticipate that the remaining 19 assessments will be published in the first Red List update of 2015. We anticipate submitting two additional species assessments in early 2015.

The remaining 10 North American species are distributed in North America, Europe, and parts of Asia. For these species, we have entered all relevant information for the North American populations into SIS. Information is lacking regarding the taxonomy and distribution of each of these species in Asia. We have entered all information regarding the European distribution of each of these species into SIS.

We have also provided a critical review of 24 draft Red List assessments for bumblebees from Central and South America. At this point, we recommend that three of these assessments be published on the IUCN Red List with minor revisions. For the remaining 22 species, additional information is needed.

Below, we list each of the 46 North American bumblebee species, provide the IUCN Red List Category (based upon data from North and Central America) and account for the progress of each Red List assessment.

The following North American bumblebee species assessments were published on the IUCN Red List in November 2014.

<table>
<thead>
<tr>
<th>No.</th>
<th>Species</th>
<th>IUCN Red List Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Bombus fraternus</td>
<td>Endangered</td>
</tr>
<tr>
<td>2</td>
<td>Bombus caliginosus</td>
<td>Vulnerable</td>
</tr>
<tr>
<td>3</td>
<td>Bombus morrisoni</td>
<td>Near Threatened</td>
</tr>
<tr>
<td>4</td>
<td>Bombus bifarius</td>
<td>Least Concern</td>
</tr>
<tr>
<td>5</td>
<td>Bombus bimaculatus</td>
<td>Least Concern</td>
</tr>
<tr>
<td>6</td>
<td>Bombus centralis</td>
<td>Least Concern</td>
</tr>
<tr>
<td>7</td>
<td>Bombus citrinus</td>
<td>Least Concern</td>
</tr>
<tr>
<td>8</td>
<td>Bombus frigidus</td>
<td>Least Concern</td>
</tr>
<tr>
<td>9</td>
<td>Bombus impatiens</td>
<td>Least Concern</td>
</tr>
<tr>
<td>10</td>
<td>Bombus insularis</td>
<td>Least Concern</td>
</tr>
<tr>
<td>11</td>
<td>Bombus melanopygus</td>
<td>Least Concern</td>
</tr>
<tr>
<td>12</td>
<td>Bombus mixtus</td>
<td>Least Concern</td>
</tr>
<tr>
<td>13</td>
<td>Bombus perplexus</td>
<td>Least Concern</td>
</tr>
<tr>
<td>14</td>
<td>Bombus ternarius</td>
<td>Least Concern</td>
</tr>
</tbody>
</table>
The following North American bumblebee species assessments were submitted to the Red List Unit in November or December, 2014. We have received and responded to feedback from the IUCN for 17 of the 19 assessments submitted. We anticipate that all 19 of the species assessments listed below will be published on the next Red List update in 2015.

<table>
<thead>
<tr>
<th>No.</th>
<th>Species</th>
<th>IUCN Red List Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>Bombus suckleyi</td>
<td>Critically Endangered</td>
</tr>
<tr>
<td>16</td>
<td>Bombus affinis</td>
<td>Critically Endangered</td>
</tr>
<tr>
<td>17</td>
<td>Bombus crotchii</td>
<td>Endangered</td>
</tr>
<tr>
<td>18</td>
<td>Bombus terricola</td>
<td>Vulnerable</td>
</tr>
<tr>
<td>19</td>
<td>Bombus occidentalis</td>
<td>Vulnerable</td>
</tr>
<tr>
<td>20</td>
<td>Bombus auricomus</td>
<td>Least Concern</td>
</tr>
<tr>
<td>21</td>
<td>Bombus appositus</td>
<td>Least Concern</td>
</tr>
<tr>
<td>22</td>
<td>Bombus borealis</td>
<td>Least Concern</td>
</tr>
<tr>
<td>23</td>
<td>Bombus flavifrons</td>
<td>Least Concern</td>
</tr>
<tr>
<td>24</td>
<td>Bombus griseocollis</td>
<td>Least Concern</td>
</tr>
<tr>
<td>25</td>
<td>Bombus huntii</td>
<td>Least Concern</td>
</tr>
<tr>
<td>26</td>
<td>Bombus nevadensis</td>
<td>Least Concern</td>
</tr>
<tr>
<td>27</td>
<td>Bombus rufocinctus</td>
<td>Least Concern</td>
</tr>
<tr>
<td>28</td>
<td>Bombus sandersoni</td>
<td>Least Concern</td>
</tr>
<tr>
<td>29</td>
<td>Bombus sitkensis</td>
<td>Least Concern</td>
</tr>
<tr>
<td>30</td>
<td>Bombus sylvicola</td>
<td>Least Concern</td>
</tr>
<tr>
<td>31</td>
<td>Bombus vagans</td>
<td>Least Concern</td>
</tr>
<tr>
<td>32</td>
<td>Bombus vandykei</td>
<td>Least Concern</td>
</tr>
<tr>
<td>33</td>
<td>Bombus vosnesenskii</td>
<td>Least Concern</td>
</tr>
</tbody>
</table>
All information for the following two species has been submitted to SIS and we anticipate that these two assessments will be submitted to the IUCN Red List before June of 2015.

<table>
<thead>
<tr>
<th>No.</th>
<th>Species</th>
<th>IUCN Red List Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>34</td>
<td>Bombus fervidus</td>
<td>Vulnerable</td>
</tr>
<tr>
<td>35</td>
<td>Bombus pensylvanicus</td>
<td>Vulnerable</td>
</tr>
</tbody>
</table>

The following species are broadly distributed in North America, Europe, and parts of Asia. For these species, we have entered all relevant information for the North American populations into SIS. Information is lacking regarding the taxonomy and distribution of each of these species in Asia. We have entered all information regarding the European distribution of each of these species into SIS, as well.

We plan to determine the global Red List Category of each of these species at the April 2015 Bumblebee Specialist Group meeting in Chiapas, Mexico (discussed below).

<table>
<thead>
<tr>
<th>No.</th>
<th>Species</th>
<th>IUCN Red List Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>36</td>
<td>Bombus balteatus</td>
<td>Data Deficient (N. Am.); Least Concern (EU)</td>
</tr>
<tr>
<td>37</td>
<td>Bombus bohemicus</td>
<td>Critically Endangered (N. Am.); Least Concern (EU)</td>
</tr>
<tr>
<td>38</td>
<td>Bombus cryptarum</td>
<td>Least Concern (N. Am. &amp; EU)</td>
</tr>
<tr>
<td>39</td>
<td>Bombus distinguendus</td>
<td>Data Deficient (N. Am.)</td>
</tr>
<tr>
<td>40</td>
<td>Bombus flavidus</td>
<td>Least Concern (N. Am. &amp; EU)</td>
</tr>
<tr>
<td>41</td>
<td>Bombus hyperboreus</td>
<td>Data Deficient (N. Am.); Vulnerable (EU)</td>
</tr>
<tr>
<td>42</td>
<td>Bombus jonellus</td>
<td>Least Concern (N. Am. &amp; EU)</td>
</tr>
<tr>
<td>43</td>
<td>Bombus polaris</td>
<td>Data Deficient (N. Am.); Least Concern (EU)</td>
</tr>
<tr>
<td>44</td>
<td>Bombus variabilis (intrudens)</td>
<td>Critically Endangered (N. Am.); Least Concern (EU)</td>
</tr>
<tr>
<td>45</td>
<td>Bombus neoboreus</td>
<td>Data Deficient</td>
</tr>
</tbody>
</table>

Bombus franklini was published as Critically Endangered on the IUCN Red List in 2008.

Activities of January - March of 2015

From January through March of 2015, Bumblebee Specialist Group members have been planning for a Red Listing workshop to occur on 20-22 April 2015. In this workshop, representatives of the Bumblebee Specialist Group (Rich Hatfield of the Xerces Society and Dr. Paul Williams of London’s Natural History Museum) and Jennifer Luedtke from the IUCN Species Survival Commission will lead a Red Listing Workshop for the Mesoamerican and South American members of the IUCN Bumblebee Specialist Group in order to further the assessments of the bumblebee fauna of those regions. In attendance will be several members of the Mesoamerican Section of the Bumblebee Specialist Group, and three members of the South American Section of the Bumblebee Specialist Group, including the Regional Coordinators for both Sections. The primary goal of this workshop is to complete draft assessments for as many species from these two regions as practicable. We will also take time to discuss several issues that contribute to various levels of data uncertainty in these two regions including taxonomic issues, gaps in sampling, lack of historical and/or current data, and information on direct and indirect threats. With many of the regions’ bumblebee experts in attendance, we expect that we will be able to address these sources of uncertainty, and develop best practices to move forward with the Red Listing process with the data and information that are currently available.

During the workshop in Chiapas, different regions will break up into two or three small working groups, and each will be assigned a prioritized list of species on which to focus their efforts. Paul Williams, Jennifer Luedtke, and Rich Hatfield will spend the first day of the workshop providing the Mesoamerican and South American Bumblebee Specialist Group members with background information about the Red Listing process, and information and skills from Red Listing work that has been conducted in North America, and Europe. The remaining two days of the workshop will be structured work time. Small groups will work on species assessments and, with feedback from workshop leaders, will complete as many draft assessments as possible. We will also take breaks for larger group discussions regarding questions that arise, and broader issues within the Bumblebee Specialist Group.
Over the last several months, in preparation for this meeting, we have been directing our attention to Mesoamerica and South America to help them assess the status of their respective faunas in order to publish assessments for each species of these regions on the IUCN Red List. Now that we have provided significant feedback in late 2014 on the draft assessments for 24 species in South America, the authors of the South American species assessments will be arriving to the Red Listing workshop in Chiapas, Mexico with the goal of completing those assessments for submission to the Red List.

The Mexican and Mesoamerican Sections are also poised to make great strides toward assigning Red List Categories to and writing assessments for each bumblebee species that occurs in their regions. Since January 2015, we have been working with Rémy Vandame, Mesoamerican Regional Red List Coordinator, to prepare their database for evaluating changes in Extent of Occurrence, relative abundance and persistence, in order to conduct IUCN Red List assessments. They have worked hard to prepare their historical database, record the results of recent survey efforts, and conduct preliminary assessments. We have provided guidance to their team, feedback on their draft assessments, and GIS tools to expedite their assessments and streamline their process. The Mesoamerican team is now in the process of compiling basic life-history and ecological information in preparation for the Red Listing workshop in Chiapas with a goal of completing draft Global Assessments for as many species as possible. We will then work with them to finalize the assessments in the months following the workshop for submission to the IUCN Red List.

Project relevance

Pollinators are essential to our environment, providing the critical service of pollination to nearly 80% of the world’s flowering plants, including one-third of the world’s food crops. Furthermore, many of the vitamins and micronutrients that contribute to human nutrition - such as vitamin C - are predominately found in plants that require insect pollination. In North America, there are approximately 4,000 native bee species, but the native bumblebees are the only species group that has been studied sufficiently to be able to understand which species are threatened and which are of more favourable conservation status. Prior to this project, regional reports indicated that some species of North American bumblebees had undergone recent, dramatic declines, but there had been no analysis of the conservation status of all North American bumblebees.
Southern Plains Bumblebee \textit{(Bombus fraternus)} assessment: a case study

Below is an excerpt from one of the completed assessments published on the Red List in November

- **Range loss** (Change in Extent of Occurrence adjusted by collection effort): \textbf{29\%}
- **Relative abundance decline**: \textbf{85\%}
- **Persistence**: \textbf{43\%}
- **IUCN Red List Category**: Endangered, criteria A2bc
- **Justification**: According to our analyses, this North American species has exhibited declines in relative abundance and EOO over the past decade (Hatfield \textit{et al.} 2014). In addition, this species’ long-term downward trend in relative abundance is nearly significant; if the same rate of decline in relative abundance continues, this species could potentially go extinct within 80 to 90 years. There are huge gaps in recent (as well as historic) collection effort, especially in Oklahoma, Kansas, Nebraska, western Texas, and the Dakotas, yet there has been significant range loss in the northern and southern parts of its range where collection effort has been more consistent. Thus, we have high confidence in the EOO decline (adjusted by collection effort) of 28.62\%, probably due to habitat alterations. We selected criterion A2bc based on a decline in relative abundance, EOO, and habitat quality. Habitat modification over the past ten years (insecticide use, grassland conversion to agriculture) has been severe in the region where this species occurs (Hatfield \textit{et al.} 2014.). These results are consistent with other findings of decline in this species (e.g. Colla \textit{et al.} 2012). Based on the above calculations and trends, along with published reports of bumblebee decline and the assessors’ best professional judgment, we recommend this species for the Endangered Category at this time.
The Amazing Species Project
Rachel Roberts, Amazing Species Project Manager and IUCN SSC Network Coordinator

Key achievements

• Amazing Species played a prominent role in IUCN Red List 50th Anniversary Celebrations, with profiles being used in promotional campaigns for some of the celebratory events.

