2016 Annual Report

to the Environment Agency - Abu Dhabi

Framework Support for Implementing the Strategic Plan of the IUCN Species Survival Commission
Cover image (annual report and each activity report): Hawksbill Turtle (Eretmochelys imbricata). © Tomas Kotouc.

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This 2016 report by the IUCN Species Survival Commission (SSC) to Environment Agency – Abu Dhabi (EAD) represents a summary of progress on the work supported under the “Framework Support for Implementing the Strategic Plan of the IUCN Species Survival Commission”. Under this Framework Support, EAD has generously funded key critical aspects of the SSC's work, initially for 2011-2013, and then subsequently for 2014-2016. In the 2015 report an overall report of progress in implementing the SSC strategic plan was provided.

2016 was a watershed year for the SSC because Dr Simon Stuart stepped down as Chair of the Commission following the completion of his second 4-year term. Simon’s tenure ended at the close of the IUCN World Conservation Congress on 10 September 2016. His successor, Dr Jon Paul Rodríguez, was elected to replace him during the Congress. So this report covers the closing months of Simon’s time as Chair and the first few months of Jon Paul’s.

This report enables us to reflect on how EAD’s generosity has made a lasting change to the SSC over the last six years, notably:

• The establishment of the Sustainable Use and Livelihoods Specialist Group (SULi) which SSC shares with the IUCN Commission on Environmental, Economic and Social Policy (CEESP). SULi has now grown to become a leading player on sustainable use, and is spearheading the new initiative to engage local communities in combatting wildlife crime.

• Developing the online training programme for the IUCN Red List of Threatened Species. As is clear from this report, there has been very good uptake of this report with many more trained Red List assessors now working worldwide.

• The Global Reptile Assessment has made great strides and is now over 50% of its way to its target of assessing all of the world’s 10,000 reptile species.

• The bumblebee assessment was completed for all of the Americas, very strategic work for these important pollinators.

• There have also been huge advances in the assessment of plant species. The assessments of slipper orchids, magnolias and pitcher plants are now complete, and important work was also done on palms, Cameroon plants and Madagascar plants.

• The EAD support allowed great advances to be made in the SSC’s work on species conservation planning. Not only have a significant number of new planning initiatives been started, but the taxonomic base of planning has been expanded to include invertebrates and plants.

• The Asian Species Action Partnership (ASAP) has been launched to focus much-needed attention on Critically Endangered terrestrial and freshwater vertebrates of Southeast Asia, many of which are on the edge of extinction and had previously been ignored in conservation efforts.

• The EAD made important contributions to the development of the new IUCN Global Standard on Key Biodiversity Areas (KBAs). The new Standard is now being widely used and will become the formally accepted means of defining sites in terms of their importance for biodiversity.

• The work of the SSC Invasive Species Specialist Group (ISSG) has grown enormously due to strategic support from the EAD. This includes the pivotal role that the ISSG is playing on policy (for example in the Convention on Biological Diversity and the European Union) and providing information (pre-eminently through the Global Invasive Species Database which is now linked to IUCN Red List of Threatened Species).

• The SSC Climate Change Specialist Group (CCSG) has completed the Guidelines for Assessing Species Vulnerability to Climate Change, and ground-braking contribution to understanding climate change impacts on biodiversity.
Without the generous support of EAD, progress on each of these initiatives would have been much less. The SSC is especially grateful to Her Excellency Razan Khalifa Al Mubarak, Secretary General of the EAD, whose inspirational leadership has had so much positive impact for global biodiversity conservation.

Simon N. Stuart,
SSC Chair 2008-2016

Jon Paul Rodríguez,
SSC Chair 2016 onwards
Key achievements

- SULi and partners greatly increased understanding of how communities can be effectively engaged in combating illegal wildlife trade (IWT). SULi built on previous work through:
  - Leading two regional workshops (West/Central Africa, held in Limbe, Cameroon and Southeast Asia, held in Hanoi, Vietnam) to gather and analyse experiences;
  - Publishing two high profile scientific papers in leading conservation journals on the underlying drivers of IWT and how these can be addressed through community-based interventions;
  - Actively participating in and influencing the agenda of the Hanoi Intergovernmental Conference on IWT; and
  - Convening debate and promoting policy commitments on communities and IWT at the IUCN World Conservation Congress and the Hanoi Conference on IWT.

- SULi’s work has demonstrably influenced the practice and thinking of key donors, IGOs and governments, and provided vitally needed insights and lessons for practitioners.

- SULi and partners convened the first ever “Communities Day” at CITES CoP 17, in the belief that effective wildlife trade regulation requires incorporating the views of the rural communities who live with wildlife. This has laid the basis for future work to strengthen such participation.

- SULí led development of a high impact, evidence-based IUCN Briefing Paper on trophy hunting to inform this highly contentious and topical area of policy. While recognising and calling for urgent action on the many failures of hunting management, it set out case studies highlighting that where well managed, trophy hunting provided very important conservation and livelihood benefits, and called for any restrictions to be based on sound understanding and establishment of alternatives where necessary.

- SULi led IUCN’s engagement with the Collaborative Partnership on Wildlife (CPW), a platform of 14 international organisations focused on sustainable wildlife management (including the Convention on Biological Diversity (CBD) and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)). A key initiative was the holding of a CPW event in the European Parliament to inform critical EU stakeholders about topical issues and approaches in sustainable wildlife management, including on poaching, IWT, and the role of indigenous and local communities.

- SULi led the production of draft Guidelines for incorporating Traditional Knowledge into Red List assessments. This represents an important step forward in improving Red List assessments through incorporating all relevant knowledge in a respectful and reciprocal fashion.

- SULi convened a large number of debates and discussions to take forward thinking among a broad constituency at the IUCN World Conservation Congress in Hawaii in September, including on community benefits from high value wildlife trade, the conservation and livelihood impacts of hunting, communities and IWT, integrating traditional knowledge into the Red List, and exploring the tensions and synergies between conservation and animal rights/animal welfare approaches to animals. Outcomes of these discussions have laid the basis for future work.
The Sustainable Use and Livelihoods Specialist Group (SULi) is a cross-Commission initiative between the SSC and the IUCN Commission on Environmental, Economic and Social Policy (CEESP), addressing the far-reaching and critical issue of human use of wild species through integrating natural and social science expertise. Its strategic approach is designed to contribute to the Mandates of both Commissions and to the broader Programme of IUCN.

SULi’s mission is to promote both conservation and local livelihoods through enhancing equitable and sustainable use of wild species and their associated ecosystems. A vast array of wild species are currently being overexploited globally, requiring urgent action. Use of wild species is important for the livelihoods of millions, and to cultures, local and national economies, and recreational activities in most parts of the globe. Sustainable use of wild species can underpin robust, fair and effective conservation strategies that strengthen the social value of nature, and that support indigenous peoples, local communities and other social sectors as active and engaged stewards of nature.

SULi's long term objectives are that:

- Unsustainable uses of biodiversity are stopped or made sustainable;
- The rights, interests and priorities of indigenous peoples and local rural communities are respected and upheld in relation to sustainable use of wild resources;
- The importance of sustainable use of wild resources in meeting major conservation and sustainable development challenges is recognised.

SULi works through:

- Increasing understanding and knowledge of theory and practice in key constituencies;
- Communicating and convening among a broad array of relevant groups to share insights, draw lessons, and craft solutions, and
- Influencing practice and policy across and beyond IUCN to adopt evidence-based, effective approaches.

SULi’s priorities for work are improving understanding on management of use of wild resources, promoting equitable and effective governance; and on better understanding and harnessing trade and markets for wild products for conservation and livelihoods. These priorities are pursued through work across a number of current focal thematic areas as set out below. The urgency of SULi's work has heightened in 2016, with both increasing threats to both iconic and a host of lower-profile species from illegal and/or unsustainable use and trade, and a reaction among some conservationists, governments and donors toward responses that over-emphasise “top down” control and enforcement, rather than balancing this with the need to mobilise and support communities and other sectors of society in combating these threats.

In 2016 SULi expanded its impact considerably on a number of critical issues of current conservation concern:

1. Combating illegal wildlife trade through engaging communities

Illegal wildlife trade (IWT), or wildlife crime, 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 indigenous peoples and local communities (IPLCs) who live close to wildlife has been largely overlooked in the global responses to this threat. Yet illegal wildlife trade has an enormous impact on such people, who are affected by insecurity and the depletion of important livelihood and economic assets, while often being excluded from the benefits of conservation. They can also be very negatively affected by heavy-handed, militarised responses to wildlife crime that frequently make little distinction between the illegal activities driven by large scale profits—crimes of greed—versus those driven by poverty—crimes of need.

While the need to engage IPLCs is increasingly recognised in formal policy, the translation of these commitments into practical funding and implementation remains inadequate. Lack of understanding of what approaches work is a critical gap here. It is this that SULi is seeking to fill.

A major focus in 2016 was following up SULi’s 2015 international symposium on this subject with two regional workshops, in order to examine experiences in different regional settings and “ground-truth” the “Theory of Change” that SULi had developed in earlier work (see Boxes 1 and 2 for details).
SULi sought to influence thinking and understanding of the deeper drivers of IWT at the local level, and how interventions at the community level could influence these, through leading two multi-author joint papers in leading conservation journals. One of these, "From Poachers to Protectors: Engaging Local Communities in Solutions to Illegal Wildlife Trade" (Cooney et al., 2016) establishes a simple conceptual framework to help guide thinking and understanding of the incentives that drive poaching for IWT, and how conservation interventions can shape these (for better or for worse). The second paper sets out SULi’s guiding Theory of Change (Biggs et al., 2016; see Box 2). Both papers are fully open-access to ensure availability globally, particularly in developing countries.

SULi engaged at a policy level to bring these insights to a broader audience, through several key events:

- The first was a Collaborative Partnership on Wildlife event hosted by the European Parliament InterGroup on “Climate Change, Biodiversity and Sustainable Development” in May 2016 in Brussels, with the support of IUCN Member European Bureau of Conservation and Development. This event was entitled "Poachers or Protectors? Local..."
communities at the frontline of conservation" and brought together experiences from the CPW member organisations, including the UN Food and Agriculture Organisation, CITES, the CBD, IUCN, the Centre for International Forestry Research and others. SULi played a key role in initiating and shaping this event, aimed at informing the critical influential group of EU decision-makers about the vital linkages between rural communities and effective wildlife conservation.

- For the IUCN World Conservation Congress in September in Hawaii, SULi provided technical advice in drafting a Motion for consideration of IUCN Members on engaging communities in combating IWT, which after extensive and constructive debate was adopted at the Congress as Resolution 025. At WCC SULi also convened a workshop to enable debate and knowledge-sharing on communities and IWT, with partners the Convention on Migratory Species, the United Nations Development Programme, and a number of IUCN Members.

- SULi was very active likewise at the intergovernmental Conference on Illegal Wildlife Trade held in Hanoi, Vietnam, the major international event focused on IWT in 2016. SULi provided technical input to Conference organisers on the programme and the text of the Statement on the issue of sustainable livelihoods in combating IWT, and led a component of the formal programme on this aspect. SULi also convened a side-event focused on communities and IWT, bringing in several speakers from the Southeast Asian regional workshop (Box 1) to present.

Box 2. How can community-based actions reduce poaching for illegal wildlife trade?

SULi members and others have developed a Theory of Change (TOC) to guide thinking about why and how community-based actions can help combat IWT. In 2016, after a long and varied consultation process, this TOC was published in Conservation Biology "Developing a theory of change for a community-based response to illegal wildlife trade" (Biggs et al., 2017). SULi hopes that this TOC will be of practical use to actors at the local to international level in planning actions to counter IWT.

In the TOC four pathways have been identified for community-level actions: strengthen disincentives for illegal behaviour, increase incentives for wildlife stewardship, decrease costs of living with wildlife, and support livelihoods that are not related to wildlife (Figure 1). To succeed, the pathways all require strengthening of enabling conditions, including capacity building and strengthening of governance.

Figure 1. A simplified theory of change for community-based actions against illegal wildlife trade. There is positive feedback between pathways A and B because communities with increased incentives for stewardship will have more resources to combat poaching and will be more likely to do so. (From Biggs et al. 2017:8)
However, in 2016 SULi also took these higher-level insights down to the field level, to practically influence and assist species conservation on the ground. SULi is a partner in a project led by IUCN East and Southern Africa Regional Office (ESARO) and IIED, funded by the UK IWT Challenge Fund.

The project builds on the Theory of Change developed by SULi and partners and is focused on the role of local communities as the “First Line of Defence” in addressing poaching of elephants and other species. The project is working with two field projects in Kenya that work closely with local communities, to help them structure their thinking and planning on how they reduce IWT, while simultaneously enabling testing and refining of the TOC. The project leaders are currently planning to extend this approach to more field sites in southern and east Africa.

2. Enhancing conservation and livelihood benefits of sustainable and legal trade

While there is an urgent need to combat poaching and IWT, there is also great potential for harnessing sustainable and legal wildlife trade to provide incentives for species conservation and support livelihoods of rural communities. In some cases, indeed, sustainable trade is a key element in some strategies to reduce poaching for IWT (including some case studies from the SULi workshops) and in some cases is a central element of the livelihood strategies of rural communities.

Currently, however, there is very poor understanding of when and under what circumstances wildlife trade is likely to lead to positive conservation and livelihood outcomes, when it is rather likely to lead to overexploitation, and how to create the conditions to favour the former.

In 2016 SULi built on key work carried out with the International Trade Centre in 2015, which set out an analytical framework for addressing wildlife trade. Based on this, SULi hosted a discussion at the IUCN World Conservation Congress in September, seeking to create a shared understanding among diverse constituencies about how community benefits and conservation incentives from high-value wildlife trade chains could be improved, drawing examples from across wild animal, medicinal plants, and fisheries sectors.

This was co-convened with partners including the CITES Secretariat, TRAFFIC and Kering (the luxury goods company). In discussion, panellists and participants identified the key barriers that current stand in the way of the goal of sustainable wildlife trade from secure and healthy populations supporting the livelihoods and cultures of indigenous and local communities. These range from the difficulties for communities in accessing information about markets or meeting the market’s quality standards, to the difficulty of effectively addressing illicit poaching and trade, to international policy restrictions and consumer preferences.

SULi also commissioned a short film on wildlife trade to open this event and use as a communications tool more broadly: “From Nature to Markets, Sustainable Wildlife Trade and local livelihoods”. The discussions at this workshop will shape future work in this area.

CITES, as the international body for regulating international wildlife trade, is a key forum for work on the interaction of wildlife trade, conservation and livelihoods. There were over 30 SULi members present at the CITES 17th Conference of the Parties in September 2016, on a wide range of delegations, and following and contributing to a wide range of issues, including through providing technical advice to Parties on relevant issues including livelihoods, participation of rural communities and trophy hunting.

One of SULi’s major areas of focus within CITES is the relationship between CITES trade controls and the rights and livelihoods of rural communities. Currently the SULi co-convened the first “Community Voices at CITES” event in the middle of the CoP with ResourceAfrica, UNEP and IIED (Box 3).
SULi members, including Chair Rosie Cooney, participated in a workshop on “CITES and Livelihoods” convened by the CITES Secretariat and the Department of Environmental Affairs, South Africa, in late November, involving a wide variety of range states and a small number of NGOs. This meeting set an agenda for CITES work in this area, and SULi is developing concrete proposals with partners to help take this forward. Several new SULi members from CITES Party governments were recruited at this meeting, from under-represented regions.

Participants at the CITES and Livelihood workshop in November 2016, George, South Africa. SULi Chair Rosie Cooney is in the second row, and other members Nathalie Van Vliet and Marco Pani are present. © Yuan Liu/CITES Secretariat.
SULi is also working to try to address critical underlying unresolved questions that hinder understanding of the dynamics of wildlife trade and how trade can be used in a positive manner for species conservation and rural livelihoods. One critical underlying question is whether and how the existence of a legal trade in a wildlife product (e.g. from captive sources or from legal harvesting) influences the levels of illegal trade. SULi member Brendan Moyle worked with colleagues from the SSC Bear Specialist Group and others in a joint project of the IUCN SSC and the China State Forestry Administration (led by the Bear Specialist Group), on the impacts of bear-farming on Asian black bear conservation. Key advances in 2016 include a preliminary analysis based on field work in three provinces. This was submitted to the IUCN World Conservation Congress in Hawaii and forms the basis for further work on this challenging problem. In future work, SULi aims to initiate a project that addresses this question more generally, seeking to understand how *ex situ* production for trade affects species/habitat conservation and local livelihoods.

### 3. Sustainable wildlife management and hunting

SULi has made a major contribution in 2016 to providing evidence-based and credible technical input in the high profile and controversial area of hunting. In April 2016 IUCN issued a SULi-led *briefing paper on trophy hunting* to inform discussions held by decision-makers in the EU around import restrictions on hunting trophies. While the briefing paper draws attention to the many poor practices around trophy hunting requiring urgent reform, it also pulls together a set of examples of well managed trophy hunting delivering conservation benefits for species such as rhinos, wild sheep and goats, lions and wild dogs, as well as benefits for local communities.

The paper highlights the repercussions of broad-scale hunting bans for these species and for community rights and livelihoods, and calls for policy and action on trophy hunting import and transport to be based on careful assessment of likely conservation and livelihood impacts. Feedback from various sources within the EU and elsewhere indicate that the paper has been very influential. SULi authors and others have prepared a version of this paper for a peer-reviewed publication of the FAO journal *Unasylva*, to be issued on World Wildlife Day 2017. A number of SULi members provided technical input to a *short film on trophy hunting* made by a popular educational comedy show “Adam Ruins Everything”. In this video Rosie Cooney (in cartoon form) outlines why some well managed trophy hunting delivering conservation benefits for species such as rhinos, wild sheep and goats, lions and wild dogs, as well as benefits for local communities. The video has had well over 2 million views online as well as being screened on television in many countries.

However, hunting is likely to become increasingly controversial globally, and a key priority is to improve understanding of its real conservation and livelihood impacts. In this regard SULi has promoted or taken forward a number of initiatives.

- **SULi has joined as a partner in the North American Wild Harvest Initiative (WHI).** This major, unprecedented study is evaluating the scale of wild harvest of animals in the USA and Canada (where hunted wildlife species in general are secure and thriving), in terms both of biomass and economic value. It will go on to estimate the costs and impacts of replacing this food from agricultural sources, and use its results to promote debate about the importance of wildlife and wildland conservation.

- **SULi has worked closely with the SSC leadership to plan and initiate an SSC Situation Analysis to assess the conservation and livelihood impacts of non-subsistence hunting globally.** A methodology workshop was held in May in Cambridge, producing a Terms of Reference for a major study - this TOR is currently under review for implementation in 2017.

- **SULi has led IUCN’s involvement as an active partner in the Collaborative Partnership on Wildlife, a platform of 14 international organisations.** In 2016 CPW released a *wildlife management glossary* to enhance common understanding and dialogue; held an event in the European Parliament to raise awareness and understanding among key decision makers (see above); held a high level panel discussion on forests, food security and wildlife; presented and discussed its work with a wide conservation audience at the IUCN WCC; and developed and launched a *factsheet on Gender and Sustainable Wildlife Management* at the Convention on Biological Diversity COP. SULi contributed substantially to all these activities. SULi Chair Rosie Cooney, on behalf of IUCN, was nominated the CPW Vice-Chair in May 2016.
4. Supporting integration of Indigenous and Local/Traditional Knowledge into assessment and management of wild species

Indigenous and local/traditional knowledge (ILK or TK) and understanding of wild species and ecosystems is being rapidly lost in many cultures, and is often not recognised or validated in science-based approaches to conservation and development. Stronger recognition of the role of ILK is both important for more effective conservation approaches that harness all available knowledge, and to strengthen the role of indigenous people and local communities in management and governance. This is closely related to sustainable use, given these communities’ strong cultural and livelihood reliance on use of wild species. SULi is currently focused on integrating consideration of ILK into assessments for the IUCN Red List. Since producing a discussion paper in 2015 and gaining extensive feedback, SULi produced in 2016 a draft guidance document on principles, approaches and considerations for integrating ILK into assessments for the Red List. This document provides guidance for assessors and others on how and why integrating ILK with science can contribute to stronger assessments, and how this can be done in a respectful and reciprocal manner. This document was presented for discussion in a Knowledge Café at the IUCN WCC. Feedback gained from this session, from indigenous and local knowledge holders, Red List assessors, and many others, has helped improve and refine the document. This is currently being finalised with the help of SULi contributors and will be published in 2017.

SULi has also worked with partners in 2017 to promote discussion of the incorporation of ILK into species management, particularly small scale fisheries management, at the IUCN WCC. In 2017 we will seek to promote learning and increased understanding of why and how to do this.

5. International policy and dialogue

SULi has played a very active role in providing technical input and advice in a number of international policy arenas in 2016, including CITES, the CBD, the IUCN WCC, the Hanoi Conference on IWT, and the European Union. SULi has provided extensive technical advice to other parts of IUCN on request, including regional offices and thematic programmes. A number of SULi members have contributed to processes of the Intergovernmental Platform on Biodiversity and Ecosystem Services, particularly in regional assessments and in scoping of the proposed assessment on sustainable use.

6. Building the SULi network and vision

SULi now has 314 members from all global regions, and is consistently growing. A SULi meeting was held following IUCN WCC, attended by 32 members who discussed SULi’s progress and strategy. At this meeting it was agreed that SULi was effectively engaging with and influencing the international policy agenda in a number of arenas, and creating and publishing very targeted, informative and influential information that supported better policy and practice. It was agreed that regional SULi groups would be established to enable members in a region to share information, coordinate a regional SULi presence at meetings and workshops, and develop regional initiatives. SULi members also identified gaps in the network, and the group is now striving for good global representation from all regions – South America and Southeast Asia and Oceania are particularly underrepresented. This meeting also discussed in detail its focal areas and identified priorities/targets for each theme in the upcoming quadrennium. A draft strategy will be circulated early in 2017 for wider member input, along with a member survey.

7. Building SULi’s communication strategy

SULi expanded its communication strategy in 2016 by developing external communications via a social media profile, to raise awareness in the broader conservation community and public of SULi’s work and the relevance of sustainable use and livelihoods in successful and equitable conservation. The SULi Facebook page shares relevant articles and notifications on SULi and SULi member events and publications (the Facebook page is linked to the Twitter account). The SULi Facebook page has over 600 followers after only a few months and this is steadily growing. The group is building its social media presence and is considering the development of a LinkedIn site as well. The SULi website is currently being updated on the new IUCN platform.

References


Key Achievements in Red List Training

- Enrolments on the online IUCN Red List Training course continued to increase.
- The number of certified Red List Trainers has risen to 47.
- 18 IUCN Red List Assessor Training events were held in 2016, involving over 360 participants.

Key Achievements in 2016 Red List updates

- Over 20,600 assessments submitted and published in three updates of the *IUCN Red List of Threatened Species™*.
- Taxonomic coverage of plants, invertebrates and marine fishes on the IUCN Red List increased by over 1,000 species each; the Red List now includes 22,253 plants, 18,609 invertebrates, and 8,464 marine fishes.
- IUCN Red List assessments are now available in non-English languages.
Background

The IUCN Red List of Threatened Species™ has a strong reputation as an objective and reliable source of biodiversity information and is used by governments, conservation organisations, the private sector, and regional and national Red Lists to inform their decision making and action planning processes. It is vital that IUCN Red List assessments remain 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.

In 2016, Environment Agency – Abu Dhabi (EAD) funding greatly helped the IUCN Red List Unit to: a) provide Red List training; b) expand the number of certified Red List Trainers, thus allowing Red List training to be more widely available; and c) provide technical support to the global Red List Trainer network and users of the online Red List course. Thanks to support from the EAD, 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 Red List Trainer certificate course and the online Red List training course were both released in 2013. French and Spanish versions of the online course were released in 2014, along with the final exam (in English only). In 2016, our main focus for Red List Training was to further extend the accessibility of Red List training and materials and guidelines to non-English speakers, and to increase the number of certified Red List Trainers.

Online IUCN Red List Training Course

The online IUCN Red List training course was released in 2013 and is hosted by The Nature Conservancy (TNC) on their ConservationTraining.org website alongside 15 other conservation-relevant courses. Our colleagues in TNC have confirmed that the Red List course is one of the busiest in their catalogue and that people often move on to other courses hosted on their website after completing Red List course modules. The full course includes seven modules, containing 23 lessons. In 2016, 779 new users registered for at least one of the seven course modules, bringing the total number of people enrolled on the course (over the period 2013-2016), to 2,709 (Figure 1). Not all of these people completed the course:

![Number of people enrolling on the online IUCN Red List course](chart.png)

**Figure 1.** Total number of people enrolled on the online IUCN Red List Training Course in 2016. Individuals are counted only once in this figure, even where they are enrolled on >1 module. Across the year, 779 people enrolled on the course; this is an increase in the number of enrolments in the previous year (682 people enrolled in 2015).
entire course; many use the course to get a basic overview of what the IUCN Red List is or to refresh their memories about specific aspects of the IUCN Red List. There are three versions of the IUCN Red List training course that can be completed: the Global Assessor course (6 modules); the Regional Assessor course (4 modules); and the Global & Regional Assessor course (7 modules). Compared with 2015, the number of people successfully completing the course has doubled for all three versions: 160 people successfully completed the Global Assessor course, compared with 81 people in 2015; 137 people successfully completed the Regional Assessor course, compared with 73 people in 2015; and 129 people successfully completed the Global & Regional Assessor course, compared with 62 people in 2015 (Table 1).

Table 1. Total number of people completing all lessons in the online Red List Training course with a score of 70% or more for all module lessons since September 2013. Number of people successfully completing each year are provided in parentheses for 2015 and 2016 (figures specific to 2014 are unavailable). In 2016, 160 people successfully completed the Global Assessor course (modules 1-6; 21 lessons); 137 people successfully completed the Regional Assessor course (modules 1-3 & 7; 18 lessons); and 129 people successfully completed the Global & Regional Assessor course (modules 1-7; 23 lessons).

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| IUCN Red List Exam
The final course exam involves answering 25 questions that are randomly selected from a series of “question banks” containing 290 questions on the various topics covered in the course. The default minimum 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, with a minimum pass mark of 90%. SSC Red List Authority Coordinators and assessment project staff in Red List Partner organisations are strongly encouraged to pass the online exam.

In 2016, 165 people completed the default level exam; 129 of them passed the exam (i.e., a pass rate of 78%). In total, 299 people have passed the online exam since its release in April 2013 (Figure 2). Most people pass the default exam by their 3rd attempt.

