



# Species



Magazine of the  
Species Survival Commission

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350 or bust ...  
coral reefs and  
climate change

The contribution of species  
to ecosystem services

Specialist Group  
exchange



# Species 50

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**Species** is the magazine of the IUCN Species Programme and the IUCN Species Survival Commission. Commission members, in addition to providing leadership for conservation efforts for specific plant and animal groups, contribute to technical and scientific counsel to biodiversity conservation projects throughout the world. They provide advice to governments, international conventions, and conservation organizations.

**Team Species** Dena Cator, Julie Griffin, Lynne Labanne, Kathryn Pintus, and Rachel Roberts

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**Cover** Lined Sweetlips (*Plectorhinchus lineatus*) and Two-Tone Wrasse (*Thalassoma amblycephalum*) in a coral reef (*Acropora* spp.)  
Credit: © Nazir Amin

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Email: [species@iucn.org](mailto:species@iucn.org)

For address changes, notify:

SSC Membership  
Species Programme, IUCN  
Rue Mauverney 28  
CH-1196 Gland, Switzerland

Phone: +44 22 999 0268

Fax: +44 22 999 0015

Email: [sscmembership@iucn.org](mailto:sscmembership@iucn.org)

SSC members are encouraged to receive the SSC monthly electronic news bulletin.

Please contact Team Species at [species@iucn.org](mailto:species@iucn.org) for more information.

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Western Honey Bee (*Apis mellifera*). © Danny Perez

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# Editorial

## Message from the SSC Chair and the Head of the IUCN Species Programme

It is already one year since the IUCN World Conservation Congress in Barcelona. The time seems to have flown by with incredible speed, and it has been another very busy period for the SSC. It is hard to know where to start in this report, but we shall try to cover as much ground as possible in a reasonably logical order.

With a new IUCN quadrennium, it is necessary to reconstitute the membership of the SSC and its Specialist Groups. This is always a very time-consuming business, and in the months immediately following the Congress, Simon was in touch with every SSC Specialist Group Chair, including both outgoing and incoming chairs. For many Specialist Groups there has been no change in leadership, but for a number of others the previous chairs have stepped down and new appointments have been made. The process of appointing Specialist Group chairs for the 2009–2012 quadrennium is now pretty much complete, with the exception of a very small number of plant groups and also the bird groups shared with Wetlands International. At the same time we are also most of the way through appointing the Red List Authority Focal Points, both those within the Specialist Groups and those which stand alone outside Specialist Groups. You will find a full list of the SSC Specialist Group Chairs and Red List Authority Focal Points in this issue of *Species*. The process for appointing and reappointing Specialist Group members is now in full swing, as many of you will know. We would like to thank in particular all those Specialist Group Chairs who retired at the end of the last IUCN quadrennium, and we are grateful that almost all of you remain active in the SSC in your new roles.

Simon has spent a considerable amount of time raising the funds to establish the new SSC Chair's Office, which is based in the University of Bath in the UK. We are extremely grateful to the following institutions that have stepped forward to fund this office: Conservation International; Al Ain Wildlife Park and Resort; Environment Agency, Abu Dhabi; UNEP World Conservation Monitoring Centre; MAVA Foundation; World Association of Zoos and Aquariums; and the North of England Zoological Society (Chester Zoo). UNEP-WCMC is kindly acting as the host institution for the SSC Chair's Office. As a result of the generosity of these organizations, Simon is able to work full-time as SSC Chair, and has assembled a small staff team. Rachel Roberts joined in March as Executive Assistant to the SSC Chair, and Jeremy Harris arrived in August as Director of Development. Starting in January 2010, the SSC Chair's Office will be complete when Mike Hoffmann (who currently heads the Species

Programme's Biodiversity Assessment Unit in Washington DC) joins as Senior Scientific Officer. With this outstanding team we look forward to providing enhanced support to the SSC network, and to pushing ahead our strategic priorities.

There have been important changes in the Species Programme over the last year. While Jane remains Head of the Species Programme, she has been promoted and is now also Director of the IUCN Biodiversity Conservation Group, which covers IUCN's work on species, protected areas, marine conservation and invasive species. Because of Jane's expanded role, she is being supported by a newly appointed Network Coordinator for the Biodiversity Conservation Group, Josephine Langley, who is based in IUCN headquarters in Gland, Switzerland. Josephine's job is to ensure that the wider IUCN family, including the SSC, can link their work into the delivery of the IUCN Programme.

There have been a number of other important staffing changes in the Species Programme. Janice Chanson, who has been a Programme Officer in the Biodiversity Assessment Unit for eight years left in January 2009, and Helen Temple left the Red List Unit in July after three years. Both Janice and Helen have played very important roles in supporting our biodiversity assessments, and we are pleased that Janice, at least, remains involved as a consultant. We are very pleased to welcome a number of new staff. Annabelle Cuttelod, joined the Red List Unit in Cambridge in September, coming from the IUCN office in Malaga, and is responsible for overseeing European species assessments. Rebecca Miller also started in Cambridge in September as the new Red List Training Officer. A third recent addition in Cambridge is Amy Burden, the new Administrative Assistant. We welcome Annabelle, Rebecca and Amy to the team. In the Biodiversity Assessment Unit in Washington, Neil Cox will be taking over as Acting Manager in January with Mike Hoffmann's transfer to the SSC Chair's Office. We are currently close to concluding the recruitment of two staff vacancies in the Biodiversity Assessment Unit, and also two vacancies in the Freshwater Biodiversity Unit in Cambridge.

In addition to appointing all the Specialist Groups, a new leadership of the SSC has also been appointed. The appointments of these leadership positions are made by the governing Council of IUCN on the recommendation of the SSC Chair. We are extremely pleased to welcome Jon Paul Rodríguez from the Instituto Venezolano de Investigaciones Científicas (IVIC), Venezuela, as the new Deputy Chair of the SSC. Jon Paul is no stranger to our work, having previously served as Chair of the SSC National Red List Working Group.

In his new role, Jon Paul will be focusing especially on supporting links between the SSC and national red lists, developing work on priority setting for species, and working with our sister IUCN commission, the Commission on Ecosystem Management (CEM) on developing criteria for red-listing ecosystems. IUCN's Council also appointed a new Steering Committee for the SSC, and you will find the full list of members later in this issue of *Species*. We would like to thank the outgoing members of the Steering Committee from the last quadrennium who devoted an extraordinary amount of time to leading the SSC: Claudio Campagna; Mick Clout; Holly Dublin; Christoph Imboden; Richard Kock; Georgina Mace; and Mike Maunder.

The new SSC Steering Committee met at IUCN headquarters in early June to start planning our priority initiatives for the current quadrennium. In a three-day meeting we covered an enormous amount of ground. The minutes are available on the IUCN Species website, but we cover a few of the highlights here.

1. **Species Conservation Planning.** In the last quadrennium, the SSC Species Conservation Planning Task Force produced a very important set of guidelines, *Strategic Planning for Species Conservation*, outlining a new approach for the SSC to implement in relation to conservation planning for species. This document is available on the IUCN Species website. The Steering Committee felt that the initiative needs to be continued, and that Specialist Groups and others now need support and encouragement to use and test out the new guidelines. Accordingly, a special meeting was held in Bristol, UK, in June, at which it was agreed to promote this initiative, and to establish a new SSC Species Conservation Planning Sub-Committee to over-see it. At the time of writing we are seeking funding to launch this initiative, and there should be more news to circulate shortly.
2. **Sustainable Use.** At the IUCN Congress in Barcelona, a resolution was passed calling for an inter-commissional mechanism between the SSC and our sister IUCN commission, the Commission on Environmental Economics and Social Policy (CEESP), on sustainable use. The SSC Steering Committee agreed that this should be a priority, and in preparation for a workshop on this topic, Holly Dublin and Carol Poole carried out a very wide survey to gather opinions within SSC, CEESP and others within IUCN. A joint SSC/CEESP meeting on sustainable use took place in Cambridge on 1–2 October, at which it was agreed that the SSC's existing Sustainable Use Specialist Group would form the basis for the new inter-commissional mechanism, which would certainly involve SSC and CEESP, and possibly other commissions such as CEM as well. The meeting prioritized a number of activities to focus on during this IUCN quadrennium. The focus is now on agreeing the final structure of the SUSG, identifying new leadership, and securing new funding. We are especially grateful to Jon Hutton for ably chairing the SUSG up until now. He has stepped down from this role, but we are very pleased that he remains an active member of the SSC Steering Committee.
3. **Area-based Conservation Planning.** Another priority agreed by the SSC Steering Committee relates to our collaboration with the IUCN World Commission on Protected Areas (WCPA) on area-based conservation planning. A joint task force has been formed, chaired by Tom Brooks for SSC and Steve Woodley for WCPA. Two initial activities have been given to the task force. The first is to carry out a study looking at how well protected areas conserve biodiversity, and what the relationship is between this and the IUCN management categories for protected areas. The second is to develop new criteria for identifying and designating sites of importance for biodiversity, and to run a consultation process within IUCN to reach consensus on these criteria. Criteria already exist for identifying Key Biodiversity Areas (KBAs), but these will now be subject to extensive review with the aim of reaching agreement on a new global standard for the approach.
4. **Integrated Biodiversity Assessment Tool (IBAT).** In 2008, UNEP-WCMC, Conservation International and BirdLife International formed a partnership around a new tool, in which the World Database on Protected Areas, Important Bird Areas, and Key Biodiversity Areas are brought together in an online tool (IBAT) to support the private sector, development banks and others in making sound decisions that take full regard of the available conservation-related data. IUCN was initially an observer in the IBAT partnership, but has now decided to join as a full member. One aspect of this is that Red List data will be incorporated into IBAT. Simon is now a member of the IBAT Governance Committee (representing IUCN) and Jim Ragle, Manager of the Species Information Service in the Species Programme, is on the IBAT Management Committee. Both have been heavily involved in recent months in helping to develop the business plan and memorandum of agreement governing IBAT. We see this as a very exciting initiative, partly because it will enable our Red List data to be used in decisions being taken that will have an impact on species, and partly because, if the business plan is successful, it will generate some financial resources to support parts of our red-listing work, and also for developing the new criteria for identifying and designating sites of importance for biodiversity (see previous paragraph). SSC members can expect to hear much more on IBAT in the coming months and years.
5. **Invasive Species.** The Steering Committee agreed that it is very important to provide a new emphasis on invasive species in the SSC. Piero Genovesi has just taken over as the new Chair of the Invasive Species Specialist Group (ISSG), and this is a watershed event, as the founding chair, Mick Clout, has stepped down after 17 years in the post. Mick has been responsible for putting invasive species firmly on-to our agenda and he developed the ISSG into the dynamic force that it is today. However, it has recently become harder to raise funds for work on invasives, perhaps because so much of the attention is now being devoted to climate change, and so it is a good time to take stock and to plan for the future. In addition, it