• For the main fundraising Red List Anniversary event - the Biophilia Ball, Amazing Species provided all species (540) for the hand-painted masks created for each guest. This created approximately 400 new species profiles which can now be used for each weekly publication on the website www.iucnredlist.org/amazing-species.

• A newly designed additional Amazing Species web page on the fundraising micro-site support.iucnredlist.org/species which displays all the new weekly published species as well as a selection of archived profiles. The profiles are helping to engage a wider more diverse audience on species to encourage a pledge and therefore hopefully donations to the campaigns to support the IUCN Red List.

• Edited text from selected Amazing Species profiles were used for the special Cemex Red List anniversary publication, ‘The IUCN Red List: 50 years of Conservation’.

• Amazing Species profiles enlarged to poster size and used at the Illegal Wildlife Trade Reception held at the Natural History Museum, 12th February 2014, attended by Prince William and William Hague.
For Amazing Species, 2014 proved to be a very productive and exciting year largely due its prominence in promoting the 50th anniversary celebrations of The IUCN Red List of Threatened Species. With its attractive images and easily digestible text, the Amazing Species profiles were drawn upon to raise the general public’s awareness of the IUCN Red List as well as educating them on a huge diversity of species across all taxonomic groups.

The IUCN Red List is not widely known outside the conservation community and there is a general lack of awareness amongst some target audiences, particularly potential donors, about its value and worth. To assist with this, the 50th year celebrations focused largely on raising the profile of the Red List, to motivate and inspire not only donors but also to reach out to a new audience. Various events and celebrations were planned to honour the 50th anniversary of the Red List, and as part of these Amazing Species profiles were used not only in some of the promotional campaigns, but were also to be included in materials for one of the main fundraising events – the Biophilia Ball – hosted by Synchronicity Earth.

The Biophilia Ball was a high profile, glittering extravaganza held in the Natural History Museum in London, on 22 November 2014. Tables were based on 50 geographic and ecosystem related themes, each an important area for biodiversity ranging from, for example, the Amazon Basin to the Himalayas, the Albertine Rift Valley to the Galapagos Islands, and the Great Barrier Reef to the Amur River Basin.

Amazing Species had a prominent role in the event, providing the species from which unique hand-painted masks (Figure 1) were created for each guest. The species represented all taxonomic groups and levels of threat, and were specifically selected according to the tabled regions in which they occur. As well as the mask, the Amazing Species accounts were provided to inform guests about their individually allocated species and the ecosystems in which they are found.

Figure 1. A selection of Biophilia Ball species masks from the Great Barrier Reef

2014 Annual Report
Due to the extensive range of ecosystems and regions selected, new Amazing Species accounts needed to be created for there to be sufficient species assigned to each table. In total, 540 species were selected consisting of approximately 400 new profiles (including a small handful of ones needing updating), and 140 old archived profiles. This was a challenging undertaking since high-resolution images needed to be found for all of the new species, together with experts helping to ensure that species were correctly identified for each region as well as assisting with the text writing. As a result, Amazing Species now has a healthy bank of profiles (see a small selection of examples in Figure 4) to be drawn on for weekly publication on the website, making it much more sustainable.

Other events that formed part of the 50th IUCN Red List anniversary celebrations included an art exhibition aimed to raise awareness of threatened species. From 26th September to 2nd October 2014, the Bear Cub Gallery created a gallery space in London recreating (and named) ‘the Ark’. International artists were challenged to produce two unique pieces with one based on a species from the Red List. Amazing Species profiles were used to provide information on some of the species on display, which included Black Rhinoceros *Diceros bicornis*, Grevy’s Zebra *Equus grevyi*, African Wild Dog *Lycaon pictus* and the Polynesian Ground Dove *Gallicolumba erythroptera*.

As part of the Cemex Nature Series, and to tie in with the Red List anniversary celebrations, ‘The IUCN Red List: 50 years of Conservation’ was published “to enhance recognition, appreciation, and impact of the Red List”. The book (Figure 2) features portraits of a diverse collection of species, chosen from the Amazing Species archives and presented with information extracted from the relevant profiles.
As part of the overall IUCN Red List 50th Anniversary strategy, a new on-line platform (micro-site) was designed with the aim of increasing donations via an IUCN Red List 50th anniversary web-based campaign (the first time an on-line campaign has been implemented to raise funds for the Red List).

In addition to the publication of weekly species profiles on www.iucnredlist.org/amazing-species, an additional Amazing Species page (Figure 3) was created on the fundraising micro-site support.iucnredlist.org/species displaying a selection of archived profiles, together with each newly published species of the week. The attractiveness of this page, and the development of a species quiz to find your “closest” Amazing Species, has proven to be extremely popular with a wide-ranging audience – particularly in a younger demographic.

It is therefore hoped that, as the microsite undergoes further development in 2015, with updates for different fundraising campaigns, Amazing Species will continue to have a presence with consideration given to the possibility of this page evolving into the main home page for the profiles (with additional functionality such as a search option) given its much greater visual appeal.
Further studies should be conducted into this species’ distribution, abundance, natural togetherness with the development of hunting regulations and local awareness programmes. However, for numbers to recover, it will require much more intense protection of its habitat, protected areas and also by the lack of any large tree-climbing predators or competitors. The survival of the Goodfellow’s Tree Kangaroo has largely relied on its occurrence in several protected areas and also by the lack of any large tree-climbing predators or competitors. However, for numbers to recover, it will require much more intense protection of its habitat, together with the development of hunting regulations and local awareness programmes. Further studies should be conducted into this species’ distribution, abundance, natural history and threats.

Habitat loss poses the main threat to this species as much of the original rainforest has been extensively cleared for timber and for the cultivation of coffee and rice. Those tree-kangaroos still surviving in highland forest must live alongside logging operations which markedly limit their distribution. Goodfellow’s Tree Kangaroos are also threatened by hunting for meat and is traded internally by tribal people for cultural reasons.

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Goodfellow’s Tree Kangaroo
dendrolagus goodfellowii is listed as Endangered on the IUCN Red List of Threatened Species™. This marsupial is endemic to Papua New Guinea, where it is found in parts of the Central Cordillera mountain range at elevations of up to 2,860 metres.

The Pygmy Rwandan Waterlily, Nymphaea thermarum, is listed as Extinct in the Wild on The IUCN Red List of Threatened Species™. This species was only known from one locality in the wild, in Muhuza, southwestern Rwanda. The only living specimens are now kept at Kew Gardens in the United Kingdom of Great Britain and Northern Ireland, and at Bonn Botanic Gardens, Germany.

This species disappeared from Muhuza due to the overexploitation of the aquifer that feeds its hot spring habitat, and no plant is known to have survived in the wild. Despite repeated searches of hot spring habitats in Central Africa, no other populations have been found. However, as Kew Gardens has successfully cultivated and propagated this plant it is hoped that it can be re-introduced to the wild, although in January 2014 a specimen of the species was stolen from Kew and has not yet been recovered.

The Pygmy Rwandan Waterlily is now easily propagated and cultivated at Kew Gardens. However, with the appropriate conservation actions such as site protection and restoration at Muhuza, a re-introduction programme may be possible.

The Ryukyu Black-breasted Leaf-turtle, Geoemyda japonica, is listed as Endangered on the IUCN Red List of Threatened Species™. It occurs on the Okinawa island group of Japan, being known only from three islands, Okinawajima, Kumejima and Tokashikijima. As its name suggests, it is endemic to the Ryukyu Islands in Japan, being known only from three islands. It is a semi-aquatic turtle, when not in a burrow.

International trade of this species is strictly regulated through its listing on Appendix I of the Convention on International Trade in Endangered Species (CITES). The turtle has also been designated as a National Natural Monument of Japan, and trading and captive maintenance are strictly regulated by law. The most urgent conservation measure needed is to preserve the remaining natural habitat within its native range.

The Desert Rain Frog, Breviceps marmoratus, is listed as Vulnerable on the IUCN Red List of Threatened Species™. It occurs on the Namibian coast of South Africa, north to Luderitz in coastal south-western Namibia. Interestingly, this frog is terrestrial which means it has adapted to burrowing and underground living, without water, burrowing itself in sand dunes vegetated with low vegetation.

Although a locally common species, the overall population of the Desert Rain Frog is in decline due to the loss of the quality and extent of its habitat. This is mainly as a result of coastal sand dune mining, but also from the development of roads, increasing pressure from human settlement and land-use changes (e.g., grazing by livestock).

Currently there are no known conservation measures in place for this intriguing looking amphibian. Unfortunately, its lightly fragmented distribution does not lie within any protected areas. In order to conserve this species in the long-term, it should receive full protection through the establishment of protected areas within its range.

Figure 4. Examples of Amazing Species Profiles
The White-necked Picathartes, Picathartes garrulus, is listed as Vulnerable on The IUCN Red List of Threatened Species™. Also known as the Bare-headed Picathartes, this striking bird is distinguished by its brightly coloured, featherless head. It now has a highly fragmented distribution, and lives only in the Upper Guinean forests of West Africa including Guinea, Sierra Leone, Liberia, Côte d’Ivoire and Ghana.

The main threat to the species is rapid disappearance of its forest habitat. Commercial logging for timber is wiping out much of its habitat, as is bush burning and conversion of forests to plantations and for farming. Another possible threat to the White-necked Picathartes is mining for gold, manganese and bauxite, and collecting for zoos. The low reproductive rate of the bird makes it particularly susceptible to threats and its recovery rate is slow.

The White-necked Picathartes is listed on Appendix I of the Convention on International Trade in Endangered Species (CITES), which limits or prohibits international trade in a species. Efforts are underway in several parts of its range to protect this bird in the reserve where it has been located.

The Leopard Coral Grouper, Plectropomus leopardus, is listed as Near Threatened on the IUCN Red List of Threatened Species™. This fish is found mainly in the western Pacific Ocean from southern Japan to Australia, and to Fiji in the east.

The primary threat to the Leopard Coral Grouper is overfishing and, in some areas of the Philippines, this species forms a single species fishery for the live reef fish export market. Catch and export figures reveal that the once large-scale Leopard Coral Grouper fishery has declined rapidly, with heavily reduced average fish size and catch rates being reported. Aggregation sites are sometimes particularly targeted by fishers and enable elevated catch rates when large schools are formed during the breeding season, a technique which can be particularly damaging to population recovery.

The main conservation actions for this species are concentrated in the Great Barrier Reef. Here, minimum legal size limits, fishery closures to protect reproducing aggregations, and protected areas have been implemented to minimize the impact of fishing on the population. Between 20% and 30% of the Great Barrier Reef Marine Park is permanently closed to fishing.