Eighteen people completed the advanced exam in 2016, with 14 people achieving a pass (i.e., a pass rate of 78%), bringing the total number of people who have passed the advanced exam to 40 since April 2014 (Figure 2). Most people pass the advanced exam by their 2nd attempt.

Figure 2. Percentage of people passing the online Red List exam (green) and those who have not yet passed (red) over the period April 2014 to end of December 2016. Pass mark for the default exam is ≥75% and ≥90% for the advanced exam. For the default exam, 397 people completed the exam with 299 people (75%) achieving a pass (April 2014-Dec 2016); in 2016 alone, 165 people completed the default exam and 129 people passed (i.e., 78% pass rate in 2016). For the advanced exam, 50 people completed the exam with 40 people (80%) achieving a pass (April 2014-Dec 2016); in 2016 alone, 18 people completed the advanced exam and 14 people passed (78% pass rate).
**IUCN Red List Trainers**

Seven new Red List Trainers received their trainer certificates after attending the fifth IUCN Red List Trainer workshop (30 March - 01 April 2016), increasing the number of active Red List Trainers to 47. The Red List Trainer network now includes 23 IUCN SSC Specialist Group members, 11 staff from Red List Partner organisations; nine IUCN Global Species Programme staff members; and six trainers based in IUCN Regional offices (Figure 3). Since April 2014, it has been compulsory for all certified IUCN Red List Trainers to pass the advanced level online exam. As of December 2016, 36 trainers (77% of the active certified trainers) have passed the advanced level exam. The remaining Red List Trainers are regularly reminded that they need to pass this exam.

![Active Red List Trainers](image)

**IUCN Red List Assessor Training Workshops**

Certified Red List Trainers facilitated 18 IUCN Red List Assessor Training events in 2016, involving 364 participants. These included 14 IUCN Red List Assessor Training workshops (1-4 day workshops; Figure 4a), three training sessions attached to other meetings and conferences, and one remote training session to train Specialist Group members. Along with providing training for people contributing to the IUCN Red List (e.g., for IUCN SSC Specialist Group members), these workshops also provided training for national Red List projects (e.g., in January 2016, a Red List Assessor Training workshop helped to initiate work to update the national Red List of Greenland).

![Number of People Trained Through IUCN Red List Assessor Training Workshops in 2016](image)

**Figure 3 (left).** Certified Red List Trainer representation within various parts of the Red Listing network. Some trainers represent more than one part of the network (e.g., a trainer may be both a member of an SSC Specialist Group and a member of staff for a Red List Partner), therefore the sum total of figures within each part of the chart is greater than the current total of 47 active Red List Trainers.

**Figure 4a.** Map showing geographic distribution of the 14 IUCN Red List Assessor Training workshops (1-4 day training workshops) held in 2016 (total participants = 314).
The addition of training workshops in 2016 considerably increases the number of IUCN Red List Training workshops held and number of people trained through these workshops since 2011 (54 training workshops involving 1,216 participants; Figures 4b and 5). Since 2013 (when the Red List Trainer certificate course was introduced), these training workshops have been facilitated by certified Red List Trainers.

Translation of IUCN Red List Training Materials

2016 was an IUCN Congress year, which brought additional demands on staff time. Since it is essential to carefully check translated versions of the technical documents and exam questions before releasing these, and with staff time being very restricted in 2016, it was decided to postpone the final release of these translations until 2017.

Nevertheless, good progress was made with translating Red List materials into non-English languages in 2016, completing much of the groundwork to ensure release of these materials in 2017.
**French and Spanish Translations**

In 2016, we received the final French and Spanish translations for the questions used for the online Red List exam (290 questions for each language, in both the default and advanced level exam modules). These were uploaded into the online course. Before the French and Spanish exams can be released, the uploaded questions need to be checked and finalised (to ensure no errors appear in these exams). Work has now started on checking and finalising the questions and we anticipate the French and Spanish exams being released in the first half of 2017.

The Guidelines for Using the IUCN Red List Categories and Criteria (the “Red List Guidelines”) is an extremely important guidance document that assessors must refer to when preparing assessments for publication on the IUCN Red List. It is a technical document, and therefore requires careful translation into non-English languages. This document is also updated each year; the 2016 update (version 12) involved a major restructuring of the guidelines along with new guidance being included. In 2016, version 12 of the guidelines was translated into French. The French version of the guidelines will be released on the IUCN Red List website in early 2017.

The Spanish translation of the Red List Guidelines has not yet been arranged; this work will be carried out in 2017.

**Arabic Translations**

The Arabic translations of the IUCN Red List Categories and Criteria and the Guidelines for Using the IUCN Red List Criteria at Regional and National Levels were completed in 2016. These documents will be finalised for publication on the IUCN Red List website in early 2017.

**Red List Training: Next Steps for 2017**

In 2017, 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.
- Continuing to monitor Red List Assessor Training workshops being facilitated by certified Red List Trainers.
- Maintaining regular contact with Red List Trainers and continue to update the shared training folder with new materials (case studies, etc.).
- Releasing the French and Spanish versions of the Red List exam.
- Reviewing all Red List Training materials, including all three language versions of the online course and training workshop materials, to ensure these are in line with updated guidelines and to identify and address any issues.
- Releasing the French version of the Guidelines for Using the IUCN Red List Categories and Criteria and complete and release translation of the Spanish version of this document.
- Publishing the updated Arabic version of the IUCN Red List Categories and Criteria and the Guidelines for Application of the IUCN Red List Criteria at Regional and National Levels.

**IUCN Red List updates in 2016**

Each year, IUCN aims to publish at least two updates of the IUCN Red List. In 2016, EAD funding helped the Red List Unit to complete three updates, resulting in an increase in the number of assessed species from 79,837 (23,250 threatened) to 85,604 (24,307 threatened) (Figure 6).

In order to monitor changing status of biodiversity, it is important to regularly reassess species that already have assessments published on the IUCN Red List. In 2016, 14,595 species were reassessed, including all of the birds and over 2,800 mammals. Another major focus of the IUCN Red List is to expand taxonomic coverage, particularly for groups identified under Key Species Result 1 of the Species Strategic Plan. In 2016, 6,008 species assessments published on the IUCN Red List were new additions (i.e., first-time assessments). The majority of these new assessments were for plants (1,510 species), invertebrates (1,226 species), marine fishes (1,021 species), freshwater fishes (677 species), and reptiles (663 species).
Updates of the IUCN Red List in 2016 highlighted the precarious situation for native Hawaiian plants facing destruction by invasive alien species, and massive declines that have pushed some of the world’s most well-known and charismatic species closer to extinction, including the Whale Shark, Bornean Orangutan, Eastern Gorilla, Plains Zebra and Giraffe.

On a much more positive note, the Red List also highlighted some major conservation successes in 2016, including the Giant Panda being downlisted from Endangered to Vulnerable, Tibetan Antelope moving out of the threatened Categories (downlisted from Endangered to Near Threatened), and the Azores Bullfinch moving one step away from extinction (downlisted from Endangered to Vulnerable).

In 2016 a full taxonomic revision of the world’s bird species was carried out by BirdLife International (a Red List Partner) and all birds were also reassessed; the 2016-3 Red List media release highlighted the declining status of many of Southeast Asia’s songbirds as they suffer the impacts of illegal wildlife trade. The first assessments of over 200 crop wild relative plants also appeared on the IUCN Red List in 2016, marking the start of a concerted effort to assess extinction risk of many species that are key to future food security.

Media releases for each of the 2016 IUCN Red List updates can be found here:
- 2016-1 Red List update
- 2016-2 Red List update
- 2016-3 Red List update

The IUCN Red List now more accessible to users

2016 saw the IUCN Red List extending its reach and applicability to a wider audience as new functionality was added to the Red List website to enable users to view the content of any assessment in the language of their choice. This new functionality makes use of the Google Translate service to automate the translation process. The translated content is provided directly and dynamically by Google; the IUCN Red List has no direct control over the translated content as it appears using this tool. Therefore, in all contexts, the original language content (usually English, but see below) as directly provided by the IUCN Red List should be treated as the authoritative version. This translation service and other Google-related functionality used on the Red List website is blocked in some countries and so the Red List Unit is looking at alternatives that could be used.
Along with the species accounts on the website now being available to read in non-English languages, the IUCN Red List is also now accepting assessments written in French, Spanish or Portuguese, as a result of new functionality that has been built into the Species Information Service (SIS) database. To enable SIS to properly handle assessments in other languages, a significant upgrade to the current system is required and we are still at the early stages of scoping this out. The first non-English language assessments appeared on version 2016-3 of the Red List with the publication of 20 Brazilian plant assessments written in Portuguese. This is a positive step towards acknowledging the high-quality assessment work being carried out for national-level Red Lists and we anticipate an increased flow of assessments from national Red Lists entering the IUCN Red List in future.

IUCN Red List website traffic and data downloads

In 2016, the IUCN Red List website received over 3.8 million visitors and 21.5 million page views. The numbers are slightly down on 2015 because the system for tracking usage was accidentally disabled during a major upgrade of the Content Management System used for the website and as a result we lost a month’s worth of data which unfortunately
coincided with the period when we had the July (2016-1) update of the website. Users also have the opportunity to export the results of any searches they carry out on the website, and in 2016 there were 7,592 downloads of these search results (tabular downloads). Along with users being able to download tabular data, they can also download spatial data, either for individual species directly or through the Spatial Data Download page where spatial data for multiple species can be downloaded (e.g., spatial data for all mammals). The Red List Unit has been tracking these spatial data downloads, and in 2016 there were 43,449 spatial data downloads (including data for individual species and bulk-data downloads) comprising over 71.5 million records.

Case Study: The IUCN Red List reaches out to North Korean colleagues

In February 2016, the IUCN Red List Unit, the Protected Areas Programme and the IUCN Asia Regional Office co-facilitated a five-day workshop, in collaboration with IUCN China and the Chinese State Forestry Administration (SFA), the Ministry of Environmental Protection (MEP) and the Chinese Academy of Sciences. The attendees included conservation professionals from China, Mongolia, the Republic of Korea (RoK) and the Democratic People’s Republic of Korea (DPRK). The aim of the workshop was to foster an exchange of experiences and networking between the countries of Northeast Asia around the issues of protected areas and species conservation. The workshop was designed to provide an overview of basic protected area planning and management approaches as well as a high-level introduction to the IUCN Red List process. The workshop also provided an opportunity for everyone to learn more about protected area and Red List work being done in each country (including SSC plant Specialist Group activities in China and RoK) plus some regional initiatives like the Asia Biodiversity Conservation and Database Network (ABCDNet) which was presented by Prof Ma Keping.

All four countries’ representatives noted that “friendship is the cornerstone of collaboration” and expressed a desire to continue strengthening regional collaboration. Among other ideas, it was suggested that such collaboration could take the form of data-sharing, staff exchanges, the development of online forums, the organization of further regional capacity building events, and the development of projects dealing with transboundary protected areas and the conservation of migratory species. Participants were also keen to ensure that assessments of endemic species in their national Red Lists are published on the global IUCN Red List. The possibility of developing a Northeast Asia Regional Red List was also discussed. It was agreed that the best way to take all these ideas forwards was for IUCN Asia to establish a programme of work across the Northeast Region. As this programme develops, the IUCN Red List Unit will, resources permitting, provide technical support on Red List matters.

Participants and Facilitators at the Northeast Asia Regional Capacity Building Workshop held in Beijing, China in February 2016. The workshop included people from China, Mongolia, Republic of Korea and the Democratic People’s Republic of Korea.
As the world’s tallest land mammal, the Giraffe (*Giraffa camelopardalis*) is a well-known charismatic giant. However, it is less well-known that habitat loss, civil unrest, illegal hunting and ecological changes have taken their toll on the Giraffe. The combination of these threats have caused a decline in the global Giraffe population of 36-40% over the last 30 years (1985-2015), pushing the Giraffe into a threatened Category for the first time since it was first assessed in 1996; the species was uplisted from Least Concern to **Vulnerable** in 2016. © John Mildinhall.

The Eastern Gorilla (*Gorilla beringei*) was uplisted from Endangered to **Critically Endangered** in 2016 due to an ongoing population decline.

If this continues unabated, around 93% of Eastern Gorillas will be gone by 2054. The major threats are poaching, habitat loss and degradation, civil unrest, disease, and climate change. © Intu Boedihartono.
Previously listed as Endangered, the Giant Panda (*Ailuropoda melanoleuca*) has been reassessed as **Vulnerable**, as its population has grown due to effective forest protection and reforestation.

The improved status confirms that the Chinese government’s efforts to conserve this species are effective. However, climate change is predicted to eliminate more than 35% of the Panda’s bamboo habitat in the next 80 years and thus the population is projected to decline again, reversing the gains made during the last two decades.

To protect this iconic species, it is critical that the effective forest protection measures are continued and that emerging threats are addressed. The Chinese government’s plan to expand existing conservation policy for the species is a positive step and must be strongly supported to ensure its effective implementation. © David Sheppard.

**Spring Wild Oat** (*Avena fatua*) is the primary genetic relative of the Oat (*Avena sativa*) crop plant normally seen growing in agriculture. Crop wild relatives such as this are vital to human health and nutrition as they are potential gene donors and can be used to improve crop yield, health and resilience. Spring Wild Oat has an extremely widespread distribution across Europe, temperate Asia, India, Nepal and Pakistan in tropical Asia and North Africa and grows in a wide range of habitats including within field crops, on waste ground, along disturbed river banks, highways, railroad tracks, etc. There are no major threats affecting the species, therefore it is assessed as **Least Concern**. © Stephane.

The Plains Zebra (*Equus quagga*) has undergone a population reduction in 10 out of its 17 range states since 1992, with the overall decline over this time period estimated as 25%. As a result it has been uplisted from Least Concern to **Near Threatened**.

In many countries Plains Zebra are only found in protected areas, with few or no individuals outside them. Lack of surveys outside protected areas makes assessing trends and population sizes difficult across most of the species’ range, but for a species that is considered common and widespread the observed decline is worrying. © Jean-Christophe Vié.
The Azores Bullfinch (*Pyrrhula murina*) is endemic to the Azores (Portugal) where it is confined to the east of the island of São Miguel. Formally assessed as Endangered due to its restricted range and declining habitat, conservation efforts—including creation of fruit tree orchards, clearance of invasive plant species and replanting with native species—have successfully halted the decline of this bird. Its population is now considered stable, although small (estimated as less than 2,000 mature individuals in 2016), and in 2016 the species was downlisted to Vulnerable. © Mark Putney.

The Whale Shark (*Rhincodon typus*), famous for being a slow moving giant of the Atlantic and Indo-Pacific Oceans. This update highlights the ongoing plight of this charismatic shark as it was uplisted from Vulnerable to Endangered. Directed fisheries and significant bycatch fisheries have targeted areas where high densities of Whale Sharks occur, leading to rapid population reductions. Exploitation and death through ship strikes has caused a more than 50% decline in the past 75 years and this is likely to continue. © C.Mckain (CC BY 2.0).
Key achievements

- A reptile assessment workshop was organised and completed in 2016 for Central Asia, with the resulting reviews completed by the end of the year.
- Reviews were completed for the snakes and lizards of the Caribbean (excluding Cuba and the Netherlands Antilles).
- Assessments were completed for snakes and lizards of Cuba and the Netherlands Antilles, the latter fully reviewed and published by the end of 2016.
- Resolution was achieved of outstanding issues resulting from the 2015 review of South American species, and publication or submission of 999 species from mainland South America in 2016.
- Coordination, in collaboration with national researchers, of reptile assessments for Japan, with endemic species fully planned for submission by late January 2017.
- Extension of support from the Mohamed bin Zayed Species Conservation Fund obtained to assess the reptiles of Pakistan and Nepal in 2017.
- Compilation of draft assessments by partner organisations and consultants underway for the major focal areas of the 2017 assessment workshops: Australia and the lizards of mainland Southeast Asia.
Background

With approximately 10,500 known species, reptiles (lizards, snakes, turtles, crocodiles and the New Zealand tuatara) are the second most diverse group of terrestrial vertebrates (after birds), and their true diversity may be higher still: almost 200 of the recognised species have been described or elevated in the last year.

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 current assessments published for more than 48% of the world’s recognised reptile species. Approximately 1,800 further species have complete draft assessments, over 800 of which represent assessments completed in 2015 and 2016, covering 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 Red List, or which are awaiting publication in the Red List updates of 2017.

The early part of 2016 was focused on organising an assessment workshop for the reptiles of Central Asia, which was held in April in St. Petersburg, and on preparing the accounts reviewed in 2015 – principally covering South America – for submission to the Red List. The remainder of the year focused on reviewing the output of this workshop, of the Caribbean assessment in 2015, and on the remote assessment and reviews of three additional regions: Cuba (whose assessments got underway in November 2015 but extended well into 2016), the ABC islands (formerly the Netherlands Antilles), and Japan.

Summary of reptile assessments to date

- 5,048 published reptile assessments have been since 2004, with 782 published in 2016.
- A further 235 species accounts were prepared and submitted to the Red List Unit by the end of 2016.
- Global assessments published for all sea turtles, sea snakes and chameleons, and for most iguanas.

Reptile Assessment Workshop: Central Asia

Figure 1. Area covered by the Central Asia reptile assessment workshop in April 2016.
Key achievements

- Phil Bowles arranged logistics, including budgeting, and organised a workshop in collaboration with the Director of the Zoological Institute of the Russian Academy of Sciences.

- The workshop was held in St. Petersburg on 4-8 April 2016, with the involvement of 21 invited participants and additional experts based in St. Petersburg itself. Phil Bowles attended as one of two facilitators and to provide logistical support.

- The results of this workshop were fully reviewed in the second half of 2016 and the accounts made available for final specialist input prior to submission to the Red List.

With generous support for staff time provided by Environment Agency - Abu Dhabi, Phil Bowles of the IUCN Biodiversity Assessment Unit liaised with Natalia Ananjeva, Director of the Zoological Institute of the Russian Academy of Sciences, to finalise arrangements for a workshop to complete reptile assessments for the reptiles of Central Asia, a workshop further supported by funds from the Trust for Mutual Understanding and the Mohamed bin Zayed Species Conservation Fund.

The workshop brought together the leading experts for every Central Asian territory except Kyrgyzstan (for which no national experts were identified) in a workshop that assessed all 197 species known to occur in non-European Russia, Kazakhstan, Tajikistan, Turkmenistan, Kyrgyzstan, Uzbekistan, Afghanistan, and Mongolia. The original plan to include the reptiles of Ukraine, Moldova and Belarus was abandoned due to a lack of expertise at the workshop, as it was found there was very little overlap in the reptile faunas of these regions (and neither Moldova nor Belarus has endemic species), with the plan adjusted to obtain Ukrainian data remotely after the workshop.

Phil Bowles and Monika Böhm from the Zoological Society of London facilitated an extremely successful workshop that strengthened the existing collaboration between IUCN and the Zoological Institute of the Russian Academy of Sciences. The Russian-language herpetological literature is rich and the Russian herpetological community highly active, but relatively little of this information has previously been available in English-language online sources. These assessments provided a wealth of data, including information on population trends in many lizards, that give a high degree of confidence in the final listings; following review fewer than 3% of species were listed as Data Deficient, where 5-15% is typical for reptile assessments. While a minority of species were found to be at risk (21 species in Data Deficient, Near Threatened or threatened Categories), threatened species were found to be most likely to be Endangered or Critically Endangered.

Initial reviews were completed in the second half of 2016 for all of these species. The specialists from the workshop were highly active in providing additional information once given access to the reviewed accounts, and as a result this final stage of the review process was extended into the first half of January 2017. All of the endemic species in this region will be submitted to the Red List for the first update of 2017.

The New World

Key achievements

- Reviews completed for the reptiles of the Caribbean, including the remote assessment and review of the reptiles of the former Netherlands Antilles.

- A total of 764 species from South America and the Caribbean published on the Red List in 2016, with an additional 235 all from mainland South America submitted by the end of the year.

- Ongoing liaison with Cuban assessment process, finalising the assessments of 153 species found in Cuba and reviewing the resulting accounts.

Following the completion of the South America reviews at the end of 2015, Phil Bowles and part-time BAU intern Anna Kilponen followed up numerous queries emerging from this process with regional experts. Due to other project commitments, particularly for Central Asia, and the slower-than-expected feedback process, the original ambitious deadline of
including all outstanding New World assessments (other than those for anoles, being handled by their own Specialist Group) in the first Red List update of 2016 was not fully met. In 2016 as a whole, 526 South American species were added to the published Red List. An additional 235 species submitted for the year’s second update were postponed until the first update of 2017 by the Red List Unit.

Reviews of the Caribbean assessments proceeded more rapidly, and 236 of the 387 (excluding anoles) species from this region were published by the end of the year. This included detailed remote follow-up with the leading specialists for Hispaniola, the second-largest region treated at the workshop, which obtained extensive additional data and confirmed the extremely high conservation importance of this island to reptile conservation – 85 of the 157 species assessed from the island were found to be Critically Endangered (31), Endangered (38) or Vulnerable (16).

During 2016 NatureServe continued to support a contractor Jorge Rodríguez in assessing the reptiles of Cuba in remote collaboration with local specialists. These accounts were ready for review by the final quarter of 2016. Phil Bowles of the BAU reviewed the resulting accounts, first to identify missing data which needed further follow up to obtain, and once this was entered to review the final accounts for submission to the Red List. Review of the completed accounts was finished early in 2017 in preparation for submitting the Cuban species to the Red List.

**Japan**

**Key achievements**

- Following receipt of support from the Toyota Corporation, a remote assessment of Japanese reptiles got underway, organised by Neil Cox and managed by Phil Bowles.
- Data was compiled from a 2014 national assessment and updated by consultants in Japan in collaboration with local experts.
- The resulting assessments were reviewed from September onwards, with most passed and prepared for submission by mid-January 2017.

Following receipt of funds in June 2016 to proceed with the assessment of Japanese reptiles, Neil Cox organised a collaboration with Japan’s National Institute of Environment Studies to collect the initial data and coordinate the assess-
ment process. With a deadline for completing the assessments of the end of 2016, this was a project with a rapid turn-around. This was facilitated by the completion of a recent (2014) Japanese national assessment for reptiles determined to be threatened, and by the low overall number of species (73).

Our consultant, Noriko Kidera, translated and added data from the national assessment for the threatened species, compiled data on those not included in the national assessment, and updated the resulting information in consultation with the Herpetological Society of Japan.

Following this process, completed in September 2016, Phil Bowles reviewed the accounts and identified issues in need of further specialist input to resolve. The final assessments then underwent formal review in advance of submission to the Red List in early 2017. By mid-January 2017 over a third of the species were ready for submission, with resolution of remaining issues anticipated within the following month at the latest.

**Southeast Asia and Australia**

Funds from the Toyota Corporation grant were made available to support reptile assessment work in 2017 in two of the major outstanding geographies: Australia and Southeast Asia. Assessments had previously been completed (in 2011) for the snakes of Southeast Asia and China, but assessments of the lizards remained outstanding.

The support provided to assess these regions was based on geographies defined in an action plan for completing the Global Reptile Assessment that Phil Bowles had previously prepared. “Southeast Asia” defined in this plan referred to the mainland territories of Indochina and the Malay Peninsula, as well as the Malaysian territories in Borneo, but excluded Indonesia. During planning for the Southeast Asian workshop in 2016 it was decided on practical grounds to include the entirety of Borneo in the assessment; the remainder of Indonesia still remains to be assessed separately. Together, these areas contain more than 1,500 species that will be assessed across three workshops in the first half of 2017.

Organised principally by Neil Cox – and with species lists provided by Phil Bowles for Southeast Asia and the Australian Society of Herpetologists for Australia – consultants worked to prepare draft accounts in advance of these workshops over the second half of 2016.

Phil Bowles provided logistical support to the Australian workers and directly managed the data compilation process for the lizards of Southeast Asia, coordinating with Nieves Garcia who was contracted to complete the majority of this work.

Towards the end of 2016 Phil identified key specialists for Southeast Asia to bring to the workshop, prepared and sent out invitations, and in early 2017 will assist both with arranging workshop logistics in collaboration with IUCN’s Asian Regional Office (ARO) in Bangkok and with preparation of Red List accounts.

**Ongoing and Future Activities**

As can be seen, 2016 was a broadly successful year for the Global Reptile Assessment, with nearly 1,000 species added or submitted to the Red List, a highly successful workshop and subsequent review completed, and support obtained for a substantial expansion of reptile assessment activities in 2017. The goal of bringing the NatureServe collaboration for the New World to a conclusion was not fully accomplished, with delays at both the IUCN and NatureServe ends of the process. Good progress was nonetheless made on getting a majority of the remaining mainland South American assessments – representing by far the majority of the year’s published and submitted reptile assessments – onto the Red List and hastening the completion of reptile assessments for Cuba, one of two outstanding areas. Limited progress was made
on the other, Brazil, as translated assessment data for this country has only partially been made ready for review, and discussions are ongoing with NatureServe’s Brazilian collaborator to accelerate this process in 2017.

With an intensive focus on Southeast Asia and Australia, areas that will be assessed and fully reviewed by the end of 2017, progress is well underway on completion and early submission of the finalised Red List assessments for Japan, Cuba and Central Asia in the first two months of 2017, and the addition of outstanding South American and Caribbean species (of which 65 have already been finalised since the last submission of 2016).

Finally, the Central Asian assessment was completed with greater financial efficiency than expected due in large part to able logistical support from our in-country partner. An extension of the grant to make use of the remaining funds has been agreed with the Mohamed bin Zayed Species Conservation Fund, with the principal objective of completing a remote assessment for the reptiles of Pakistan and Nepal, in collaboration with Sanjay Molur of the Zoo Outreach Organisation.

Figure 3. Area covered by the Japan reptile assessment.

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

- The process of reviewing and publishing the back-log of draft assessments for tortoises and freshwater turtles on the Red List was continued.
- The SSC Tortoise and Freshwater Turtle SG (TFTSG) continued preparing a revised comprehensive Turtles of the World Checklist and Atlas summarising all taxonomy, detailed distribution maps, and Red List draft assessments of conservation status of all turtles and tortoises.
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 vertebrates. The last comprehensive global assessment of tortoises and freshwater turtles was published in 1996, using the previous version of the Red List Criteria (3.0), 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 all regions of the world except Central America and the Caribbean.

Updated assessments for nearly all species of freshwater turtles and tortoises from Asia, North America, Europe and Madagascar have been entered into the Red List database and published on 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 database, but for the most part these have not yet been published.