was felt that much closer collaboration is now needed between the ISSG, the Invasive Species Initiative (ISI) in the IUCN Secretariat (led by Geoffrey Howard and now incorporated into the Species Programme), and the inter-institutional Global Invasive Species Programme (GISP), (directed by Sarah Simons, and of which IUCN is a member). A strategising meeting on invasives took place at IUCN headquarters on 17–18 September involving ISSG, ISI and GISP. A clear set of priorities was agreed, with defined roles for each of the players. Among other things, the ISSG will have particular responsibility for the redevelopment of the Global Invasive Species Database, with a particular function of making it useful in facilitating early warning and rapid response actions in relation to invasives. Like so many of our major initiatives, we are now in the process of securing funding as we move towards implementation.

**6. Climate Change.** The Steering Committee spent a considerable amount of time discussing our work on climate change, supported by Wendy Foden, the Climate Change Programme Officer in the Species Programme. A number of specific priorities were agreed. These include the development of Climate Change Guidelines for the IUCN Red List, and Resit Akcakaya, Chair of the SSC Standards and Petitions Sub-Committee, will be leading this process. Interim guidelines should be completed in 2010, but more detailed guidelines will probably take another three years or so. A second important priority is the revision of the IUCN Re-introduction Guidelines. The existing guidelines were completed before climate change was a major concern, and do not take account of concepts such as “assisted colonization”. The SSC Re-introduction Specialist Group, chaired by Frédéric Launay, will be leading this process. Wendy will continue the work already started on assessing the vulnerability of different groups of species to climate change, and we were recently fortunate to have a project funded by the MacArthur Foundation, which will look at the likely impacts of climate change on species of importance for human livelihoods in the Albertine Rift region of central Africa.

**7. Addressing the Amphibian Extinction Crisis.**

Following the assessment of all amphibian species on the IUCN Red List in 2004, and the subsequent development of the Amphibian Conservation Action Plan in 2005 and 2006, there has been increased attention on amphibian conservation. However, in relation to the rapid ongoing declines in amphibians, there has been universal agreement that progress is nothing like fast enough. The Steering Committee agreed to prioritize amphibians, and as a result an Amphibian Mini-Summit was convened in London on 20–21 August 2009. This meeting agreed that a new alliance of organizations should be formed to drive ahead amphibian conservation – this will be termed the Amphibian Survival Alliance (ASA). IUCN will host the ASA, and a number of institutions have already come forward to commit funding, so we hope to recruit an ASA director shortly. The priorities for the ASA will be the conservation of key sites for amphibians (very many of these fall outside protected areas), and fostering research



Meekong Giant Catfish (*Pangasianodon gigas*). © Thomas Roche

on threatening processes, especially on the management of the devastating fungal disease, chytridiomycosis.

**8. Addressing the Asian Large Animal Crisis.** Another major conservation crisis concerns the rapid declines of large animals in Asia, especially Southeast Asia. This includes most species of large mammals, turtles, and freshwater fishes such as the Mekong Giant Catfish and Chinese Paddlefish. The Steering Committee decided that the SSC should prioritize an initiative on these species, many of which could go extinct unless action is taken very soon. There are already many excellent conservation initiatives in the region, but many of these need more resources, and some key sites remain very poorly protected. There is an especially urgent need for increased law enforcement on the ground in the places where the most threatened species occur. The SSC will work with Asian governments and NGOs that are active in the region to identify the most pressing conservation priorities and to help secure the financial resources that are needed to safeguard as many species as possible before it is too late.

**9. National Red List Initiative.** Another important priority relates to national red-listing. The IUCN Red List Index has been adopted by the United Nations as one of the indicators for the 2015 Millennium Development Goal 7 on environmental sustainability. As a result, all countries of the world are now being asked to develop their own national red lists in order to measure trends in the status of their species. The SSC has several major roles to play in this, and so a new initiative is being framed in collaboration with the Zoological Society of London (ZSL), and a meeting to help develop this took place in London on 15–16 September. The SSC and Species Programme need to establish a proactive training programme to help countries develop and enhance their national red-listing programmes. We also need to develop improved means of incorporating data from national red lists into the global IUCN Red List. This work will be pushed ahead by the SSC National red-listing Working Group, co-chaired by Jonathan Baillie and Ben Collen, and supported by Caroline Pollock and Rebecca Miller in the Species Programme. One very important new development is the launch of a website on which information on national red lists from around the world can be found – see <http://www.nationalredlist.org/site.aspx>.

**10. Save Our Species.** The Steering Committee also discussed a very exciting initiative in which IUCN is engaged in collaboration with the World Bank and the Global Environment Facility (GEF) – a new threatened species fund entitled Save Our Species. Since the Barcelona Congress, Jean-Christophe Vié, Deputy Head of the Species Programme, has been working extensively on this with our colleagues in the World Bank and the GEF. We are hopeful that the new fund will be finally approved in early 2010, and the SSC will have a major role in helping to set priorities for the fund and conducting the review proposals received. Save Our Species is designed to encourage private sector corporations to join the partnership as financial contributors, and we hope that we shall be able to establish a sizeable fund for threatened species conservation. Already, in 2009 many SSC Specialist Groups have benefited from another new and important donor, the Mohamed bin Zayed Species Conservation Fund which is supporting a very wide array of critically important projects. We are most grateful to Mohamed bin Zayed for establishing this fund (see <http://www.mbzspeciesconservation.org/>).

**11. 2010 – International Year of Biodiversity.** The Steering Committee has devoted considerable attention to 2010, which provides a significant opportunity for SSC. The 10<sup>th</sup> Conference of the Parties of the Convention on Biological Diversity meets in Nagoya, Japan, in October 2010 and has two agenda items of critical importance for us. The first is to agree a new target or targets to replace the existing 2010 Biodiversity Target. A long series of preparatory meetings is already underway, and we have been involved in many of these. Tom Brooks has been leading the SSC's inputs at many of these meetings, for which we are very grateful. We are pushing for an ambitious new biodiversity target that includes a broad understanding of biodiversity that encompasses species, ecosystems, and the services to people provided by species and ecosystems. The second important item for us is the Global Strategy on Plant Conservation (GSPC), a new version of which needs to be adopted in Nagoya. A GSPC Liaison Group meeting took place in Dublin in May, attended by John Donaldson, Chair of the SSC Plant Conservation Sub-Committee, Danna Leaman, Chair of the SSC Medicinal Plants Specialist Group, and Julie Griffin from the Species Programme. Significant progress has been made in developing a new GSPC, but much work remains to be done over the coming months. We shall be implementing a focused communications strategy throughout 2010, which will include targeted Red List updates for critical events.

All these new initiatives are cause for great excitement, but of course the regular work of the SSC and the Species Programme continues, and is more important than ever. The past year has seen some significant advances on the IUCN Red List. An update took place in April which included the latest results from some of our European assessments. A second update took place in early November, and this included some important new results, including all the Sampled Red List Index (SRLI) Odonata, freshwater fishes,



Bulgarian Emerald (*Somatochlora borisi*). © V.J.Kalkman

and nine of the plants (*Discorea* species), implemented in collaboration with ZSL. A number of other important datasets are in the pipeline for release in the coming months. The Cycad Specialist Group is busy putting the finishing touches on the reassessment of all of the world's cycad species, and the Shark Specialist Group is doing likewise with all the sharks, rays and skates.

A number of important and exciting new marine assessments will be completed shortly, including on mangroves, seagrasses, sea snakes, and several groups of fishes. We are very grateful to Roger McManus for taking up the new SSC position of Senior Counsel – Global Marine Species Assessment. Roger is spearheading the fundraising for the marine species assessments, working closely with Kent Carpenter and his team in the Species Programme.

Our strategy to complete priority taxonomic groups region by region is starting to pay off. The Mediterranean Biodiversity Assessment is coming to an end, providing a unique overview of the situation in this biodiversity hotspot, highlighting the conservation priorities and guiding policy actions – such as the review of the Barcelona Convention Annexes – as well as the identification of KBAs and the definition of funding priorities for donors, like CEPF. The African freshwater assessments are nearing completion, and we are gearing up for a release in 2010, with a focus on freshwater fishes, molluscs, dragonflies, crabs and plants.

The second of six African regional assessment reports was launched at the 2008 World Water Forum with the assistance of IUCN's Director General, Julia Marton-Lefèvre, and Anada Tiega, the Secretary General of the Ramsar Convention on Wetlands. The report can be found at: [http://www.iucn.org/about/work/programmes/species/our\\_work/about\\_freshwater/#](http://www.iucn.org/about/work/programmes/species/our_work/about_freshwater/#). Regional reports for the rest of Africa will be released in 2009. In Europe, building on the success of the 2007 assessment of all of Europe's freshwater fishes and mammals, assessments for priority groups (vertebrates, freshwater, selected plants and invertebrates) will be completed during 2009–2010 and recommendations provided to the European Commission. The freshwater assessment work is also now expanding rapidly into Asia. The expansion into Asia is largely due to a very successful fundraising collaboration between Conservation International and the Freshwater Biodiversity Unit of the IUCN Species Programme.