The Sierra Green Sulphur, Colias behri, also known as Behr’s Sulphur, has not yet been assessed for the IUCN Red List of Threatened Species. Its provisional listing, based on current information, is Endangered. It is an endemic butterfly restricted to a narrow region of California’s Sierra Nevada. While not actually green, its yellow and black wing scales combine to create a brilliant green illusion.

These sulphurs are considered extremely rare given their restricted range, relative isolation and association with high altitude habitats. Climate change may be the greatest threat to the Sierra Green Sulphur due to its limited range and a shortage of suitable refugia at higher elevations. In addition, this species is at risk due to damage to its fragile meadow habitat, which can be impacted by grazing animals or trampling by hikers.

There are no specific conservation measures currently in place for the Sierra Green Sulphur, although some occurrences are protected within National Park boundaries. Conservation of its fragile alpine habitat is needed to protect this restricted endemic.

The Cuban Greater Funnel-eared Bat, Natalus primus, is listed as Critically Endangered on The IUCN Red List of Threatened Species™. This single bat species is known only from a single remote cave, Cueva La Barca, located on the Guanahacabibes Peninsula at the western tip of Cuba. Described from fossils, this cave dwelling species was rediscovered in 1992, where a population of some 100 individuals occurs.

The Cuban Greater Funnel-eared Bat is known to have occurred across much of Cuba from fossil evidence, which suggests a population decline that may have continued until the 1960s. The cave species is threatened by the collapse of the cave roof at Cueva La Barca, which is likely to upset the thermal balance in this cave and result in extinction of the only known population. Human intrusion into the cave may also become a significant threat if this remote location becomes more accessible to tourists in the future.

These are not currently known to be any conservation measures in place for the Cuban Greater Funnel-eared Bat although it has been suggested that the protection of Cueva La Barca and its surrounding environment should be an urgent conservation priority.

The Amazing Species: White-necked Picathartes

The Amazing Species: Leopard Coral Grouper

The Amazing Species: Sierra Green Sulphur

The Amazing Species: Cuban Greater Funnel-eared Bat

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The Amazing Species: White-necked Picathartes

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Key achievements

- The Species Conservation Planning Sub-Committee (SCPSC) has been involved in numerous planning initiatives, including for Hainan Gibbon, White-bellied Heron, Arabian Tahr, Crau Plains Grasshopper, Singapore Freshwater Crab, Sand Cat, Arabian Leopard, Swinhoe’s Giant Softshell Turtle, and Bush Dog.
- The SCPSC has developed a strategic development plan for 2015-2017.
- The IUCN SSC Species Conservation Planning Tools Library has now been established.
Highlights and observations

The Species Conservation Planning Sub-Committee (SCPSC) has had a very full year, combining its own development with playing a host of roles in species planning processes or events. It has gathered first information on what constitutes an effective species plan, which will feed into the next iteration of the SSC guidance on species conservation planning.

The range of taxa that have benefited from some planning has increased due to special efforts on behalf of relatively neglected taxa, such as invertebrates and freshwater species, and this prioritisation continues.

A proactive approach to marketing the opportunities for SCPSC to help Specialist Groups with their planning is beginning to pay off, as Chairs are oriented to see the need and merit of such planning. Again, this will be a continuing, major push.

Species planned, 2014 – March 2015

• Hainan gibbon, *Nomascus hainanus*: the Zoological Society of London in cooperation with the Hainan Bawangling National Nature Reserve Management Office and the China Section of the IUCN SSC Primate Specialist Group organised an International Conservation Planning Workshop in March 2014 for this species, numbering just 25 animals in the world. Facilitated by the IUCN SSC Conservation Breeding Specialist Group (CBSG), and closely following the SSC planning approach, SCPSC Chair Mark Stanley Price participated and gave a presentation ‘Conservation issues for very small populations’. The final workshop report was received in April 2015, containing a copious set of very detailed actions, followed by an open letter, signed by all ‘Let’s take action to save the Hainan gibbon’.

• Mark Stanley Price was involved in all aspects of design, programming and facilitation of a strategy workshop for the White-bellied heron, *Ardea insignis*, throughout 2014, with a workshop in December 2014 (see Box 1); this is a priority species for the Asian Species Action Partnership (ASAP).

• Mark Stanley Price gave the keynote address at a National Forum for the Arabian Tahr, *Arabitragus jayakari*, in Abu Dhabi in January 2015, entitled ‘Reintroducing the Arabian Tahr: Principles, Objectives and Thoughts’; the forum was facilitated by SCPSC member David Mallon.

• Mark Stanley Price worked with Axel Hochkirch, Chair of both the SSC Invertebrate Conservation Sub-Committee and the SSC Grasshopper Specialist Group to design and facilitate a planning workshop for the Endangered Crau Plains grasshopper, *Prionotropis hystrix rhodanica*, of southern France. The resulting conservation strategy was reviewed by different tiers of conservation bodies in France, and in March 2015 was approved by the regional committee of the Ministry of Ecology, in effect making this official French policy; development of the strategy led to the French army reversing its decision to build on a critical part of grasshopper range, and two new Ph.D. student researchers will start in mid-2015.

• Working with the SSC Freshwater Crustacean SG, SCPSC member Phil McGowan participated in a workshop to develop a conservation strategy for the Singapore freshwater Crab, *Johora singaporensis* (CR); the strategy was completed by February 2015.

• SCPSC member David Mallon facilitated a workshop for a conservation strategy for the Sand cat throughout Arabia, held in Abu Dhabi.

• Urs and Christine Breitenmoser, Co-Chairs of the Cat SG, ran a workshop on the leopard in Iran, and another on the Arabian leopard, held in Oman.

• Environment Agency Abu Dhabi (EAD) financial support was provided for 13 experts to meet to consider the Swinhoe’s Giant Soft-shelled Turtle, *Rafetus swinhoei*, in Vietnam in December 2014; it is considered the world’s rarest reptile with only 4 known individuals living; amongst an array of recommendations, key activities are renewed surveys for the species in China, Laos and Vietnam.
• SCPSC member Arnaud Desbiez participated in a Population Viability Analysis (PVA) for the bush dog, *Speothos venaticus*, in Brazil, seeing this as a precursor to a comprehensive status review and thence a species conservation strategy.

• SCPSC member David Mallon was further involved in the following:
  - Finalising the revised version of the Snow leopard Survival Strategy, for the Snow Leopard Network; and
  - Facilitating development of a conservation strategy framework for the sea turtles of Arabia, in Sharjah (UAE).

**Follow up received**

• SCPSC supported and participated in a workshop to develop a conservation strategy for the Madagascar pochard (CR), *Aythya innotata*, in December 2013; the draft ‘Species Action Plan for the Critically Endangered Madagascar Pochard 2014-2024’ was received in February 2015,

• Using EAD support, SCPSC co-funded a PVA for the Brown Howler monkey (*Alouatta guariba clamitans*) in Argentina in March 2013; this has led to research starting now on (1) assessing the range of brown howlers in Argentina using sniffer dogs on scats, and (2) assessing the extent of mosquito and flavivirus presence in monkey range as yellow fever is the major cause of death. This information will then feed into a comprehensive species conservation strategy.

**Reviews**

• SCPSC has engaged with the SSC/Wetlands International Crane SG as it develops its Crane Conservation Plan, covering all 15 species and their vast inter-continental ranges, resulting in some re-drafting and re-ordering.

• SCPSC reviewed a draft conservation plan for the slender lorises of Sri Lanka, with suggested changes.

**SCPSC development**

Following from objectives set at the SCSPC meeting in August 2013, the Chair developed a strategic development plan for SCPSC 2015-2017, containing the following goals:

**Goals**

1. To expand the SCPSC collective planning experience for a wider array of species and circumstances;

2. To increase and diversify the skill base and strength of the SCPSC membership, with especial emphasis on focal points in Specialist Groups;

3. To develop best practice guidance for species conservation planning and strategy development for all situations;

4. To contribute to the achievement of the SSC / Global Species Programme’s (GSP) contribution towards achieving Aichi Target 12\(^1\) as in the IUCN Species Strategic Plan 2013 – 2016; and

5. To provide input and support to the SSC / GSP species conservation programme for 2017-2020.

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\(^1\) Target 12: ‘By 2020 the extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained.’
The following actions also took place to develop the SCPSC’s work:

• For a Newcastle University Masters project, Hubert Cheung researched and delivered a dissertation ‘Minimum Critical Specifications for Species Conservation Planning’. This task was supervised by Phil McGowan, with SCPSC members Amielle de Wan and Caroline Lees acting as ‘clients’; the work involved a systematic review of plans in the literature, covering 109 published articles or plans, from which 25 variables for assessment were defined. Against the conclusions from this exercise, a total of 18 conservation strategies were systematically assessed: these comprised 14 SSC species conservation strategies, one plan developed with the Open Standards approach, one bi-national plan between the American and Mexican governments, and two fishery management plans. The results were encouraging overall, but there are many valuable observations for inclusion in SCPSC’s forthcoming review guidance on species planning (see below).

• Preliminary discussions were held with Newcastle University over the scope for including in an international Masters in Wildlife Conservation a module on species planning; this could have a wider vision to cover other aspects of SSC work and guidelines on, for example, reintroduction and conservation breeding.

• Robin Abell joined SCPSC as a member of the Freshwater Fish SG, bringing new skills and expertise to the group.

• Members Ken Lindeman and Caroline Lees reviewed some 30 conservation strategies, most of which SCPSC had involvement, and assessed them against a set of criteria and presence/absence of key elements in the SSC planning approach. This helped development of the first Minimum Critical Specification table.

• Through January to April 2015, an intern, supported by EAD funds, has been working at Newcastle University with Phil McGowan to develop web materials for SCPSC, with the aim of publicising SCPSC activities, its planning approach and how it can help interested parties; the products will meet a significant need.

• Another missing item, a logo for SCPSC, was developed. The blue circle and lettering indicates planning running all through the red threatened species and the green conservation support; the circle indicates that planning is part of an iterative process of plan-do-monitor-adjust. The blue is the same as in the IUCN logo, and the red reflects that in the SSC logo.

Tool development

CBSG has since 2010 been developing tools for species planning. The draft so-called “Abruzzi table”, named after the site of its origin, is now more formally the IUCN SSC Species Conservation Planning Tools Library.

“This tools library is intended for use by species conservation experts that seek a practical and accessible reference to the many tools and processes available for designing and implementing a detailed and effective conservation planning approach. Its purpose is to connect species conservation practitioners to well-tested planning tools suitable for use in a variety of planning situations. This tools library will continually respond to the needs of the community and the evolving state of the science in the field of endangered species conservation.” (CBSG website, 2015). The library is now at the beta-testing stage in a web-enabled format. It will soon be ready for general release, and will be updated as further experience provides further tools and insights.

Other collaborations

• IUCN Turkey Committee: SCPSC was invited to describe its work at a meeting of IUCN Turkey and politicians in April 2014. Mark Stanley Price prepared a set of PowerPoint slides for David Allen of the IUCN Freshwater Biodiversity Unit to include in his presentation; the IUCN Mediterranean Office agreed to pass on any follow up requests for planning inputs.

• For the last two years SCPSC has collaborated with the IUCN Mediterranean Office to deliver its programme of training in species planning in three Maghreb countries – Morocco, Tunisia, Algeria; both David Mallon and Mark Stanley Price have facilitated and contributed to training respectively in country-specific events.
In 2015, David Mallon designed and facilitated a training session in Tunisia using the Barbary sheep *Ammotragus lervii* as the subject.