Activities and Results – 2016

The former Chair of the TFTSG, Anders Rhodin, as RLA Coordinator, and the out-going Co-Chair and previous Red List Focal Point, Peter Paul van Dijk, have worked on researching and drafting assessments and entering data into the Species Information System (SIS) database. They have been working on producing and reviewing assessments for formal submission to the Red List. The generous contribution of the Environment Agency – Abu Dhabi is gratefully acknowledged as helping with this process. A total of 13 assessments were finished, submitted, and published on the Red List in 2016.

Special emphasis and extensive effort has been placed on updating the assessments of the several species of conservation-focused Galapagos Giant Tortoises, but these evolved into an extended exercise of delicate political and professional diplomacy still under continued review, resulting, however, in two formal submissions to the Red List. Preliminary distribution maps for all ca. 325 turtle and tortoise species were prepared by Andes 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 published by Chelonian Research Foundation. These GIS maps are based on Hydroshed cell occurrences, and we are in the process of incorporating these maps into global Red List assessments. Unfortunately, technical difficulties regarding the incorporation of these maps into existing and new Red List assessments has created a series of lengthy delays in the overall Red Listing process for turtles and tortoises.

All these Red List-focused activities occur in synergy with the production of a revised and detailed Checklist of the world’s turtles, with full synonymies, detailed distribution maps, 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. An updated and massively revised 2017 checklist and detailed atlas is currently in draft stage and projected to be published by mid-year.

Future activities

The top priority of the project is to finalise draft assessments for tortoises and freshwater turtles that have emerged from 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. The next priority is 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.
Amphibians on the IUCN Red List

Key achievements

- 562 amphibian species were submitted for publication on the IUCN Red List.
- 26.5% of all known amphibian species now have an up-to-date assessment on the IUCN Red List.
- A total update of amphibian taxonomy was achieved in the Red List database.
- Three new institutional partnerships established by the Amphibian Red List Authority to expand the scope and increase the speed of the work.
The SSC Amphibian Red List Authority (ARLA) continues to make progress towards the goal of completing the 10-year update of amphibians on the IUCN Red List. The ARLA relies on valuable research from around the world to provide new and improved information for amphibian species. Our accomplishments thus far are largely thanks to the dedication and efforts of the SSC Amphibian Specialist Group (ASG) members who volunteer their time, including the ARLA national and regional coordinators, assessors, contributors, and interns, as well as collaboration with numerous colleagues and the support of the ARLA partner organisations. We are deeply grateful for the ongoing support of the Environment Agency – Abu Dhabi (EAD).

Outputs and workshops

The IUCN Red List published two general updates in 2016. The ARLA published a total of 562 species over this time period, such that 26.5% of all known amphibian species now have an up-to-date extinction risk assessment. Of these submissions, 62 were first-time assessments for recently described species. Assessments came from 11 countries and regions: Argentina, Chile, Ecuador, Madagascar, Mainland Southeast Asia, Mesoamerica, Mexico, Southern Africa, Sri Lanka, West and Central Africa, and West and Central Asia. A profile of the species submitted during 2016 can be found in editions 118 and 119 of the ASG journal FrogLog.

The high rate of species descriptions and extremely dynamic nature of amphibian taxonomy continues to pose a challenge to achieving the 10-year update, resulting in over 450 taxonomic changes to track and input into the SIS database in 2016 alone. However, thanks to the support of EAD in the previous period, we achieved a total update of all amphibian taxonomy in SIS up to the end of 2015. This renders the ongoing taxonomic updating a great deal more manageable. The support of Darrel Frost (Amphibian Species of the World) and the IUCN Red List Unit in this endeavour has also been indispensable in interpreting and responding to these changes.

Thanks to our collaboration with NatureServe, the IUCN Biodiversity Assessment Unit (BAU), and Universidad San Francisco de Quito, two amphibian assessment workshops took place during the summer of 2016.

The first addressed 198 species of Ecuador on 16-19 July in Quito, Ecuador. The second reassessed 265 species from Colombia during a weeklong workshop on 1-5 August in Medellin, Colombia. We are grateful to our colleagues Bruce Young (NatureServe) and Marcelo Tognelli (BAU) for the financial support and facilitation of these workshops, and to Diego Cisneros-Heredia and Ana Nicole Acosta (Universidad San Francisco de Quito) for their tireless work in preparing assessments for these workshops. A third workshop took place in the summer of 2016: on 4-8 July Jennifer Luedtke (ARLA Coordinator) and Louise Hobin (ARLA Programme Officer) facilitated a “mini-workshop” at the Museum für Naturkunde in Berlin, Germany to update the amphibian species of West and Central Africa. Two facilitators and three experts updated the assessments for 440 species, which are scheduled for publication on the June 2017 update of the IUCN Red List. The “mini-workshop” format has been developed as a rapid and focused way to update species assessments.
approach to updating assessments for entire countries or regions. It relies on having full-time paid core ARLA staff to prepare assessments alongside, or instead of, volunteer experts or interns. Also key to this format is restricting participation to only a small number of highly knowledgeable experts with a broad understanding of the region, its species and research community, and a high facilitator-participant ratio. It therefore costs a small fraction of the amount of “traditional” workshops. This format has been used for the East Africa and Madagascar updates in past years and received very positive feedback from participants as it proved to be an efficient use of scarce resources. Thanks to funds received from a new donor in December, we are seeking to replicate this workshop style over the course of 2017 for Indonesia, Peru, Peninsular Malaysia, Philippines, and the Guiana Shield.

Meetings and other initiatives

Following the completion of all East African assessments, Simon Loader (University of Roehampton) coordinated the workshop “Impact Workshop: Are tropical amphibians declining?” held at the Natural History Museum of London, UK on 13-14 July. Fifteen participants representing nine institutions were in attendance, many of which are active in various East African countries. This enabled the discussion to focus on how the data of the updated IUCN Red List assessments could be applied to conservation actions in the region. Other outcomes were related to research needed in the region, communication outputs, and strategies to improve the quality of the information available or filling knowledge gaps.

The ARLA Coordinator, Jennifer Luedtke, attended the Forum of IUCN World Conservation Congress held in Honolulu, Hawaii, USA on 1-5 September. This was also an opportunity for the ARLA to give a joint presentation with ASG and the Amphibian Survival Alliance on amphibian conservation titled “Solutions for the amphibians: come brainstorm with us!” which was attended by 39 people. This provided a unique opportunity to bring people from diverse organisations and all corners of the world together to discuss solutions for the most pressing issues in amphibian conservation. It was also a chance for the presenters and participants to network, make new acquaintances and discuss potential collaborations.

The Kihansi Spray Toad (*Nectophrynoides asperginis*), a species that is dependent on human intervention for survival. © Tim Herman.
Membership and Partnerships

ARLA is pleased to have partnered with the following organisations during 2016, which help to further the 10-year update through both in-kind and financial support.

Three of these organisations—Synchronicity Earth, Rainforest Trust, and Universidad San Francisco de Quito—came on board for the first time in 2016.

Unfortunately, after 12 months of generous support to ARLA, the Museo delle Scienze in Trento, Italy (MUSE) was unable to renew its support. As we have been unable to locate replacement funds, we are sad to have said goodbye to ARLA Programme Officer Elena Garollo in September.

Thanks to ever-increasing collaboration between the ARLA and ASG, the two bodies will be combining their membership such that all ARLA members are now members of the Specialist Group. This is intended to better reflect the nature of the ARLA as being embedded into the Specialist Group (it is not one of the IUCN SSC Stand-alone RLAs). It is also a result of the re-integration of Red Listing into the latest version of the Amphibian Conservation Action Plan (ACAP), convened by ASG. Responsibility for the chapters of the ACAP rests with ASG Working Groups, and ARLA is to serve as the Working Group for the revived Red List chapter.

Fundraising

In addition to securing the 2017 ARLA Coordinator and Programme Officers costs, an additional US$21,000 was secured from a successful proposal to Rainforest Trust. These funds will enable the ARLA to conduct “mini workshops” for the updating of 1,284 assessments in Indonesia, the Guiana Shield, Peninsular Malaysia, Peru, and the Philippines.

Fundraising is ongoing to secure additional resources for workshops and consultancies in the remaining regions that require an update.
A lmost all 313 of Madagascar’s currently described frog species have now been re-assessed or assessed for the first time since the ACSAM2 (A Conservation Strategy for the Amphibians of Madagascar) meeting in Madagascar in 2014.

M ost recently, twenty species, including two species described in 2016, were re-assessed. The majority of these are Least Concern, because prioritisation led to the least threatened species being re-assessed last. Among these LC species are twelve Mantidactylus species, a genus of mostly nocturnal frogs that tend to be found in the vicinity of flowing water. These frogs typically having rather wide distributions that preclude their listing in higher threat categories, and may also be tolerant to quite significant deforestation, though not in all cases.

O f great interest to international stakeholders will be the new statuses of two Mantella species, Madagascar’s poison dart frogs. Mantella laevigata was downlisted Near Threatened (NT) to LC, whilst M. haraldmeieri was uplisted from VU to EN. Both of these changes have more to do with the way that the IUCN Red List Categories and Criteria are applied than changes to our knowledge of the species, which has been a distinct trend throughout the re-assessments of Madagascar’s frogs. Two new species of Rhombophryne described in 2016 from Madagascar’s north east were published in the November 2016 update as well, both of which are assessed as Endangered due to their small distribution ranges inside forest that is disappearing rapidly.

The Savaka Diamond Frog (Rhombophryne savaka), described in June 2016, was recently assessed as EN because of its restricted range and ongoing habitat loss. © Mark D. Scherz - http://www.markscherz.com/
The South African Frog Re-assessment Group (SA-FRoG) met in November 2015 with 16 representatives from Angola, Malawi, South Africa, and Zimbabwe, whose combined expertise on amphibians is considered to cover the entire region. During the workshop, 70 southern African species were assessed, and 21 of these were officially updated in November. Of these, 13 did not change their status, six were downlisted and two uplisted. None of these represented genuine changes, but rather changes in data availability.

For example, Pickersgill’s Reed Frog, *Hyperolius pickersgilli*, has been downlisted from CR to EN based on an increase in survey and research effort since 2008. This has extended the previous range to the north and south of known sites, reaching a new total of 25 sites for the species. However, most of these sites are in unprotected areas. Furthermore, the development of a Biodiversity Management Plan (BMP-S) for *H. pickersgilli* has resulted in active management at several unprotected sites and at least one site has been acquired for long-term protection and several others have plans for future habitat protection action. In addition, monitoring protocols have been developed and employed at several sites to provide sub-population estimates and monitor impact of conservation interventions, such as removal of alien vegetation.

Uplisted from EN to CR was the Northern Moss Frog, *Arthroleptella subvoce*, for which 10 years of monitoring data show extreme fluctuations in abundance estimates that demonstrate the vulnerability of sub-populations to fire. Of concern is the increasing frequency of fires in the region coupled with the slow ability of this species to recover.

Lastly, the Cave Squeaker, *Arthroleptis troglodytes*, was last seen in 1962 from high elevations of the western Chimanimani Mountains in eastern Zimbabwe. This species remains listed as CR(PE), as recent survey efforts have failed to find this species at its only known locality. Availability of locality data for South Africa enables increasingly accurate assessments for most of its 125 species, but assessments for species occurring in other countries continue to be hamstrung by data deficiency.
Bumblebees of the Americas on the IUCN Red List

Sarina Jepsen, Deputy Chair, IUCN SSC Bumblebee Specialist Group and Xerces Society Endangered Species Programme Director

Rich Hatfield, Coordinator, IUCN SSC Bumblebee Red List Authority and Xerces Society Senior Conservation Biologist

Key achievements

- As reported last year, the IUCN SSC Bumblebee Specialist Group (BBSG) has evaluated the extinction risk of all 79 previously not-assessed species of bumblebees from North America, Mesoamerica and South America using the IUCN Red List Criteria, and has completed written assessments for each species.

- All eighty species assessments from the New World have now been published on the IUCN Red List.

- Approximately one-quarter of the bumblebees in the New World are in an IUCN Category of elevated extinction risk – from Near Threatened to Critically Endangered.

- In the New World, six species are listed as Critically Endangered, and three of those species are cuckoo bumblebees.

- One-fifth of New World species are listed as Data Deficient, underscoring the need for future survey work to better understand the distribution and habitat of these important pollinators.
Report of Activities in 2016

The IUCN SSC Bumblebee Specialist Group (BBSG) evaluated the extinction risk of 79 species of bumblebees from North America, Mesoamerica and South America using the IUCN Red List Criteria and completed written assessments for each species. An additional species assessment was published prior to this work, making 80 assessments in total. All species assessments and profiles have been published on the IUCN Red List. For each species, we have produced maps of the distribution and have 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 all bumblebee species of the New World, and entered that information into SIS.

IUCN Red List Category for Bumblebees of the Americas

![Pie chart](image)

Figure 1. Pie chart depicting the number of bumblebee species in each IUCN Red List Category in North, Meso-, and South America.

In summary, approximately one-quarter of the bumblebees in the New World are in an IUCN Category from Near Threatened to Critically Endangered. In the New World five species are listed as Critically Endangered, and three of those species are cuckoo bumblebees, meaning that they rely upon another species of bumblebee to reproduce. This is not surprising, since cuckoo bumblebees are dependent upon other bumblebees to serve as hosts, and some of the most endangered cuckoo bees are dependent on host species that are also threatened with extinction.

Another conclusion from this work is that more than half of the species of bumblebees in South America have relatively poorly understood ranges and are listed as Data Deficient – yet threats related to habitat loss and climate change are known. Many of the species that are poorly understood have relatively narrow historical ranges and, if patterns from North and Mesoamerica hold, might be experiencing undocumented declines. A priority for further work will be to conduct regional surveys throughout South America to better understand the distributions of these important animals.

![Pie charts](image)

Figure 2. Pie charts indicating the number of species listed in each IUCN Category for each region of the New World.
In order to complete assessments of the extinction risk of bumblebees in Mesoamerica and South America, the BBSG conducted a Red Listing Workshop in April 2015 as part of the Mesoamerican Congress on Native Bees in San Cristóbal de las Casas, Chiapas, Mexico for nine members of the BBSG from Mesoamerica and two members from South America. The SSC Bumblebee Red List Authority Coordinator, Rich Hatfield, BBSG Chair Paul Williams, and Jennifer Luedtke from the SSC Chair’s Office led the Red Listing workshop. Since that workshop, the members of the BBSG have published all twelve bumblebee assessments from Mesoamerica. The members from South America have published all twenty-two bumblebee assessments from their region.

Below, we list each of the New World bumblebee species, its region, and the IUCN Red List Category.

Table 1. IUCN Red List Category, and region of the 80 species of bumblebees that are currently recognised in the New World. Note that some species occur in multiple regions, but are affiliated with the region in which the majority of their range occurs in this table.

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<td>South America</td>
<td>Published</td>
<td>Critically Endangered</td>
</tr>
<tr>
<td>Bombus</td>
<td>transversalis</td>
<td>South America</td>
<td>Published</td>
<td>Least Concern</td>
</tr>
<tr>
<td>Bombus</td>
<td>tucumanus</td>
<td>South America</td>
<td>Published</td>
<td>Data Deficient</td>
</tr>
<tr>
<td>Bombus</td>
<td>vogti</td>
<td>South America</td>
<td>Published</td>
<td>Data Deficient</td>
</tr>
</tbody>
</table>
The rusty patched bumblebee, *Bombus affinis* (Critically Endangered), native to eastern North America. © Rich Hatfield, the Xerces Society.

The yellow bumblebee, *Bombus fervidus* (Vulnerable), native to North America. © Rich Hatfield, the Xerces Society.

The red belted bumblebee, *Bombus rufocinctus* (Least Concern), native to North America. © Rich Hatfield, the Xerces Society.
Key achievements

- A total of 341 Malagasy plant assessments published on the IUCN Red List.
- 69.5% of Malagasy plant species with published assessments under threat.
- 400 assessments ready for publication in 2017.
Background

Madagascar is one of the main centres of plant diversity in the world with close to 12,000 species, of which an estimated 70-80% occur there and nowhere else in the world.

A wealth of information and assessments on close to 2,000 Malagasy plant species was gathered in the Data Entry Module (DEM) system which is the old version of IUCN’s online database Species Information Service (SIS). This information was in need of being migrated into SIS and updated in order to be published on the IUCN Red List of Threatened Species.

Through 2015-2016 the IUCN Global Species Programme (GSP) continued to work closely with the SSC Madagascar Plant Specialist Group (MPSG) to complete more plant assessments for the Red List.

With the skills gained through the Red List training and review exercise delivered by the GSP in 2014, the MPSG organised an expert workshop to review close to 500 plant assessments.
Results

The generous contribution of Environment Agency – Abu Dhabi (EAD) has enabled IUCN to publish another further 105 plant assessments from Madagascar, totalling 341 assessments published on the IUCN Red List of Threatened Species.

From the 341 plant species assessments published, 69% are threatened with extinction, with 20% of species assessed as Critically Endangered, 38% as Endangered and 11% as Vulnerable (Figure 1). Only 1% of species as categorised as Data Deficient (Figure 1).

We are finalising the consistency check process that has been possible thanks to the generous contribution of EAD. In 2017, we will publish over 400 Malagasy plant assessment to complete a grand total of the 741 Malagasy plants on the IUCN Red List of Threatened Species.

Some astonishing Madagascan plant species were assessed in 2016, for example the Endangered *Adansonia grandieri* which is endemic to Madagascar and is one of six known species of Baobab. The assessment of the extinction risk of this species was particularly useful under the light of a proposal for its inclusion in Appendix I of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

International trade in the fruits and seed of this tree has been reported, but it remains to be seen whether this was a one-off export or the start of regular and increasing international trade in seed or derivatives of this species. Other threats to this tree include habitat degradation for expansion of human settlements, agriculture and farming.

The Critically Endangered *Sohisika* tree (*Schizolaena tampoketsana*) which has a very small population of close to 200 mature individuals, was also assessed. The inclusion of this species on the IUCN Red List has enabled experts to apply for funds to carry out conservation actions to prevent the extinction of this tree. This species is threatened by the rapid conversion of it habitat for farming. The Tampoketsa Forest, to which this species is confined, is one of Madagascar’s most threatened habitats.
Baobab tree (*Adansonia grandidieri*) in the Menabe region in western Madagascar. © Ralph Kanzlein.

Key achievements

- The SSC Crop Wild Relative Specialist Group (CWRSG) published global Red List assessments of 246 crop wild relative species—species harbouring genetic diversity which may be critical for future food security and sustainable development.

- Data analyses reveal that at least 12% of these species are threatened or Near Threatened and worryingly that 34% are Data Deficient, highlighting the lack of data available, especially concerning population size, status and trends.

- Further research to increase the knowledge base for crop wild relatives is vital in order to define and implement the complementary and strategic conservation actions required to ensure the availability of these resources for crop improvement.
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, ornamentals 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 recognised 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 Red List status of 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, regional assessments of 572 European species in 25 economically important crop gene pools/groups were assessed (Bilz et al. 2011, Kell et al. 2012). In the current project, global Red List assessments of a selection of the most socio-economically important CWR species have been undertaken as a component of the Plants for People initiative and 246 species have been published to date. Of these 246 species, one is thought to be Extinct in the Wild, 16 are threatened and a further 16 Near Threatened. More than half of the species were assessed as Least Concern—although some subpopulations are unknown to be under threat—and around a third are Data Deficient, flagging the need for more research to be carried out on the in situ status of these species. Threatened and Near Threatened species are in urgent need of conservation actions, while monitoring and management of species in decline is critical regardless of their Red List status. The research highlighted the lack of data available for many CWR species, especially concerning population information (size, status and trends). Further research to increase the knowledge-base for CWR is vital in order to define and implement the complementary and strategic conservation actions required to ensure the availability of these resources for crop improvement for future food security.

Crop wild relative species assessed

The species were primarily selected from the Harlan and de Wet CWR Inventory (Vincent et al., 2013) - an inventory of globally important CWR taxa. Priority was given to wild relatives of food, forage and fodder crops included in Annex 1 of the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA – FAO, 2001) - a list of taxa established according to criteria of food security and interdependence - although wild relatives of some additional socio-economically important species were assessed (e.g., papaya, Carica papaya). The genera containing the 246 species published, the number of species in each genus, and the crops to which the species are related are shown in Table 1.

Red List status

Of the 246 CWR species for which assessments were published, 16 (6.5%) are threatened (one is Critically Endangered, eleven Endangered and four Vulnerable) and 16 Near Threatened. One species, Mangifera casturi Kosterm., was previously known from the wet climate area around Banjarmasin in Indonesia but has been identified as Extinct in the Wild in previous assessments (Walter and Gillett 1998). As no evidence to contradict this could be found, this Category is maintained and the species is now thought to be found only in cultivation. A little over half of the species (52.4%) were assessed as Least Concern, and a further 34.1% as Data Deficient. A summary of these results are presented in Table 2 and Figure 1. Table 3 lists the species assessed as Extinct in the Wild, threatened and Near Threatened, the Red List Criteria applied and the distribution of the species. The proportion of threatened species (6.5%) is a minimum estimate of threat. A more realistic view may be considered if those species that are no longer extant in the wild or those for which we do not have sufficient data (EW and DD species) are excluded (Bilz et al., 2011). With these conditions and assuming that the proportion of threatened species is consistent within the DD group, at least 9.9% of the CWR species assessed may be considered as globally threatened.

1 These assessments are published in the European Red List (www.iucnredlist.org/initiatives/europe) and 183 endemic to the region are published in the IUCN Red List of Threatened Species.
**Table 1. Genera containing the 246 CWR species published, the number of species in each genus, and the crops to which the species are related.**

<table>
<thead>
<tr>
<th>Genera and no. of CWR species assessments published</th>
<th>Crops to which the wild relative species are related</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amygdalus (8), Armeniaca (2), Cerasus (5), Prunus (34)</td>
<td>Apricot (<em>Prunus armeniaca</em>); sweet cherry (<em>P. avium</em>); myrobalan (cherry) plum (<em>P. cerasifera</em>); sour cherry (<em>P. cerasus</em>); plum (<em>P. domestica</em>); Almond (<em>P. dulcis</em>); peach (<em>P. persica</em>); Japanese plum (<em>P. salicina</em>)</td>
</tr>
<tr>
<td>Asparagus (13)</td>
<td>Asparagus (<em>Asparagus officinalis</em>)</td>
</tr>
<tr>
<td>Avena (5)</td>
<td>Common oat (<em>Avena sativa</em>)</td>
</tr>
<tr>
<td>Carica (1)</td>
<td>Papaya (<em>Carica papaya</em>)</td>
</tr>
<tr>
<td>Cicer (3)</td>
<td>Chickpea (<em>Cicer arietinum</em>)</td>
</tr>
<tr>
<td>Cucurbita (1)</td>
<td>Shark fin melon (<em>Cucurbita ficifolia</em>); squash (<em>C. moschata</em>); courgette, marrow, pumpkin (<em>C. pepo</em>)</td>
</tr>
<tr>
<td>Eleusine (5)</td>
<td>African/finger millet (<em>Eleusine coracana</em>)</td>
</tr>
<tr>
<td>Helianthus (27)</td>
<td>Sunflower (<em>Helianthus annuus</em>)</td>
</tr>
<tr>
<td>Hordeum (29)</td>
<td>Barley (<em>Hordeum vulgare</em>)</td>
</tr>
<tr>
<td>Ilex (1)</td>
<td>Yerbe maté (<em>Ilex paraguariensis</em>)</td>
</tr>
<tr>
<td>Lupinus (3)</td>
<td>White lupin (<em>Lupinus albus</em>); blue lupin (<em>L. angustifolius</em>); yellow lupin (<em>L. luteus</em>); Andean lupin (<em>L. mutabilis</em>); sandplain lupin (<em>L. osentini</em>)</td>
</tr>
<tr>
<td>Malus (24)</td>
<td>Apple (<em>Malus pumila</em>)</td>
</tr>
<tr>
<td>Mangifera (12)</td>
<td>Mango (<em>Mangifera indica</em>)</td>
</tr>
<tr>
<td>Medicago (14)</td>
<td>Alfalfa/lucerne (<em>Medicago sativa</em>); barrel medic (<em>M. truncatula</em>)</td>
</tr>
<tr>
<td>Pennisetum (4)</td>
<td>Pearl millet (<em>Pennisetum glaucum</em>)</td>
</tr>
<tr>
<td>Pistacia (6)</td>
<td>Pistacio (<em>Pistacia vera</em>)</td>
</tr>
<tr>
<td>Vicia (22)</td>
<td>Monantha vetch (<em>Vicia articulata</em>); bitter vetch (<em>V. ervilia</em>); faba bean (<em>V. faba</em>); narbon bean (<em>V. narbonensis</em>); Hungarian vetch (<em>V. pannonica</em>); common vetch (<em>V. sativa</em>)</td>
</tr>
<tr>
<td>Vigna (4)</td>
<td>Adzuki bean (<em>Vigna angularis</em>); black gram/urd bean (<em>V. mungo</em>); mung bean (<em>V. radiata</em>); bambara groundnut (<em>V. subterranea</em>); rice bean (<em>V. umbellata</em>); cowpea (<em>V. unguiculata</em>)</td>
</tr>
</tbody>
</table>

**Table 2. Summary of numbers of CWR within each IUCN Red List Category**

<table>
<thead>
<tr>
<th>IUCN Red List Category</th>
<th>No. of species</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extinct in the Wild (EW)</td>
<td>1</td>
</tr>
<tr>
<td>Critically Endangered (CR)</td>
<td>1</td>
</tr>
<tr>
<td>Endangered (EN)</td>
<td>11</td>
</tr>
<tr>
<td>Vulnerable (VU)</td>
<td>4</td>
</tr>
<tr>
<td>Near Threatened (NT)</td>
<td>16</td>
</tr>
<tr>
<td>Least Concern (LC)</td>
<td>129</td>
</tr>
<tr>
<td>Data Deficient (DD)</td>
<td>84</td>
</tr>
<tr>
<td>Total Evaluated species</td>
<td>246</td>
</tr>
</tbody>
</table>
Major threats

Threats were recorded for 45% (112) of the species. The number of threats per species ranges from one (33 species) to 12 (two species), with most species being affected by between one and four threats (98 species). Urban development, forestry, livestock farming, and invasive and other problematic species/diseases were the most frequently recorded threats and affect between 37 and 44 species (Figure 2). Taking into account only threatened or NT species, livestock farming, urban development, forestry and arable farming are the predominant threats, affecting between 12 and 14 species. As noted by Kell et al. (2012), we should not conclude from these results that farming per se is a threat to CWR diversity - in fact, as the authors note, farmed areas (including arable land and pasture) are one of the primary habitats of CWR species. It is unsustainable farming practices, such as severe overgrazing, conversion of land to monocultures and the heavy application of fertilizers, herbicides and pesticides that are the major threats to CWR that grow in agricultural areas. This includes grazing in semi-natural habitats such as Mediterranean maquis.