We expect to see a large increase in the number of plant assessments in the coming months, including regional assessments from South Africa, the Caucasus, and East Africa. The Cactus and Succulent Specialist Group is making very good headway with a global assessment of all cactus species; the initiative is based out of the Department of Animal and Plant Sciences at the University of Sheffield and is led by Dr Barbara Goettsch and Professor Kevin Gaston. Meanwhile, we continue to keep existing datasets current, with important updates on birds, mammals and amphibians taking place during 2009.

The task of holding the Red List together falls to a handful of people in the Red List Unit in Cambridge, led by Craig Hilton-Taylor. This year has seen significant advances in the operating procedures and underlying software (the Species Information Service – SIS). Jim Ragle has been leading a complete overhaul of the SIS, and a significant upgrade of the Red List website. The new SIS is now being used widely in the SSC and is being rolled out to new Specialist Groups on a weekly basis. There are still issues with the SIS that require further enhancement, but it is being improved very rapidly. This is a massive task and we all owe Craig and Jim a vote of thanks as we make this changeover to a system that will soon make all of our lives much easier in the SSC.

We have both been heavily involved in the renegotiation of the Red List Partnership Agreement. The Red List Partnership includes organizations that make substantial investments to support the IUCN Red List, in particular the various biodiversity assessment projects that feed data into the Red List. The current Red List Partners are BirdLife International, Conservation International (CI), NatureServe and ZSL. All of these will remain partners under the renewed agreement, but we are very excited that it looks like five new organizations will be joining the grouping. These are the University of Rome (which is generously taking over the support of the mammal red-listing from CI), the Royal Botanic Gardens Kew (which is leading on the Sampled Red List for plants), Botanic Gardens Conservation International (leading on tree assessments), Texas A&M University (supporting a number of assessments in the Americas), and Wildscreen (which, through its project ARKive, will be providing the imagery for the Red List). The expanded partnership greatly broadens our approach and puts us in a very strong position for the coming years.

Perhaps the crowning achievement of the Red List in 2009 was the publication of *Wildlife in a Changing World*. This is an analysis of the 2008 Red List, and is beautifully produced, with an important introductory chapter on the importance and use of the Red List, entitled: "The IUCN Red List: A Key Conservation Tool". We encourage all SSC members to read it – it is good to remind ourselves why all the effort that we put into the Red List is so important. You can find it on [http://iucn.org/about/work/programmes/species/red\\_list/review/](http://iucn.org/about/work/programmes/species/red_list/review/). Without the leadership of Jean-Christophe and Craig, we could never have produced this publication.

The various SSC sub-committees have all been very busy. The Marine Conservation Sub-Committee, chaired by Yvonne Sadovy and Claudio Campagna, met in Cambridge on 7–8 July and covered a very wide array of issues. The meeting had a major focus on utilization pressures on marine species, and laid the groundwork for a proposed SSC



bycatch initiative. The major marine publication, *Drift*, produced in 2008, will be translated into other languages, and a second book is now planned. The meeting also focused on the disturbing evidence that the future of coral reefs is bleak unless atmospheric carbon dioxide levels can be reduced to below 350 parts per million (ppm). Given that the current level is 387 ppm and rising, and that the international negotiators at the time of writing seem unable to agree on measures that would stabilize the level even at 450 ppm, it is clear that we are on the verge of a catastrophe which could wipe out an entire marine ecosystem, with untold impacts in terms of species extinctions, and loss of human livelihoods. We see this situation as being so serious that we have exceptionally given space in this issue of *Species* for a much longer article than usual explaining the situation. This article is by the chair of our new Coral Specialist Group, David Obura, and colleagues.

The Plant Conservation Sub-Committee (PCSC) met at Kew on 20–21 October, chaired by John Donaldson. The major breakthrough at the meeting was agreement on the priorities for SSC's work on plant assessments for the IUCN Red List. In addition to the ongoing work on cacti, cycads and conifers, taxonomic priorities will include legumes, certain groups of orchids, carnivorous plants, and selected groups of trees. The PCSC is also prioritizing work on sustainable use (especially on medicinal plants and crop wild relatives), and on engaging with new initiatives listed above, including on species conservation planning, the re-introduction guidelines, and climate change. At the time of writing, the Invertebrate Conservation Sub-Committee, chaired by Michael Samways, is preparing for its meeting in Bath on 28–29 October.

Fungal conservation in SSC has had a special boost: we have taken the exciting step of converting the former Fungi Specialist Group that previously had a vast remit into four unique specialist groups: Chytrids, Zygomycetes, Downy Mildews and Slime Moulds; Rusts and Smuts; Cup-fungi, Truffles and their Allies; and, Mushrooms, Brackets and Puffballs. The Lichen Specialist Group, chaired by Christoph

Scheidegger, continues and will be the fifth of the suite of fungal Specialist Groups. An historic first SSC Fungal Conservation Meeting took place in Whitby, UK, on 26–30 October to plan the activities of the new SSC fungi network over the next quadrennium and agreed to develop an international federation of mycological associations. We thank especially Dave Minter for having the energy, vision and determination for spearheading this exciting new initiative.

In the coming year we expect to devote greater efforts to examining the links between species and human well-being. In the race between conservation and development it is very clear that we need to identify and raise awareness of the importance of species to peoples' livelihoods and to national economies. In an effort to assist this process for wetlands we have developed "An Integrated Wetland Assessment Toolkit" which provides a methodology and case studies to determine the full value of a wetland in terms of its biodiversity, economic value, and importance to peoples' livelihoods, thus filling an important methodological gap. You can find the report at: [www.iucn.org/species/IWAToolkit](http://www.iucn.org/species/IWAToolkit).

The SSC shares a number of specialist groups, mainly on waterbirds, with Wetlands International (WI). Simon visited WI headquarters in the Netherlands in June to start the process of renegotiating the memorandum of understanding between the two organizations, which governs how these specialist groups are managed. The work on this MOU is now reaching conclusion, after which the formal reappointment of these specialist groups will take place. Meanwhile these groups have remained active, despite their slightly "in limbo" status which will not last much longer.

The Conservation Breeding Specialist Group (CBSG) has maintained its usual frenetic level of activity. How Bob Lacy and Onnie Byers keep up with it all is a mystery to us. A new governance arrangement for the CBSG has been agreed, and the group is now evaluating the new opportunities that are coming its way with the emergence of SSC's new species conservation planning initiative. CBSG is of course the part of the SSC that links us most closely with the zoo community, and it is very encouraging to see the growing zoo support of in situ conservation programmes, and also the direct support provided to an increasing number of SSC Specialist Groups. Simon was able to take part in the CBSG Steering Committee meeting in Abu Dhabi in March, as well as the annual meetings of the European Association of Zoos and Aquariums in Copenhagen in September and of the World Association of Zoos and Aquariums in St Louis in October (at which Jane also spoke).

Simon has had a lot of involvement with the mammal specialist groups over recent months. At the International Mammalogical Congress in Mendoza, Argentina, in August, meetings were held with seven mammal specialist group chairs: Gabriela Lichtenstein (South American Camelids), Claudio Sillero (Canids), Mariella Superina (Anteaters, Sloths and Armadillos), Andrew Taber (Peccaries), Marco Festa-Bianchet (Caprinae), Susana Gonzalez (Deer), and Jerry Belant (Small Carnivores). A number of these groups had meetings, and we also held training sessions in both red-listing and the use of the new SIS software (these courses were run very successfully by Caroline Pollock, Dena Cator, Jan Schipper and Arturo Mora). As a result of discussions



Tiger (*Panthera tigris*). © Catlovers

held in Mendoza, we have now re-launched the New World Marsupial Specialist Group (being chaired by David Flores) and the Australasian Marsupial and Monotreme Specialist Group (being chaired by Chris Johnson). Also in Mendoza we had a meeting of the SSC Small Non-Volant Mammal Task Force, chaired by Giovanni Amori. The job of this task force is to design new SSC networks (Specialist Groups and Red List Authorities) to cover the rodents, shrews and hedgehogs. The task force has now almost completed its report with clear recommendations on the way ahead, and this will be sent to the SSC Steering Committee shortly. We should have a full report on this in the next issue of *Species*.

The Cat Specialist Group, chaired by Urs and Christine Breitenmoser, has also been busy on many fronts, including on a workshop in Rajasthan in September to plan for the proposed re-introduction of Cheetah to India (working with both the Re-introduction and Wildlife Health Specialist Groups). Urs, working closely with Holly Dublin (in her position as the SSC Senior Advisor on Tigers), also did a lot of work to try to advance the proposed CITES Global Tiger Strategy. Unfortunately, in the end it proved impossible to secure the resources to move this forward in the way that we had hoped. Tigers will, however, remain an important focus of the SSC in 2010, it being the Year of the Tiger, with a proposed Global Tiger Summit later in the year.

The Wildlife Health Specialist Group has worked with both the African and Asian Rhino Specialist Groups to produce an important new publication, *Guidelines for the In Situ Re-introduction and Translocation of African and Asian Rhinoceros*. We thank Richard Kock, Rajan Amin and Richard Emslie for their leadership in bringing this publication to completion.

Highlighting a few specialist groups, as we have done here, inevitably means that we have failed to draw attention to other excellent work being done by many of the groups. We plan to highlight more groups in our next report, and apologize now to all those that we have not mentioned here.