- The SCPSC Chair is a member of the SSC Climate Change SG Steering Committee and has engaged with it as it develops the near-complete *IUCN SSC Guidance on Selecting and Using Approaches for Assessing Vulnerability of Species to Climate Change*. This will go far in overcoming the inadequate guidance on how to incorporate climate change in species planning, with sections on the different approaches to assessing vulnerability: the correlative approach; the trait-based approach; the mechanistic approach; and combinations of them. The guidance will also focus on dealing with the various types of uncertainty around climate change and its impacts. There will be worked examples of situations and the approaches used. This guidance in advanced draft form will be on the programme of the SG Chairs’ meeting in September 2015. The SCPSC expects to make great use of this guidance in the development of its next generation of guidance for species conservation planning (see below). To assist this, SCPSC is developing a small working group from its membership and that of the Climate Change SG.

- The SSC Amphibian Specialist Group has established a series of 11 working groups on topics that will directly promote implementation of the Amphibian Conservation Action Plan. One working group is on Species Conservation Strategies, co-facilitated by Franco Andreone and Mark Stanley Price. A small volunteer membership has been developed, and short-term (6-12 months) and longer term (1-5 years) priorities identified. These will comprise activities in:
  - Knowledge
  - Access and participation
  - Process
  - Capacity and awareness
  - Conservation
  - Policy and public relations

  These activities both reflect and will gain from SCPSC’s mainstream interests. One output will be a simple guide for amphibian species conservation planning, to show that such planning need not be complex or costly.

- In response to an SCPSC invitation, the SSC Freshwater Fish Specialist Group (FFSG) polled its members for species or communities that need planning; some 45 suggestions were received and the Sub-Committee and FFSG secretariat are now working on prioritising among these suggestions.

- The SSC Mangrove SG has requested SCPSC assistance as it is in the early stages of developing a global mangrove conservation strategy.

**Planning prospects**

The following activities are reasonably certain to take place (activities in which SCPSC members who are also members of CBSG are omitted as the latter will usually be the lead organisation for these):

- Conservation strategy workshop for the West African giraffe, Niger (May 2015);
- Training workshop on species conservation planning (Iran, May 2015);
- Cuvier’s gazelle training workshop for Algeria, Morocco, Tunisia jointly, for the IUCN Mediterranean Office (Autumn 2015);
- Strategic priorities for global antelope conservation (with SSC Antelope SG);
- The SCPSC planning approach being used by the SSC Cat SG for strategies on the leopard in Iran, and the leopard across the Caucasus;
- Conservation planning for the woodland caribou in western Canada (as it experiences significant population declines though a combination of oil and gas exploration and extraction), deer increase and increased wolf predation through habitat changes;
• New species planning activities on various freshwater fish species and communities, waxcap fungi, palms, and mangroves;

• Planning for St Helena’s highly diverse and threatened endemic invertebrate fauna, and for endangered dragonflies in South Africa (for the latter, necessary research is being carried out);

• Planning for the endemic Desertas Wolf Spider *Hogna ingens* on Islas Desertas, off Madeira (well advanced with the SSC Spider SG, but political changes in Madeira have meant deferring this);

• A follow-up strategy meeting for the humphead wrasse, building on the workshop facilitated by member Phil McGowan in 2012, probably to be held in Indonesia;

• A national action plan for cheetah and wild dog in Chad in March 2015; and

• A workshop to revise the regional strategy for cheetah and African wild dog in southern Africa in August 2015.

**SSC planning guidance version 2**

By the end of 2014 the SSC’s *Strategic Planning for Species Conservation: a Handbook* will have been available for six years. During this time, a great deal of experience in species planning has accumulated through the efforts of SCPSC members and others. Revision is needed both in terms of process and technical tools, and work has started on seeing what product will both reflect these needs and be of most use to practitioners. One tenet of the revision is that recommended planning practice should be applicable equally to all taxa, whether plant or animal or fungus, whether terrestrial or aquatic, etc. This will inevitably mean that the next version will be less prescriptive and be more oriented to a flexible interpretation of best practice. Hence, SCPSC has started on the task of identifying the common elements of successful planning through systematic review of completed strategies. Accordingly, two changes are already agreed for the revision: first, it will be less prescriptive, and more based on principle and, reflecting this, it will be ‘guidance’ rather than ‘guidelines’; and second, this guidance should be in the form of a living document that can be easily and regularly updated to incorporate new experiences, tools and techniques. Therefore, the new guidance will undergo regular or annual revisions.

On the technical side, the contents of the the IUCN SSC Species Conservation Planning Tools Library must be integrated into the guidance. There will be new tools to be added regularly. Further, the wider community of project design and practice is including approaches such as structured decision-making, adaptive management and consideration of risks in decisions and actions. Integrating climate change into the planning cycle will be a further major task. Finally, SCPSC will make an effort to harmonise its guidance with the terminology and processes of others, such as the Conservation Measures Partnership’s Open Standards.

**SCPSC-related activities external to SSC**

SCPSC member Nigel Maxted was involved in the following activities:

• Planning and establishment of the first UK Crop Wild Relative genetic reserve in the Lizard National Nature Reserve, 13 May 2014, Cornwall, UK;

• Planning a National Plant Agrobiodiversity Conservation Strategy for the Sultanate of Oman, 1-7 November 2014 Muscat, Oman;

• Planning and establishment *in situ* Crop Wild Relative conservation in SADC, 10-13 November 2014, St Louis, Mauritius (course content followed the SSC planning approach); and

• Genetic diversity of *Patellifolia* species conservation planning workshop, 16-18 February 2015, Madrid, Spain.
Developing a Species Conservation Strategy for the White-bellied Heron (WBH)

The WBH, *Ardea insignis*, is the world’s second-largest heron but probably also the rarest; its entry in the Red List / BirdLife International Data Zone states a total population of 50-249 mature individuals, but this is based on no systematic survey or census.

This deficiency is not surprising given that the species’ resident range is given as over 56,000 km², covering the eastern Himalaya foothills in Bhutan, across the northern lowlands of Assam and Arunachal Pradesh, to northern Myanmar, and, now or again, into western China through a young bird being found there in 2014. The bird is seen in fast-flowing mountain streams and rivers in Bhutan and relatively slow rivers in Namdapha Tiger Reserve (Arunachal Pradesh) and on a variety of river types in Myanmar. Most systematically obtained information on the species comes from Bhutan where an estimated population of 22 in 2014 has been surveyed and its nesting monitored for many years. Sightings in Namdapha have provided further information on courtship and nesting behaviour. Information from Myanmar comes from bird surveys along, principally, navigable rivers.

In view of the evident rarity of the species, its low density across a vast range, plus concerns over its declining status (assessed in 2012 as Critically Endangered), and despite the patchy information base, the UK-based organisation Synchronicity Earth (SE) championed its cause both for the sake of the species’ survival and also because it would be a flagship for conservation of the extremely biodiverse region of the eastern Himalayas, which are known to be facing major challenges to their integrity.

Accordingly, Synchronicity Earth enlisted the SSC Species Conservation Planning Sub-Committee (SCPSC) to work jointly on developing a Species Conservation Strategy. It was decided to develop this strategy with the SSC methodology, to be employed at a workshop on Guwahati, Assam, in December 2014. The Bombay Natural History Society (BNHS) and the Ashoka Trust for Research in Ecology and the Environment (ATREE) offered to host the workshop, with the latter responsible for all travel, ground arrangements and meeting logistics.

A Technical Team was created to develop a comprehensive review of all information on the species, and to design the programme and determine participation. The Team comprised representatives of each of the four range countries, BNHS, ATREE, SE, SCPSC, BirdLife International, the SSC/Wetlands International Heron Specialist Group, the International Crane Foundation, the Critical Ecosystem Partnership Fund, and the Asian Species Action Partnership.

The 47 participants at the workshop comprised key government and non-governmental people from India, Bhutan and Myanmar, and two participants from China; the meeting was facilitated by ATREE and SCPSC. The participants’ Vision for the WBH was “By 2020 we will achieve the effective conservation of White-bellied Heron across its range countries as an inspiration and challenge for ensuring healthy riverine ecosystems and their dependent human communities.” The relatively short time frame reflected the sense that urgent actions were needed for the species. Further, its secure future was seen as inextricably linked to human use and modification of its river habitats and their surrounds.
Based on short presentations from each range country, participants agreed that the Goals for WBH fell under these three distinct themes, with their subsequent definitions:

**Theme 1: Research/knowledge**

**Goal 1**
Design and effectively implement immediate interventions to reduce the extinction risk of WBH, informed by a sufficient understanding of the species’ distribution, population status, natural history, threats and their social context across its range.

**Theme 2: Healthy Heron Habitat and Habitat-based Threat reduction**

**Goal 2**
To maintain healthy riverine ecosystems in the White-bellied heron’s range with governance frameworks that ensure development and livelihood activities are consistent with the species’ conservation based on best scientific evidence.

**Theme 3: Human Communities**

**Goal 3**
Empower communities through education and awareness to enhance their sense of responsibility to and ownership of the WBH and its habitat, and to inspire governments, civil society and donors to engage in coordinated and immediate efforts to conserve the species.

Following this, participants identified the direct and indirect threats facing the WBH and the major constraints to its effective conservation. The means to counter these threats were then articulated in 14 Objectives spread between the three Goals. Meeting the Objectives was to be achieved through a large number of country-specific actions, each of which was defined at least in outline in terms of:

- What is to be done?
- By who?
- When?
- With what resources?
- Who is responsible?
- What is the priority?
- What indicator of achievement?

Given the urgency for conservation action, a further set of immediate actions for follow-up, and to maintain momentum was established. Shaping this conservation strategy was notable for the lack of good information on many aspects of WBH biology, ecology and behaviour. Hence, priority actions included first surveys in some potential habitat areas or fresh surveys in known range. Assumptions about optimal habitat were challenged, and so WBH must be sought deliberately on smaller rivers and streams that are usually hard to access and move along. Information on seasonal or lifetime movements of individual herons must be obtained through tracking some birds, which might also provide insights into the relationship between different country’s WBH; of especial interest will be the relationship between birds in Bhutan and western Assam, India, and between Arunachal Pradesh (India) and Myanmar. The potential role and value of captive breeding will be explored further in Bhutan.

Finally, given the enormous extent of planned hydropower dams on the rivers of the eastern Himalayas, there is a major need to understand the ecological impacts of dams on water chemistry, river regimes and fish populations, all of which are directly relevant to WBH survival. These challenges must also be integrated with the predicted impacts of climate change in the eastern Himalayas.

To maintain momentum, SE offered to take up the role of interim international Coordinator; national facilitators will be identified shortly. A WBH Working group has been established within the Heron Specialist Group: [http://www.heronconservation.org/working-groups/white-bellied-heron-working-group/](http://www.heronconservation.org/working-groups/white-bellied-heron-working-group/) as a first resource. The full workshop report is on this site. The Species Conservation Strategy is under development, with a timeline of mid-2015 for review and completion. In view of the dire situation for the WBH, a follow-up workshop is envisaged before the end of 2015.
Asian Species Action Partnership

Madhu Rao, Development Coordinator, Asian Species Action Partnership

J. W. Duckworth, Technical Coordinator, Asian Species Action Partnership

Key achievements

• The Asian Species Action Partnership (ASAP) is consolidating its work and has been particularly involved in the efforts to increase focus on the White-bellied Heron and Swinhoe’s Giant Softshell Turtle.

• ASAP has participated in several key meetings and is assisting SSC Specialist Groups in their work on ASAP species, for example on freshwater fish, otters and pangolins.
The Asian Species Action Partnership (ASAP) continues to make steady progress in achieving its mission to avert the extinction of Critically Endangered species in the Southeast Asia region. The Programme is coordinated by IUCN SSC on behalf of its member organisations to assist implementation agencies and their partners to “as a matter of urgency, reverse the declines in the wild of Critically Endangered freshwater and terrestrial vertebrates in Southeast Asia”.