Figure 1. Red List status of 246 CWR species

Figure 2. Threats affecting 246 CWR species.
Table 3. CWR species assessed as Extinct in the Wild (EW), Critically Endangered (CR), Endangered (EN), Vulnerable (VU) and Near Threatened (NT), the Red List Criteria applied and the native distribution of the species.

<table>
<thead>
<tr>
<th>Species</th>
<th>Category</th>
<th>Criteria</th>
<th>Native distribution</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Mangifera casturi</td>
<td>EW</td>
<td>NA</td>
<td>Formerly Kalimantan (Borneo), Indonesia</td>
<td></td>
</tr>
<tr>
<td>Prunus murrayana</td>
<td>CR</td>
<td>D</td>
<td>Texas, USA</td>
<td></td>
</tr>
<tr>
<td>Asparagus kiusianus</td>
<td>EN</td>
<td>B1ab(iii)</td>
<td>Honshu and Kyushu, Japan</td>
<td></td>
</tr>
<tr>
<td>Cicer bijugum</td>
<td>EN</td>
<td>B2ab(iii)</td>
<td>Iran; Iraq; Syria; Turkey</td>
<td></td>
</tr>
<tr>
<td>Malus komarovi</td>
<td>EN</td>
<td>B2ab(iii,iv,v)</td>
<td>Jilin, China; DR Korea</td>
<td></td>
</tr>
<tr>
<td>Mangifera austro-indica</td>
<td>EN</td>
<td>B2ab(iii)</td>
<td>Karnataka and Tamil Nadu, India</td>
<td></td>
</tr>
<tr>
<td>Mangifera collina</td>
<td>EN</td>
<td>A2ac; B1ab(i,ii,iii,iv,v)</td>
<td>Thailand</td>
<td></td>
</tr>
<tr>
<td>Mangifera dongnaiensis</td>
<td>EN</td>
<td>A2cd</td>
<td>Vietnam</td>
<td></td>
</tr>
<tr>
<td>Mangifera minutifolia</td>
<td>EN</td>
<td>B2ab(iii)</td>
<td>Vietnam</td>
<td></td>
</tr>
<tr>
<td>Vicia hyaeniscyamus</td>
<td>EN</td>
<td>B1ab(iii,iv)+2ab(iii,iv)</td>
<td>Lebanon; Syria</td>
<td></td>
</tr>
<tr>
<td>Vicia kalakhensis</td>
<td>EN</td>
<td>B1ab(iv,v)+2ab(iv,v)</td>
<td>Syria</td>
<td></td>
</tr>
<tr>
<td>Vigna keraudrenii</td>
<td>EN</td>
<td>B2ab(iii,v)</td>
<td>Madagascar</td>
<td></td>
</tr>
<tr>
<td>Vigna monantha</td>
<td>EN</td>
<td>B2ab(iii)</td>
<td>Somalia</td>
<td></td>
</tr>
<tr>
<td>Helianthus anomalus</td>
<td>VU</td>
<td>D1</td>
<td>Arizona, Nevada and Utah, USA</td>
<td></td>
</tr>
<tr>
<td>Mangifera flava</td>
<td>VU</td>
<td>B1ab(iii)</td>
<td>Cambodia; Thailand; Vietnam</td>
<td></td>
</tr>
<tr>
<td>Vicia esdraelonensis</td>
<td>VU</td>
<td>D2</td>
<td>Israel; Syria; Turkey</td>
<td></td>
</tr>
<tr>
<td>Vicia tigris</td>
<td>VU</td>
<td>D2</td>
<td>Syria</td>
<td></td>
</tr>
<tr>
<td>Allium altaicum</td>
<td>NT</td>
<td>B2b(ii,iii,iv,v)</td>
<td>China; Kazakhstan; Mongolia; Russian Federation</td>
<td></td>
</tr>
<tr>
<td>Allium roylei</td>
<td>NT</td>
<td>A2cd</td>
<td>Himachal Pradesh, Jammu-Kashmir and Uttar Pradesh, India; Afghanistan; Pakistan</td>
<td></td>
</tr>
<tr>
<td>Amygdalus minutiflora</td>
<td>NT</td>
<td>B2a(ii)b(iii)</td>
<td>Chihuahua, Mexico; Texas, USA</td>
<td></td>
</tr>
<tr>
<td>Amygdalus texana</td>
<td>NT</td>
<td>B1b(i,ii,iii)</td>
<td>Texas, USA</td>
<td></td>
</tr>
<tr>
<td>Cicer reticulatum</td>
<td>NT</td>
<td>B2b(iii)</td>
<td>Turkey</td>
<td></td>
</tr>
<tr>
<td>Helianthus exilis</td>
<td>NT</td>
<td>B2b(iv,v)</td>
<td>California, USA</td>
<td></td>
</tr>
<tr>
<td>Hordeum arizonicum</td>
<td>NT</td>
<td>B2a(i)b(v)</td>
<td>California, Nevada and New Mexico, USA</td>
<td></td>
</tr>
<tr>
<td>Hordeum erectifolium</td>
<td>NT</td>
<td>B2a(i); D2</td>
<td>Buenos Aires, Argentina</td>
<td></td>
</tr>
<tr>
<td>Hordeum guatemalense</td>
<td>NT</td>
<td>B2a(i)b(iii)</td>
<td>Guatemala</td>
<td></td>
</tr>
<tr>
<td>Mangifera andamanica</td>
<td>NT</td>
<td>B1b(iii)</td>
<td>Andaman Islands, India</td>
<td></td>
</tr>
<tr>
<td>Mangifera applanata</td>
<td>NT</td>
<td>A2c</td>
<td>Kalimantan (Borneo) and Sumatra, Indonesia; Sabah and Sarawak (Borneo), Malaysia</td>
<td></td>
</tr>
<tr>
<td>Mangifera gedebi</td>
<td>NT</td>
<td>A2c</td>
<td>Andaman and Nicobar Islands, India; Brunei Darussalam; Indonesia; Malaysia; Myanmar; Singapore; Solomon Islands; Thailand; Timor-Leste</td>
<td></td>
</tr>
<tr>
<td>Medicago papillosa</td>
<td>NT</td>
<td>B2b(v)</td>
<td>Armenia; Azerbaijan; Georgia; Turkey</td>
<td></td>
</tr>
<tr>
<td>Pistacia mexicana</td>
<td>NT</td>
<td>A2c</td>
<td>Guatemala; Honduras; Mexico</td>
<td></td>
</tr>
<tr>
<td>Vicia barbazitae</td>
<td>NT</td>
<td>B2b(iii)</td>
<td>Bosnia and Herzegovina; Bulgaria; Croatia; Corsica and mainland France; Germany; East Aegean Islands and mainland Greece; Italy; Macedonia; Montenegro; Serbia; Turkey-in-Europe</td>
<td></td>
</tr>
<tr>
<td>Vicia qatmensis</td>
<td>NT</td>
<td>B1a(i)+2a(i)</td>
<td>Syria</td>
<td></td>
</tr>
</tbody>
</table>
**Population trends**

Decreasing population trends were recorded for 30 species (12.3%), 22 of which were assessed as threatened or NT, one as LC and seven as DD. Population trends are unknown for 104 species (42.4%), 77 of which were classified as DD, again highlighting the need to increase knowledge of the *in situ* status of CWR populations. For 45.3% (111) of the species (all of which were classified as LC), the populations are considered to be stable. However, threats were recorded for 31 of these species - therefore, while population trend is an important indication of the overall status of a species across its range, it should be interpreted with care because some subpopulations may be under threat, even if the overall population is considered to be stable. None of the species are thought to have an increasing population trend. These results are summarised in Figure 3.

**Implications of the results**

Red List assessments are not intended to be used on their own to prioritise conservation actions but are a highly effective tool when used in conjunction with knowledge of other factors such as ecological and cultural attributes of the conservation target, financial cost and availability of funds, effective use of resources (financial and otherwise), and predicted success and sustainability of conservation actions. The results of the assessment of this sample of CWR offer a valuable contribution to strategic, holistic conservation planning. Furthermore, the supporting documentation gathered for the assessments is invaluable to inform conservation planning of individual species. The results also highlight gaps in our knowledge of CWR which need to be addressed. Population data were the most difficult to source, and while suf-

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2 One species was classified as EW. All species recorded as having a stable population trend were assessed as LC.
icient information was often available to calculate extent of occurrence (EOO), estimations of area of occupancy (AOO) were difficult or impossible to establish for many CWR species as good quality, comprehensive occurrence data are often lacking. More research, including in situ fieldwork and data collection is an important implication for those species assessed as DD, especially considering some are known to be suffering from population or habitat decline. CWR species suffering decline should have management and monitoring put in place wherever possible, even when assessed as LC as these species could potentially become threatened if negative population trends continue to be disregarded. The threatened and NT species are all exposed to a unique mélange of threats and occur in various different habitat types with dissimilar biological requirements, thus leading to potentially conflicting management needs. However, in most cases more general recommendations for active CWR conservation include population monitoring and management in situ alongside collection of germplasm resources for complementary ex situ conservation to facilitate future use by plant breeders and other stakeholders.

**Next steps**

The CWRSG is aiming to publish Red List assessments of all species included in the Harlan and de Wet CWR Inventory and is continuing with this work with a focus on the highest priority crop complexes in terms of their value for food and economic security. Further resources are needed to complete the extensive work necessary for the hundreds of species requiring assessment. Continuous reassessment of all CWR species will be necessary at regular intervals. IUCN (2001) recommends reassessment every ten years or when important information concerning threat and extinction risk becomes available, especially for DD species. The implementation of monitoring and management actions for these species would facilitate evaluation of trends over time and these species could be added to the Red List Index (RLI) where these trends would serve as indicators for the diversity of CWR as a set of species (Bubb et al., 2009).
References


Key achievements

- Conducted a Red Listing workshop utilising funds raised during 2015 through a successful online campaign hosted by Species Survival Commission of the IUCN, to which many generous individuals, societies and organisations donated. Additional funding support was obtained through the generosity of the Environment Agency – Abu Dhabi (EAD). The goal of the workshop was to assess and review ready for publication on the IUCN Red List, as many as possible of the 252 known species of carnivorous plants found in the Australasian region. To this end, it was essential to enlist the voluntary assistance of key specialists with expert knowledge of carnivorous plants within that region.

- Undertook and successfully concluded a project to assess 100 species of carnivorous plants for the IUCN Red List, additional to those covered by the workshop mentioned above.

- Monitored and collated data regarding poaching operations taking place in parts of Southeast Asia, which are cause for serious concern.

- Overall membership using our online presence has been increased by over 36% and public awareness raised by the active and careful maintenance of various online forums. By the end of 2016 the Carnivorous Plant Specialist Group (CPSG) had a general membership of 166 up from 112 in 2015 and with nine actively engaged Specialist Members.
Mission Statement

“To help ensure that the conservation status of all carnivorous plants are adequately and accurately documented and assist in raising of public awareness and encourage initiation of appropriate conservation measures.”

Introduction

2016 was by far our most active year since the CPSG was reactivated by the IUCN Species Survival Commission in 2012. This is due in main to the generosity of the ever-increasing number of volunteer experts, who continue to donate their time and expertise to further the goals of the CPSG in various ways. Also, the generosity of the EAD, as well as other sponsors, made many of the core activities and annual achievements possible.

Of the four key achievements summarised on page 60, foremost amongst them are the great strides made in compiling and submitting Red List assessments. The rapidly accelerating annual progress is illustrated in Figure 1 below:

![Rate of assessment of species](image)

**Figure 1. Rate of assessment of species.**

1) Assessment of 100 carnivorous plant species for the IUCN Red List

The Project Leader for this large task was our Scientific Focal Point and Red List Coordinator, Dr Charles Clarke, who compiled the assessments and whose report is included here. The assessments were reviewed ready for inclusion in the IUCN Red List by Dr Adam Cross of the University of Western Australia and the CPSG acknowledges and is grateful for his particular donation of time and expertise, as well as the other participants and the host institute.

The initial aim of the CPSG was to complete Red List assessments of all c. 750 carnivorous plant species by 2020. Initially, efforts were focused on the Asian pitcher plant genus, *Nepenthes* (c. 160 species), as this genus contains the largest number of threatened taxa. Red List assessments of all *Nepenthes* species were completed in late 2015, but progress on other genera of carnivorous plants was slow at that time, due to limited availability of resources and expertise.
To address this problem, the CPSG ran an intensive workshop at Kew Gardens, United Kingdom in August 2016, which led to the assessment of 252 carnivorous plant species, mostly from Australia. An additional project was to assess an additional 100 carnivorous plant species. Combined with other carnivorous plant species already assessed, the outputs of these two projects bring the total number of carnivorous plant species assessed for the Red List by the end of 2016 to 576. Assuming an overall total of 750 species for the global carnivorous plant flora, this represents more than 75% completion of the CPSG’s initial goal of assessing all carnivorous plant species for the IUCN Red List.

As more than half of the world’s carnivorous plant species have now been assessed, the task of assessing the remainder is becoming increasingly challenging, due to difficulties in obtaining reliable data upon which assessments can be based. Many unassessed carnivorous plant species occur in Africa and South America and are poorly known. This presented significant challenges with regards to the approach for this project. A regional approach was deemed to be too great a challenge, as few regional, unassessed carnivorous plant floras contain 100 or more species. Similarly, genera containing large numbers of unassessed species (primarily Drosera, Pinguicula and Utricularia) have very extensive geographical ranges, with substantial numbers of species occurring in regions where carnivorous plants have not been well-studied. In the end, it was decided to target the genus Utricularia, which not only contains a large number of unassessed species, but also has a global distribution (excluding Antarctica). This enabled us to avoid having to focus on a specific geographical region while at the same time giving us the ability to assess a large number of species that were either widespread or highly localised. This approach released us from the constraint of relying upon the advice of specialists who were largely unavailable during the project period.

The project is now completed, with a total of 100 Utricularia species, and one additional Drosera species (D. oblongolata) having been drafted, reviewed and entered into the Species Information Service (SIS). The assessments are now ready for submission to the IUCN Red List Unit for final editing and subsequent upload to the IUCN Red List website.

The distribution of the 100 assessed Utricularia species across the IUCN Red List Categories is shown in Figure 2.

**Noteworthy patterns include:**

- 86% of species assessed were considered to be Least Concern (LC).
- 5% of species were threatened (Vulnerable (VU), Endangered (EN) or Critically Endangered (CR)).
- 1 species is thought to be extinct (Utricularia podadena).

![Figure 2. Distribution of 100 Utricularia species among the IUCN Red List threat Categories.](image-url)

It is important to note that these patterns do not reflect those of carnivorous plants as a whole, and are not appropriate for comparison to the distributions of all plant types across the Red List threat Categories detected by RBG Kew (2016). The reason for this is that the 100 species assessed in this project were not selected randomly, nor did they represent any particular biogeographic region – they were selected purely because adequate data was currently available to assess them. This approach results in bias towards LC species, and so may not accurately reflect the proportion of threatened Utricularia species.

An unfortunate outcome of the project was the recognition of the first known instance of an extinction of a carnivorous plant species – Utricularia podadena. Taylor (1989) notes that this species is known from just two collections, one from...
Malawi and one from Mozambique, and that the areas where it was collected are now converted to agriculture. This species has not been recorded for more than 25 years, despite several attempts to relocate it in the wild.

Apart from the 100 *Utricularia* species assessed for this project, one additional species, *Drosera oblancoelata*, was also assessed as Near Threatened (NT). This species occurs in Hong Kong and southern China and is well known to the project leader (Charles Clarke). In the course of researching the distributions of Asian *Utricularia* species, the assessment of this additional *Drosera* species was a simple task, so it was added to the outcomes of the project.

With less than 200 carnivorous plant species remaining to be assessed—many of them being *Utricularia* and *Drosera* species from Africa and South America—the CPSG is now directing the focus of its Red Listing efforts towards these regions and genera.

Another large carnivorous plant genus in urgent need of attention is *Pinguicula*, which occurs throughout the northern hemisphere and Mesaoamerica. The challenges to assessing species from the three genera listed above are significant, mostly because of difficulty in accessing them in the wild. Accordingly, the CPSG will need to seek additional funding and regional expertise to assist with this task in the near future.

### 2) A Red Listing workshop, July 31 to August 04, 2016

In late 2015, a number of experts were appointed to the CPSG to assist with Red List assessments of other large carnivorous plant genera, such as *Drosera* and *Utricularia*, each of which contains more than 200 species. Around the same time, it was proposed that an intensive workshop be conducted in 2016, to bring as many of these experts together as possible, to complete as many assessments of carnivorous plant taxa as practical in a short space of time.

The goal was to hold a 5-day workshop at the Royal Botanic Gardens, Kew, on 31 July - 4 August 2016. The location and timing were chosen to coincide with the International Carnivorous Plant Society’s biennial conference, which was scheduled to be staged at Royal Botanic Gardens, Kew, on 5-7 August 2016. We felt that this gave us the best possible chance of attracting experts to the workshop, as well as giving us exposure to additional experts, who might be recruited to the CPSG to assist with additional assessments in future.

The goal of the workshop was to draft RL assessments for approximately 200 carnivorous plant species, with emphasis on the genera *Drosera* (sundews) and *Utricularia* (bladderworts). Both genera have global distributions, occurring on all continents except Antarctica. An additional objective was to complete reviews (and, if necessary, revisions) of all species assessed at the workshop by the end of 2016.

Funds for the workshop were raised through the IUCN and were used to reimburse the travel and accommodation costs of the attending experts and facilitators. Because the primary areas of expertise of the attending specialists was
on the carnivorous plant flora of Australia (and, to a lesser degree, Europe), it was decided that the workshop would focus exclusively on the species from these two regions, to maximise the chances of reaching our goal of 200 Red List assessments in four days.

A total of 252 species were assessed at the workshop, which represents a 125% output relative to target projections. This number represents about one third of all known carnivorous plant species. Table 1 provides a summary of the numbers of species assessed in each relevant genus of carnivorous plants, and the IUCN Red List threat Categories that they were assigned to. Approximately 13% of all species assessed were considered to be threatened (i.e. VU, EN or CR). This compares favourably to a generalised estimate for all plants by RBG Kew (2016), which found that about 22% of plant species are threatened.

Table 1. Number of Carnivorous Plant species assessed at the workshop, and their distribution among the IUCN Red List threat Categories.

<table>
<thead>
<tr>
<th>IUCN Red List Category</th>
<th>Byblis</th>
<th>Cephalotus</th>
<th>Drosera</th>
<th>Pinguicula</th>
<th>Utricularia</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Deficient (DD)</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Least Concern (LC)</td>
<td>6</td>
<td>133</td>
<td>17</td>
<td>60</td>
<td>216</td>
<td></td>
</tr>
<tr>
<td>Near Threatened (NT)</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Vulnerable (VU)</td>
<td>1</td>
<td>14</td>
<td>2</td>
<td>4</td>
<td>21</td>
<td></td>
</tr>
<tr>
<td>Endangered (EN)</td>
<td>1</td>
<td></td>
<td>3</td>
<td>1</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Critically Endangered (CR)</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>8</td>
<td>152</td>
<td>24</td>
<td>67</td>
<td>252</td>
<td></td>
</tr>
</tbody>
</table>

Australia is the world’s richest region for carnivorous plants, accounting for almost a third of all known species. As a result of this workshop, the entire carnivorous flora of this country has now been assessed. This represents an important milestone for the CPSG, as this is the first biogeographic region in the world for which this task has been completed, and as such, provides an opportunity to examine some broad trends in the threats to carnivorous plants. However, it must be emphasised that many carnivorous plant species in Australia are well-protected, or occur in remote areas, so the probability that they would face serious threats is lower than for many other parts of the world. Almost 90% of Australian carnivorous plants are considered to be Least Concern (LC), indicating that as a whole, this group of plants is faring reason-
ably well, despite widespread disturbances to their habitats over the last century (Figure 3). The experts at the workshop felt that to some degree, this result masks looming threats to some taxa, particularly in south-west Western Australia, and that there is a need for regular review and updating of these assessments. Accordingly, Adam Cross, Charles Clarke and Greg Bourke have agreed to try to maintain and update these assessments every few years (resources permitting), in the form of a regional checklist. All assessments drafted at the workshop have been reviewed, edited and are ready for submission to the Red List Unit for final editing and upload onto the IUCN website (www.iucnredlist.org).

Figure 3. Distribution of Australasian carnivorous plant species among the IUCN Red List threat Categories.

Figure 4 presents a pie chart showing the distribution of all 576 assessed carnivorous plant species across the IUCN threat Categories. It is immediately apparent that the proportion of threatened species (c. 19%) is greater than for Australia alone, and is more or less equivalent to the global estimate for all plants by RBG Kew (2016). In large part, this reflects relatively high levels of threats to *Nepenthes* pitcher plants (c. 38% have been assessed as VU, EN or CR), which mostly occur in Southeast Asia. In addition to the usual threats faced by species in this region (i.e. land clearing, habitat disturbance and degradation), pitcher plants are prized in horticulture, so many species have suffered and continue to suffer, from the effects of poaching (see section 4 of this report). By contrast, the majority of carnivorous plants from Australia have low profiles in horticulture and are not traded in substantial numbers, either within Australia or internationally. Rather, the primary threats appear to be poor habitat management, such as altered fire regimes or hydrology, or introduced species (especially grasses in tropical habitats).

Figure 4. Distribution of all carnivorous plant species (N = 576) assessed by the CPSG as of January 2017.
An additional outcome of the workshop was our successful engagement with experts on the carnivorous plant floras of Africa and South America.

These two regions contain the vast majority of unassessed species, and we hope to be able to call upon these experts to help us to complete assessments of all species from these regions in the next 12-24 months. We have also recruited an additional facilitator to assist with assessments of carnivorous plant taxa from North America. Although this region is not particularly rich in terms of species numbers, several of the most iconic carnivorous plant species occur there. Furthermore, the conservation status of a number of these species is highly controversial, and we expect assessments of these species to be labour intensive and time consuming.

Urgent conservation measures are required for all taxa determined to be Critically Endangered (CR), most of which occur as a single population of only a handful of individuals. In particular, one taxon is comprised of only six known plants, and all face imminent threats.

The most common first degree threatening process to Australian carnivorous plants was determined to be habitat loss, faced by 64% of all threatened taxa. The second most common process was altered hydrology, faced by 35% of all threatened taxa. Additional threats included altered fire regimes, which although rarely posing a first degree threat, affected 55% of all taxa, invasive species (26%), road reserve management (13%), human intrusion and disturbance (6.5%) and eutrophication (6.5%).

Conservation measures identified as required for threatened taxa most frequently included site protection (74% of all taxa) and site management (90%), as well as research into population size and distribution (52%), species recovery (22.5%), invasive species control (22.5%), and ex situ conservation (13%).

If funding can be obtained towards additional field work and on-site collaborations with the relevant experts, we are optimistic that an additional 100-150 carnivorous plant species could be assessed for the Red List in the next 1-2 years. However, the cost and effort needed for each assessment is now greater than before, as the species that remain to be assessed are typically found in remote areas that are not easily surveyed. Accordingly, the CPSG will be seeking funding for these activities in 2017 in order to continue its work.

We feel that this workshop was highly successful and the outcomes exceeded the original expectations. The carnivorous plant flora of Australia is the richest in the world in terms of species, and to be able to complete assessments of all species from this region in four days is nothing short of remarkable. This was due in large part to the dedication, diligence and collegial approach to the work undertaken by the experts and facilitators. Their preparedness to donate their time and expertise for free has led to the development of a remarkable database on the conservation status of Australian carnivorous plants, which will serve an important role in conservation and land management in the country for decades to come.
3) Online Presence

In 2016, initiatives to attract new members were somewhat limited. Most energy and available hours of the volunteers were taken up with preparations for the Red List workshop at the Royal Botanic Gardens, Kew. Nevertheless, our digital presence performed well.

In 2016 the CPSG website continued to attract new members. By the end of 2016 we counted 164 registered members from 38 countries which is up 38% from end 2015.

To expand our reach, in August 2015 two new Facebook pages were created and launched, the objective being to reach out to the international community and offer an interactive, popular and flexible way of communicating with those interested.

The first page, the IUCN-Carnivorous-Plant-Specialist-Group, was set up as a company page. It posts information from the CPSG and allows people to reply to our posts. However, it does not allow people to initiate their own posts. The idea behind this page is to provide information to people efficiently, in a manner that enables them to easily find the desired information, without having to necessarily search through other posts by visitors. By the end of 2016, this page had 646 followers, which is up 100% from end 2015.

The second page, the IUCN Carnivorous Plant Specialist Group Discussion Page, was set up as a group and acts primarily as a forum. Posts are made by the CPSG, but visitors can join, ask their questions and initiate posts. It is also possible for visitors to react to each other’s posts. For this reason, this page is moderated by our Communications Officer, Marcel van den Broek and his team: Andrew Broome and Michael Schöner. The number of people who actually join the group is the relevant metric to monitor, as they represent the people who are actively interested in the activities of the CPSG and the information we share. This page closed the year at a total of 660 members, a 67% increase from 2015.

The basic content of both pages consists of pictures and information on endangered carnivorous plants, news on our activities and shared general IUCN information, as relevant to our members. In the case of the Discussion Page, interaction based on questions posed by members is added to this content. Member posts range from general questions, such as the workings and differences between various national parks and other protected areas, to more specific questions, such as those pertaining to threats faced by individual species. Both pages were very successfully used in spreading information about the successful Red Listing workshop held in in August 2016.

In general, the content of our pages was well shared and appeared on leading pages in the carnivorous plant field, such as the forum page of the International Carnivorous Plant Society, the Carnivorous Plant Conservation and Research page and pages maintained by the major national carnivorous plant societies.

4) Poaching in Southeast Asia

Members of the CPSG have identified and are monitoring several possibly related, poaching and smuggling operations in Southeast Asia, whereby some of the most threatened species of montane \textit{Nepenthes} pitcher plants are being removed from habitat, often from supposedly protected areas such as national parks. The plants are then openly sold on online forums such as eBay and elsewhere. It is probable that many of the individuals purchasing these plants online and who are mostly private growers, may not be aware of the illegality of the source. Plants are being shipped without documentation and in contravention of local laws, as well as the laws of the importing country and the provisions of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). The rate of poaching

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{nepenthes_rajan.png}
\caption{\textit{Nepenthes rajah} (EN) - increasingly endangered by poaching.}
\end{figure}
in recent years has accelerated in step with the rise in popularity of online marketing and the resultant abrupt population decline of already threatened species due to this relatively new activity is of extreme concern. It is estimated that if urgent and stringent action is not taken very soon, then extinction events will probably occur for some highly iconic species within a very few years.