Our work in support of CITES has continued unabated. Dena Cator has been leading on this in the Species Programme, working closely with Thomasina Oldfield who works jointly with the Species Programme and TRAFFIC International. Important meetings of the CITES Standing, Animals and Plants Committees have taken place this year. SSC Specialist Groups have been active on a number of issues in relation to CITES, including on trade in Nile Crocodiles from Madagascar, trade in Crowned Cranes from

East Africa, the export of Bottle-nosed Dolphins from the Solomon Islands, and the trade in Humphead Wrasse in East and Southeast Asia. The vital role that Specialist Groups play in relation to CITES is as important as ever. We are now gearing up for the next CITES Conference of the Parties in Qatar next March, and, thanks to the generosity of a number of governments, we have recently been successful in securing the funding to enable us to carry out the *Analyses of Proposals to Amend the CITES Appendices* for the ninth successive CITES Conference. As usual, we shall carry out the *Analyses*, which are of vital importance in providing the CITES Parties with objective information on which to make decisions, in collaboration with TRAFFIC.

We have both made a number of important trips to speak at important international meetings. For example, Simon spoke at the 125th anniversary celebrations of the Bombay Natural History Society in February, attended a species meeting convened by the Wildlife Conservation Society at White Oak, Florida, in May on “What does it Mean to Save a Species?”, spoke at the London Symposium on Biodiversity Monitoring, organized by the Zoological Society of London, in June, and took part in a debate on “How Should We Set Priorities for Conservation Action and Research?” at Bristol Zoo in November. In her new role, Jane is now responsible for the development of IUCN’s position on a post 2010 framework (new overarching targets, goals and indicators within the context of a revised Strategic Plan for the CBD) which has meant attendance at a number of meetings. These have included one held in Jeju, Korea, organized by the WCPA and Protected Areas Programme (also attended by SSC Steering Committee member Tom Brooks) to discuss the CBD Protected Area Programme of Work (a key policy instrument for biodiversity conservation) and a meeting held last month in Kobe, Japan; the *Kobe Dialogue*, hosted by the Japanese Government (obviously a key player for 2010) discussed engagement in biodiversity conservation by the CBD as well as options for a new target framework.

This year we have had to make several interventions to address some crucially important species conservation issues. At the request of the Bat Specialist Group, Simon wrote to the Government of the Seychelles asking them to extend a planned nature reserve so that it included the foraging areas of the Critically Endangered Seychelles Free-tailed Bat. We were absolutely delighted when we received a response from the Minister of Environment agreeing to this request. At the urging of the Goose Specialist Group, the IUCN Director General, Julia Marton-Lefèvre, wrote to the Prime Minister of Ukraine to draw attention to the illegal mass poisoning of geese in that country. We have recently received a response confirming that the government is now carrying out investigations into the incident. The Director General also wrote to the Government of Zimbabwe, at the request of the African Rhino Specialist Group, to urge actions to address the serious escalation in rhino poaching in that country. As a



Raoul du Toit. © Susie Ellis

result, the government met with senior SSC officials in Harare on 19 October, and we hope that there will now be firm action to greatly reduce the very high levels of poaching. The South American Camelid Specialist Group also requested an intervention to parliamentary officials in Argentina concerning draft legislation that could have a serious impact on wild populations of Guanaco and Vicuña. The Director General sent that letter, and we await the outcome of this intervention. More recently, Julia also wrote (at the recommendation of the Crane Specialist Group) to the Prime Minister of China concerning proposals to place a barrage at the outlet of Poyang Lake, where 98% of the world’s Siberian Cranes spend the winter, and we await a response on this one. We would like to express our thanks to Julia and her office for the seriousness and efficiency with which she has responded to these requests for letters.

It is fitting to close this report by recognizing a member of SSC who has shown exemplary commitment to species conservation in the most challenging of circumstances. On 19 October we awarded SSC’s highest honour, the Sir Peter Scott Award for Conservation Merit, to Raoul du Toit, a long-serving member of the African Rhino Specialist Group. Raoul has worked on the conservation of both Black and White Rhinos in Zimbabwe for 20 years, and without his efforts there would probably be very few remaining animals in that country. Raoul’s example shows us that with dedication, commitment and inspiring leadership, conservation does work. Please join us in congratulating Raoul on this outstanding achievement.

#### **Simon Stuart**

Chair, IUCN Species Survival Commission

#### **Jane Smart**

Head, IUCN Species Programme  
Director, Biodiversity Conservation Group

# 350 or bust ...

## Coral reefs will not survive current 'best-case' targets for climate change mitigation

*That climate change already poses a threat to species, ecosystems and people, and that this will increase over time, is no longer in serious doubt. The big question is how large will the threat become, what can we do about it, and what are the policy positions that must be made to limit the threat as much as is possible?*

### Climate change targets

As the leading global organization on nature conservation and sustainable development, IUCN and its members have over the last decade increased attention to climate impacts on species and people. At the 4th Assembly in Barcelona, in October 2008, two resolutions were passed with specific reference to climate change targets and national/international policy: Resolution 4.075 "Climate change mitigation targets and actions for biodiversity conservation" and Resolution 4.076 "Biodiversity conservation and climate change mitigation and adaptation in national policies and strategies". The former references specific targets determined by the IPCC 4th Assessment Report in 2007, to which IUCN has committed itself. Specifically, the resolution recognizes that global climate warming of 2°C will result in significant impacts to ecosystems, agricultural systems and people, some of which may be severe and irreversible. This has formed the basis of IUCN's, and many other conservation organizations' positions on climate change, particularly with the extreme importance of the upcoming UNFCCC CoP in Copenhagen in December this year and its mandate to set post-Kyoto targets for limiting climate change.

Among the scenarios derived by the IPCC for global climate change, the best case is scenario B1 (Parry *et al.* 2007). Stated simply, this predicts stabilization of greenhouse gases at 450 ppm CO<sub>2</sub>EQ, which gives a mean global warming of 2.1°C (range 1.4–3.1°C). A worst-case



Elkhorn Coral (*Acropora palmata*). © Scubabab

stabilization scenario of 1000 ppm CO<sub>2</sub>EQ was estimated to result in 5.5°C warming (range 3.7–8.3°C).

The most recent data indicate that in 2009, even as the UNFCCC is gaining support globally and countries are increasingly making commitments to limit climate change, CO<sub>2</sub> emissions are increasing annually and total atmospheric concentrations are ABOVE the worst-case scenario (Raupach *et al.*, 2007; Richardson *et al.*, 2009). Further, it is widely overlooked that the 2°C/450 ppm CO<sub>2</sub> target<sup>1</sup> gives only a 50% probability of success (Figure 1). Even more alarming, achieving this target requires massive reductions in global emissions below 1990 levels by 2050, in the order of 80% AND almost immediate reductions to minimize overshoot and lag effects. With countries shying off committing to interim reduction targets (e.g. by 2020), it is highly unlikely that the 450 target will be achieved.

1. Henceforth, "ppm CO<sub>2</sub>" and "ppm CO<sub>2</sub> equivalent" are not differentiated in the text, and we refer to the 450 target of the IPCC. The conversion from actual measures of CO<sub>2</sub> to estimates of CO<sub>2</sub> EQ varies among technical groups and depends on different assumptions about the ratios of other greenhouse gasses. Because of the effects of CO<sub>2</sub> on ocean acidification, and its impact on corals, we use CO<sub>2</sub> rather than degrees of warming, which is easily measured, as the latter is only one aspect of climate change that is relevant.

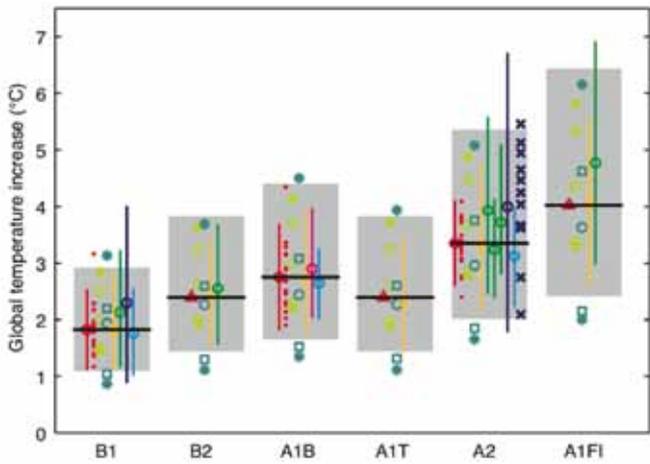


Figure 1. A 2°C target is achieved at only a 50% probability under the BEST climate change scenario (B1). Projected global mean temperature change in 2090 to 2099 relative to 1980 to 1999 for the six SRES marker scenarios based on results from different and independent models. (From Figure TS.27, IPCC 2007).

## Coral and coral reef impacts and vulnerability

The vulnerability of coral reefs to climate change (increasing sea surface temperatures) has become increasingly well known in scientific circles, and among protected area and resource managers. Even the public eye has been caught, as media outlets focus on the dramatic images of extensive areas of corals bleaching white and subsequently dying.