The partnership has agreed on the following expected outcomes:

- Prioritize sites and groups of ASAP species for urgent conservation action in consultation with relevant IUCN SSC Specialist Groups.
- Identify gaps and urgent conservation needs for ASAP species as many are not the focus of any conservation action.
- Catalyze action towards the fulfillment of conservation needs through one or more of the following mechanisms:
  - Increase financial support for ASAP species through developing new or redirecting existing sources of funding;
  - Raise the profile of ASAP species through targeted communications and political engagement using the IUCN platform;
  - Increase support for ASAP species conservation through the development of partnerships and alliances with relevant agencies and institutions;
  - Develop strategic in situ-ex situ partnerships for the recovery of ASAP species;
  - Collect and distribute information essential for the conservation action for ASAP-eligible species; and
  - Integrate ASAP species into relevant policy priorities (for example, CBD and related National Biodiversity Strategies and Action Plans, CITES lists, etc.).
- Develop a ‘standard’ or ‘branding’ mechanism as guidance for investment in conservation actions/projects directed at ASAP species indicative of the significance and relevance of the conservation action within the context of current conservation needs and lessons learned from previous and conservation action.

**Partnership Activities in 2014**

**Facilitation and support of planning meetings for IUCN threatened species**

**A conservation strategy workshop for the White-bellied heron Ardea insignis, Guwahati, Assam, India, 2-4 December 2014**

Will Duckworth helped to convene a conservation strategy workshop for the Critically Endangered White-bellied heron (WBH), the second largest living species of heron. The primary goal of the workshop was to increase urgent and coordinated efforts to protect the species. It is known from the eastern Himalayan foothills in Bhutan and north-east India to the hills of Bangladesh, north Myanmar and, historically at least, across west and central Myanmar. It may also occur in south-east Tibet, China, but is now extinct in Nepal.

The species has a small and rapidly declining population. This decline is projected to increase as more habitat is lost and degraded, with the possibility of direct exploitation and disturbance, especially when nesting. The main threats are presumed to be widespread loss, degradation and disturbance of forest and wetlands. Further, increasing disturbance and habitat degradation from settlement, conversion to agriculture, harvesting of wetland resources and, more locally, poaching are thought to present significant threats in key protected areas (e.g., Namdapha National Park). Numbers are worryingly low in all its remaining range states; current published estimates suggest there are just 50-249 mature birds left in the wild but a full and thorough population census is lacking, as is research about the bird’s ecology and biology.

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1 IUCN Specialist Groups and the SSC network of expertise form a core part of the Technical Advisory Committee for ASAP.
both of which must be better understood to preserve the species effectively. Participants at the workshop determined that creating a formal coordinating body - preferably under the aegis of the IUCN - would be the best way to ensure ongoing commitment and effective collaboration between organisations working on WBH conservation, and of providing a mechanism for funding. The establishment of a White-bellied Heron Working Group within the SSC/Wetlands International Heron Specialist Group was considered to be the best way forward.

In order to ensure the process is driven forward effectively, participants agreed to recruit a (part-time) Working Group Coordinator by June 2015. Each range state committed to nominating a National Coordinator responsible for liaising with the Working Group Coordinator and galvanising national action. It was agreed that communication between National and Working Group coordinators would be designed to allow information and support to flow between those working on the species. The workshop triggered the development of a detailed range-wide conservation strategy for the WBH.

**Conservation planning for the Yangtze Giant Softshell Turtle *Rafetus swinhoei*, Hanoi, Vietnam, 10-12 December, 2014**

Will Duckworth helped to convene an emergency-planning session on the critical status of Swinhoe’s Giant Softshell Turtle *Rafetus swinhoei*, the most imperiled chelonian - only four living individuals are known to exist. The workshop was a joint initiative between ASAP and the IUCN SSC Tortoise and Freshwater Turtle Specialist Group (TFTSG). The primary aim of the meeting was to bring together the small technical group of biologists working on *Rafetus swinhoei* to agree on priority actions for the conservation of the species and prepare a global framework plan on how to prevent it from going extinct. Participants from Vietnam, China, USA, Austria, Australia, and the UK participated in the meeting and represented the following institutions: TFTSG; Centre for Natural Resources and Environmental Studies (CRES), Vietnam; Asian Turtle Program (ATP), Vietnam; Turtle Island, Austria; Wildlife Conservation Society (WCS); and the Kunming Institute of Biology, China.

In just the last few years, the number of known animals in Chinese zoos and other institutions has rapidly decreased from approximately half a dozen to now just two individuals. Of the four individuals known to science, only one is verified as a female. This lone female, although paired with an aged male at the Suzhou Zoo, China, since 2008, has been laying
eggs unfertilized by the male. It is unknown if the male is incapable of producing sperm and/or of delivering it successfully. Compounding the problem is that the two other animals are in Vietnam, meaning that to involve them in any captive breeding efforts will require international co-operation. Concerning the two animals in Vietnam, one is recognized as a female by Vietnamese authorities, but most likely a male and regarded as a cultural heritage icon in Hoan Kiem Lake and is presumed to be reaching the end of its natural life span. The other is in Dong Mo Lake and its sex is unverified.

It is not recommended to move the Dong Mo animal to Haon Kiem Lake as the lake is heavily polluted and if the turtles are of the same sex there is a danger that they will combat each other which may lead to fatalities. Hence, finding additional wild animals to pair with the animal in Dong Mo or the female in Suzhou is of the utmost priority.

The Hanoi workshop was the second time that some R. swinhoei experts and other interested parties were able to come together to plan for the species’ conservation. A detailed action plan outlining priority actions has been developed with clear responsibilities assigned to relevant individuals and institutions. The following is a summary of priority actions identified for the species:

- **Surveys in species former range:** A comprehensive survey effort encompassing Yunnan (China), eastern Laos, and northern Vietnam is an immediate need. A coordinated effort is needed based on GIS analysis of potential habitats. These surveys need to be conducted using multiple techniques and not be limited to solely interview surveys, or solely eDNA (testing for the presence of trace amount of DNA left by the species in the environment). It is imperative that surveys also include rigorous trapping methodologies.

- **More zoo surveys within China:** Not all zoos in China have been adequately surveyed. A systematic survey of all zoos needs to be made, as there is a possibility there are improperly identified softshells at these facilities.

- **Improvements to Dong Mo Lake:** The lake needs a proper barrier at the spill way so that the animal cannot escape during flood events. A permanent barrier that is well anchored into the substrate (so the animal cannot go under it) needs to be built.

- **Increase protected status in China:** Current legal protection of R. swinhoei is lacking in China. This species should be elevated to the highest level of national protection.

- **Environmental DNA (eDNA) analyses techniques:** The eDNA analyses techniques need to be refined and new tissue samples (ones not previously preserved in formalin) need to be acquired as soon as possible. Additionally, the methodology for collecting environmental DNA needs to be refined.

- **Plan for death of animal in Haon Kiem Lake:** The animal in Haon Kiem Lake appears to be quite old, in poor health, and may be nearing the end of his natural life span. A plan needs to be put in place for collection of tissue for genetic research and for preservation in a frozen zoo.
• **Increased search effort for juvenile *R. swinhoei***: To avoid the bias of only looking for very large *R. swinhoei*, efforts need to be made to find juveniles. It is unknown when the last wild mating occurred but there is still a reasonable chance that smaller than maximum sized individuals have gone without detection.

• **Enforcement training**: Due to the difficulty of correctly identifying the species by untrained people, training for law enforcement and forest department officials needs to be completed. To this end, training manuals and posters are recommended to be printed in multiple languages for distribution in all three-range countries.

• **Protected Areas**: Efforts need to be made to preserve the best remaining habitat even if no *R. swinhoei* are currently located there. This may mean the creation of protected areas merely on the hope of one day placing captive-bred individuals back into appropriate habitats. Time is of the essence for this species and immediate increases in funding needs must be addressed. Low levels of funding have hampered previous conservation efforts for this species. A working group has been created to help coordinate and drive forward the identified priority action.

**Outreach and networking for ASAP**

Intensive efforts have been devoted to increasing outreach and networking for ASAP. To this end, Madhu Rao actively participated in a number of regional meetings and workshops with the purpose of highlighting the extinction crisis facing Southeast Asia’s non marine vertebrate species and increasing awareness of the ASAP initiative. The following is a brief summary of these engagements:

**IUCN Asia Regional Committee meeting, Bangkok, 25-26 August 2014**

This meeting represented an opportunity for ASAP to engage with IUCN country representatives within the ASEAN region (countries relevant to ASAP) to increase awareness of the ASAP initiative and the extinction crisis facing CR species in this region. Moving forward, ASAP should be able to work more strategically with the IUCN Asia Regional Office in Bangkok in pursuing overlapping goals.

**Southeast Asian Zoo Association (SEAZA) Meetings in Taipei, Taiwan, 26-28 October 2014**

Many Southeast Asian zoos have ASAP species and play an important role in *ex situ* conservation actions for these species. Wildlife Reserves Singapore (WRS), a key ASAP partner and a leading member of SEAZA will work towards incorporating ASAP priorities and providing captive breeding and population management recommendations for ASAP species within the SEAZA network.

**SSC Conservation Breeding Specialist Group Annual Meeting (CBSG) New Delhi, 30 October-2 November, 2014**

ASAP was allocated a working group session at this meeting and worked together with a number of ASAP partners (European Association of Zoos and Aquaria (EAZA), International Rhino Foundation (IRF), World Association of Zoos and Aquariums (WAZA), and WRS) and various zoos to brainstorm through a number of key issues regarding ASAP. The objective of the working group was to raise awareness on the ASAP initiative, and eligible ASAP species with the aim of identifying a role for zoos and aquaria in further engagement with the initiative. During the first session, working group participants emphasized the need to generate a manageable list of species in order to find a good fit for the resources and expertise of the CBSG community. Within this context, several filters were considered necessary to apply to the ASAP species list. These filters included the list of AZE (Alliance for Zero Extinction) species, list of recommendations for captive breeding, ISIS data and species in captivity with Studbooks. The most significant outcome of this working group was recognition of the need to prioritize ASAP species using relevant criteria and to collate information on conservation status to enable effective *in situ* and *ex situ* action. The prioritization is particularly important to strengthen the engagement of zoos and aquaria in the conservation of ASAP species.

**Wild Animal Rescue Network (WARN) Annual Meeting, Hong Kong, 24-27 November 2014**

Many ASAP species are in the trade and potentially end up in rescue centers in the region. Some of these could represent some of the last remaining individuals of ASAP species. The aim of engagement with this network is to enable the development and implementation of clear procedures (protocols of action) for ASAP species that would ensure adequate attention is paid to the rescue, rehabilitation and release of ASAP species.
Transboundary Workshop at Xishuangbanna Tropical Botanical Garden, China, 1-4 March 2015

China’s southern boundary shared with Myanmar, Laos and Vietnam is a critically important trade route for the illegal wildlife trade, a major threat to many ASAP species. The meeting provided an opportunity to draw attention to the conservation needs for ASAP species in this important transboundary region. The meeting resulted in a formal declaration with recommendations to strengthen the enforcement of existing legislation, create new transboundary protected areas, improve management of existing protected areas and develop standardized monitoring protocols. The declaration recommended that the Government of China, in collaboration with the Governments of Myanmar, Laos and Vietnam, lead in championing effective transboundary protected areas and tackle illegal wildlife trade, thus ensuring a future for regional biodiversity.

Plenary Address at the Association for Tropical Biology and Conservation- Asia Pacific meetings, Phnom Penh, Cambodia, 30 March-2 April 2015

The Association for Tropical Biology and Conservation meeting provided an opportunity to highlight ASAP species needs through a plenary address that focused attention on the extinction crisis in Southeast Asia and the effectiveness of the protected area network in the region. Several ASAP species that are on the brink of extinction need urgent protection either through the creation of new protected areas or through better management of existing ones. However, it is also evident that for many ASAP species, it is imperative to consider the integration of in situ conservation action with ex situ approaches to avert extinctions. The meeting brought together researchers and conservationists from within the Southeast Asia region.