For operational reasons, we are unable to give full details in this document about the precise nature of the measures recommended by the CPSG. At the time of writing, the CPSG is actively engaging with CITES, the World Wide Fund for Nature (WWF), Flora and Fauna International (FFI), and TRAFFIC to consider and implement the most appropriate processes to combat this illegal trade. A high-level intervention is being considered by the IUCN and our Patron, Sir David Attenborough, has also pledged his support and is already actively engaged.

The targeted species are notably amongst those few not yet available in legal trade though sustainable artificially propagated sources and hence have a relatively high market value. Artificial propagation of such plants takes years to implement, using techniques such as in vitro multiplication or tissue culture. Whilst there seems little doubt that in the long-term, making such plants affordably available in legitimate trade may alleviate the problem, this cannot be implemented in time to arrest the current situation. Therefore, urgent action is necessary in order to ensure that in situ populations remain viable.

We hope that during 2017 the CPSG can ally itself with others and obtain the necessary funding and other required support in order to be able to initiate the stringent action that is required.

We express our most sincere gratitude to the Environment Agency - Abu Dhabi (EAD), without whose support – once again – the CPSG would not be able exist as a functioning body. Through the Species Survival Commission of the IUCN, generous support from the EAD underpins the entire scope of work of the CPSG.

We hope that the activities and achievements described herein demonstrate the creativity and commitment of the CPSG on behalf of species conservation.

References


Key achievements

- Important progress was made with planning for a wide variety of species, including the Desertas Wolf Spider, Chacoan Peccary, African Wild Ass and Great Bustard.
- The SCPSC has collaboration in place with over 20 SSC Specialist Groups to support planning processes.
- Collaboration also exists between the SCPSC and several government agencies and NGOs.
- Significant progress was made on version 2 of the SSC guidance on species conservation planning.
Introduction

The year 2016 saw a number of earlier strategies come to completion and indeed implementation. Some SSC Specialist Groups developed further strategies based on earlier ones that the Species Conservation Planning Sub-Committee (SCPSC) had helped on. So, species conservation planning is stimulating action for species and is increasingly responsible for impacts rather than just outcomes.

This past year was qualitatively different in that the SCPSC Chair and members, to varying extents, were involved in two major exercises; these were development of the version 2 of the SSC planning guidance; and exploration of the way forward for species conservation planning in SSC. Both are dealt with below in further detail.

Activities with Specialist Groups and key partners

Spider and Scorpion Specialist Group (partial funding from SCPSC)

The SCPSC Chair worked with the Chair of this group, and with the Chair of the SSC Invertebrate Conservation Sub-Committee to deliver a workshop to plan for the Desertas Wolf Spider, *Hogna ingens*. The species is entirely confined to one valley on Islas Deserts some 20 km off mainland Madeira.

The workshop was held in Funchal in May 2016, and the strategy completed in November 2016. A field visit after the workshop enabled the capture of 25 spiders to establish a captive colony at Bristol Zoo, UK, where they are doing very well. The workshop was a novelty for the government officials in Madeira, and it offered the prospect of them taking on more planning for their endemic and/or threatened species.

Peccary Specialist Group (partial funding from SCPSC)

Following much communication with scientists in Paraguay and a scientist with the Zoological Society of London (ZSL), in collaboration with the SSC Conservation Breeding SG (CBSG), the Peccary SG convened a workshop for the Chacoan Peccary, or Tagua, in Paraguay in March 2016. The workshop was facilitated by CBSG and SCPSC member Arnaud Desbiez.

Box 1 contains some detail on the process and participation, all of which contributed to a highly successful initiative. By the end of the year, the strategy was complete (Box 1), and was working its way through the three involved governments for their approval.

In addition, three related articles were published in *Suiform Soundings* 15(1) of 2016, the newsletter of the three SSC Specialist Groups for Wild Pigs, Peccaries, and Hippos.
Box 1. The Chacoan Peccary Conservation Strategy

Arnaud Desbiez

The rate of deforestation and habitat destruction of the Chaco is unprecedented and goes largely unnoticed. Many endemic species occur in the Chaco, and the IUCN SSC Peccary SG decided to use one of these, the Chacoan Peccary, as a potential ambassador for this incredibly threatened and unique biome. A diversity of stakeholders, including government officials, representatives of the local Mennonite and indigenous communities, conservation groups, and researchers from Argentina, Bolivia and Paraguay came together to create a strategy to help save both the Chacoan Peccary and its habitat. The facilitated workshop helped set a vision and actions to reach this goal. In addition various new tools were used. The species' distribution was modelled thanks to a two year effort to collect data for this purpose as well as interactive working groups which checked the model. A population viability model was developed to help assess threats and model potential conservation strategies. The IUCN Guidelines on the Use of Ex Situ Management for Species Conservation were applied to evaluate the need and set targets for an ex situ population. Overall this was a very constructive and useful workshop. The diversity of stakeholders and their active participation in the workshop helped to generate a lot of new information.


Reintroduction Specialist Group / Calgary Zoo / Deer Specialist Group

As described extensively in the 2014 report, the Reintroduction SG (RSG) Chair asked the SCPSC Chair to lead development of, and then a workshop on, the increasingly dire status of the Boreal Caribou, *Rangifer tarandus caribou*, in western Canada. Based on the general conclusion that the oil and gas extractive industries were primarily responsible for this situation through direct and indirect impacts, the entire conservation planning project was underwritten by the industry companies which sought the above parties as independent sources of expertise to analyse the situation and come up with solutions. Given the results of much research on habitat use and predation pressure from wolves especially, the problem statement was limited to exploration of captive breeding and translocation tools as means to improve population status. As it was evident from the earliest days of planning that there was no simple or clear solution, the workshop, held in January 2016, was based as an exercise in structured decision-making, for which purpose John Ewen of ZSL was engaged. The three-day workshop ended with a consensus decision on a practical way forward, and all is described in the final report. The report, covering potential trade-offs between conservation translocation alternatives and differential objectives, has been printed and distributed. The report has now been acknowledged as important by the ministerial offices of Canada’s federal and three provincial governments. Currently its implications are being reviewed for various potential applications by industry, government, and academics. The government of the province of Alberta and the industry have committed to funding two different maternity penning enclosures for subsequent conservation translocations.

Equid Specialist Group (partial funding from SCPSC) / Ethiopian Wildlife Conservation Authority

At the request of the Chair of the SSC Equid SG, David Mallon facilitated a workshop in December 2016 on three equid species in Ethiopia: Grevy’s Zebra, the African Wild Ass, and the Plains Zebra. Financial support from SCPSC enabled a fuller participation in the workshop, and the resulting strategy (currently only in draft) followed the standard SCPSC structure of Vision-Goals-Objectives-Actions.

Crop Wild Relative Specialist Group

The SSC Crop Wild Relative SG represented the SCPSC, by invitation, at the first Mediterranean Plant Conservation Week within the project “Conserving wild plants and habitats for people in South and East Mediterranean”, a project of the IUCN Office for Mediterranean Cooperation and Plantlife International, with involvement of the SSC Mediterranean Plant Specialist Group. The SCPSC role was to present and train on species conservation planning. Activities and impacts from this are shown in Box 2.

Snapper, Seabream and Grunt Specialist Group

The SSC Snapper, Seabream and Grunt SG (SSGSG) has deployed SSC species conservation planning principles in work with several regional fisheries management organisations in the western Atlantic. This included:

- The 2016 adoption of first ever spawning conservation zones by the South Atlantic Fishery Management Council to protect several very important species of reef fishes (including the snapper family - Lutjanidae). Several SSGSG members, including Ken Lindeman, (SSGSG Chair and SCPSC member), had worked for years on this initiative. The SCPSC planning principles guided their successful efforts, including the submission of comment letters.

Box 2. 1st Mediterranean Plant Conservation Week, Ulcinj (Montenegro), 24-29 Oct 2016

Report by the IUCN Crop Wild Relative Specialist Group

The IUCN SSC Crop Wild Relative Specialist Group (CWRSG) was invited, as a representative of the Species Conservation Planning Sub-Committee (SCPSC), to organise a Plant Conservation Planning Workshop as a component of the 1st Mediterranean Plant Conservation Week (organised by the IUCN Centre for Mediterranean Cooperation) held in Ulcinj, Montenegro, between the 24 and 29 October 2016. The aim of this workshop was to provide training to workshop participants in science-based plant conservation planning. The CWRSG was represented by its Co-Chair Nigel Maxted and Programme Officer Joana Magos Brehm, both from the University of Birmingham (UK).

Scope of training

In the Plant Conservation Planning Workshop, the CWRSG:

- Provided an overview of plant conservation planning (presentation “Conservation planning as a tool for conservation implementation”).
- Explained how species prioritisation for conservation action can be carried out (presentation “Taxonomic prioritisation”).
- Detailed what an ecogeographic survey is and how gaps in in situ and ex situ conservation can be detected (presentation “Ecogeographic surveys and gap analysis”). Provided an overview of how species distribution modelling and the impact of climate change in species distribution can be taken into account in conservation planning (presentation “Species distribution modelling, climate change and conservation planning”).
- Introduced the participants to the Interactive Toolkit for Crop Wild Relative Conservation Planning developed in the SADC Crop Wild Relative project which will soon be made available online and which aims at helping countries to plan CWR conservation at national level (presentation “Interactive plant conservation planning toolkit”).
- Detailed what type of information a conservation strategy and action plan can include by explaining what the Crop Wild Relative National Strategic Action Plan concept is and how it has been applied (presentation “Conservation strategies and action plans contents”).
- Emphasised how important working with local communities is for plant conservation to be truly effective (presentation “Working with stakeholder communities”).

Target audience

There were about 50 people attending the workshop, most coming from 15 Mediterranean countries (Algeria, Croatia, Cyprus, Egypt, France, Greece, Italy, Lebanon, Macedonia, Montenegro, Morocco, Palestine, Spain, Tunisia, and Turkey) but also from Germany, Switzerland and the UK.

Summary of workshop impact

The workshop met its aims as there were various enthusiastic discussions during the session and coffee breaks as well as throughout the week. Further materials and references were sent to those participants who requested more information about conservation planning. And there was an interest from the IUCN Centre of Mediterranean Cooperation to apply the Guidance On Species Conservation Planning Version 2.0 and eventually adapt the Interactive Toolkit for Crop Wild Relative Conservation Planning being developed by the CWRSG for plants in general.

Snapper, Seabream and Grunt Specialist Group

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- The 2016 adoption of first ever spawning conservation zones by the South Atlantic Fishery Management Council to protect several very important species of reef fishes (including the snapper family - Lutjanidae). Several SSGSG members, including Ken Lindeman, (SSGSG Chair and SCPSC member), had worked for years on this initiative. The SCPSC planning principles guided their successful efforts, including the submission of comment letters.
• The first ever chapter on climate change for a regional fishery ecosystem plan, written by Ken Lindeman and using the same SCPSC planning principles. He also gave a summary address on climate, fisheries, and conservation at the National Oceanic and Atmospheric Administration’s first regional workshop on climate change and fisheries for the Southeast United States and Caribbean.

**IUCN Office for Mediterranean Cooperation**

The SCPSC has worked with this office over several years, mostly for implementation of its programme of planning training in Algeria, Morocco and Tunisia. David Mallon has played a central role in the following:

• The Tunisia National Action Plan for the Barbary Sheep *Ammodorcas lervia*. Consultations are continuing amongst stakeholders on a draft strategy.

• The Algeria National Conservation Strategy for the Barbary Macaque *Macaca sylvanus*. A workshop was held in October 2016.

• The Algeria, Morocco and Tunisia Regional Conservation Strategy for Cuvier’s Gazelle *Gazella cuvieri*. A revised draft was completed at the close of 2016.

• The Morocco Strategy and Action Plan for the Great Bustard *Otis tarda*.

**Secretariat of the Convention on Biological Diversity**

With encouragement from Braulio Ferreira de Souza Dias, Executive Secretary of the Convention on Biological Diversity (CBD), Phil McGowan worked through 2016 to develop the idea, and means, of implementing a strategic research project that would assist countries in making progress towards Aichi Target 12 on combatting extinctions, using strategic conservation planning principles. This has involved much discussion with the CBD Secretariat and the submission by IUCN of a formal Information Document to 13th Meeting of the CBD Conference of the Parties in December 2016. This area of activity for SSC is directly consistent with the Bath Vision (below).

**Development of SSC’s species conservation planning guidance (version 2)**

By the end of 2016 a near-complete draft was with members of the SCPSC for their second review. Development of this draft has been the main concern of SCPSC Chair Mark Stanley Price throughout 2016. Mark was assisted in this by, among others, a joint working group of the SCPSC and the SSC Climate Change SG, given the importance of factoring climate change into conservation planning. In the early months of the year, draft structures were tested on SCPSC members and on the joint working group, until there was an agreed version of the project cycle. A list of contents was drawn up, and SCPSC members were asked to draft bullet points on the specified topics where their expertise was greatest. This elicited high quality text from all those invited to do so, and also from four members from the joint working group. Great effort has been made to ensure version 2 learns from the diverse and rich experiences in species conservation planning since 2010, much of which is reflected in this report.

**The key attributes of version 2 are seen as:**

• Its contents should be as applicable for planning for, say, fungi as for, say, elephants;

• It is directed to the practitioner and not to the academic;

• It should, therefore, be in plain language;

• It should be principle-based, with minimal complexity;

• It should be structured so that the essentials are evident and clear, but further explanations or introductions to more complex or quantitative methods are available in annexes;

• It should be as short as possible, with every item that is less than essential contained within annexes;

• Version 2 will be produced as a document with short text, annexes and illustrative boxes, all of which will help its transfer into web-based and menu-driven guidance in due course; and

• Version 2.0 should not be seen as a static document to last many years, but rather it should be envisaged that there would be regular or annual reviews and revisions based on planning experiences.

These considerations will differentiate version 2 considerably from its 2008 predecessor. Version 2 will have the benefit of the Tools Library, developed by CBSG in collaboration with SCPSC. Version 2 will also emphasise the reality that knowledge on planned species may not be perfect, and that we cannot always guarantee to predict correctly the outcomes of conservation interventions. Accordingly, the notion of uncertainty, and how to deal with it in planning is

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emphasised. Version 2 will also include considerable emphasis on the need to consider climate change in any species planning, even if there is little direct evidence of its influence on the planned situation. Great emphasis is made on the IUCN Guidelines on Assessing Species’ Vulnerability to Climate Change, and the complementary aspects of how to make species planning climate-smart. A schedule has been proposed for development of a third draft in early February 2017, followed by consultation and review in IUCN beyond SSC. The intention is to have a finished product by the end of April 2017.

Developing the Future for Species Conservation Planning within SSC

This has comprised activities since the meeting in Bath in November 2015, at which the Bath Vision for a greatly enhanced role and capability for species conservation planning in SSC was agreed. The time since then has been spent in seeing how this could be achieved. Following a process from the SSC Chair, SCPSC fielded a representative team of Mark Stanley Price, Phil McGowan, David Mallon and Christine Breitenmoser to attend the Bath meeting. Subsequent to the Bath meeting, this team reviewed outputs from an independent consultant and a revision. In November it offered a further analysis and suggestion for the way forward. The Species Conservation Planning Sub-Committee will cease to exist as such, but its members and intellectual input will be a critical part of the SSC’s growing conservation planning work from 2017 onwards. The structure and form of this growing focus on conservation planning is still taking place.

IUCN World Conservation Congress, Hawaii

With the generous assignment of one of SSC’s allocated workshop slots, SCPSC mounted a workshop entitled “Saving species diversity: commonality and best practice in planning for success”, with a workshop purpose: To encourage and offer help for species conservation planning by showcasing the diversity of planning approaches and products. Given the competition amongst events at the same time, attendance was reasonable. Mark Stanley Price also ran a very successful Knowledge Café entitled “Rewilding: what is it, and why is it important?” He also contributed to other events on topics such as the climate change vulnerability assessment, threatened species planning, extinction avoidance, and marine conservation planning.

Updates from previous years

Madagascar Pochard (partial funding from SCPSC)

A workshop for this species was held in Madagascar in December 2013. Development of the strategy has taken considerable time because of the number of institutional partners (Madagascar Ministry of the Environment, Ecology and Forests, Durrell Wildlife Conservation Trust, Wildfowl and Wetlands Trust, and Peregrine Trust) and the simultaneous production of the strategy in English and French. The final strategy was produced in December 2016.³

Arabian Tahr

A workshop for this species was held in Abu Dhabi in January 2015, at which the Mark Stanley Price gave a keynote talk, and the meeting was facilitated by David Mallon. The strategy document from this meeting was received at the end of 2016.⁴

Crau Plains Grasshopper (partial funding from SCPSC)

A workshop for this species was held in May 2014 and, as noted in our 2015 report, the resulting strategy was endorsed as official policy by March 2015. The strategy recommended considerable research activities in order to establish the causes of decline of the species. Research students were in the field again in the 2016 months of grasshopper presence with the aim of establishing population size across the fragmented habitat and also the major threats to the species. It was postulated that the relatively recent decline might have been due to the recent appearance of Cattle Egrets that follow the flocks of sheep that use the grasslands at the same time as the grasshoppers are active (late spring) in a pattern that has persisted since Roman times. A camera trap experiment is now being conducted to test if predation by the egrets is a major threat to the species. In 2016 the habitat of one subpopulation within a nature reserve was excluded from sheep grazing during the activity period of the grasshopper, to avoid the suspected negative effects of predation by Cattle Egrets. Grasshoppers were taken into cap-


tivity at Thoiry Zoo in both 2015 and 2016, and eggs laid in both years. Egg pods are being opened on a small scale at intervals to understand the development process, with the possibility that eggs remain underground for almost two years. Combined with experimentation on laying substrate and humidity level, there should soon be a much better understanding of the grasshopper’s life cycle and requirements. The speed of strategy implementation and research is testament to the energy of the reserve manager, Thoiry Zoo and the SSC Invertebrate Conservation Sub-Committee Chair.

**White-bellied Heron**

The second planning workshop for the White-bellied Heron was held in Bhutan in December 2015; Mark Stanley Price again assisted in design and facilitation. The workshop report indicated a major knowledge gap around the dispersal behaviour of fledging herons in Bhutan. It was gratifying then that partners managed to find the equipment and expertise to have two young herons fitted with satellite tags during the breeding season of spring 2016. As a further follow-up action, a site for a breeding centre has been chosen and adequate funds from outside Bhutan provided. The Indian team is seeking funding for the recommended surveys in that country where much potential heron range has never been surveyed.

**Iranian ungulates**

David Mallon continued discussions with Iranian Department of Environment staff at national and regional levels on the draft conservation roadmap for 11 species of ungulates developed at a stakeholder workshop in 2015.

**Singapore Freshwater Crab**

In December 2016 Phil McGowan attended a meeting of the Singapore Freshwater Crab Working Group, including participants from the Singapore National University. This was the sixth meeting of the group since the planning workshop of March 2014, indicating that conservation of this species commands great attention. An account of the planning process, following that of SSC, has been published as a book chapter.5

**Napoleon (Humphead) Wrasse**

Continuing the work over several years by SCPSC and the Groupers and Wrasse SG (GWSG), Phil McGowan participated in a workshop in December 2015 on the Napoleon (Humphead) Wrasse *Cheilinus undulates*, with the Indonesian Ministry of Marine Affairs and Fisheries. The workshop addressed: 1) Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) Non-Detriment Findings (NDF) for the species and associated survey results from six reference field sites; 2) Issues around illegal, unregulated and unmonitored trade (IUU) of the species; and 3) Conservation planning for the species as a process complementary to the ongoing development of an Indonesian National Plan of Action for Napoleon Wrasse initiated three years ago.

The workshop and related activities were funded by a grant from the CITES Secretariat to the GWSG and conducted as part of the work identified in CITES Decision 15.87 in relation to IUU in Napoleon Wrasse, and to assist in implementing the follow-up CITES Decisions 16.139 and 16.140 on the same issue, as well as in relation to the NDFs and their ongoing improvement. This led to a workshop report: “Workshop on illegal, unregulated and unmonitored trade, conservation planning and non-detriment finding of Napoleon (Humphead) wrasse, *Cheilinus undulates*, Jakarta, Indonesia 8-10 December 2015”. The report was prepared by Yvonne Sadovy de Mitcheson, Co-Chair of the IUCN SSC GWSG. The core outcome of the workshop was the “Vision, Goals, Objectives and Actions for Conservation Planning for the Napoleon fish (Humphead wrasse) in Indonesia” applying the recommended SCPSC format.

**Spin-offs from SCPSC involvement**

**Sawfish**

The Shark SG developed a global strategy for conservation of the world’s five species of sawfish in 2012, breaking new ground through the acquisition of information on these poorly known species pan-tropical species inhabiting warm, shallow seas. The SCPSC was involved throughout the design and implementation of the workshop. In 2014 in Durban, South Africa, a group of devil and manta ray experts gathered for a conservation planning workshop, where tables of suggested goals, objectives and actions were developed. These tables were circulated to the wider devil and manta ray community following the workshop. This has led to a publication on the findings in 2016.6

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Adriatic Marbled Bush-Cricket

After working on several SCPSC planning workshops, the Chair of the Grasshopper SG convened two strategic conservation planning workshops for the Endangered Adriatic Marbled Bush-Cricket *Zeuneriana marmorata*. These took place in Slovenia and Italy from 18 to 20 September 2016. Both workshops were attended by representatives of the national (Slovenia) or regional (Italy) administrations, park managers and Orthoptera experts. Drafts for the two national action plans have been developed and are currently under revision by the stakeholders.

St Helena invertebrates

Mark Stanley Price worked with the SSC Mid-Atlantic Invertebrate SG, the St Helena National Trust and BugLife on the design and then implementation for a workshop in 2015 or the c. 400 species of endemic invertebrates on St Helena, which led to a conservation strategy completed in 2016. Based on this experience, the same players shortly thereafter ran a planning workshop for the Spiky Yellow Woodlouse *Pseudolaureola atlantica*. This species is highly threatened, and at the time only 220 individuals were known from 12 small sites, though more may have been found subsequently. This work resulted in a conservation strategy for the woodlouse.

Related work

Cactus and Succulent Specialist Group

Mark Stanley Price worked with the Chair of the SSC Cactus and Succulent SG (CSSG) to promote the establishment of the relationship between it and the Desert Botanic Garden, Phoenix, as a sponsor of the CSSG’s activities. This led to development of a mutually acceptable proposal for a founding meeting between the two parties. The IUCN World Conservation Congress was the venue for first informal meetings between the principals in September 2016, and a longer meeting is now expected to take place in the first half of 2017.

Amphibian Specialist Group

Despite Sally Wren, the SSC Amphibian SG (ASG) Programme Officer, taking over as co-facilitator with Mark Stanley Price of the ASG working group on species conservation strategies, there has been little activity or progress. Despite assisting with proposals for planning for two Endangered amphibians, and an Endangered and endemic fish on the Somuncura Plateau in Argentina, adequate funding has not been secured. With a new list of amphibian experts who have stated an interest in species planning, it is hoped that this initiative, part of a suite of working groups to promote implementation of the Amphibian Conservation Action plan, will be energised in 2017.

Climate Change Specialist Group

Mark Stanley Price has represented the species conservation planning interest on the Climate Change SG (CCSG) since its inception. The CCSG as whole completed its Guidelines for Assessing Species’ Vulnerability to Climate Change in late 2016, and they were launched to acclaim at the IUCN World Conservation Congress in September 2016. Through a working group of four people from SCPSC (Mark Stanley Price, Phil McGowan, Amielle De Wan, Ken Lindeman) and five from the CCSG (Resit Akçakaya, Wendy Foden, Tara Martin, James Watson, Bruce Stein), the shape of the species planning guidance version 2 and the place of climate change within it were defined.

Acknowledgements

It is pleasure to thank, on behalf of all SCPSC members, the Chair of the Species Survival Commission for his support of this Sub-Committee over many years, and his confidence in it to support it through the SSC-EAD framework agreement. We all hope that the activities described here and in past reports repay his confidence, and that they provide an insight into the future impact that species conservation planning can have across the SSC. None of this would have been possible without the support of the Environment Agency - Abu Dhabi.

I can say without reservation that its investment in species conservation planning has been the critical factor in enabling the SCPSC both to function effectively and also to provide support to planning efforts. In most cases, a small-scale grant has both moved initiatives across the starting line and also given other donors the confidence to provide further support. This catalytic function has been without equal. So, as the Species Conservation Planning Sub-Committee now evolves into SSC’s new conservation planning initiative, I say “thank you” most sincerely to Environment Agency - Abu Dhabi.

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Asian Species Action Partnership

Nerissa Chao, Manager, Asian Species Action Partnership

Madhu Rao, Development Advisor, Asian Species Action Partnership

J. W. Duckworth, Species Advisor, Asian Species Action Partnership

Key achievements

- **Development of ASAP.** ASAP now has a full time Manager for the Secretariat and has adopted a 5-10 year strategy for implementation.

- **Communication and partnership development.** ASAP continues to develop the Partnership providing support to Partners as needed, as well as actively raising the profile of ASAP and the need for conservation action for ASAP species.

- **Support for Critically Endangered species conservation.** ASAP has been engaged in supporting the uplisting of Asian pangolins onto CITES Appendix I, helping to draw attention to the plight of the Helmeted Hornbill, playing a large role in the fledgling White-bellied Heron Working Group and in the more developed Saola WG.
The Asian Species Action Partnership (ASAP) has made significant progress over the past year with 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”.

ASAP species are those meeting the following criteria:

1. Listed as Critically Endangered as per the IUCN Red List of Threatened Species™;
2. Land or freshwater vertebrates;
3. Found in Southeast Asia (Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand, Vietnam and Timor-Leste).