With few marine species on the Red List, the Global Marine Species Assessment (GMSA) was established to increase their representation, partially against the backdrop of popular wisdom that felt that marine species are less vulnerable to extinction than terrestrial species, partly because of higher connectivity due to ocean currents and the much larger biosphere that supports marine life. One of the priority taxonomic groups for which red-listing was undertaken was scleractinian, or stony, corals, because of their role as foundation species for coral reef ecosystems, clear evidence of impacts to reefs from a broad variety of threats growing over decades and their sudden vulnerability to climate change in the last two decades. Strict application

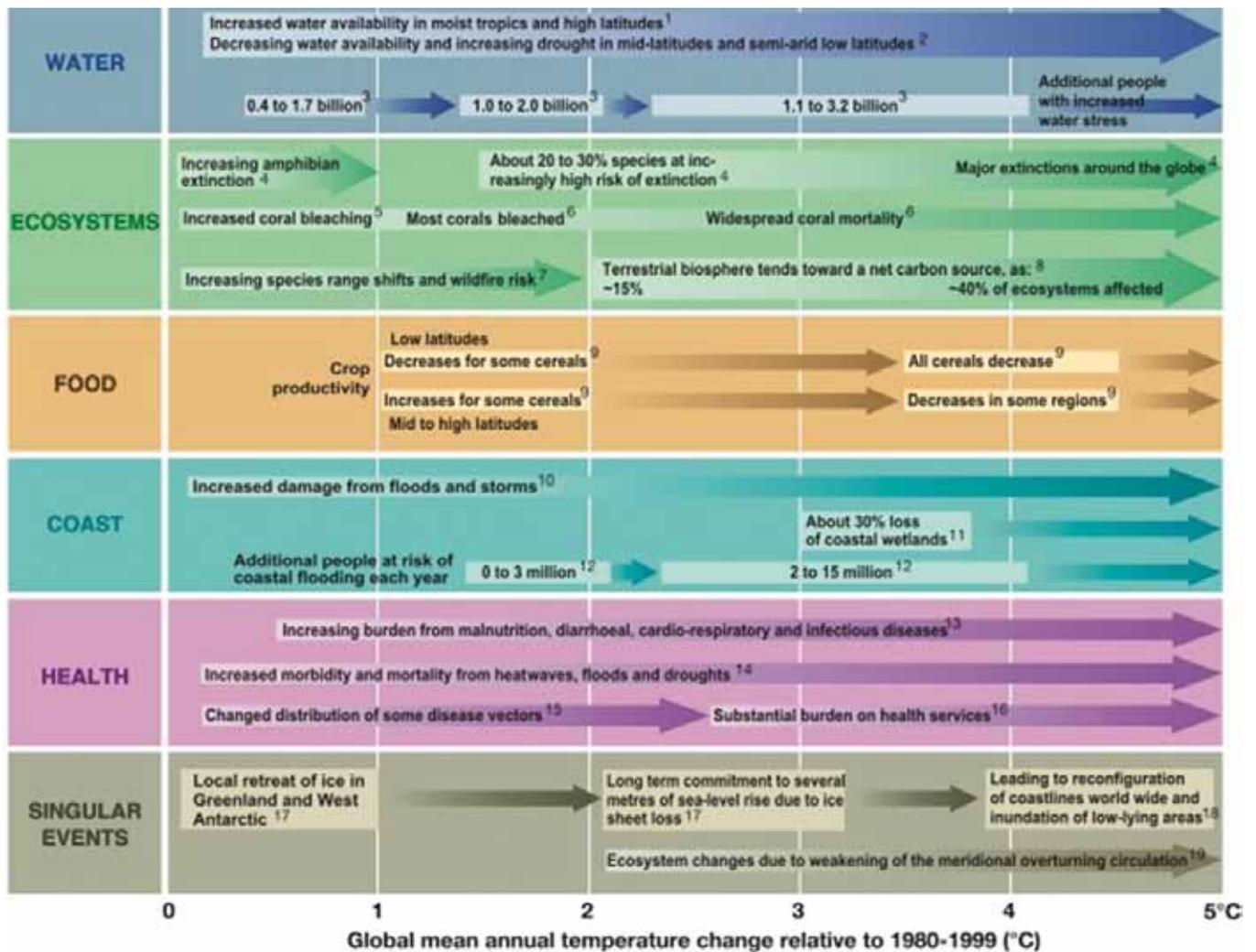


Figure 2. Coral bleaching is one of the first climate impacts, starting at just over zero °C rise in temperature. Examples of global impacts projected for changes in global temperature (Derived from Table TS.3, IPCC 2007). In updated references (e.g. Fischlin *et al.*, 2007), widespread coral mortality, or “irreversible and catastrophic decline” occurs at <2°C warming.

of the Red List criteria resulted in over one third of all species being listed as threatened (Carpenter *et al.* 2008). That a globally distributed group of marine species should attain higher threat proportions than such classically vulnerable groups as amphibians was a shock to all participants, and contributed to a decision to include corals as a pilot species group in an IUCN Species Programme project looking at traits that contribute to climate vulnerability in species in order to adopt these into the red-listing process (see *Species* 49, p. 19).

The IPCC considered how vulnerable different sectors are to climate change (Figure 2), showing coral reefs as one of the key examples. The notable feature being that among the different sectors shown, global bleaching of coral reefs occurs at the lowest threshold of temperature increase. More accurately, reef scientists predict that irreversible and catastrophic decline occurs at 1.7°C warming (Fischlin *et al.* 2007). Add to this the effects of ocean acidification, which were not incorporated into those estimates, and the prognosis for corals and reefs is extremely dire.

The significant issue here is that this is the best case scenario under consideration at the UNFCCC and that EVEN THIS has only a 50% probability of success. Estimated to harbour around one third of all described marine species, with 500 million people (8% of the world's population) living within 100 km, and an economic value of \$172–375 billion per year, coral reefs are extremely valuable ecosystems (Veron *et al.*, 2009). That countries and agencies may be prepared to sacrifice them should send a chilling message to any person, organization or country with interests in the biodiversity, human well-being or economic activity associated with coral reefs.

## Coral Reef Crisis statement/findings

On 6 July 2009, the Royal Society, the Zoological Society of London and the International Programme for the State of the Ocean facilitated a Coral Reef Crisis meeting to identify key thresholds of atmospheric carbon dioxide needed for coral reefs to remain viable. The statement from the workshop is included in Box 1, and reported in Veron *et al.* (2009).

If the prognosis already accepted by the scientific community and expressed in the IPCC reports was bad, these most recent clarifications are far worse. The basic message of the group of scientists was that the planet has ALREADY passed a critical stage for coral reefs (at about 320–350 ppm CO<sub>2</sub>; current levels are 387 ppm CO<sub>2</sub>), and for any hope for coral reefs to survive into the future CO<sub>2</sub> levels must be REDUCED below 350 ppm.

That is, the current best-case target will ENSURE significant numbers of coral species are likely to go extinct and/or lose their functional capacity to form reefs, and that this will have a domino effect on adjacent ecosystems.

## Policy

At the annual meeting of the SSC's Marine Conservation Sub-Committee on 7–8 July 2009, the broader implications of this finding for achieving conservation targets for coral

species and reefs, and for other marine species and environments, were considered. Specifically, how can the SSC, as well as IUCN's other organs, be said to be meeting its mandate if major components of the biosphere are under such massive threat, and current policy does not sufficiently account for this?

For IUCN and other conservation organizations, this begs an urgent review of the currently held position, arrived at in recent months based on information tabled at that point, that a 450 target was acceptable. Working from "known-unknowns" and their ilk:

- From worse-than-worst to best case – from the current position of exceeding even the worst case projections, what scope is there for shifting global practice to the best-case scenario?
- Even the best is only half-good – is it a reasonable position for organizations mandated with protecting species and ecosystems to lobby for a position premised on a probability of success of only 50%?
- And even that is not good enough – with strong evidence ("virtually certain" in IPCC parlance) that the current conservation target is too much for critical species and ecosystems, such as coral reefs, how can we negotiate for this if it is not even between the goalposts?

More generally, additional issues frame the debate about the role of conservation and sustainable development organizations, working to minimize the risks and impacts of climate change to both nature and people:

- **Re-setting the boundaries on the negotiating space.** As scientific understanding of climate change and impacts improves, a framework for adjusting policy targets must be available, PARTICULARLY, as in this case, where these move the goalposts OUTSIDE of the current debate. We must proactively prepare for future negotiating positions and not be hamstrung by positions based on antiquated information.
- **Response time is rapidly running out.** As time passes without sufficient action, the lower boundary for climate change rises. There are only 5–10 years remaining to implement the emissions reductions needed to achieve the current 'best scenario' 450 target.
- **Time lags.** Lag times are critical issues in climate change, not just in the effects of greenhouse gases being felt (as indicated in the statement), but also in the domains of science, policy and response. The cycle from assessment through understanding to policy and action must be streamlined to minimize such lags, and NGOs and IGOs have a critical role to play in this regard.
- **Carbon sequestration.** The Coral Reef Crisis statement calls for REDUCING CO<sub>2</sub> levels below present levels. Not only will this require a rapid emissions reductions response it also will require the implementation of carbon sequestration technologies and approaches that don't themselves have unacceptable consequences (for example, not addressing, or even increasing, the ocean acidification threat), involve too-slow process rates or result in insufficient emissions reduction commitments.
- **Institutional policy and diversity.** How can IUCN best develop and adjust overall policy on this key issue? As the relevant body within the Species Survival Commission,

### BOX 1. THE CORAL REEF CRISIS: Scientific justification for critical CO<sub>2</sub> threshold levels of <350ppm

Output of the technical working group meeting at the Royal Society, London, 6 July 2009

1. Coral reefs are the most biologically diverse habitats of the oceans and provide essential ecosystem goods and services to hundreds of millions of people.
2. Temperature-induced mass coral bleaching causing widespread mortality on the Great Barrier Reef and many other reefs of the world started when atmospheric CO<sub>2</sub> exceeded 320ppm.
3. At today's level of 387ppm CO<sub>2</sub>, reefs are seriously declining and time-lagged effects will result in their continued demise with parallel impacts on other marine and coastal ecosystems.
4. Proposals to limit CO<sub>2</sub> levels to 450ppm will not prevent the catastrophic loss of coral reefs from the combined effects of climate change and ocean acidification.
5. To ensure the long-term viability of coral reefs the atmospheric CO<sub>2</sub> level must be reduced significantly below 350ppm.
6. In addition to major reductions in CO<sub>2</sub> emissions, achieving this safe level will require the active removal of CO<sub>2</sub> from the atmosphere.
7. Given the above, ecosystem-based management of other direct human-induced stresses on coral reefs, such as over-fishing, destructive fishing, coastal pollution and sedimentation, will be essential for the survival of coral reefs on which we are all dependent.