ASAP support to SSC Specialist groups

A key role for ASAP is to provide support to SSC Specialist Groups especially those with many ASAP species. Freshwater fish constitute a significant portion of species on the ASAP list and alarmingly, experts indicate that there could be several more species that could potentially be classified as Critically Endangered once the assessments are done. A major issue that needs to be addressed is the lack of Red List Assessments for fishes in the Sundaic region and the Philippines. ASAP has attempted to help bring together various entities to collaborate on the Red List Assessment for the Sundaic region. There is currently an incipient collaboration between WRS, National University of Singapore (NUS) Raffles Biodiversity Museum and the SSC Freshwater Fish Specialist Group (FFSG) on this initiative. Further, ASAP helped coordinate a talk by the Chair of the SSC Otter Specialist Group (OSG) in Singapore to provide a summary of the conservation status of otters in the region. ASAP is currently working to support the SSC Pangolin Group (PSG) in conducting a mapping exercise of current conservation initiatives for the two species of Critically Endangered pangolins in Southeast Asia, the Sunda pangolin and the Chinese pangolin.

Increasing financial support for ASAP species conservation

An important goal for ASAP is to increase financial support for ASAP species conservation. Within this context, ASAP has worked with Convention on Biological Diversity-LifeWeb to develop a joint call for Expressions of Interest related to ASAP species. ASAP worked closely with members of the relevant Specialist Groups to provide critical reviews of the Expressions of Interest. Approximately seven Expressions of Interest on ASAP species have been developed, reviewed by Specialist Group members and ready for submission to LifeWeb pending letters of support from national CBD focal points. ASAP is actively trying to engage donors in discussions on the importance of directing financial support for ASAP species in the Southeast Asia region. A major area of focus for ASAP moving forward is to expand the partnership to include local NGO partners working on ASAP species and identify major areas of support needed by these partners in order to catalyze conservation action. Discussions are underway with potential partners such as the Mabuwaya Foundation (Philippines), Project Anoulak (Lao PDR) and Selamatkan Yaki (Sulawesi, Indonesia) to determine suitability for entry into the partnership.
Key achievements

- Twenty-eight interviews involving 49 people and 32 organisations were conducted with existing and potential end-users of Key Biodiversity Areas (KBA) data in 2013 and 2014.

- During the public consultation on the emerging IUCN standard for the identification of KBAs in October and November 2014, an online survey related to the application of the new standard was submitted. Seventy-five (75) responses were received from over 40 countries.

- A report summarizing the key findings of these interviews and presenting the individual case studies has been published. It describes what stakeholders need from KBAs; how they would like to see data presented; how KBAs fit with existing and emerging policies; any concerns or fears end-users have about the identification of KBAs; and the implementation of the KBA standard.

- A dedicated session featuring a panel of End-Users was organised during the IUCN World Parks Congress in Sydney, Australia in November 2014. Panelists included representatives from BirdLife International, French Ministry of Environment, Global Environment Facility, Ramsar Convention, Shell, and World Bank.
Presentation of the key findings of the Report


Given the many different stakeholders with an interest in the management of the world’s remaining natural ecosystems, the IUCN WCPA-SSC Joint Task Force coordinated a major effort to identify and speak with a range of existing or potential end-users of data on Key Biodiversity Areas (KBAs), sites that contribute significantly to the global persistence of biodiversity. This exercise represents a major effort to gain an improved understanding of how different end-users view KBAs, what their hopes and concerns are, and their opinions about the methodology. These opinions have been enormously helpful in framing the KBA standard.

The report summarises findings from a two-year survey of existing and potential end-users of the KBA standard and, in particular, of the resulting KBA data generated under it. Twenty-eight interviews were conducted with individuals representing a range of sectors, including government agencies, donors, intergovernmental conventions, NGOs, multi-lateral development banks and private companies.

The report describes:

• What these stakeholders need from KBAs;
• How they would like to see data presented;
• How KBAs fit with existing and emerging policies;
• Any concerns or fears end-users have about the identification of KBAs and the implementation of the KBA standard.

Implications for the development of the KBA standard are then outlined.
Amongst the roles envisaged for KBAs are:

- **Identifying priority sites for conservation including designation by international conventions:** e.g. candidate Ramsar sites; completing ecologically-representative protected area networks; and as a component of High Conservation Value Areas.

- **Providing a centralised source of data for end-users:** that draws and builds upon existing approaches and databases to provide a centralised source of data for all realms, all regions, all ecosystems, and all taxa. The need for a centralised data source was strongly supported although there were differences of opinion between end-user groups about whether or not this should be freely available for all users.

- **Informing, validating and confirming existing approaches:** that have been developed to identify important sites for biodiversity in different taxonomic groups, regions, ecosystems, or realms (i.e. marine, freshwater).

- **Guiding investment:** in conservation; for donors to be able to ensure that funds go to the most important places for the global persistence of biodiversity, through the GEF and other funding sources.

- **Making decisions about development:** particularly through identification of places requiring specialised forms of management.

- **Providing additional political recognition:** for existing sites that currently lack recognition from governments and others, e.g. indigenous peoples and community conserved areas; and important wetlands not yet on the Ramsar list.

- **Identifying core sites for restoration:** or maintenance of ecosystem services within a landscape, such as priority sites within the IUCN Bonn Challenge on restoration.

- **Identifying globally significant sites that require local action:** for example, major flyways that are being undermined by degradation at particular sites on the migration route.

- **Identifying no-go areas:** some end-user groups saw KBAs as providing data that would help identify areas to be set aside from development; other end-user groups were strongly resistant to the idea that every KBA should be considered as ‘no-go’.

- **Stabilising land tenure:** in some cases, identification of KBAs has provided indigenous peoples and community groups with additional arguments to help secure their collective governance over territories and natural resources (though situations can be imagined when the reverse might happen).

- **Prioritising biodiversity research:** in places where data are lacking, identification of KBAs, even if preliminary, can provide a focus for scientists carrying out more detailed surveys.

- **Meeting international commitments:** in terms of completing representative protected area networks as required by the CBD Programme of Work on Protected Areas, or the European Union’s Natura 2000 network.

- **Identifying ecosystem services:** additional information on ecosystem services collected alongside KBA data will be useful in prioritising sites for agencies with a split conservation and development remit.
Road map for 2015-2016

The new KBA standard will be finalised mid-2015. It will then be submitted for IUCN Council approval by end 2015 and formally launched at the World Conservation Congress in 2016.

Implementation of the KBA standard will be governed by a new KBA Committee (analogous to the Red List Committee). The KBA Committee will report to the Steering Committees of both SSC and WCPA and will derive its authority from a KBA Partnership Agreement. It will be comprised of relevant IUCN Commission representatives, IUCN Secretariat and KBA Partner Organizations such as BirdLife International. Work to develop the KBA Partnership Agreement is underway.

Additional priorities for the coming year include fundraising for pilot implementation of the KBA standard in a few regions; working with KBA Partners to develop specification for the KBA database and website; and drafting more detailed user guidelines to accompany the KBA standard.
Invasive Species Specialist Group

Piero Genovesi, Chair, IUCN SSC Invasive Species Specialist Group

Key achievements

• The Invasive Specialist Group (ISSG) is involved in much policy and advocacy work. It played a critical role in supporting the adoption of the European Regulation on Invasive Species, and is the lead agency in the development of the Global Register of Introduced and Invasive Species.

• The ISSG is supporting the Convention on Biological Diversity through its participation in the Global Invasive Alien Species Partnership and in developing the schema for classifying and categorizing pathways of introduction of invasive alien species.

• The ISSG is developing a new standard for ranking of invasive species based on type and magnitude of impacts.

• The redesign of the Global Invasive Species Database is almost complete.
Background

The Invasive Species Specialist Group (ISSG) aims to reduce threats to natural ecosystems and the native species they contain by increasing awareness of invasive alien species, and of ways to prevent, control or eradicate them. It currently has over 204 core members from over 35 countries and a wide informal global network of over 2000 conservation practitioners and experts who contribute to its work.

The ISSG promotes and facilitates the exchange of invasive species information and knowledge across the globe and ensures the linkage between knowledge, practice and policy so that decision-making is informed.

The two core activity areas of the ISSG are:

- Policy, technical advice and advocacy.
- Information exchange through online resources and tools and through networking.

Report of Activities

Policy, Technical Advice and Advocacy

Through 2014 ISSG has continued mainstreaming the invasive alien species issue at the international level, working in synergy with the IUCN Secretariat, global conventions, regional bodies, national governments, other conservation agencies and civil society to support the development of science-based policies on this issue. Below are some of the highlights of this area of work:

European Regulation on Invasive Alien Species

The ISSG Chair and other members played a key role in the development of the recently adopted EU Regulation on invasive alien species; the regulation was approved by the European Parliament on April 2014, and entered into force on January 2015. ISSG coordinated with the IUCN Brussels Office and BirdLife International, and provided technical inputs to the rapporteur of the European Parliament, the European Commission, and to EU Parties. ISSG also assisted in the organisation of several meetings and events held in Brussels on this topic, which were instrumental to addressing the technical elements of the regulation. The ISSG Chair co-authored a scientific paper on the legislative instrument, and is a member of the Scientific Forum that will provide advice to the European Commission on the enforcement of the Regulation. ISSG members are now collaborating with a number of initiatives aimed at sound implementation of this legislation. Examples include supporting the development of a list of species of EU concern, horizon-scanning and risk analysis methodologies, pathways management analysis, and development of the European Alien Species Information Network (EASIN catalogue).

Global Invasive Alien Species Partnership

Following the Agreement signed by the IUCN and ISSG with the Secretariat of the Convention on Biological Diversity (SCBD) in November 2011 to support and assist the implementation of the Strategic Plan for Biodiversity 2011-2020 in relation to invasive species, ISSG has continued to work closely with the SCBD taking a lead in the activities of the Global Invasive Species Information Partnership (GIASI Partnership). ISSG was instrumental in developing information documents related to ‘classification and prioritizing of pathways of introduction of invasive species’ for the 18th meeting of the CBD Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) and the 12th CBD Conference of the Parties (COP12).

The Chair and Programme Officer of the ISSG attended SBSTTA18 and COP12 as part of the IUCN delegation, contributing to the discussions and submitting interventions relevant to the invasive species issue, as well as assisting and supporting country delegations. During both the meetings, the ISSG with SCBD and other GIASI Partners maintained a kiosk on invasive species to disseminate information on the available information tools to support work on the issue.

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The ISSG Chair and Programme Officer participated in the second meeting of the Steering Committee of the GIASIP during SBSTTA 18 (as an SC member and ex-officio member respectively). The Chair of ISSG was invited to give a plenary talk at SBSTTA18 to present the work on the categorization of pathways.

ISSG contributed data and information from its premier knowledge product, the Global Invasive Species Database (GISD)⁴, to the GIASIP Partnership portal. This project is coordinated by the Global Biodiversity Information Facility (GBIF).

**Global Register of Introduced and Invasive Species**

ISSG is the lead agency in the development of the Global Register of Introduced and Invasive Species (GRIIS)⁵. Progress on the first phase of this project was presented at an SCBD-organized side event during COP12. Parties to the CBD were encouraged to contribute information to GRIIS. The first phase resulted in draft inventories of over 100 countries and territories being completed and submitted to nominated country editors for the commencement of the review process. Following the completion of phase 1, ISSG has just received confirmation on support for phase 2 which will achieve global coverage. There are plans to present the results of the GRIIS global coverage at SBSTTA20 and the following COP13.