**ASAP Development**

2016 was a transitional year in the development of ASAP with a focus on building the capacity of the Partnership and developing the strategic direction of ASAP for the next 5-10 years. ASAP continues to grow and recruited the first full time Manager of the Secretariat, Nerissa Chao, from late September 2016, thanks to generous support from Wildlife Reserves Singapore. She is joined in the Secretariat by a part-time Development Advisor, Madhu Rao (supported by the Wildlife Conservation Society), and part-time Species Advisor, Will Duckworth (supported by Environment Agency – Abu Dhabi). Nerissa brings a breadth of experience and understanding in managing and implementing field programmes on the ground in Africa and Asia for both large international and small-scale local NGOs. She will use her knowledge from conservation work in the field, and experience in donor relations and cross partnership coordination to continue to strengthen ASAP moving forward. As previous ASAP Coordinator, Madhu is moving into the role of Development Advisor using her experience and understanding of ASAP Partner needs to further develop and build the ASAP Partnership and develop an appropriate donor strategy. Being instrumental in the creation of ASAP, Will continues in his role as Species Advisor. His extensive knowledge and understanding of the natural history and conservation needs of many of the ASAP species, allows him to provide the technical and species expertise to guide ASAP and support Partners. The Secretariat is responsible for the day-to-day management and implementation of the ASAP strategy and is currently being hosted by the Wildlife Reserves Singapore at the Singapore Zoo.

Following from the development and consolidation of the ASAP strategy in 2015, a Governing Council meeting was held in November 2016 bringing together all of the members of the Governing Council. Dr Simon Stuart was appointed the new Chair of ASAP, representing IUCN SSC.

The Governing Council approved a 5-10 year strategy with the following key components:

**Objective 1: To strengthen direct conservation action for the recovery of ASAP species**

1.1. ASAP species conservation support – Support and facilitation to ongoing species intervention programmes.

1.2. Sharing and Exchange of Best Practice – Support use of best practice and capacity building to improve conservation impact on ASAP species.

1.3. Red List Information Base Enhancement – Support updating ASAP relevant Red Lists including more detailed conservation actions needed.

1.4. ASAP Information Management – Develop ASAP spatial information, mapping (of ongoing initiatives for ASAP species) and prioritisation of ASAP species.

1.5. Illegal Wildlife Trade – trade monitoring, policy and legislation, effective enforcement.
1.6. *Ex situ* – Support *ex situ* efforts for ASAP species conservation through assurance colonies, husbandry best practice, and improved *ex situ* facilities support for ASAP species conservation.

**Objective 2: To enhance understanding and support, especially in Southeast Asian countries, for ASAP species conservation**

2.1. ASAP Growth – Partnership development and growth.

2.2. Communication strategy.

2.3. Donor engagement – Work with donors to increase funding for ASAP species conservation.

2.4. *Ex situ* Communications – Raise the profile of ASAP species within the *ex situ* community and support implementation of communication and awareness campaigns.

**Objective 3: To increase political commitment regionally and globally for the conservation of ASAP species**

3.1. ASEAN initiatives – Raise the profile and prioritise ASAP species conservation within ASEAN.

3.2. Long term political engagement and advocacy strategy.

**Communication and Partnership Development**

Over the past year, Madhu has had a strong focus on raising awareness and support for ASAP engaging with various individuals, organisations and donors, developing a strong network of ASAP Partners moving forward and greater attention to ASAP species conservation needs. More formally, the purpose and role of ASAP was presented at a number
of workshops and conferences to highlight the plight of Critically Endangered species in Southeast Asia, to increase support and partnership to ASAP and to catalyse conservation efforts for ASAP species. At the IUCN World Conservation Congress in September 2016, the presentation “What will it take to avert species extinctions in Southeast Asia” was given at a Conservation Campus (see section below for more details on the Conservation Campus); as well as two further presentations “Role of the ex situ community in ASAP” and “From emergency action to campaigning – the values for Wildlife Reserves Singapore in engaging with ASAP”. In December 2016, ASAP presented “Species on the Brink: Averting species extinction in Southeast Asia” at an action planning review workshop for the Macaca nigra in northern Sulawesi, Indonesia.

There has also been a focus in raising the profile of ASAP within the ex situ conservation community to improve understanding and awareness on the role that the ex situ community can play and ultimately encouraging greater support from ex situ institutions. “Asian Species Action Partnership: A status update with a review of in situ ex situ linkages in averting species extinctions in Southeast Asia” was presented at the European Association of Zoos and Aquaria (EAZA) Conservation Forum in May 2016 and at the World Association of Zoos and Aquariums (WAZA) Congress in October 2016. In October 2016, a Conservation Workshop on the “Role of SEAZA members in averting species extinction in Southeast Asia” was organised at the South East Asian Zoo Association (SEAZA) Conference.

**Supporting Conservation Action**

(i) ASAP at the IUCN World Conservation Congress, Hawaii

ASAP jointly organised a Conservation Campus at the Conservation Forum in Hawaii on Conservation Planning and Impact Monitoring for Critically Endangered species. The purpose of the campus was to bring together conservation leaders for a day to share knowledge, evidence and perspectives about how to drive up standards and have a wider uptake of standards for endangered species recovery programmes. Under this context, ASAP participated in a workshop (February 1-4th) on using Open Standards for Conservation Planning for Sumatran Rhinoceros in Bogor organised by Foundations of Success (FOS) and International Rhino Foundation (IRF). IRF is an ASAP partner and FOS partnered with ASAP at the Conservation Forum in Hawaii. The day-long joint ASAP-Durrell Conservation Campus: Driving up Standards for Species Recovery Programmes, was well attended and considered a success with many commending the structure of the campus. The donor panel consisted of the following: Save Our Species, Mohamed bin Zayed Species Conservation Fund, Arcus Foundation, Critical Ecosystem Partnership Fund, and National Geographic Society.

**Outcome**

The development of an accessible, annotated version of the Open Standards framework for species recovery and moni-
The discussions further reinforced the need and potential for ASAP to position itself as a convenor/due-diligence/endorsement mechanism supporting donors for projects/programmes associated with threatened species. Additional to the conservation campus, ASAP worked with relevant Partners to support the development of the IUCN and CITES CoP 17 Helmeted Hornbill Resolutions as well as seeking support for the up-listing of the of the two Critically Endangered Asian pangolin species to CITES Appendix I. The two motions were approved at the IUCN Conservation Congress:

- Conservation of the Helmeted Hornbill (*Rhinoplax vigil*)
- Greater Protection Needed for all Pangolin Species

(ii) 17th Meeting of the Conference of the Parties to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES CoP 17)

**Pangolins**

The CITES CoP17 Proposal 11 to transfer *Manis javanica* and *M. pentadactyla* from Appendix II to Appendix I was accepted, with 114 Parties voting in favour, one against and five abstaining. Both ASAP species are now listed on CITES Appendix I with all commercial trade in the species now banned.

**Helmeted Hornbill**

The CITES CoP 17 Resolution 69 submitted by the Government of Indonesia was successfully adopted providing ad-
ditional protection to the Helmeted Hornbill. ASAP is listed on the Resolution as being responsible for the development of the Action Plan and is supporting the Helmeted Hornbill Working Group to hold a workshop in 2017 to address this.

(iii) ASAP species conservation support

The ASAP species list was updated following the latest IUCN Red List update in December 2016. There are currently 174 ASAP species (see Table 1 for summary) with the largest proportion of ASAP species being found in Indonesia, many of which are endemic to the Indonesian archipelago (Table 2).

White-bellied Heron

Following the second White-bellied Heron Working Group meeting held in Bhutan in November 2015 where Will played a central role in the planning, implementing and coordinating of the meeting, he provided ongoing advice and support for follow on activities reflecting the outputs of the meeting. The Working Group prioritised a number of things, notably:

(i) To affix satellite trackers to fledgling White-bellied herons to know where they go and how well they survive (one of the biggest conundrums in their conservation is understanding why, despite high nest productivity in Bhutan, the national population is not increasing);

(ii) To progress with establishing a captive breeding facility in Bhutan;

(iii) Continue with searches in Chinese territory to determine where White-bellied heron occurs;

(iv) Establish an India Coordinator for the Working Group.

Saola

The ASAP Species Advisor joined and actively participated in the IUCN SSC Asian Wild Cattle Specialist Group’s Saola Working Group’s steering committee. The Saola Working Group (SWG) has been at the forefront of effective species working groups since its formation almost a decade ago. Will’s participation in the SWG’s steering committee is very valuable in terms of highlighting how other WGs might emulate the SWG’s success. Perhaps surprisingly, the SWG functioned well without a steering committee until a couple of years ago, probably in part because the species has such a small range and so the group was very small, when composed of in situ people.

The SWG’s recognition a few years back that captive breeding will be essential to avert the Saola’s extinction brought about the need for an expansion of group membership and therefore a more formalised management structure.

Miscellaneous species

The ASAP Secretariat continues to provide ongoing support and ad lib communication with or on behalf of stakeholders and Partners for a variety of other ASAP species.
### Table 1. Summary of ASAP species

<table>
<thead>
<tr>
<th>Category</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amphibians</td>
<td>10</td>
</tr>
<tr>
<td>Birds</td>
<td>52</td>
</tr>
<tr>
<td>Mammals</td>
<td>40</td>
</tr>
<tr>
<td>Reptiles</td>
<td>24</td>
</tr>
<tr>
<td>Fishes</td>
<td>48</td>
</tr>
<tr>
<td><strong>Total Species List</strong></td>
<td><strong>174</strong></td>
</tr>
</tbody>
</table>

### Table 2. Summary of ASAP species per country

<table>
<thead>
<tr>
<th>Species</th>
<th>Brunei</th>
<th>Cambodia</th>
<th>Indonesia</th>
<th>Lao PDR</th>
<th>Malaysia</th>
<th>Myanmar</th>
<th>Philippines</th>
<th>Singapore</th>
<th>Thailand</th>
<th>Timor Leste</th>
<th>Vietnam</th>
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</thead>
<tbody>
<tr>
<td>Amphibians</td>
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<td>1</td>
<td>3</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Birds</td>
<td>2</td>
<td>7</td>
<td>28</td>
<td>5</td>
<td>5</td>
<td>8</td>
<td>16</td>
<td>2</td>
<td>7</td>
<td>2</td>
<td>9</td>
</tr>
<tr>
<td>Mammals</td>
<td>2</td>
<td>3</td>
<td>24</td>
<td>7</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>11</td>
</tr>
<tr>
<td>Reptiles</td>
<td>1</td>
<td>4</td>
<td>7</td>
<td>4</td>
<td>8</td>
<td>3</td>
<td>5</td>
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<td>Fishes</td>
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<td>16</td>
<td>2</td>
<td>12</td>
<td>1</td>
<td>8</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td>5</td>
<td>21</td>
<td>71</td>
<td>26</td>
<td>25</td>
<td>16</td>
<td>42</td>
<td>5</td>
<td>26</td>
<td>3</td>
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### Table 3. ASAP species – Amphibians

<table>
<thead>
<tr>
<th>Species</th>
<th>English name</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Duttaphrynus sumatranus</em></td>
<td></td>
</tr>
<tr>
<td><em>Leptobrachella palmata</em></td>
<td>Palm Borneo Frog</td>
</tr>
<tr>
<td><em>Leptolalax botsfordi</em></td>
<td></td>
</tr>
<tr>
<td><em>Leptophryne cruentata</em></td>
<td>Bleeding Toad</td>
</tr>
<tr>
<td><em>Megophrys damrei</em></td>
<td></td>
</tr>
<tr>
<td><em>Oreolalax sterlingae</em></td>
<td>Sterling's Toothed Toad</td>
</tr>
<tr>
<td><em>Pelophryne lineatensis</em></td>
<td></td>
</tr>
<tr>
<td><em>Pelophryne murudensis</em></td>
<td></td>
</tr>
<tr>
<td><em>Philautus jacobsoni</em></td>
<td></td>
</tr>
<tr>
<td><em>Platymantis insulatus</em></td>
<td>Gigante Island Frog</td>
</tr>
</tbody>
</table>

### Table 4. ASAP species – Birds

<table>
<thead>
<tr>
<th>Species</th>
<th>English name</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Acridotheres melanopterus</em></td>
<td>Black-winged Myna</td>
</tr>
<tr>
<td><em>Acridotheres tertius</em></td>
<td>Grey-rumped Myna</td>
</tr>
<tr>
<td><em>Acridotheres tricolor</em></td>
<td>Grey-backed Myna</td>
</tr>
<tr>
<td><em>Alcedo euryzona</em></td>
<td>Javan Blue-banded Kingfisher</td>
</tr>
<tr>
<td><em>Anthracoceros montani</em></td>
<td>Sulu Hornbill</td>
</tr>
<tr>
<td><em>Ardea insignis</em></td>
<td>White-bellied Heron</td>
</tr>
<tr>
<td><em>Aythya baeri</em></td>
<td>Baer's Pochard</td>
</tr>
<tr>
<td><em>Cacatua haematopus</em></td>
<td>Philippine Cockatoo</td>
</tr>
<tr>
<td><em>Cacatua sulphurea</em></td>
<td>Yellow-crested Cockatoo</td>
</tr>
<tr>
<td><em>Calidris pygmaea</em></td>
<td>Spoon-billed Sandpiper</td>
</tr>
<tr>
<td><em>Carpococcyx viridis</em></td>
<td>Sumatran Ground Cuckoo</td>
</tr>
</tbody>
</table>
### Table 4. ASAP species – Birds (continued)

<table>
<thead>
<tr>
<th>Species</th>
<th>English name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Centropus steerii</td>
<td>Black-hooded Coucal</td>
</tr>
<tr>
<td>Ceyx sangirensis</td>
<td>Sangihe Dwarf Kingfisher</td>
</tr>
<tr>
<td>Charmosyna toxopei</td>
<td>Blue-fronted Lorikeet</td>
</tr>
<tr>
<td>Cissa thalassina</td>
<td>Javan Green Magpie</td>
</tr>
<tr>
<td>Colluricincla sanghirensis</td>
<td>Sangihe Shrike-thrush</td>
</tr>
<tr>
<td>Columba argentina</td>
<td>Silvery Pigeon</td>
</tr>
<tr>
<td>Corvus unicolor</td>
<td>Banggai Crow</td>
</tr>
<tr>
<td>Cyornis ruckii</td>
<td>Rueck’s Blue-flycatcher</td>
</tr>
<tr>
<td>Dicaeum quadricolor</td>
<td>Cebu Flowerpecker</td>
</tr>
<tr>
<td>Eurochelidon sirintae</td>
<td>White-eyed River Martin</td>
</tr>
<tr>
<td>Eutrichomyias rowleyi</td>
<td>Cerulean Paradise-flycatcher</td>
</tr>
<tr>
<td>Fregata andrewsi</td>
<td>Christmas Frigatebird</td>
</tr>
<tr>
<td>Gallicolumba keayi</td>
<td>Negros Bleeding-heart</td>
</tr>
<tr>
<td>Gallicolumba menagei</td>
<td>Sulu Bleeding-heart</td>
</tr>
<tr>
<td>Gallicolumba platenaes</td>
<td>Mindoro Bleeding-heart</td>
</tr>
<tr>
<td>Garrulax rufifrons</td>
<td>Rufous-fronted Laughing thrush</td>
</tr>
<tr>
<td>Gracula robusta</td>
<td>Nias Hill Myna</td>
</tr>
<tr>
<td>Gracupica jalla</td>
<td>Javan Pied Starling</td>
</tr>
<tr>
<td>Gyps bengalensis</td>
<td>White-rumped Vulture</td>
</tr>
<tr>
<td>Gyps tenuirostris</td>
<td>Slender-billed Vulture</td>
</tr>
<tr>
<td>Houbaropsis bengalensis</td>
<td>Bengal Florican</td>
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<tr>
<td>Leucopsar rothschildi</td>
<td>Bali Starling</td>
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<tr>
<td>Lophura edwardsi</td>
<td>Edwards’s Pheasant</td>
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<td>Monarca boanensis</td>
<td>Black-chinned Monarch</td>
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<td>Nisaetus floris</td>
<td>Flores Hawk-eagle</td>
</tr>
<tr>
<td>Oriolus isabellae</td>
<td>Isabela Oriole</td>
</tr>
<tr>
<td>Otus siaoensis</td>
<td>Siau Scops-owl</td>
</tr>
<tr>
<td>Phapitron frontalis</td>
<td>Cebu Brown Dove</td>
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<td>Pithecophaga jefferyi</td>
<td>Philippine Eagle</td>
</tr>
<tr>
<td>Prioniturus verticalis</td>
<td>Sulu/Blue-winged Racquet-tail</td>
</tr>
<tr>
<td>Pseudibis davisoni</td>
<td>White-shouldered Ibis</td>
</tr>
<tr>
<td>Pitilinopus arcanus</td>
<td>Negros Fruit Dove</td>
</tr>
<tr>
<td>Rhabdotorhinus waldeni</td>
<td>Rufous-headed Hornbill</td>
</tr>
<tr>
<td>Rhinoplax vigil</td>
<td>Helmeted Hornbill</td>
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<td>Rhodonessa caryophyllacea</td>
<td>Pink-headed Duck</td>
</tr>
<tr>
<td>Sarcogyps calvus</td>
<td>Red-headed Vulture</td>
</tr>
<tr>
<td>Thalasseus bernsteini</td>
<td>Chinese Crested Tern</td>
</tr>
<tr>
<td>Thapsinillas platenae</td>
<td>Sangihe Golden Bulbul</td>
</tr>
<tr>
<td>Thaumatibis gigantea</td>
<td>Giant Ibis</td>
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<tr>
<td>Vanellus macrortermus</td>
<td>Javan Lapwing</td>
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<td>Zosterops nehrkorni</td>
<td>Sangihe White-eye</td>
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### Table 5: ASAP species – Mammals

<table>
<thead>
<tr>
<th>Species</th>
<th>English name</th>
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<tbody>
<tr>
<td>Ailurops melanotis</td>
<td>Talaud Bear Cuscus</td>
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<td>Axis kuhlii</td>
<td>Bawean Deer</td>
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### Table 5. ASAP species – Mammals (continued)

<table>
<thead>
<tr>
<th>Species</th>
<th>English name</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Bos sauveli</em></td>
<td>Khouprey</td>
</tr>
<tr>
<td><em>Bubalus mindorensis</em></td>
<td>Tamaraw</td>
</tr>
<tr>
<td><em>Bunomys coelestis</em></td>
<td>Lampobatang Bynomys</td>
</tr>
<tr>
<td><em>Crateromys australis</em></td>
<td>Dinagat Bushy-tailed Cloud Rat</td>
</tr>
<tr>
<td><em>Dendrolagus mayri</em></td>
<td>Wondiwoi Tree-kangaroo</td>
</tr>
<tr>
<td><em>Dendrolagus pulcherrimus</em></td>
<td>Golden-mantled Tree Kangaroo</td>
</tr>
<tr>
<td><em>Dicerorhinus sumatrensis</em></td>
<td>Sumatran Rhinoceros</td>
</tr>
<tr>
<td><em>Dobsonia chapmani</em></td>
<td>Philippine Bare-backed Fruit Bat</td>
</tr>
<tr>
<td><em>Macaca nigra</em></td>
<td>Celebes Crested Macaque</td>
</tr>
<tr>
<td><em>Macaca pagenis</em></td>
<td>Pagai Island Macaque</td>
</tr>
<tr>
<td><em>Manis javanica</em></td>
<td>Sunda Pangolin</td>
</tr>
<tr>
<td><em>Manis pentadactyla</em></td>
<td>Chinese Pangolin</td>
</tr>
<tr>
<td><em>Melomys fraterculus</em></td>
<td>Manusela Melomys</td>
</tr>
<tr>
<td><em>Muntiacus vuquangensis</em></td>
<td>Large-antlered Muntjac; Giant Muntjac</td>
</tr>
<tr>
<td><em>Nomascus concolor</em></td>
<td>Black Crested Gibbon</td>
</tr>
<tr>
<td><em>Nomascus leucogenys</em></td>
<td>Northern White-cheeked Gibbon</td>
</tr>
<tr>
<td><em>Nomascus nasutus</em></td>
<td>Cao-vit Crested Gibbon</td>
</tr>
<tr>
<td><em>Nycticebus javanicus</em></td>
<td>Javan Slow Loris</td>
</tr>
<tr>
<td><em>Pongo abelii</em></td>
<td>Sumatran Orangutan</td>
</tr>
<tr>
<td><em>Pongo pygmaeus</em></td>
<td>Bornean Orangutan</td>
</tr>
<tr>
<td><em>Presbytis chrysomelas</em></td>
<td>Sarawak Surili; Bornean Banded Langur</td>
</tr>
<tr>
<td><em>Pseudoryx nghetinhensis</em></td>
<td>Saola</td>
</tr>
<tr>
<td><em>Pteropus aruensis</em></td>
<td>Aru Flying-fox</td>
</tr>
<tr>
<td><em>Pygathrix cinerea</em></td>
<td>Grey-shanked Douc Langur</td>
</tr>
<tr>
<td><em>Rhinoceros sondaicus</em></td>
<td>Javan Rhinoceros</td>
</tr>
<tr>
<td><em>Rhinopithecus avunculus</em></td>
<td>Tonkin Snub-nosed Monkey</td>
</tr>
<tr>
<td><em>Rhinopithecus strykeri</em></td>
<td>Myanmar Snub-nosed Monkey</td>
</tr>
<tr>
<td><em>Simias concolor</em></td>
<td>Pig-tailed Langur; Pig-tailed Snub-nosed Monkey</td>
</tr>
<tr>
<td><em>Spilocuscus rufoniger</em></td>
<td>Black-spotted Cuscus</td>
</tr>
<tr>
<td><em>Spilocuscus wilsoni</em></td>
<td>Blue-eyed Spotted Cuscus</td>
</tr>
<tr>
<td><em>Sus cebifrons</em></td>
<td>Visayan Warty Pig</td>
</tr>
<tr>
<td><em>Tarsius tumpara</em></td>
<td>Siau Island Tarsier</td>
</tr>
<tr>
<td><em>Trachypithecus delacouri</em></td>
<td>Delacour’s Langur</td>
</tr>
<tr>
<td><em>Trachypithecus poliocephalus</em></td>
<td>White-headed Langur; Cat Ba Langur</td>
</tr>
<tr>
<td><em>Uromys boeadii</em></td>
<td>Biak Giant Rat</td>
</tr>
<tr>
<td><em>Uromys emmae</em></td>
<td>Emma’s Giant Rat</td>
</tr>
<tr>
<td><em>Zaglossus attenboroughi</em></td>
<td>Sir David’s Long-beaked Echidna</td>
</tr>
<tr>
<td><em>Zaglossus bruijnii</em></td>
<td>Western Long-beaked Echidna</td>
</tr>
</tbody>
</table>

### Table 6. ASAP species – Reptiles

<table>
<thead>
<tr>
<th>Species</th>
<th>English name</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Batagur affinis</em></td>
<td>Southern River Terrapin</td>
</tr>
<tr>
<td><em>Batagur baska</em></td>
<td>Northern River Terrapin</td>
</tr>
<tr>
<td><em>Batagur borneoensis</em></td>
<td>Painted Terrapin</td>
</tr>
<tr>
<td><em>Brachymeles cebuensis</em></td>
<td>Cebu Small Worm Skink</td>
</tr>
<tr>
<td><em>Calamaria ingeri</em></td>
<td></td>
</tr>
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</table>
### Table 6. ASAP species – Reptiles (continued)

<table>
<thead>
<tr>
<th>Species</th>
<th>English name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calamaria prakkei</td>
<td>Prakke's Reed Snake</td>
</tr>
<tr>
<td>Chelodina mccordi</td>
<td>Roti Island Snake-necked Turtle</td>
</tr>
<tr>
<td>Chitra chitra</td>
<td>Asian Narrow-headed Softshell Turtle</td>
</tr>
<tr>
<td>Cuora bouretti</td>
<td>Bouret's Box Turtle</td>
</tr>
<tr>
<td>Cuora picturata</td>
<td>Southern Viet Nam Box Turtle</td>
</tr>
<tr>
<td>Crocodylus mindorensis</td>
<td>Philippines Crocodile</td>
</tr>
<tr>
<td>Crocodylus siamensis</td>
<td>Siamese Crocodile</td>
</tr>
<tr>
<td>Cuora galbinifrons</td>
<td>Indochinese Box Turtle</td>
</tr>
<tr>
<td>Cuora trifasciata</td>
<td>Chinese Three-striped Box Turtle</td>
</tr>
<tr>
<td>Eretmochelys imbricata</td>
<td>Hawksbill Turtle</td>
</tr>
<tr>
<td>Geochelone platynota</td>
<td>Burmese Starred Tortoise</td>
</tr>
<tr>
<td>Gongylosoma mukutense</td>
<td>Pulau Tioman Ground Snake</td>
</tr>
<tr>
<td>Heosemys depressa</td>
<td>Arakan Forest Turtle</td>
</tr>
<tr>
<td>Leucocephalon yuwonoi</td>
<td>Sulawesi Forest Turtle</td>
</tr>
<tr>
<td>Lycodon chrysoprateros</td>
<td>Ross's Wolf Snake</td>
</tr>
<tr>
<td>Mauremys annamensis</td>
<td>Vietnamese Pond Turtle</td>
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<tr>
<td>Oligodonbooliati</td>
<td>Boo-Liat's Kukri Snake</td>
</tr>
<tr>
<td>Rafetus swinhoei</td>
<td>Yangtze Giant Softshell Turtle</td>
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<tr>
<td>Siebenrockiella leytensis</td>
<td>Palawan Forest Turtle</td>
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</table>

### Table 7. ASAP species – Fishes

<table>
<thead>
<tr>
<th>Species</th>
<th>Other names</th>
<th>English name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aaptosyax grypus</td>
<td></td>
<td>Mekong Giant Salmon Carp</td>
</tr>
<tr>
<td>Adrianichthys kruyti</td>
<td></td>
<td>Duck-billed Buntingi</td>
</tr>
<tr>
<td>Balantiocheilos ambusticauda</td>
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<td>Siamese Bala-shak</td>
</tr>
<tr>
<td>Betta miniopinna</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Betta persephone</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Betta simplex</td>
<td></td>
<td>Krabi Mouth Brooding Betta</td>
</tr>
<tr>
<td>Betta spliotogetna</td>
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<td></td>
</tr>
<tr>
<td>Catlocarpio siamensis</td>
<td></td>
<td>Giant Carp</td>
</tr>
<tr>
<td>Cephalakompsus pachycheilus</td>
<td>Barbodes pachycheilus</td>
<td></td>
</tr>
<tr>
<td>Ceratoglanis pachynema</td>
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<tr>
<td>Chilatherina sentaniensis</td>
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<td>Sentani Rainbowfish</td>
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<td>Datnioides pulcher</td>
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<td>Siamese Tiger Perch</td>
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<td>Encheloclarias curtisoma</td>
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<tr>
<td>Encheloclarias kelioiides</td>
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<tr>
<td>Epalzeorhynchos bicolor</td>
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<td>Redtail Sharkminnow</td>
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<tr>
<td>Glyphis siamensis</td>
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<td>Irrawaddy River Shark</td>
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<tr>
<td>Hampala lopezi</td>
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<tr>
<td>Mandibularca resinus</td>
<td>Barbodes resimus</td>
<td>Bagandelier</td>
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<tr>
<td>Nemacheilus troglocataractus</td>
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<tr>
<td>Oreoglanis lepturus</td>
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<td>Ospatulus truncatus</td>
<td>Barbodes truncatulus</td>
<td>Bitungu</td>
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<tr>
<td>Pandaka pygmaea</td>
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<td>Dwarf Pygmy Goby</td>
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<tr>
<td>Pangasianodon gigas</td>
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<td>Mekong Giant Catfish</td>
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<td>Pangasius sanitwongsei</td>
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<td>Giant Pangasius</td>
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<table>
<thead>
<tr>
<th>Species</th>
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<th>English name</th>
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<tr>
<td>Pristis pristis</td>
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<td>Largetooth Sawfish</td>
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<td>Pristis zijsron</td>
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<td>Green Sawfish</td>
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<td>Puntius amarus</td>
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<td>Puntius baoulan</td>
<td>Barbodes baoulan</td>
<td>Baolan</td>
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<td>Puntius clemensi</td>
<td>Barbodes clemensi</td>
<td>Bagangan</td>
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<td>Puntius compressiformis</td>
<td>Systomus compressiformis</td>
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<td>Barbodes flavifuscus</td>
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<tr>
<td>Puntius herrei</td>
<td>Barbodes herrei</td>
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<td>Puntius katalo</td>
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<td>Katolo</td>
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<td>Barbodes manalak</td>
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<td>Schistura leukensis</td>
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<td>Schistura spiloptera</td>
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<td>Schistura tenura</td>
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<td>Sewellia albisuera</td>
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<td>Sewellia breviventralis</td>
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<td>Butterfl y Loach</td>
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<td>Spratelixcypris palata</td>
<td>Barbodes palata</td>
<td>Palata</td>
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<td>Trigonostigma somphongsii</td>
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<td>Somphongs's Rasbora</td>
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<td>Weberogobius amadi</td>
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<td>Po so Bungu</td>
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<tr>
<td>Xenopoecilus poptae</td>
<td></td>
<td>Popta's Buntingi</td>
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</tbody>
</table>

Table 7. ASAP species – Fishes (continued)
Developing the Key Biodiversity Areas Standard

Penny Langhammer, Co-Chair IUCN WCPA/SSC Joint Task Force on Biodiversity and Protected Areas

Stephen Woodley, Co-Chair IUCN WCPA/SSC Joint Task Force on Biodiversity and Protected Areas

Key achievements

- *A Global Standard for the Identification of Key Biodiversity Areas* was approved at the 88th meeting of IUCN Council in April 2016 and launched at the 2016 IUCN World Conservation Congress in Honolulu, Hawaii, in September.