*Signatories to the statement, at the time of publication, include:*

Sir David Attenborough FRS (working group co-chair), Prof. Ken Caldeira (Carnegie Institution for Science), Dr Ann Clarke (Frozen Ark Project), Prof. James Crabbe (University of Bedfordshire), Prof. Andreas Fischlin (Swiss Federal Institute of Technology, in his own capacity), Prof. Ove Hoegh-Guldberg (University of Queensland), Dr Simon Harding (Globe International), Rachel Jones (Zoological Society of London), Prof. Tim Lenton (University of East Anglia), Dr David Obura (IUCN Coral Specialist Group), Paul Pearce-Kelly (Zoological Society of London and IUCN Invertebrate Conservation Committee), Dr Dirk Peterson (SECOR), Dr Peter Read (Pacific Marine Environment), Dr Chris Reid (Sir Alister Hardy Foundation for Ocean Science/Marine Institute), Prof. Callum Roberts (University of York), Dr Alex Rogers (International Programme on the State of the Ocean), Dr Chris Sabine (Pacific Marine Environmental), Prof. Charles Sheppard (University of Warwick), Dr Mark Spalding (The Nature Conservancy), Dr Mary Stafford-Smith (Coral Reef Research), Jon Taylor (World Wildlife Fund), Dr Kristan Teleki (International Coral Reef Action Network), Dr John Turner (Bangor University), Dr Philip Williamson (University of East Anglia), Prof. John Veron (Coral Reef Research).

the Coral Specialist Group is endorsing the 350 target, but the IUCN as a whole may be constrained in doing so because of the 2009 Congress commitment to a 450 target. How can we ensure consistency of message in response to the best available science?

- **What are the most recent findings for other systems?** What other vulnerable systems also have

<450 critical thresholds? Is there enough being invested in research and assessments to determine these BEFORE these thresholds are passed?

The UNFCCC at Copenhagen will take as its primary scientific input the Fourth Assessment Report of the IPCC. This is already two years out of date (further if you consider the length of time for preparation) and of course based on consensus. Scientific data arising since the fourth assessment has already dramatically changed our understanding about the rate and consequences of climate change and has been accompanied by observations of significant changes in marine ecosystems from the poles to the tropics. Policy should reflect best assessment of the latest information and should be adjusted when significant new scientific findings come to light. While governmental and intergovernmental policy understandably has a heavy inertia, NGOs/IGOs should exemplify a nimbler approach to policy review.

There will be little time for a renegotiation of the next climate deal because critical thresholds will have been passed or will be unavoidable in the Earth's climate system and biosphere. Where current negotiations do not reflect the true threat to the Earth's ecosystems, as the Coral Reef Crisis statement and its scientific justification clearly demonstrates (Veron *et al.* 2009), then NGOs/IGOs must be prepared to challenge governmental policy and argue for the adoption of target levels based on what the best science is telling us.

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- For IPCC documents, go to: <http://www.ipcc.ch/>

**D.O. Obura** *CORDIO East Africa, Kenya and Chair of the IUCN Coral Specialist Group.* [dobura@cordioea.org](mailto:dobura@cordioea.org)

**A.D. Rogers** *Zoological Society of London, London and Scientific Director of the International Programme on the State of the Ocean, IUCN SSC Coral Specialist Group*

**P. Pearce-Kelly** *Zoological Society of London and IUCN Invertebrate Conservation Committee, Conservation Breeding Specialist Group, Reintroduction Specialist Group and Mollusc Specialist Group*

**J.E.N. Veron** *Coral Reef Research, Townsville, IUCN Coral Specialist Group.*

John Veron's Royal Society presentation *Is the Great Barrier Reef on Death Row?* can be viewed on the following link: [www.royalsociety.tv](http://www.royalsociety.tv)  
Go to: <https://www.zsl.org/science/news/join-our-campaign-to-save-the-worlds-coral,1209,AR.html>

# The contribution of species to ecosystem services

## Recognizing how much human welfare depends on the continued prosperity of many species

Ecosystem services are the benefits that people receive from ecosystems. This frankly anthropocentric perspective was adopted by the 2005 Millennium Ecosystem Assessment (MA) and covers four broad categories of services, all of which relate to species. These benefits include the straight-forward provisioning services, such as food, timber, fibre, genetic resources, and water, as well as products from the wild (usually species). These provisioning services feed all of humanity and provide many other goods as well. While most people depend primarily on domesticated species for their dietary needs, some 200 million are dependent on wild species for at least part of their food and up to 90% of coastal populations in some parts of the world earn their primary income (as well as their food) from fishing. Species still contribute to crops; more than 60 wild species have been used to improve the 13 major crops by providing genes for pest resistance, improved yield, and enhanced nutrition. In some countries, medicinal plants and animals provide most of the drugs people use, and even in technologically advanced countries like the USA, half of the 100 most-prescribed drugs originate from wild species. All of these provisioning services are relatively easy to identify and quantify.

More subtle are the regulating services derived from the control of natural processes by ecosystems, for example regulating air quality, climate, water, erosion, disease, and pests. Many of these services are specifically species-related, especially pollination, the animal-assisted transfer of pollen between plants, which provides an extremely valuable service in enabling

many plants – including 87 of the 113 leading food crops and 35% of all food production – to reproduce. This ecosystem service provided by species is worth US\$ 197 billion per year, not including their contribution to the production of crop seeds, forage and pasture grasses, or to maintaining the structure and function of natural ecosystems (a value beyond calculation). Pest regulation also depends on predators, such as bats, toads, raptors, snakes, and so forth that consume vast numbers of the major animal pests of crops or forests. For example, a single colony of Mexican free-tailed bats eats more than 9,000 kilograms of insects per night, targeting especially corn earthworms and fall armyworms, both important crop predators. A single brood of woodpeckers can eat 8,000–12,000 harmful insect pupae per day, helping maintain the health of forests, and in fruit plantations, insectivorous birds can make the difference between a bumper crop or a costly failure.

Waste regulation is not usually of particular interest to most people working on species, but of course all species produce waste and those who clean up after them are performing an important ecosystem service. These species include the bottom feeders which survive on dead whales that fall to the bottom of the sea, hyenas and vultures which feed on dead animals, and microbial species which decompose dead vegetation and convert it to fertile soil. Dung beetles have a dirty job, but their recycling of the droppings of other animals also helps to disperse seeds, recycle nutrients, and suppress parasites. Even the seemingly lowliest of species serve critical regulating functions in ecosystems.

The third main category covers the supporting services, the underlying processes that are necessary for the production of all other ecosystem services. These include nutrient cycling, soil formation, primary production, photosynthesis, and water cycling. Many of these directly relate to species. Photosynthesis, for example, is the process by which carbon dioxide, water, and sunlight are captured by plants to form sugar and oxygen that both influences the air people and most other animals breathe, and the food that many animals eat. Fueled by the energy captured by plant species, the chemical cycles of carbon, sulphur, and many other elements support most life on earth (exceptions include the bizarre life forms that thrive in the extreme environments of deep-sea hydrothermal vents). Primary productivity is expressed directly through species, while soil formation is utterly dependent on the species that live in the soil, including earthworms, termites, and thousands of other types of invertebrates and microbes. Species-rich soils help to reduce soil erosion, store more carbon, and cycle more water, thereby contributing to many ecosystem services.

The fourth general category is something of a conceptual breakthrough: cultural services, the non-material benefits people obtain from ecosystem services. These include ethical, spiritual, religious, esthetic, and other values people attach to ecosystems, landscapes or species. Many species provide substantial cultural services: the giant panda represents China; eagles symbolize many countries; many athletic teams are named for animals

(usually fierce ones); indigenous peoples often revere large predators; and tourists spend billions of dollars per year to watch birds or whales, or witness wildlife spectacles such as the great annual migrations in the Serengeti ecosystem of Tanzania and Kenya. Cultural services can also be assessed by the existence values that people place on simply knowing that a species or ecosystem exists even if they do not use it. For example, many people express substantial existence values by donating time or money to conserve their favourite species, often charismatic ones like giant pandas, elephants, tigers, birds, and so forth. Another cultural service is the provision of recreation and ecotourism, with much ecotourism being species-oriented. Visitors to national parks, for example, appreciate the wildlife they see, and the thriving diving industry is fundamentally based on the species of coral, fish, and other marine species that people see.

The concept of ecosystem services is a metaphor that was designed to build stronger support among people, including decision-makers, for ensuring that the genes, species, and ecosystems that provide the foundation for all of these services receive the attention they require to survive, and prosper, in a time of rapid change. Species remain the most tangible and readily recognized element in this equation, and the one with which people most readily identify. But the concept of ecosystem services also recognizes that no species exists by itself, being dependent on an extensive network of other species, as prey, predators, parasites, resting places, and so forth. Effective conservation of species can be strengthened by adopting the fundamental principles of ecosystem services as a means of demonstrating the utility of species to people. This should not be considered simply “putting a price tag on species”, but rather recognizing how much human welfare depends on the continued prosperity of the rest of the species with whom we share our planet.

**Jeff McNeely**  
Chief Scientist, IUCN



Medicinal plants. © Howard G. Charing



Pollination by a Western Honey Bee (*Apis mellifera*). © Chris Willis



Fishermen. © Michael Zimmel

# Specialist Group Exchange



African Elephant (*Loxodonta africana*). © Alex Cortes

## African Elephant SG

### Supporting policy decision-making

The African Elephant Specialist Group (AfESG) continues to work closely with the Convention on International Trade in Endangered Species (CITES), to provide sound scientific advice and support to its decision-making processes. In June 2008 and March 2009, AfESG supported the CITES-led African Elephant Meetings in Mombasa and Nairobi respectively, at which African elephant range states took significant steps forward for continental collaboration on behalf of elephant conservation. AfESG facilitated the development of a Strategic Framework for the African Elephant Action Plan. This serves as the foundation for the African Elephant Action Plan, a draft of which was completed in March 2009 and is currently being finalized by a Working Group of range State representatives.

Another exciting initiative is the development of the African and Asian Elephant Database (AAED), a joint project of the AfESG and the Asian Elephant Specialist Group. The AAED, funded by the CITES MIKE (Monitoring the Illegal Killing of Elephants)

Programme and the US Fish & Wildlife Service (USFWS), will be a server-based, spatially enabled database which will house and analyse population, range and other data on African and Asian elephants. As the official repository of MIKE data, it is a huge step forward in helping provide a central home for data on both African and Asian elephants. And, in the future, the database will extend to additional species. The AAED will allow much greater functionality than the previous African Elephant Database (AED), such as time series comparisons which will be a very useful tool for both researchers and policy makers.