**Pathways of Introduction and Spread of Invasive Species**

ISSG has taken the lead in the development of a schema classifying and categorizing pathways of introduction of invasive alien species. The schema was included in the information document developed by the SCBD. The COP, in its decisions on Invasive Alien Species, encouraged ISSG to continue its work on pathway analysis and prioritizing pathways for action⁶. The categorization is being presented in two scientific publications.

ISSG also worked on a prototype of a resource related to known likely pathways of introduction. The SCBD has requested the ISSG to submit a report on all enhancements undertaken by the group at the upcoming SBSTTA 20 and COP12.

**Ranking of Invasive Species based on Type and Magnitude of Impacts**

ISSG was also encouraged to continue work on the ranking of invasive species based on the type and magnitude of their impacts, broadly following the ideas in a recently published paper (Blackburn et al. 2014⁸), and the CBD COP12 also called IUCN to continue its work in this direction.

The overall methodology for this ranking was presented to the SSC Steering Committee in August 2014, to the International Plant Protection Convention in March 2015, and in a dedicated workshop held in Leipzig in March 2015, attended by the CBD Secretariat, the European Commission, CABI, Island Conservation, GBIF and the IUCN Red List Unit. Subsequently, the method has also been presented in a meeting of the Interagency Liaison Group on Invasive Species, attended by the WTO, CITES, IMO and other partners.

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3 See the restructured Global Invasive Species Database <http://193.206.192.138/gisd/>

4 GISAIPartnership Data Repository <http://giasip.gbif.org/>

5 The Global Register of Invasive Species (GRIS) was developed as a concept and prototype by the IUCN SSC Invasive Species Specialist Group (ISSG) in 2006 as part of a project undertaken for the Defenders of Wildlife on the Regulation of Live Animal Imports into the United States. The concept was revisited and expanded by the ISSG to address Aichi Target 9 and support its achievement- with the development of the Global Register of Introduced and Invasive Species (GRIIS) GRIIS hosted by the ISSG compiles annotated and validated country-wise inventories of introduced and invasive species. Development and population of the GRIIS was undertaken by the ISSG within the framework of activities of the Information Synthesis and Assessment Working Group of the GISAI Partnership <http://www.griis.org/> . Please note that the site will be down for maintenance during the month of November


On the basis of the comments and suggestions received in the meetings, the method is being revised and integrated, and will be then presented in a scientific paper.

**Invasive Alien Species Indicators**

ISSG is leading the development of Invasive Species Indicators as part of the Biodiversity Indicators Partnership (BIP), a CBD-mandated initiative. ISSG worked with partners on indicators that measured trends in the numbers of introduced and invasive species, and trends in vertebrate invasive alien species eradications.

ISSG also completed an analysis on trends in numbers of invasive plant species for the UNEP-WCMC disaggregating data by plants. The results of these indicators were major contributions to the 4th Global Biodiversity Outlook (GBO4) report. The ISSG Chair and Programme Officer were also contributing authors to GBO4 Chapter 9 related to Aichi Biodiversity Target 9.

The ISSG is supporting the BIP in exploring options for using disaggregated datasets from the global indicators in developing national-level indicators. Results of the work have been published in an article in *Science*, co-authored by the ISSG Programme Officer Shyama Pagad.

**Convention on the Conservation of Migratory Species of Wild Animals**

ISSG was contracted by the Convention on Migratory Species (CMS) during 2012-2013 to complete an assessment on the impacts of invasive alien species on migratory species listed in CMS Appendices I and II. The report and recommendations were key documents used in the discussions on invasive species during the 18th CMS Scientific Council meeting of the CMS in Bonn in July 2014. Resolution 11.28 ‘Future CMS Activities Related to Invasive Alien Species’ was adopted during CMS COP11 in November 2014.

Furthermore, ISSG has since initiated discussions with the CMS as well as representatives of the Ramsar Convention on Wetlands on a possible global assessment of the impacts of invasive species on the chains of internationally important wetlands that lie along the three main flyways - Africa-Eurasia Flyway, East Asia-Australasia Flyway and the Americas Flyway that migratory bird species use.

**Management of Invasive Alien Species in Protected Areas**

ISSG is working with the IUCN World Commission on Protected Areas (WCPA) to develop “Guidelines for the Management of Invasive Alien Species in Protected Areas”. These guidelines will be published by IUCN as part of the Technical Series. The draft guidelines and the outlines of the contents were discussed at a dedicated session at the World Parks Congress, co-organized by ISSG, the CBD Secretariat, WCPA, the Italian Ministry of Environment, the Italian Federation of Parks, and the Regional Park Agency of Latium.

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9 Austrian Environment Agency, Island Conservation

10 http://www.cbd.int/gbo4/


13 UNEP/CMS/ScC18/Inf.10.11.1- Report <http://www.cms.int/sites/default/files/document/Inf_10_11_1_Invasive_Alien_Species_full_Report_Eonly.pdf>


15 The Africa-Eurasia Flyway, which connects the breeding grounds of Europe and northern Asia with the wintering grounds in Africa, and includes vital stop-over sites in the Middle East and Mediterranean

16 The East Asia-Australasia Flyway, which connects north-east Asian breeding grounds with wintering grounds in south-east Asia and Australia, and includes the vital stop-over sites in China and the Korean Peninsula.

17 The Americas Flyway, which connects North American breeding grounds with wintering grounds in the Caribbean and Central and South America.
Information Exchange Through Online Resources and Tools, and Networking

Redesign of the Global Invasive Species Database

The ISSG has been working on the development and enhancement of its online resources, including the redesign of its flagship knowledge product the Global Invasive Species Database (GISD, Figure 1). This is now complete and a prototype of the redesigned database has been circulated among key IUCN experts for a review.

The redesigned GISD presents a vastly improved search functionality including providing users with a selection of options to search, among other things, on the taxonomy of the species, the region of presence, the pathways of introduction, the impacts it causes, and other annotations related to the species. The ISSG is working on completing the full integration of the GISD with the IUCN Red List of Threatened Species, as well as exploring similar interlinks with other IUCN Knowledge products such as the World Database of Protected Areas.

The redesigned GISD was presented to the IUCN SSC Steering Committee in August 2014, where it was positively received. Three other resources in development include: the Global Register of Introduced and Invasive Species (GRIIS) (see below); the Island Biodiversity and Invasive Species Database (IBIS) (a database on the impacts of invasive alien species on native species and natural areas on islands); and the Invasive Alien Species Pathway Management Resource. Options are being explored to develop a common database to feed information into all of the ISSG’s information resources.

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**Figure 1. Home page of the redesigned Global Invasive Species Database (GISD)**

**Global Register of Introduced and Invasive Species (GRIIS)**

GRIIS\(^{18}\) hosted by the ISSG compiles annotated and validated country-wise inventories of introduced and invasive species (Figure 2). Development and population of the GRIIS was undertaken by the ISSG within the framework of activities of the Information Synthesis and Assessment Working Group of the GISAI Partnership. The first phase of GRIIS covered over 100 countries, phase 2 is ongoing and aims to achieve global coverage by the end of 2015.

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\(^{18}\) Under development-site under maintenance
Island Biodiversity and Invasive Species Database (IBIS)

ISSG is working closely with the Joint Research Centre (JRC) of the European Commission (within the framework of the Biodiversity and Protected Area Management Programme (BIOPAMA)) in the development of IBIS that will form the core repository on data and information related to invasive species impacts on native species and natural areas on islands in the ACP countries. The IBIS database is a stand-alone resource and will feature data and information on islands worldwide.

World Register of Introduced Marine Species (WRIMS)

WRIMS (Figure 3) aims to record all marine species that have been moved from their native range into an introduced range; additionally WRIMS records the pathway or vector of introduction as well as evidence of any known impacts on native species, and their habitats. WRIMS is a subset of the World Register of Marine Species (WoRMS): the taxonomy of the species is managed by the taxonomic editor community of WoRMS, whereas the alien-related information is managed by both the taxonomic editors and the thematic editors within WRIMS. Just like its umbrella-database WoRMS, WRIMS is dynamic: a team of editors is not only keeping track of new reports of alien species, they also scan existing literature and databases to complete the general distribution range of each alien species in WRIMS.

Aliens-L List service

The ISSG continues with maintaining and running the Aliens-L list service which is an active and dynamic list service, currently with 1,341 members.

Aliens-Referral service

The ISSG continues to support researchers, practitioners and communities with their information needs and linkages to experts through its referral service. ISSG also contributes invasive species related information to the Ramsar Forum and other related list services.

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19 Under development-site under maintenance

20 <http://www.marinespecies.org/introduced/>
Climate Change Specialist Group

James Watson and Wendy Foden, Co-Chairs, IUCN SSC Climate Change Specialist Group

Key achievements

• Strongly upholding our vision of providing guidance and information to promote sound conservation decision-making and action under climate change, and promoting coordinated climate change responses by SSC Specialist Groups and partner organizations and IUCN Programme Areas.

• Developing IUCN SSC Guidelines for Selecting and Using Approaches for Assessing Vulnerability of Species to Climate Change, which will be presented for review at the SSC Chairs’ Meeting in Abu Dhabi in September 2015.

• Publishing a review article based on the guidelines in Nature Climate Change, which also includes summaries of current assessments of climate change vulnerability assessments carried out globally to date.

• Stephen Williams became the group’s Senior Scientific Advisor and Wendy Foden became Co-chair.

• Co-editing of the IUCN World Commission on Protected Areas’ “Responding to Climate Change: Guidance for Protected Area Managers and Planners” by James Watson.

• Development of a questionnaire for Specialist Groups throughout the SSC network to find out about their climate change related activities and needs. The results will be used to review and update the CCSG’s strategy.

• Involvement in exploring the role of the IUCN Red List in predicting species’ vulnerability to climate change which produced three valuable and high profile publications in Nature Climate Change and Global Change Biology.

• Ongoing representation of the CCSG and climate change issues on the Species Conservation Planning Sub Committee (Mark Stanley-Price) and the Standards and Petitions subcommittee (Resit Akcakaya).

• Input into the IUCN position paper for the United Nations Framework Convention on Climate Change’s COP 21 in Lima.

• Ongoing engagement with the Red List Guidelines and development of Key Biodiversity Area and Red List of Ecosystems selection criteria and protocols.

• Ongoing work on the role of Ecosystem-based Adaptation in helping to achieve species conservation objectives.
During 2014, the IUCN SSC Climate Change Specialist Group (CCSG) continued to strive towards our vision of providing guidance and information to promote sound conservation decision-making and action under climate change, and to promote coordinated climate change responses by SSC Specialist Groups and partner organizations and IUCN Programme Areas. This year, the CCSG’s primary focus was on developing IUCN SSC Guidelines for Selecting and Using Approaches for Assessing Vulnerability of Species to Climate Change.

Having resolved the content of the guidelines at a 2013 workshop in Cambridge UK, CCSG members proceeded to write and compile its component sections. A section summarising current approaches for assessing species’ vulnerability to climate change was also prepared as a scientific paper which has subsequently been published in *Nature Climate Change*. Led by Michela Pacifici from the Sapienza University, Rome, this paper also includes summaries of climate change vulnerability assessments carried out across taxonomic groups and geographical regions globally (see Figures 1 and 2; Pacifici et al., 2015). The SSC guidelines are in final development and we hope that their review can be facilitated by the gathering of SSC Chairs in Abu Dhabi in September 2015.