- A Key Biodiversity Areas Partnership comprising eleven of the world’s leading nature conservation organisations was formed to map, monitor and conserve the most important sites for biodiversity on earth. The agreement establishing this partnership was signed in a special ceremony at the IUCN World Conservation Congress.
Overview

Since its inception, the IUCN WCPA/SSC Joint Task Force on Biodiversity and Protected Areas has mobilised input from experts in the IUCN Commissions, Members and Secretariat staff, other conservation organisations, academia, governments, donors and the private sector to consolidate a global standard for the identification of Key Biodiversity Areas (KBAs). KBAs are sites that contribute significantly to the global persistence of biodiversity and can be identified in terrestrial, freshwater and marine environments. The KBA Standard was developed in response to Resolution WCC 3.013 passed by IUCN Members in 2004. The Resolution requested the SSC and WCPA to convene a worldwide consultation process to agree a methodology to enable countries to identify Key Biodiversity Areas, drawing on data from the IUCN Red List of Threatened Species and other datasets, and building on existing approaches to identify important sites for biodiversity, including Important Bird and Biodiversity Areas and Alliance for Zero Extinction sites.

The aims of the KBA Standard are to:

- Harmonise existing approaches to the identification of important sites for biodiversity;
- Support the identification of important sites for elements of biodiversity not considered in existing approaches;
- Provide a system that can be applied consistently and in a repeatable manner by different users and institutions in different places and over time;
- Ensure that KBA identification is objective, transparent and rigorous through application of quantitative thresholds;
- Provide decision-makers with improved understanding of why particular sites are important for biodiversity.

The KBA Standard is a short document consisting of the criteria, thresholds, delineation procedures, and definitions of terms for identifying sites as KBAs. It is available in English, French and Spanish on the IUCN website.

Activities

Completion of the KBA Standard and adoption by IUCN Council

The final circulation of the draft KBA Standard was issued to all IUCN Members and Commission members on 9 September 2015. This coincided with the 2015 SSC Leaders’ Meeting in Abu Dhabi, where considerable outreach was conducted with SSC Specialist Group and Task Force Chairs. Also, in attempt to engage more government members in the second consultation, the CBD Secretariat sent a formal notification to the Parties. These efforts yielded high quality feedback from more than 130 individuals and institutions, and raised the profile of KBAs and the Standard among key constituencies. The final comment period closed on 11 October and each of the 620 comments was subsequently worked through and addressed. The original comments and their detailed responses were posted to the Union Portal and a dedicated external website www.kbaconsultation.org.

Most of the comments centered around the following issues:

- Taxa that can trigger criterion A1 on threatened species (species vs. species and infraspecific taxa);
- The proxy metrics that can be used to infer the criteria D thresholds (on biological processes, such as demographic aggregations, ecological refugia and source populations);
- Whether or not to retain the functional reproductive units thresholds in the criteria;
- The relationship between KBAs and existing initiatives/conservation priorities;
- The definitions of a number of key terms;
- Applicability of the criteria and thresholds on the high seas and deep ocean.

A number of meetings were held in early 2016 to reach agreement on all the outstanding issues regarding the KBA criteria. The remaining botanical issues were largely resolved in a meeting held on 8 January 2016 at the Royal Botanic
Gardens, Kew. At the meeting, the overall relationship between the KBA criteria and the Tropical Important Plant Area (TIPA) criteria were agreed. This meeting was followed by a meeting of the KBA editorial team which reached agreement on most of the remaining issues.

The final version of the Standard was sent to the SSC and WCPA Steering Committees in March 2016, through the Commission Chairs, for review. Once their few comments were addressed, the document was forwarded to IUCN Council for consideration at their 88th meeting. A Global Standard for the Identification of Key Biodiversity Areas was formally approved by IUCN Council on 13 April 2016, capping off more than a decade of work to consolidate an umbrella standard for the identification of sites qualifying as KBAs.

It is hard to exaggerate the significance of the final adoption of the KBA Standard. Although the process took several years longer than originally planned, it is now clear that everyone hugely underestimated the significant scientific challenges that had to be addressed, and also the time that it takes to build consensus around highly complex issues. The adoption of the KBA Standard means that the conservation community now has a unified means to identify important sites for biodiversity and a common currency for site conservation.

Launch of the KBA Standard and parallel events at the World Conservation Congress

The KBA Standard was launched at the 2016 IUCN World Conservation Congress in the Protected Planet Pavilion. The event, entitled “Supporting protected area designation and management through identifying the most important sites for biodiversity”, began with opening remarks by Simon Stuart, SSC Chair, and Stephen Woodley, on behalf of Kathy MacKinnon, WCPA Chair. Presentations covered the consultation process to develop the Standard including the end-user consultation, an overview of the Standard itself, the work to test the KBA criteria and thresholds, and the envisioned process for nominating sites as KBAs. The session concluded with a case study from BirdLife Botswana on how KBAs identified for birds have informed protected area management in Botswana.
The KBA Standard was profiled in several other events at the World Conservation Congress including a workshop entitled “KBA Consultative Forum: exchanging experience on application of the KBA Standard at the national level”, a workshop on “How can biodiversity data help the private and finance sectors manage risks”, and an IUCN Knowledge Hub dedicated to KBAs.

The Joint Task Force, in collaboration with BirdLife International, convened a half-day Conservation Campus on the KBA Standard, in which participants received a detailed introduction to the criteria, thresholds, and delineation guidelines in the Standard and applied this knowledge in a series of practical exercises involving real data from multiple regions and taxonomic groups. This Conservation Campus will form the basis of a training course on the KBA Standard to be developed alongside detailed user guidelines.

Formation of the Key Biodiversity Areas Partnership

In parallel to completion of the Standard, 2016 saw the development of a major new partnership to support and govern its implementation. Eleven of the world’s leading nature conservation organisations met in February 2016 in Cambridge, UK to negotiate the details and objectives of a Key Biodiversity Areas Partnership. These negotiations were extremely difficult and complex, but after three days of very intensive discussions, “in principle” agreement was reached. In the weeks following the meeting, Simon Stuart led the process to draft the KBA Partnership Agreement.

The KBA Partnership will mobilise the expertise, experience and resources of the partner organisations to:

- Identify, map and document thousands of Key Biodiversity Areas worldwide;
- Promote targeted conservation action in Key Biodiversity Areas; and
- Inform and influence public policy and private sector decision-making.

A KBA Committee representative of the Partnership was formed in September 2016 to serve as the governance body of this new KBA Programme. The KBA Committee is charged with providing oversight of the implementation of strategic plans, priorities and work plans, making strategic decisions and taking actions to enhance the implementation of the KBA Programme.

The KBA Partnership was formally launched at the 2016 World Conservation Congress in a high-profile event in the Species Pavilion at which the eleven Partners signed the Partnership agreement and spoke to the importance of KBAs for their organisations. The founding members are the Amphibian Survival Alliance, BirdLife International, Conservation International, Critical Ecosystem Partnership Fund, Global Environment Facility, Global Wildlife Conservation, IUCN, NatureServe, RSPB, Wildlife Conservation Society and WWF. The KBA Partnership will serve as a means for the or-
ganisations to coordinate activities related to site identification, conservation and analysis, and to share information, expertise and insights for the benefit of biodiversity conservation.
The website http://www.keybiodiversityareas.org was launched in advance of the World Conservation Congress. It provides information on KBAs and how they are identified, end use applications of KBA, the KBA Partnership itself, and how people can get involved.

The website provides access to the World Database of Key Biodiversity Areas™, which users can search to find detailed information and maps for sites identified as KBAs.

Next steps and road map for 2017

With the completion of the KBA Standard, the focus will turn toward implementation by the KBA Partnership. A priority for the Joint Task Force in 2017 will be publishing peer-reviewed papers on the KBA Standard, the work undertaken to test the criteria and thresholds, and the relationship between KBAs and systematic conservation planning. The Task Force will also support the development of the KBA Standards and Appeals Committee, an independent body that will work to ensure that the original intent of A Global Standard for the Identification of Key Biodiversity Areas is not compromised.

The committee will be responsible for developing and updating the detailed user guidelines to accompany the KBA Standard and adjudicating on any formal Appeals against the identification or the delineation of a site as KBA. The development of the user guidelines and associated training materials will be a major priority in 2017, requiring substantial input from those heavily involved in developing the Standard.
Invasive Species Specialist Group

Piero Genovesi, Chair, IUCN SSC Invasive Species Specialist Group

Shyama Pagad, Programme Officer, IUCN SSC Invasive Species Specialist Group

Key achievements

• The IUCN SSC Invasive Species Specialist Group (ISSG) played a key role in the conception and initiation of the Honolulu Challenge on invasive species at the IUCN World Conservation Congress.

• ISSG is working with the Secretariat of the Convention on Biological Diversity (CBD) and the Global Invasive Alien Species Information Partnership (GIASIP) in developing the Global Register of Introduced and Invasive Species (GRIIS).

• ISSG is leading the work on the development and updating of Biodiversity Indicators and Sustainable Development Goal Indicator related to Invasive Alien Species.

• ISSG has developed a blueprint for the establishment of a platform for the Invasive Alien Species Information System, including integration with other IUCN and partner knowledge products.

• Significant advances were made in developing the Environmental Impact Classification of Alien Taxa (EICAT).
Background

The IUCN SSC 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 (IAS), and of ways to prevent, control or eradicate them. It currently has 210 core members from over 35 countries and a wide informal global network of over 2,000 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; and,
- Information exchange through online resources and tools and through networking.

Activities

During 2016, the ISSG continued to mainstream IAS issues at the global, regional and national levels, working with global conventions and institutions such as the Convention on Biological Diversity (CBD) and the Global Biodiversity Information Facility (GBIF); regional institutions such as the European Commission, the Secretariat of the Pacific Regional Environment Programme (SPREP); and National governments such as South Africa, Japan, the United Arab Emirates and several European countries. Below are some of the highlights of this area of work.

ISSG collaboration with the Convention on Biological Diversity

IUCN/ISSG and the IUCN Global Species Programme Invasive Species Initiative (ISI) signed a Memorandum of Cooperation with the Secretariat of the CBD in 2012. The main objective of the Memorandum is to promote collaborative activities with the SCBD and other organisations focused on facilitating access, exchange and analysis of information on IAS. This work supports Parties to the CBD and other stakeholders to: a) implement CBD Article 8(h) by preventing invasions, and controlling and eradicating IAS; b) achieve Aichi Biodiversity Target 9 in the Strategic Plan for Biodiversity 2011-2020. The establishment of the Global Invasive Alien Species Partnership (GIASIP) has facilitated this objective.

The ISSG is leading the development of the Global Register of Introduced and Invasive Species (GRIIS) and a toolbox related to pathways of introduction and spread of IAS within the framework of the GIASIP, working with partners including the Global Biodiversity Information Facility (GBIF). Both GRIIS and the pathways toolbox are designed to support stakeholders to make progress towards achieving Aichi Target 9.

GRIIS presents annotated and verified country-specific inventories of introduced and invasive species. Annotations include synonyms, higher taxonomy, alien/native status, environment/system in which the species occurs, a yes/no for evidence of impact, and a yes/no to indicate if the species record has been verified. All information sources for all species records are included. Global coverage (all 195 countries that are Parties to the CBD) was achieved in 2016. GRIIS was presented at the CBD COP 13 in Cancun, Mexico, in December 2016.

The Chair of the ISSG attended COP 13 and contributed to all the discussions to do with IAS, where the positive role of the ISSG was very visible. IAS were mentioned in the Cancun Declaration among the key threats to biodiversity (preamble 3), and also among the key issues to address in fisheries and aquaculture.

The role of ISSG in the compilation and circulation of key data on invasive species has been positively stressed during the COP and included in the final decision. A GIASIP side event - co-organised by ISSG, GBIF and the CBD Secretariat – showcased the progress made in this direction. The ISSG was mentioned in CBD Decision texts a number of times acknowledging the value of its work in providing data and knowledge and calling for resources to support its work on IAS.

2 Article 8(h) of the CBD https://www.cbd.int/idb/2009/about/cbd/
3 Aichi Biodiversity Target 9 - By 2020, invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment. [https://www.cbd.int/aichi-targets/target/9]
4 Strategic Plan for Biodiversity 2011-2020 https://www.cbd.int/sp/
6 Global Register of Introduced and Invasive Species (GRIIS) http://www.griis.org/
Paragraphs 22(b) and 24 in particular, which request the Executive Secretary and invite Parties and other governments to continue providing support and investing in data collation and in the development and circulation of new knowledge through IUCN tools (incl. through the GIASI Partnership), explicitly mentioning the IUCN Global Invasive Species Database (GISD) and the GRIIS.

The ISSG produced a brief on biocontrol for delegates to support the discussions on the Annex to Decision Xiii/13. The discussion required a consultation among Australia, South Africa, Brazil and the European Union; the ISSG Chair took part in the discussion that led to an agreed text. The resulting Annex will now serve as a basis for a joint IUCN/CBD technical report on Technical Considerations for the use of biocontrol agents to be published later in 2017. France, that had a key role in starting the discussion on biocontrol, expressed a very positive judgment on the IUCN role in the production of the brief on the issue.

ISSG at the IUCN World Conservation Congress

Piero Genovesi and Shyama Pagad, as well as several members of the ISSG, attended the IUCN World Conservation Congress (WCC) in Honolulu in September 2016, contributing to many events.

The ISSG co-organised a Conservation Campus entitled “Make it a Priority and Make it Stick” on “How to Effectively Institutionalise Invasive Alien Species Programmes”. The event was attended by several key actors, including Braulio Diaz, Executive Secretary of the Convention on Biological Diversity. ISSG organised an event on “Showcasing the IUCN knowledge products that help achieve the CBD Aichi Target 9 and the Sustainable Development Goals Target 15”, where the Honolulu Challenge was presented and discussed.

ISSG attended several other events, including the Conservation Campus “Islands at Risk: Meeting the Global Challenge of Invasive Alien Species”, and a Knowledge Café on “Rewilding: what is it, and why is it important?”.

Honolulu Challenge

During the 2016 IUCN WCC in Honolulu, there was a call from the Union and the host community in Hawaii, including experts, governmental and intergovernmental representatives, NGOs, and protected area managers for greater action on addressing IAS in order to protect biodiversity and human wellbeing from their impacts.
The Honolulu Challenge was conceived and key actions were identified for this aim to be achieved including:

- Multiplication of efforts to develop and enact effective biosecurity policies and programmes for countries and islands.
- Enforce effective measures to address priority pathways of invasions, including efforts to strengthen collaboration with relevant sectors in particular agriculture and health.
- Greatly increase the number and scale of IAS eradications, especially on islands and in other priority sites; by 2020 there will be a doubling of commitments to achieve this goal.
- Substantially increase resources for IAS management and control.
- Integrate IAS into planning and management of protected areas and Key Biodiversity Areas.
- Invest in the development, application and sharing of innovative technologies, and other solutions to prevent further invasions, and eradicate and control IAS.
- Institutionalise IAS programmes across governmental ministries, cooperating with the private sector, NGOs, indigenous peoples and local communities, and other stakeholders on programme implementation.
- Support assessments on the social and economic impacts of IAS.
- Engage with relevant sectors and civil society to raise awareness of the negative impacts of IAS including the compounded impacts of under climate change, and increase public support for potential solutions.
- Work with public and private financial institutions to increase international finance flows and mobilise domestic resources for addressing biological invasions.
- Enable enhanced knowledge on IAS, their impacts, and pathways of invasion, through investment in data collection, standardisation, sharing and open access.

Supporters of the Honolulu Challenge include organisations attending the 2016 IUCN World Conservation Congress who were part of the development of the Honolulu Challenge, and additional organisations who have lent their support since the Congress. Commitments towards achieving the Honolulu Challenge were made by leading agencies and institutions including the Department of Conservation (DOC) of New Zealand, the Department of Environment, Food and Rural Affairs (DEFRA) in the UK, the Australian Commonwealth Scientific and Industrial Research Organisation (CSIRO), BirdLife International, Island Conservation and the Grupo de Ecología y Conservación de Islas, A.C. (GECI).

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During the CBD COP 13, New Zealand made a statement in the High Level Dialogue section offering to take a global lead on invasive species issues in support of the Honolulu Challenge. New Zealand wants to have a programme identified by June 2017, to begin by the end of 2017. A very successful side event was run, where all the major supporters of the Challenge highlighted the work they were doing to help meet its aim. Additional text was added to the text of Decision XIII/13 21 “Welcoming the Honolulu Challenge on Invasive Alien Species”. During the closing plenary the UK government also announced an official commitment to the Honolulu Challenge, to spend £2.75 million on assisting its Overseas Territories to develop biosecurity measures and undertake eradications. The interest and momentum generated on the Honolulu Challenge was well-received, and IUCN, which is leading the Challenge, will now develop its own website and metrics to monitor progress.

ISSG and the Global Biodiversity Information Facility (GBIF)

ISSG is working closely with GBIF in the integration of the GRIIS inventories within the GBIF system and within the SCBD’s Clearing House Mechanism. ISSG members were included in a group of experts convened by GBIF tasked with making recommendations on how data shared through the network can best serve the needs of research into IAS. The Task group on data fitness for use in research into invasive alien species also gathered views from specialists around the world on the data currently available to further such research, and how it may be enhanced.

ISSG and the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES)

The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) is the intergovernmental body which assesses the state of biodiversity and of the ecosystem services that biodiversity provides to society, in response to requests from decision makers.

The mission of IPBES is to strengthen the science-policy interface for biodiversity and ecosystem services for the conservation and sustainable use of biodiversity, long-term human well-being and sustainable development. Deliverable 3(b)(ii) of the IPBES workplan includes the preparation of “Thematic assessments on IAS” and their control. This assessment is to assess the threat that IAS pose to biodiversity, ecosystem services and livelihoods and the global status of and trends in impacts of IAS by region and sub-region, taking into account various knowledge and value systems.

The ISSG has coordinated with the IUCN Science and Knowledge Unit to ensure coordinated support to the IPBES regional assessments. Several ISSG members from different regions have provided key contributions to the IPBES assessments.

ISSGs work in the European Union

The ISSG is continuing to provide technical support to the European institutions, states, and non governmental organisations, in the implementation of the European Union (EU) Regulation 1143 on invasive alien species.

The Chair of the ISSG is a member of the Scientific Forum for the implementation of the Regulation, and is working in close collaboration with the IUCN Regional Office in Brussels and with the Invasive Species Programme Officer of the IUCN Global Species Programme to provide support to the European Commission on the issue.

ISSG Biodiversity Indicators and Sustainable Development Goal Indicator

The Biodiversity Indicators Partnership (BIP) is a global initiative to promote the development and delivery of biodiversity indicators. Its primary role is to serve the global user community by responding to the indicator requests of the CBD and other biodiversity related Conventions, for IPBES, for reporting on the Sustainable Development Goals, and for use by national governments and regional entities.

The ISSG is a lead partner in the development of IAS related biodiversity indicators. The ISSG is currently working on the updates of three key indicators: a) Proportion of countries adopting relevant national legislation and adequately resourcing the prevention or control of IAS; b) Trends in the numbers of IAS introduction events; and c) Trends in IAS vertebrate eradications. The results of Indicator (a) will also measure the response to SDG Target 15.8 “by 2020 introduce measures to prevent the introduction and significantly reduce the impact of invasive alien species on land and water ecosystems, and control or eradicate the priority species”.

Supporting countries

United Arab Emirates (UAE)

In response to a request from the former Ministry of Environment and Water (MoEW) now Ministry of Climate Change and the Environment (MOCCAE), United Arab Emirates (UAE), to provide guidance and support in the development of

10 Task group on data fitness for use in research on invasive alien species

http://www.gbif.org/newsroom/news/invasive-alien-species-task-group-launched

11 Biodiversity Indicators Partnership https://www.bipindicators.net/
an annotated inventory of IAS, the ISSG proposed a programme of work that would be jointly undertaken by the MOC-CAE and IUCN leading to the development of a National Invasive Species Strategy and Action Plan.

The process identified three distinct steps including:

1. The development of a “situation analysis” that included a systematic collection and evaluation of past and present activities related to the issue of biological invasions and related cross-cutting issues. The situation analysis includes a draft annotated checklist of alien and invasive species.

2. A Validation and Prioritisation Workshop which will identify the overarching invasive species priorities for the UAE and refine and finalise the annotated invasive alien species inventory that includes all known alien species – known invasive species as well as potentially invasive species. The second step will include a horizon-scanning exercise to identify possible future invasive species and their pathways, followed by the application of the Environmental Impact Classification of Alien Taxa (EICAT) process\(^\text{12}\) which has been developed by ISSG to systematically categorise the impacts of individual invasive species.

3. The development of a National Invasive Species Strategy and Action Plan which will guide cross-sector policy and legislative developments, institutional activities and action on the ground.

An IAS criteria document was prepared that outlined a simple stepwise process that described criteria to aid the classification of species as “Alien”, Invasive Alien Species’ and “Potentially Invasive Alien Species”. A “situation analysis” of the state of biodiversity within the context of the threat of biological invasions was prepared. The analysis included response to this threat (both legislative and action on the ground) and a description of stakeholders. The analysis also included a draft annotated inventory of alien and invasive species.

For a first step the UAE National Biodiversity Committee established a national team with experts from each competent authority. The Committee, which led the project, contacted experts from universities, governments, private sector, NGOs as well as research centers to review the initial list of IAS provided and provide further information in preparation for the validation workshop. The experts were divided into groups depending on their background and expertise in taxonomy. Pre-workshop meetings took place in order to familiarise experts with the IUCN suggested criteria and to further enhance and develop it as well as to study the initial lists of invasive species and the lists of all imported species to the UAE. A “Validation and Prioritisation Workshop” then was jointly held by the MoCCE and IUCN in Dubai on the 30-31 May 2016. A final report that will summarise all the results of the workshop discussions and a final version of the inventory is under preparation.

South Africa and South Africa National Biodiversity Institute (SANBI)

ISSG signed a data-sharing agreement with SANBI committing to share information and data on IAS related to South Africa and other relevant countries. SANBI is mandated in terms of the National Environmental Biodiversity Act (NEMBA) Section 11 (1) (j) to establish and maintain biodiversity databases, and aims to be the preferred source of such information and information.

This agreement also follows the long collaboration of the ISSG with South African institutions and research groups. The ISSG Chair is also International Scientific Advisor of the Center of Invasion Biology (CIB), University of Stellenbosch, and is regularly invited to attend the meetings of the Center.

In 2016 the CIB organised a workshop on “Non-native species in urban environments: patterns, processes, impacts and challenges” that was held in Lanzerac, Stellenbosch on 7-9 November, and immediately after the CIB held its Annual Research Meeting. The ISSG Chair attended both events, contributing to the discussion, reporting on the Honolulu Challenge, and evaluating the programme of work of the CIB.

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Hawaii

During the WCC, the ISSG Chair spent a full day with the Hawaii biosecurity team to learn about the state activities on the issue, and discuss possible collaborations.

Progressing the development of the IUCN Environmental Impact Classification for Alien Taxa (EICAT) to prioritise invasive species

ISSG continued the work aimed at developing an IUCN methodology for ranking invasive species based on their impact, as a contribution toward the achievement of Aichi Target 9. For this aim, in March 2016 a workshop was organised in the Pruhonice (Czech Republic) to further improve the application of the Environmental Impact Classification of Alien Taxa (EICAT). Several draft assessment have been presented, and a procedure for the application of the methodology was agreed. ISSG also worked at integrating EICAT into the Global Invasive Species Database. Below a tentative graphic display of the EICAT is presented.