In other AfESG news, members are facing serious challenges in Central and West Africa. In the Democratic Republic of Congo, Dr John Hart and his wife Terese are working closely with government officials to build support for conservation initiatives in the Congo Basin (<http://www.bonoboincongo.com/>). Dr Iain Douglas-Hamilton's Save the Elephants is working with the WILD Foundation and the Ministry of Environment in Mali to save the last desert elephants in West Africa. Located Mali's Gourma district of the country, these elephants are suffering from the worst drought in 26 years (<http://www.savetheelephants.org/>).

### Diane Skinner

African Elephant Specialist Group

## African Rhino SG

### A survival strategy for northern white rhino and black rhino in Zimbabwe

Two of the most important strategic initiatives that the African Rhino Specialist Group (AfRSG) are currently involved in are the survival strategy for the Northern White Rhino (*Ceratotherium simum ssp. cottoni*), and the management of the Black Rhino (*Diceros ssp. bicornis minor*) in Zimbabwe.

It is increasingly likely that the future of the northern white rhino will rest on the efforts of the Dvur Kralove Zoo and its partners to enhance the breeding prospects of a small number of currently captive rhinos. This belief has arisen from surveys of the last known range of wild rhinos in and around Garamba National Park, DRC, which have failed to locate any sign of the four individuals known to have been present in 2005.

The AfRSG's Scientific Officer attended a workshop in the Czech Republic (2008) aimed at identifying the best options for ensuring the survival of the Northern White Rhino. It was agreed that attempts to artificially inseminate the captive females, and other interventions, should continue while potential locations in Africa to which they could be translocated are evaluated. The principal strategy would involve their relocation on a custodianship basis to a safe location, with suitable habitat in either Kenya or South Africa. This rationale is based on opinion that artificial social and habitat conditions are considered to be key factors in their failure to breed in captivity; this is further supported by experiences with captive Southern White Rhinos.

However, success is not guaranteed – even if the four or so potential breeders from captivity were to breed, they would still be on the borderline of genetic viability. If proved to be too little too late, then



White Rhino (*Ceratotherium simum*). © Alex Cortes



Ranita Dorado Amphibian Reserve. © Alex Cortes

the outcome could be tragic given that feasible strategies for their survival, involving translocation of founder populations out of the Garamba NP population from as early as the 1980s, were recommended by the AfRSG but never adopted.

The situation for the black rhino in Zimbabwe is critically balanced following an escalation of poaching in recent years, and the very low arrest/conviction rates are a serious cause for concern. This could nullify the growth in the population which has taken place over the last decade. Zimbabwe is one of the major range states for black rhino and has a number of populations regarded by the AfRSG as key to the survival of the taxon. It was also one of three countries flagged for attention at the CITES Conference of Parties 14, due to concerns over the status of its rhino and the control of poaching and illegal trade.

The AfRSG has been mandated (with TRAFFIC) to report to the CITES Secretariat on, *inter alia*, the status and security of African rhinos. An assessment of the status of Zimbabwe's 14 Black Rhino populations was carried out in May 2009, with excellent cooperation from the Zimbabwean authorities. The results, combined with those from TRAFFIC, will be submitted to the CITES Secretariat and CoP 15 for consideration. It is hoped that this will contribute to a significant improvement in the situation for rhinos in Zimbabwe. The AfRSG also hopes to assist the Zimbabwean National Parks and Wildlife Management Authority by providing training in some key aspects of rhino management.

These AfRSG activities are generously supported by WWF, the International Rhino Foundation and Save the Rhino International.

### **Martin Brooks**

Chair, African Rhino Specialist Group

## **Amphibian SG**

### **Amphibian reserve launched in Colombia**

An exciting new partnership between the IUCN/SSC Amphibian Specialist Group, IUCN Netherlands, Dendrobatidae Nederland, Conservation International-Colombia and Fundación ProAves, has led to the launch of a new amphibian reserve to protect spectacular poison frogs in Colombia.

Colombia has more threatened amphibians than any other country, largely restricted to highly fragmented subtropical and montane forests which are unprotected and at threat of agricultural expansion. Within Colombia the hotspot of threatened amphibians is the Central Cordillera, which also has the greatest concentration of coffee production in South America and is almost denuded of natural forests.

After extensive searches of the Central Cordillera for amphibians, herpetologist and Fundación ProAves President, Alonso Quevedo, with ecologist Oscar Gallego, discovered one of the largest surviving forest fragments, a mere 200 acres of forest on its eastern flank. Not only did Alonso discover that the 200 acres contained many threatened amphibians, but that it held many previously undescribed species including two spectacular poison frogs, recently named as the Swainson's Poison Frog (*Ranitomeya doriswainsonae*) and Little Golden Poison Frog (*Ranitomeya tolimense*).

Sadly this last 200 acres was in the process of being cleared for avocado and coffee plantations and would almost certainly seal the fate of countless amphibians and other unique biodiversity.

"In an urgent bid to save this unique island of amphibian diversity" said Alonso Quevedo, "I negotiated with different land owners of the 200-acre forest to stop clearing forest and sell the land to the national conservation

NGO, Fundación ProAves. The owners agreed, so I immediately approached the IUCN/SSC Amphibian Specialist Group and IUCN Netherlands for emergency support."

The two groups promptly provided the support necessary to purchase the land and resources for the long-term protection and management of the area. In early December, the newly named "Ranita Dorada Amphibian Reserve", named after the Little Golden Poison Frog, was launched.

This action comes at a crucial moment when conservation measures are urgently needed for this highly sensitive group. Amphibians' dependence on clean freshwater and sensitivity to deforestation and climate change gives added urgency that we take greater care of them as our own health and survival depend on the same resources.

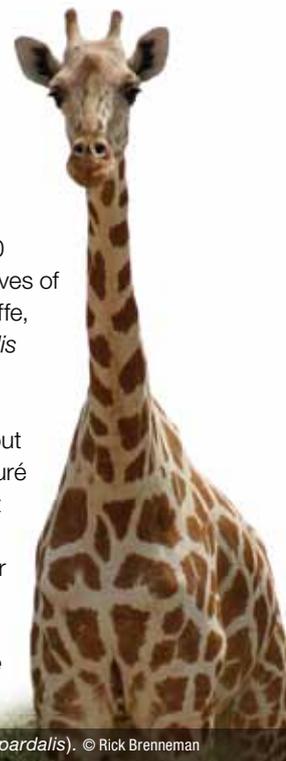
### **Robin Moore**

Amphibian Specialist Group

## **Antelope SG**

### **Conserving West African Giraffes (*Giraffa camelopardalis peralta*)**

Currently, the last 200 surviving representatives of the West African Giraffe, (*Giraffa camelopardalis peralta*), are largely restricted to a non-protected area of about 100,000 ha in the Kouré region of Niger, about 60 km east of the capital Niamey. Under the auspices of the *Ministère de l'Environnement et de la Lutte contre la*

Giraffe (*Giraffa camelopardalis*). © Rick Brenneman



Lowland Anoa (*Bubalus depressicornis*).  
© Edinburgh Zoo



Banteng attendees. © Ms. Ikeu Sri Rejeki, KKH, Indonesian Ministry of Forestry

*Désertification* of Niger, the *Programme Régional Parc W* of ECOPAS (*Ecosystèmes Protégés en Afrique Soudano-Sahélienne*) called a meeting of 40 stakeholders in Niamey from September 29 until October 3, 2008 to conduct a Population and Habitat Viability Assessment (PHVA). The IUCN/SSC/CBSG (Conservation Breeding Specialist Group) was invited to facilitate the PHVA and build a Vortex computer simulation model to assist decision-making. The workshop was funded by the European Commission development fund (7 ACP RPR 742).

Overall it was very clear that the fate of the last population of West African Giraffes is closely linked to the fate of the local communities in the distribution area of the giraffe. Projects promoting the sustainable livelihood of the local inhabitants are key to the long-term conservation of the giraffe. The modelling showed the importance of early detection, monitoring and mitigation of severe ecological, epidemiological and political catastrophes that could eventually decimate the population. It illustrated the importance of halting habitat loss and ensuring giraffes can expand their distribution to neighbouring zones without increased anthropogenic mortality. The establishment of a new separate giraffe population as extra insurance was widely discussed.

The PHVA workshop was a major step in an ongoing process of developing a "Long-term Conservation Strategy for the Giraffe in Niger". Description and details of conservation actions suggested as a result of the

workshop can be found in the final report by Brenneman, R., Chardonnet, P., Cioffolo, I., Desbiez, A., Fenessy, J., Leus, K. and Paolini, C. ([http://www.cbsg.org/cbsg/workshopreports/23/niger\\_giraffe\\_phva\\_2008.pdf](http://www.cbsg.org/cbsg/workshopreports/23/niger_giraffe_phva_2008.pdf)).

#### Acknowledgements

We would like to thank the *Ministère de l'Environnement et de la Lutte contre la Désertification* of Niger, the W-ECOPAS Program, the IUCN/SSC/CBSG and the International Giraffe Working Group.

#### Philippe Chardonnet and David Mallon

Co-Chairs, Antelope Specialist Group

## Asian Wild Cattle SG

### **Workshops provide hope for Asian/ Indonesian large mammals threatened with extinction**

Ten-year plans to conserve four of Indonesia's most threatened species were agreed at two workshops in May 2009.

The Mountain Anoa (*Bubalus quarlesi*) and Lowland Anoa (*Bubalus depressicornis*) – two species of Dwarf Buffalo, as well as the Babirusa (*Babyrousa* spp.), a wild pig, and Banteng (*Bos javanicus*), a wild cattle species, are all threatened with extinction according to the IUCN Red List of Threatened Species 2008. Poaching and habitat destruction and degradation are among the major threats to these species, which have

been identified by the Indonesian Directorate General of Forest Protection and Nature Conservation as high priorities for species conservation.