![Figure 1. Taxonomic focus of vulnerability assessments in the analysed papers. Birds are the most analysed taxon, followed by mammals and plants, while invertebrates other than insects have seldom been assessed. Colours represent the spatial scale of the assessments. Regional scale is defined as describing the range of $10^4$–$10^7$ km$^2$, while scales smaller than $10^4$ km$^2$ are referred to as local scales (Pacifici et al., 2015).](image)

In December 2014 Stephen Williams, who co-chaired the group from 2012, took on the role of Senior Scientific Advisor and Wendy Foden became Co-Chair. Wendy is currently based in Johannesburg, South Africa, and is an Honorary Senior Research Fellow at the University of the Witwatersrand’s Global Change and Sustainability Institute. Members from across the CCSG have endeavoured to ensure adequate consideration of climate change in various IUCN-related initiatives. James Watson is currently co-editing an IUCN World Commission on Protected Areas effort: “Responding to Climate Change: Guidance for Protected Area Managers and Planners” (http://worldparkscongress.org/drupal/sites/de
Led by Jamie Carr, the CCSG has developed a questionnaire which will shortly be sent to Specialist Groups throughout the SSC network to find out about their climate change related activities and needs. Using the information we receive, we plan to review our 2013 Strategy and direct our activities and planned products according to the groups’ needs.

CCSG members were involved in exploring the role of the IUCN Red List of Threatened Species in predicting species’ vulnerability to climate change, producing three valuable and high profile publications in *Nature Climate Change* and *Global Change Biology* (Akçakaya et al., 2014; Pearson et al., 2014; Stanton et al., 2015). Mark Stanley Price continues to ensure that climate change considerations are represented in activities of the Species Conservation Planning Sub-Committee’s work, while Resit Akçakaya represents such considerations on the SSC’s Standards and Petitions Sub-Committee. The CCSG provided input into the IUCN Climate Change Policy team’s position paper for the United Nations Framework Convention on Climate Change’s COP 21 in Lima. We continue to engage with them, as well as with ongoing maintenance and development of the Red List Guidelines, Key Biodiversity Area protocols and the Red List of Ecosystems. Other ongoing work themes include horizon scanning to identify emerging issues and priorities for addressing biodiversity conservation under climate change, as well as to exploring the role of Ecosystem-based Adaptation in helping to achieve species conservation objectives.

Other planned activities include development of a Red List Training component dedicated to climate change issues and a new tool for using climate change projections and other information to estimate extinction risk under Red List Criterion E for species that do not meet other criteria. In collaboration with the Standards and Petitions Sub-Committee, we also plan updates to the Red List Guidelines based on recent advances and developments related to climate change and extinction risk. We aim to play a role in revising the next version of the Species Conservation Planning Sub-Committee’s guidance on species planning, which will incorporate consideration of climate change.

**Summary of activities**

- Strongly upholding our vision of providing guidance and information to promote sound conservation decision-making and action under climate change, and promoting coordinated climate change responses by SSC Specialist Groups
and partner organizations and IUCN Programme Areas.

- Developing *IUCN SSC Guidelines for Selecting and Using Approaches for Assessing Vulnerability of Species to Climate Change*, which will be presented for review at the SSC Chairs’ Meeting in Abu Dhabi in September 2015.

- Publishing a review article based on the guidelines in *Nature Climate Change*, which also includes summaries of current assessments of climate change vulnerability assessments carried out globally to date.

- Stephen Williams became the group’s Senior Scientific Advisor and Wendy Foden became Co-Chair.

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- Development of a questionnaire for Specialist Groups throughout the SSC network to find out about their climate change related activities and needs. The results will be used to review and update the CCSG’s strategy.

- Involvement in exploring the role of the IUCN Red List in predicting species’ vulnerability to climate change which produced three valuable and high profile publications in *Nature Climate Change* and *Global Change Biology*.

- Ongoing representation of the CCSG and climate change issues on the Species Conservation Planning Sub Committee (Mark Stanley-Price) and the Standards and Petitions subcommittee (Resit Akcakaya).

- Input into the IUCN position paper for the United Nations Framework Convention on Climate Change’s COP 21 in Lima.

- Ongoing engagement with the Red List Guidelines and development of Key Biodiversity Area and Red List of Ecosystems selection criteria and protocols.

- Ongoing work on the role of Ecosystem-based Adaptation in helping to achieve species conservation objectives.

References


Quiver Trees *Aloe dichotoma* from the Namib Desert region of Southern Africa are experiencing broad-scale mortality in the equator-ward and low altitude parts of their distribution range as warming and more frequent and intense droughts gradually make these regions unsuitable for their survival. © Wendy Foden
SSC at the 6th World Parks Congress and Implications for a Global Species Forum

Jeffery A. McNeely, SSC Liaison to the 6th World Parks Congress

Key achievements

• SSC engaged in a very large number of events at the 6th World Parks Congress, and helped to organize Stream 1 “Reaching Conservation Goals”.
• Lessons for any future Global Species Forum are explored.
Introduction

The sixth World Parks Congress (WPC), organized by IUCN, was held in Sydney, Australia, on 12 to 19 November 2014. Held every 10 years or so (since 1962), these events provide an opportunity for SSC and the IUCN Global Species Programme to interact with the global community of those responsible for conserving the best remaining habitats for many of the species of greatest concern to SSC. Over 6,000 participants from 170 countries made this the largest WPC, but it was also the shortest in duration (tied with the first WPC).

The WPC had an all-day opening plenary, three parallel semi-plenaries the next morning, eight thematic streams, four cross-cutting themes, 315 workshops, seven World Leader’s Dialogues, six Pavilions that held various kinds of events, over 500 e-Posters, numerous exhibits that often had publications for distribution, and a half-day closing plenary. All this took place within just 8 days, making it sometimes seem more like a fair than a Congress, especially since it was a “paperless Congress” and no recommendations were debated or approved by the Congress. The latter were left to the Streams or sub-plenaries, and appeared in March 2015 (available at www.worldparkscongress.org).

This report provides an overview of the WPC, highlighting the role of species issues in WPC events and suggesting some lessons learned from the WPC that could be applied to future major species-oriented meetings. See www.panorama.solutions/ for WPC results and further information about the Sydney event.

The eight thematic streams included: Reaching Conservation Goals; Responding to Climate Change; Improving Health and Well-being; Supporting Human Life; Reconciling Development Challenges; Enhancing Diversity and Quality of Governance; Respecting Indigenous and Traditional Knowledge and Culture; and Inspiring a New Generation. Many SSC members participated in the WPC and contributed in many ways to its outcomes. Some SSC members are also members of IUCN’s World Commission on Protected Areas, helping to establish an organic link between the two commissions.

Full information is available from www.worldparkscongress.org. But generally, workshops or other activities of particular interest to SSC addressed:

- Species specific conservation (rhinos, African elephants, marine mammals, cats in Russia), etc;
- The role of communities in combatting wildlife crime;
- Wildlife crime and law enforcement in protected areas;
- Sustainable wildlife management;
- Demonstration of the Spatial Monitoring and Report Tool (SMART) and of the Zoological Society of London’s Instant Wild initiative;
- Developing the global standard to identify Key Biodiversity Areas (organized by WCPA-SSC Joint Taskforce on Biodiversity and Protected Areas);
• Saving Important Bird and Biodiversity Areas in Danger;
• On Health and protected areas (organized by SSC’s Wildlife Health SG and Conservation Breeding SG);
• Several events on the IUCN Red List of Threatened Species, including the 50th anniversary of the Red List;
• Protected areas and human-wildlife conflict;
• Several activities on invasive alien species and protected areas led by the SSC Invasive Species SG;
• The Alliance for Zero Extinction and protected areas; and
• Save Our Species (SOS): Saving Species in Protected Areas (including presentations from SOS project grantees).

Lessons Learned for SSC

Given that the SSC Steering Committee has encouraged a global species-based event to build stronger global support for species conservation, some suggestions are offered on points to consider with planning, organizing, holding, and following up on a Global Species Forum (GSF, so named for convenience, but without prejudice on what it may ultimately be called or how it will be organized).

a. Establish an Organizing Committee that will cover all elements of the programme, avoiding domination by the host country. While the host country certainly deserves a seat on the organizing committee and special attention to its species-related interests, the GSF must remain global, with balanced coverage of the issues, biomes, taxa, and participation. The host country typically is responsible for local organizing of events and field trips, and may host or co-host the opening and closing receptions, but even these require oversight from the Organizing Committee, which must take ultimate responsibility for the entire event.

b. Through a wide consultative process, the Organizing Committee should determine a clear focus of the GSF and coherent objectives. These should be the foundation of the GSF, and all of its elements should support the focus and objectives. The GSF should avoid reaching out to peripheral issues that may be somewhat relevant but are not contributing significantly to the agreed objectives, and keep the programme coherent and focused, avoiding any unnecessary complication. The SSC should ensure that the GSF contains drama, novelty, and interest to a broad audience.

c. Manage the GSF participation. The Organizing Committee should determine in a timely and transparent way who is expected to attend, how they will contribute (or benefit from participating), and how they should apply. Invited speakers might expect for their costs to be covered, especially if they come from a developing country. The SSC should seek a balance among disciplines, among academics and species managers (captive and wild), and so forth, and reach beyond SSC Members to include wildlife law, trade, law enforcement, protected areas, climate change, economics, governance, and so forth.

d. Determine how the private sector is going to be involved. Species are affected by numerous parts of the private sector, including such fields as tourism, biotechnology, mining, agriculture, forestry, pharmaceuticals, communications, trade (e.g., invasive species), manufacturing, finance, and many others. While the profit motive dominates their interests, many will also recognize their dependence on biodiversity and ecosystem services, and the Organizing Committee should give careful consideration on how to manage a productive dialogue with the private sector (beyond charitable donations to species projects, which, while welcome, are not as important as influencing corporate behavior in relation to species).

e. Provide sufficient time for any presentations to be of sufficient duration to tell a complete story. Twenty to thirty minutes should be allowed for major presentations, and workshops should be organized to allow multiple voices to be heard effectively. Ideally, any presentations should be available on the Internet, either as the PowerPoint presentation or the paper on which the presentation is based (or both). And of course this means allowing sufficient time for the GSF; if conditions dictate a particular duration for the GSF, shape the contents to fit the time available. It is far better to have fewer presentations of high quality than numerous “speed presentations” whose messages evaporate among the babble.

f. Develop a limited number of the highest-priority policy-relevant recommendations, with sufficient substance to be implementable and a clear indication of who is expected to act and what results are expected. The recommendations should all support the GSF objectives, and keeping the number limited will help focus on the highest priorities. Perhaps controversial, but avoid species-specific recommendations unless the objectives include developing species conservation plans or cover broad taxonomic groups; but even in that case, the recommendation would be more useful if it were focused on what a species conservation plan should include and broad policies that would support action. A focus on species policy issues will be more broadly effective, and lead to separate events to develop species-specific actions (such as the Tiger Forum, African Elephant Dialogues, and so forth).
g. Choose the **venue to fit the planned agenda**, enabling participants to move easily between events and providing appropriate rooms for presentations, PowerPoints, microphones, and even translation (if sufficient budget can be found).

h. **Use electronic media** to their fullest potential. But make them easy to use, for example by providing each meeting participant with a plug-in memory stick that contains the full programme, key papers, and biographies of keynote speakers (or even all speakers). Make the **programme available in print form**, helping to make it easier for participants to navigate a busy event. Such a printed programme will also provide a useful guide for back-to-the office reports and help remind the participant of key events. Many participants will use a printed programme to take notes, enter email addresses, highlight new ideas, and retain it as a reminder of the issues and individuals that made up the event.

i. Include a **strong media and outreach dimension** at all stages of the GSF, from planning to follow-up. The event should end with a major announcement that will earn significant international press coverage as well as substantive discussion in *Nature*, *Science*, and other such journals. Every day should have at least one newsworthy event, discovery, announcement, or new publication, and these should be well coordinated to tell a full story by the end, with a powerful climax presented at the closing ceremony. All **publication launches** should be coordinated and approved by the Organizing Committee, in order to keep the event focused. A **powerful and punchy conclusion** needs to be ready at the end of the last day of the GSF.