A Resolution on the EICAT, prepared by ISSG with several international partners, was submitted to the IUCN World Conservation Congress with the title: “Toward an IUCN standard classification of the impact of invasive alien species”. The Motion was approved with a 98% of support from Governmental Organisations, and 99% from NGOs. The Motion asks to conduct a consultation process involving all relevant stakeholders within IUCN to finalise EICAT, integrating the outcomes into the IUCN Global Invasive Species Database and the IUCN Red List of Threatened Species. Also, it requests the IUCN Council to adopt the EICAT as the IUCN standard for classifying alien species in terms of their environmental impact. Several papers discussed the potential uses of EICAT to improve the global work on invasi-
ve species. With the aim of implementing the Motion, ISSG has started working with the IUCN Species Programme at designing a consultation process for the EICAT.

**Knowledge and data dissemination**

**Information Services**

IAS-related knowledge and data dissemination is a core business of the ISSG. ISSG provides services to support stakeholders with information supporting stakeholders and providing links to experts, including: a) a referral system for information and links to experts; and b) a dynamic list service with over 1,400 global members that provides a platform for discussion and exchange of knowledge and expertise.

**Global Invasive Species Database (GISD) and Global Register of Introduced and Invasive Species (GRIIS) - Integration with IUCN knowledge products**

ISSG’s key knowledge products are the Global Invasive Species Database (GISD) and the Global Register of Introduced and Invasive Species (GRIIS). The GISD presents known IAS profiles and GRIIS presents country-specific inventories of introduced and invasive species. There will be a major update of the restructured GISD and achievement of global coverage of GRIIS in 2017. Integration of ISSG knowledge products with other IUCN knowledge products is a priority. The link between the GISD and the IUCN Red List of Threatened Species has been activated providing users of both the knowledge products access to additional valuable information.

Two additional sources are under development, one focused on pathways of introduction of IAS, and the other documenting the presence, impact and management of IAS on islands, protected areas and other areas of high biodiversity value (including Key Biodiversity Areas). ISSG also collaborates with partners in the development and management of other knowledge products related to IAS. These include: the World Register of Introduced Marine Species (WRIMS) (which is a nested database within the World Register of Marine Species (WoRMS)); the Database of Island Invasive Species Eradications (DIISE); and the Threatened Island Biodiversity Database (TIB).

**Further collaborations and inputs to IUCN**

The ISSG Chair and Programme Officer maintained a constant collaboration with several offices, programmes, and Specialist Groups of the IUCN. Piero Genovesi is a member of the SSC Steering Committee and attended the meeting of the Steering Committee at the WCC in Hawaii. Several activities on invasive species are carried out in collaboration with the Global Species Programme of IUCN, in particular with the Invasive Species Programme Officer, Kevin Smith, based at the IUCN office in Cambridge UK. A meeting was held in Cambridge in January 2016 to strengthen collaboration with the Invasive Species Programme Officer.

The ISSG also collaborates frequently with several other SSC Specialist Groups on issues related to invasive species. Piero Genovesi took part to a Global Commons Dialogue, organised jointly by IUCN and GEF, held in Washington in October 2016, where he provided inputs to the Science Day, and facilitate a discussion on novel entities.

16 Global Invasive Species Database http://www.iucngisd.org/gisd/
17 World Register of Introduced Marine Species (WRIMS) http://www.marinespecies.org/introduced/
18 Database of Island Invasive Species Eradications (DIISE) http://diise.islandconservation.org/
19 Threatened Island Biodiversity Databases (TIB) http://tib.islandconservation.org/
Key achievements

- The IUCN SSC Guidelines for Assessing Species’ Vulnerability to Climate Change were completed and launched at the IUCN World Conservation Congress in Honolulu in September 2016. The guidelines, which represent the combined guidance of over 35 experts from around the world, are freely available online through the SSC publications website.

- The partnership between the CCSG and the Yorkshire Wildlife Trust Foundation (YWTF) has continued to deepen; YWTF provided the group with administrative and logistical support and funded the completion and launch of the SSC climate change guidelines.

- A review of climate change impacts on biological systems, from genes to populations, species, communities and ecosystems, was published in the journal Science during the UNFCCC Conference of the Parties in Marrakesh. This showed that climate change is already impacting 84% of biological processes. The excellent media uptake contributed to meeting our objective of encouraging countries to strengthen their commitments to cutting greenhouse gas emissions.

- The CCSG continued its collaboration with the Species Conservation Planning Sub-Committee to integrate climate-smart planning into the major revision being made to the SSC guidelines for species conservation planning (which will be completed in 2017).

- The climate change section (Section 12) of the SSC Red List Guidelines was updated and ad hoc guidance provided to various Specialist Groups and species experts. Assessments that comprehensively and consistently consider climate change will be piloted on selected broad species groups during 2017.

- Support for other SSC Specialist Groups, as well as other practitioners and scientists outside the SSC, was provided through the development of climate-cognisant criteria for the designation of Key Biodiversity Areas, ongoing updates to an online reference library of climate-related publications and other documents, and a survey of Specialist Group needs relating to climate change.

- The CCSG has successfully completed a highly productive first phase (three years) and has embarked on its second phase. A wide range of proposals have been received for ongoing work themes, and the new focus, as well as the broadening membership base, are aimed to help keep up with the rapidly growing demands of this challenging field of conservation.

- The Specialist Group secured private funding for the publication of the vulnerability assessment guidelines and has identified funding for a steering committee meeting in 2017.
Report on 2016 activities

2016 was an exciting and active year for the Climate Change Specialist Group (CCSG) as we continued to focus on climate change-related aspects of the SSC’s vision to “Conserve nature through positive action to reduce the loss of diversity of life on earth”. We believe that progress on our eight work themes, including on a range of outputs and new products, has made a valuable contribution to spanning the gaps between science, practice and policy in the climate change arena. Our 26-strong membership continues to be engaged and active, and the maturing group is helping to fill the need for a committed global community of experts who can work outside traditional institutional constraints.

The largest single effort by the group to date is the development of the IUCN SSC Guidelines for Assessing Species’ Vulnerability to Climate Change.

The release of the first version of these guidelines is the culmination of three years of work by over 35 experts, led by Wendy Foden and Bruce Young. The document was launched to a large audience at the IUCN World Conservation Congress in Hawaii in September, 2016. The initiative greatly strengthened our relationship with the Yorkshire Wildlife Trust Foundation, which provided generous and invaluable financial, logistical and moral support.

The guidelines, targeted at conservation practitioners, describe terms used in the climate change vulnerability assessment literature, provide ideas about setting assessment objectives, explain the main approaches to vulnerability assessment, help readers determine which approach best fits their objectives, and explain how to interpret assessment results. The guidelines conclude with ten case studies that provide worked examples of climate change vulnerability assessments (CCVAs) that cover the range of methods described. They are freely available online and will be updated in subsequent versions as this new and rapidly advancing field develops.

The CCSG also initiated and participated in a review of the evidence of climate change impacts on biological processes globally. Led by Brett Scheffers and James
Watson, the review focused on impacts at levels from genes to populations, species, communities and ecosystems and showed that climate change is already impacting 84% of biological processes (Figure 1).

The paper, entitled "The broad footprint of climate change from genes to biomes to people" (Scheffers et al., 2016, Science), was published in the journal Science in late 2016 (Scheffers et al. 2016). The release coincided with the United Nations Framework Convention on Climate Change (UNFCCC) 22nd Conference of Parties in Marrakesh, and the paper's clear message was widely broadcast through both popular and scientific media: negative impacts are already widespread and serious for natural systems at one degree of global average temperature rise; greater commitments to cutting greenhouse gas emissions are needed if ecosystems are to continue delivering their services.

Responding to the elevation in priority of Species Conservation Planning by the SSC, the CCSG worked closely with the Species Conservation Planning Sub-Committee to make the updated Guidance for Species Conservation Planning "climate smart". Led by Mark Stanley Price, this ongoing work includes guidance on climate change vulnerability assessment and development of species-level adaptation plans, and aims to serve conservation practitioners and planners. Mark Stanley Price and several members of the CCSG led a workshop to describe their emerging guidance at the IUCN World Conservation Congress in September 2016.

The CCSG continued to provide updates to the climate change components in section 12 of the IUCN Red List Guidelines, and to give assistance on factoring climate change into IUCN Red List assessments. Version 12 of the Guidelines for Using the IUCN Red List Categories and Criteria was released in February 2016. Led by Resit Akçakaya, the next steps in this work theme include piloting the guidance on imminent assessments of Arctic mammals and bumblebees. Our objective of providing support to other SSC Specialist Groups (SGs) grappling with climate change was furthered by the completion of our SSC survey of SGs' climate change-related needs. Led by Jamie Carr, this work theme is proving particularly valuable for shaping future directions of the CCSG in the 2017-2020 IUCN quadrennium. Support is also given to both the SSC and beyond through the Reference List of Climate Change Science, Policy and Related Information, an online reference library for information resources on biodiversity and climate change (http://www.waza.}

Figure 1. A review of climate change impacts across different levels of biological systems revealed "The broad footprint of climate change from genes to biomes to people" (Scheffers et al., 2016, Science). By demonstrating the widespread and serious impacts already apparent at one degree of average global climate change (i.e. current levels), it presented a strong message to policy-makers at the UNFCCC COP 22 in Marrakesh that stronger greenhouse gas emissions cuts are needed.
Led by Paul Pearce-Kelly, this library currently holds thousands of annotated references, including policy statements and legal agreements, providing a valuable resource for climate practitioners and researchers.

Key Biodiversity Areas provide a valuable emerging tool for biodiversity conservation, and ensuring that their development makes adequate consideration of climate change is an important theme of work for the CCSG. Led by James Watson, this theme will continue into the new IUCN quadrennium. Similarly, Ecosystem-based Adaptation is a new and exciting approach for reducing climate change vulnerability of both people and biodiversity. Although work on this theme was delayed, it is likely to resume into the new quadrennium.

With the vast majority of our intended outputs completed, the CCSG has reached a natural culmination of a productive three-year first phase. Expanding our scope, impact and membership base are objectives our second phase, which we have begun by reaching out to the broad global expert community in this field for proposals for new work themes. The call yielded 29 proposed themes, which will be grouped into theme groups, within which leaders and members will be appointed. We are excited by the energy that the call has generated and the enthusiasm of the global community to come together to carry out this work. Recognising the deeply concerning and rapidly escalating challenges that climate change is presenting, the CCSG is extremely grateful for the structure provided by IUCN and the SSC to harness the expertise, dynamism and dedication of our global expert community.

Table 1. Summary of the Work Themes and the resulting products for the CCSG’s first phase (2013-2016).

<table>
<thead>
<tr>
<th>Work Theme</th>
<th>Purpose</th>
<th>Products delivered</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. IUCN Red Listing and climate change</td>
<td>Ensure the IUCN Red Listing process used the latest available climate change science.</td>
<td>• Updates to Red List Guidelines (Section 12).</td>
</tr>
<tr>
<td>2. Climate change support for other SSC Specialist Groups</td>
<td>Assess other SSC SGs’ needs and activities around climate change and ensure they know where to access available resources.</td>
<td>• Survey</td>
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<td>• Short report on results (Carr et al. in prep.)</td>
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<td>3. IUCN guidelines for assessing species’ vulnerability to climate change</td>
<td>Develop and distribute the guidelines.</td>
<td>• IUCN SSC Guidelines for Assessing Species’ Vulnerability to Climate Change (Foden and Young 2016). (Foden and Young 2016).</td>
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<td>• Paper highlighting and summarising approaches and defining key terms (Pacifici et al. 2015).</td>
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<td>4. Making species conservation planning “climate smart”</td>
<td>Ensure species conservation planning across IUCN is climate smart and utilises the latest thinking and science.</td>
<td>• Climate change included in species planning guidance (in prep).</td>
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<td>7. Climate change and KBAs</td>
<td>Ensure that climate change considerations are adequately included in KBA guidelines.</td>
<td>• CC adequately included in KBA considerations.</td>
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</table>

*Products that also fulfil non CCSG project goals
References


The Bramble Cay Melomys (*Melomys rubicola*) may be the first documented mammal species to become extinct due to climate change (as declared in June 2016). The rodent was endemic to the tiny Bramble Cay (approx. 4 ha) between Queensland and Papua New Guinea. Ocean inundation of the low-lying cay on multiple occasions led to loss of habitat and possibly to direct mortality. Unusually high water levels suggest that climate change was ultimately responsible through sea level rise and increased frequency and intensity of weather events. Surveys of a possible source population in the Fly River delta of Papua New Guinea are necessary before global extinction of the species is unequivocal. © Ian Bell.
The Haleakalā Silversword (*Argyroxiphium sandwicense* subsp. *macrocephalum*) grows on volcanos in the Hawaiian Islands. Having survived near extinction from overgrazing and overcollection, it now faces climate change driven declines in rainfall, as well as rising temperatures which affect the inversion layer over the mountains, further reducing moisture. © Paul Krushelnicky.
Workshop on IUCN and Island Biology

Thomas M. Brooks, Head of Science and Knowledge, IUCN
Paulo A.V. Borges, Co-Chair, IUCN SSC Mid-Atlantic Islands Invertebrate Specialist Group and Universidade dos Açores
Introduction
The second Island Biology Conference was convened in Angra do Heroísmo, 18–22 July 2016. The conference Chair, Paulo Borges, Co-Chair of the SSC Mid-Atlantic Islands Invertebrate Specialist Group. In the September 2015 SSC Leaders’ meeting in Abu Dhabi he raised the possibility of convening an IUCN workshop at the conference. Over 2015–2016, he proceeded to plan the session jointly with IUCN SSC and the IUCN Secretariat, with the dual objectives of:

a) Raising awareness about IUCN’s work among the island biology community; and

b) Soliciting feedback into the draft IUCN Programme 2017–2020, Species Strategic Plan, and IUCN operations in general.

The session comprised two plenary presentations, eight commentaries, and three breakout discussions.

Plenary presentations
Thomas Brooks presented on IUCN and island biodiversity conservation, summarising the work of IUCN both in elucidating the threats facing island biodiversity, and the opportunities for conservation success on islands. The first of these is possible based on the three major changes to the IUCN Red List of Threatened Species from the last two decades: the establishment of the standard Categories and Criteria; the shift to undertake comprehensive or sampled assessments of entire species groups; and the incorporation of documentation including habitats, threats, and geography. The Red List reveals the catastrophic state of island biodiversity: while island’s represent 5% of the land area and hold 20% of plants as endemics, they are the only home to higher proportions of threatened species (25% of mammals, 30% birds) and much higher proportions of species extinct since 1500 (65% of mammals, 90% birds, 85% reptiles, 55% amphibians).

However, the Red List also reveals conservation success: while Red List Indices show global increases in extinction risk for mammals, birds, amphibians, corals, and cycads, conservation actions on five island nations (Cook Islands, Fiji, Mauritius, Seychelles, and Tonga) have turned these around into decreases in extinction risk for their terrestrial vertebrates. Moreover, half of the highly threatened species only found in single sites, as identified by the Alliance for Zero Extinction, are restricted to islands. These sites, along with Important Bird & Biodiversity Areas identified by BirdLife International and a number of similarly important sites identified through other approaches, have now been incorporated as Key Biodiversity Areas under a new IUCN standard. A third IUCN standard documents protected areas, revealing that 17% of island area is protected worldwide.

Some IUCN NGO members dedicate much of their effort on island conservation, such as the Durrell Wildlife Conservation Trust, who have successfully changed the trends for species on which they work from increases to strong reductions in extinction risk. IUCN also has 16 island State Members (Cyprus, Fiji, Iceland, Japan, Madagascar, Mauritius, Nauru, New Zealand, Palau, Samoa, Seychelles, Solomon Islands, Sri Lanka, Tonga, UK, and Vanuatu). The IUCN Secretariat implements a range of island conservation actions (such as the EU-supported BEST project), and IUCN’s Commissions incorporate nine island-specific Specialist Groups. Numerous island conservation resources have emerged from these IUCN mechanisms, such as the Threatened Island Biodiversity Database, and publications like “Island Invasives”, “Value Island Biodiversity”, and “Island Voices – Island Choices”. IUCN also intervenes directly into island conservation issues, with, for example, recent letters from the Director General to key decision-makers in Palawan (regarding Philippine Cockatoo), Mauritius (Mauritius Flying-fox), and Jamaica (Jamaican Iguana). Finally, IUCN’s 2016 World Conservation Congress was an island – Oahu – and was thus an excellent venue to build momentum behind the results of the Azores discussions.

Lyubomir Penev, the founder and Managing Director of Pensoft, a Bulgarian scientific publishing company, then presented work that he had been undertaking to develop a template for publishing “Species Conservation Profiles” within Pensoft’s “Biodiversity Data Journal”. This work has been undertaken in collaboration with Pedro Cardoso, Chair of the SSC Spider and Scorpion Specialist Group. The development of the “Species Conservation Profiles” aims to address several shortcomings of the process for submission of assessments into the IUCN Red List. Most importantly, the Red List database (Species Information System, SIS) was not designed for ease of use by assessors. The “Species Conservation Profiles” are designed to maximise ease of use for assessors to enter parameter estimates and documentation required and recommended for Red List assessments. In addition, while Red List assessments now all have assigned Digital Object Identifiers (DOIs) and so constitute publications in their own right, they are not indexed in the various scientific journal abstracting services, and consequently are not as widely publicised as they could be. The “Biodiversity Data Journal” “Species Conservation Profiles” may provide a greater incentive for university-based assessors to contribute time to Red Listing.

Once data are entered into and published within the “Biodiversity Data Journal”, the new system SISconnect would draw these automatically into SIS, where the assessors would complete the assessment through documentation of the Categories, Criteria, and justification. The Categories and criteria would not appear in the “Species Conservation Profiles”,

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to avoid any danger of publication of different assessments, and pre-empt any accusation of double publication. The “Species Conservation Profiles” have a number of valuable features, including that they allow:

- Importation of Darwin core point locality records;
- Automatic incorporation of in-text citations;
- Semantic linkage of taxon names;
- Easy mechanisms for creation of figures;
- A consolidated editorial process; and
- Article and sub-article metrics of uptake. DOIs will utilise the CrossRef CrossMark service, which would allow repeat assessments to be assigned Digital Object Identifiers linked to those of older assessments of the same taxon.

**Commentaries from IUCN leaders**

Eight participants, each of whom holds an IUCN role, then presented three-minute comments on the following questions:

a) What is the greatest benefit that you’ve found from engagement with IUCN?

b) What is the greatest challenge you’ve found in engaging with IUCN?

c) What is, in your opinion, the greatest opportunity for new work through engagement with IUCN?

The commentators were: Kristine Bakke Westergaard (Chair of the SSC Arctic Plant Specialist Group); Colin Clubbe (Head of Conservation Science at the Royal Botanic Gardens Kew, an IUCN Affiliate Member and Red List Partner); Tigga Kingston (Co-Chair of the SSC Bat Specialist Group); Axel Hochkirch (Co-Chair of the SSC Grasshopper Specialist Group and Invertebrate Conservation Sub-Committee); Vicky Kindembai (Co-Chair of the SSC Mid-Atlantic Islands Invertebrate Specialist Group); Pedro Cardoso (Chair of the SSC Spider and Scorpion Specialist Group); and Paulo Borges (Co-Chair of the SSC Mid-Atlantic Islands Invertebrate Specialist Group).

**Breakout discussions**

The third and final element of the workshop involved subdivision of the ~60 participants into three breakout groups, charged with discussing opportunities and areas for improvement from IUCN, especially with respect to island biology. The deliberations of the three groups were reported back by Paulo Borges, Colin Clubbe, and Axel Hochkirch. The full session was documented in a six-page report submitted to the SSC Chair’s Office.
The Juan Fernández Firecrown (*Sephanoides fernandensis*) is listed as Critically Endangered on the IUCN Red List of Threatened Species. This hummingbird is endemic to the Juan Fernández Islands, Chile, where it has an extremely small range. Habitat loss, predation by introduced mammals and possibly competition are causing continuing declines in this species. Its remaining population is restricted to fragmented habitat on a single island, putting it at great threat of extinction. © Peter Hodum
Pangolin Conservation Progress
Dan Challender, Co-Chair, IUCN SSC Pangolin Specialist Group

Key achievements

• The SSC Pangolin Specialist Group contributed key technical and scientific information on the status, trade and conservation of pangolins to multiple CITES meetings to inform the CITES Parties in their decision-making.
• The group also provided input to the IUCN/TRAFFIC Analyses produced for CITES CoP17.
• The Pangolin Specialist Group also sought to increase awareness of illegal trade in African pangolins by producing factsheets on each species and distributing these to stakeholders in African pangolin range states.
• The Pangolin Specialist Group presented work of its members at the IUCN World Conservation Congress to showcase some of what the membership achieved in the 2012-2016 IUCN Quadrennium.
• The group also initiated demand reduction research for illegally traded pangolin products in China.
• The Pangolin Specialist Group recruited its second research intern.
Background

The SSC Pangolin Specialist Group is one of over 140 IUCN Species Survival Commission Groups, and was re-established in 2012 in light of increasing threats to pangolins globally (see Challender et al. 2012).

The group's mission is to: be a global voice for pangolins by working to advance worldwide knowledge and understanding of pangolins, their conservation, natural history and ecology and catalysing action to meet these needs.

The group has approximately 100 members from 25 countries.

Key achievements

The key achievements of the group in 2016 were in pursuit of implementing the Pangolin Specialist Group conservation action plan for the species, "Scaling Up Pangolin Conservation", published in 2014.

Contributions to CITES meetings

All pangolins are threatened with extinction, principally by overexploitation for use of their meat and scales and other body parts, both domestically (e.g., locally) and internationally. Such is the extent of illicit trade in pangolins, typically to East and Southeast Asian markets from parts of Asia but increasingly Africa, that they have recently been labelled 'the most trafficked wild mammal in the world'. It is estimated that upwards of 1 million pangolins have been illegally traded since the year 2000 (Challender et al. 2014). All species of pangolin have been listed in CITES since 1994, and since CoP16 (2013) have received increasing attention in the Convention.

In 2016, the Pangolin Specialist Group contributed the best available scientific information on pangolins to CITES meetings, in order to inform and assist CITES Parties in their decision-making. This included submitting an information document on the status, trade and conservation of pangolins to the CITES Standing Committee (11-15 January, Geneva, Switzerland), and holding a side event at the meeting where information was conveyed by a number of Pangolin Specialist Group members through presentations and a question and answer session.

In the build up to CITES CoP17 (24 September – 4 October, Johannesburg, South Africa), the group also fed in its expertise and information to the IUCN/TRAFFIC Analyses of Proposals to Amend the CITES Appendices. These Analyses have been carried out by IUCN and TRAFFIC since 1987 and comprise an objective, scientific assessment of whether species subject to proposals appear to meet the CITES listing criteria, or not.

At CoP17 each pangolin species was proposed to be transferred from Appendix II to Appendix I, decisions which were adopted by the Parties, and the species are now listed in Appendix I. The Pangolin Specialist Group informed these decisions by again submitting an information document to the meeting on the status, trade and conservation of pangolins. Similarly, the group hosted a side event at the meeting, in collaboration with the Parks and Wildlife Authority of Zimbabwe, where the status and threats to pangolins were discussed along with other pertinent conservation issues, including the potential advent of pangolin farming.

Earlier in the year, the group sought to raise awareness of the evident increase in illegal, intercontinental trade involving African pangolins and their derivatives among authorities in African range states, by producing and disseminating factsheets containing information on the conservation status of the species and the threats they face.
IUCN World Conservation Congress

At the IUCN World Conservation Congress (1-10 September, Honolulu, Hawaii, USA), the Pangolin Specialist Group showcased the work of some of its members to the global conservation community. Through the presentation of a 12 minute video, and the attendance of a number of members, the group sought to detail the variety of work completed in the last 4 years, including on action planning and status assessments, fieldwork, captive care and rehabilitation, and policy-focused work. The Pangolin Specialist Group members present, also attended other events focused on pangolin conservation, networked in order to seize future opportunities for pangolin conservation, and provided technical information to the motions process at the WCC. The Congress adopted a Resolution 015 on pangolins, which calls for greater protection for all pangolin species, and explicitly recognises the work of the group over the last four years (2012-2016).

Demand reduction research in China

Members of the Pangolin Specialist Group contributed technical advice to an on-going project led by the Zoological Society of London (ZSL), and funded by Fondation Segré through IUCN Save Our Species. The project implements key elements of the Pangolin Specialist Group Scaling Up Pangolin Conservation Action Plan. The project is focused on protecting pangolins at key sites in Thailand and Cameroon, and addressing demand for pangolin products traded illegally in China. Members of the group contributed to all three elements of this project. More specifically regarding the China component, this involved members leading on the design of social science research in order to understand in-depth the motivation of consumers in purchasing pangolin products which will inform future demand reduction and behaviour change strategies and programmes.

Pangolin farming

Pangolins are characteristically hard to maintain in captivity, and even more problematic to breed in captive environments. However, emerging in 2016 was evidence of increasing attempts to farm pangolins in a range of both Asian and African countries. In response to these efforts, the Pangolin Specialist Group has initiated a body of work to critically evaluate whether pangolin farming would likely make a contribution to the conservation of pangolins, or not.

Raising awareness of pangolins

Until relatively recently pangolins could have been described as forgotten species, having received little conservation attention and investment historically. Part of the Pangolin Specialist Group Action Plan outlines awareness raising as important to increasing the profile of the species and in order to generate leadership and support for pangolin conservation. This work has been on-going since 2012 and pangolins have received a notable change in profile since. The Pangolin Specialist Group has contributed to this by championing the species, including through celebrating the species on World Pangolin Day 2016 (the third Saturday in February).

Research Intern

In 2016 the Pangolin Specialist Group said goodbye to its first Research Intern, Hannah Khwaja, and recruited our second intern, Claire Buchan. Both Claire and Hannah have contributed to the group enormously, by leading coordination...
of our social media presence, and by leading projects to better understand the utility of camera trapping as a method through which to detect and monitor pangolin populations in Africa and Asia respectively.

**Future activities and priorities**

There remains much to do to secure the conservation of pangolins, including addressing illegal trade in the species and their derivatives, understanding more about the species’ conservation needs and generating further support for pangolin conservation. Each of these activities is detailed in the Pangolin Specialist Group’s Scaling Up Pangolin Conservation Action Plan. Below are a select sample of priority actions for 2017-2020:

- Work with relevant stakeholders including governments to devise more detailed conservation action plans for each species/region;
- Develop categories and criteria for determining pangolin strongholds, and the subsequent identification and verification of strongholds;
- Develop methods through which to more accurately determine pangolin presence and absence and population abundance/densities in quantitative terms;
- Better understand and address illegal trade for pangolins and their derivatives in consumer markets;
- Continue to provide the best available information on pangolins and their status and threats to CITES.

**References**


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Sunda pangolin (*Manis javanica*)
© Dan Challender/Save Vietnam’s Wildlife.