Earthwatch Institute and European and American Zoos were among the organizations sponsoring the two workshops, hosted by the Indonesia Ministry of Forestry and the IUCN/Species Survival Commission's Asian Wild Cattle Specialist Group, of which Earthwatch Research Manager Dr James Burton is chair. More than 110 representatives from provincial and national forestry departments, local and international NGOs, and Indonesian zoo staff and academics, agreed to the mid-term rescue plans.

The anoas and babirusa are endemic to Sulawesi Island in central Indonesia, while the banteng is found in isolated populations on Java and Kalimantan. These species act as important flagships for their respective islands and play a vital role in their natural environment by helping to maintain habitat diversity through grazing. They also represent a major reservoir of genetic material that could help scientists to safeguard and improve domestic cattle breeds throughout the world. This is best represented by the banteng, which has a domesticated form – the Bali cattle, widely used for meat and milk production across Indonesia and other Southeast Asian countries.

The workshops represented the close partnership between Earthwatch Institute, IUCN and the Indonesian Ministry of Forestry. The action plans are the first for species in central

Indonesia and will play an important role in conserving Indonesia's highly diverse and threatened biodiversity.

### James Burton

Chair, Asian Wild Cattle Specialist Group

## Asian Rhino SG

### *Bringing parties together for rhino conservation*

A meeting of AsRSG members based in South Asia, and managers of protected areas holding greater one-horned rhino in India and Nepal, was held in Nepal from 15–17 September 2008. The meeting's objectives were to encourage networking, particularly amongst those working in rhino-bearing protected areas (PA) in South Asia; to share experiences of the problems faced by small rhino populations (inbreeding depression and scarcity of habitat); to assess current threats and challenges in rhino conservation; to explore inter-state and trans-country cooperation on information sharing on rhino poaching as part of crisis management; and identification of key resource persons in the field of rhino research and conservation in South Asia.

It was agreed that a working group would be convened, with experts on habitat, population, trade investigation, veterinary and conflict mitigation issues. The AsRSG (South Asia) will also institute an award in memory of Dr Tirtha Man Maskey. This award will be effective from 2009 and will recognize meritorious service extended by frontline staff working in rhino areas of India and Nepal.

Further discussions were held on poaching and invasive species and emphasized the need for in-depth studies on ways and means to eradicate weeds from rhino habitats. Recommendations were made to rhino-bearing PA managers in India and Nepal to have rhino census at an interval of 3–5 years. For small populations of rhinos, it was proposed that intense ID-based monitoring should be implemented to monitor all individuals. The AsRSG (South Asia) will prepare a training module on greater one-horned rhino monitoring within one year.

A one-day workshop on Rhino Translocation Protocol was held at the College of Veterinary Science, Khanapara, Guwahati on 12 December 2008. The workshop was organized jointly by the IUCN/SSC, Asian Rhino Specialist Group, Wildlife Health Specialist Group and the College of Veterinary Science of Assam Agricultural University. The purpose of the workshop was to further professionalize the approach to translocation of rhinos under the Indian Rhino Vision 2020.

Due to continued challenges in procuring the tranquillizing drugs for use in rhino translocation from Pabitora Wildlife Sanctuary and Kaziranga National Park to Manas National Park in Assam, the second phase of the rhino translocation was not possible during the winter months of 2008 and early 2009. Now the next phase of rhino translocation is being planned in November 2009 when about 18 rhinos will be translocated into Manas National Park.

A meeting of AsRSG members in Southeast Asia, along with the managers of Sumatran and Javan rhino-bearing areas of Indonesia, Malaysia and Vietnam, was held at Bogor, Indonesia on 2–3 March 2009. The meeting emphasized the need to take urgent measures to prevent the continued fragmentation and eventual extinction of Sumatran and Javan rhino, and urged range country government and non-governmental agencies and international donors to implement the Sabah, Indonesia and Vietnam rhino action plans.

It was noted that *in situ* conservation and protection of Sumatran and Javan Rhino, along with key habitats, is essential to ensure the

future of the species in the wild in its range countries. It was also recognized that where populations are seen to be declining, or there is an absence of breeding, a number of options need to be considered, e.g. breeding between range country populations and exchange programmes. AsRSG openly invites the international community to provide effective and united support, including funding, to assist these efforts, whilst the participants of the meeting pledged to ensure the long-term viability of the Sumatran and Javan rhino.

The much awaited *Guidelines for the in situ Re-introduction and Translocation of African and Asian Rhinoceros* is now available from the AfRSG, the AsRSG, and the Wildlife Health Specialist Group.

### Bibhab Kumar Talukdar

Chair, Asian Rhino Specialist Group

## Bat SG

### *Proposed cull of Pteropus niger in Mauritius*

A week-long workshop was held in Mauritius in November 2008, to share experiences of conserving endemic fruit bats of the genus *Pteropus* on Western Indian Ocean islands. It also aimed to establish a regional group to continue exchange of information as well as providing an opportunity to explore the problems faced by lychee farmers on Mauritius (who complain of losing fruit to *P. niger*).

Some years ago, the government of Mauritius proposed to cull *P. niger* despite it being a protected species. The scientific community, headed by the Mauritian Wildlife Foundation, protested that the proposal was premature in advance of any study of the feeding ecology of the bats to determine the extent to which the bats were culpable of taking lychee fruits, in comparison with other fruit predators such as Indian Ring-necked Parakeets, Red-whiskered Bulbuls, Indian Mynahs and Black Rats.

A recently completed census estimated that there were 21,000 *P. niger* on Mauritius. This is not an excessive number considering that a closely related species *Pteropus*



Indian Rhino (*Rhinoceros unicornis*).  
© Dr Bibhab Kumar Talukdar



Mauritius Fruit Bats (*Pteropus niger*).  
© Vikash Tatayah, Mauritian Wildlife Foundation

*subniger* has already been driven to extinction on the island by habitat loss and overhunting. *Pteropus rodricensis* was also present on Mauritius but became extinct there and is now found only on Rodrigues in the Mascarene archipelago. Here numbers declined to approximately 30 individuals as a result of cyclones and habitat loss, until a conservation programme initiated by Gerald Durrell and continued by the Mauritian Wildlife Foundation, the Durrell Wildlife Conservation Trust, and the government of Mauritius brought the numbers up to 5,000.

Although lychees are an important cash crop in Mauritius, investment in frames to support nets (to protect against fruit loss to bats, rats and birds) lacks incentives. A grower sells fruit by the tree to a middle man who agrees a price. The latter may throw a few nets over a few trees, but these are largely ineffective. The ripe lychees may then be marketed directly in Mauritius or sold to an exporter. Only 40% of lychee production comes from commercial growers, the majority is from back-yard growers with privately owned trees. Often these are not low-pruned so the effective erection of nets would be impossible.

At the workshop, Paul Racey, Co-Chair of the Bat Specialist Group, the chairman and senior staff of the Mauritian Wildlife Foundation visited the new Minister of Agriculture to present the arguments against culling fruit bats. Despite this, there is still a fear that the government will appease fruit growers by sanctioning a cull. The Bat Specialist Group and the Mauritian Wildlife

Foundation believe that any culling in advance of a study showing which animal species are responsible for fruit loss is premature. Mauritius was the first country to sign and ratify the Convention on Biological Diversity and has saved a host of endemic species from extinction. It now proposes a cull of one of its endemic species red-listed as endangered.

**Paul A. Racey**  
Co-Chair, Bat Specialist Group

## Camelids

### ***Use of Vicuñas and Guanacos in Andean countries: Towards a paradigm of equality, partnership and participation***

Vicuñas (*Vicugna vicugna*) and Guanacos (*Lama guanicoe*) provide an excellent model for a non-consumptive sustainable use of wildlife. These South American wild camelids are unique for the high price of their fibre in international markets, and for the possibility to obtain fibre through live-capture and release. Given that they often co-exist with indigenous Andean or rural communities, many conservation strategies include a community management component. However, although many of these conservation efforts can be considered extremely successful, the benefits for local communities have largely proved elusive.

The South American Camelid Specialist Group (GECS) organized an Alliance workshop at the 2008 IUCN World Conservation Congress, in order to investigate the links between vicuña and guanaco management and poverty alleviation, and to better understand the factors that limit a more equitable distribution of benefits among stakeholders. Case studies about vicuña management in Bolivia and guanaco management in Argentina were presented, as well as a regional overview of the fibre market. Policy recommendations suggested conditions under which camelid management could improve rural livelihoods, while contributing to species conservation. A very constructive dialogue took place between members of the audience that included staff from IUCN, Wildlife Conservation Society (WCS), TRAFFIC, CITES and chairs from several Specialist Groups.

The outputs from the workshop were presented at the Technical Meeting of the Vicuña Convention. The aim was to bring the issue of fair trade, and the need to improve the flow of economic benefits to local Andean communities, to the attention of decision-makers. A collaborative research project between the GECS, WCS and the Berkeley HAAS School of Business was also established. Further impacts included building a relationship between Payun Matru Cooperative and SCI, with the goal of diversifying the



Baby Vicuña (*Vicugna vicugna*). © Phil Whitehouse

options for fibre commercialization and increasing added value at the local level.

Vicuña and guanaco management projects are about the conservation of two of the few large herbivores that inhabit South America, and their fragile environment. They are also about strengthening local communities, revitalizing old traditions, recuperating local knowledge, developing a framework for local participation, solidifying land claims, providing incentives to local people to avoid migration to cities, and (in many cases) providing alternative sources of income to marginalized communities that are largely forgotten by nation states. Hopefully, all of this added value will eventually be acknowledged by the multiple actors involved in the commodity chain. This should result in a fairer and more equitable distribution of profits and more efforts geared towards the conservation of these emblematic species of South America.

#### **Dr Gabriela Lichtenstein**

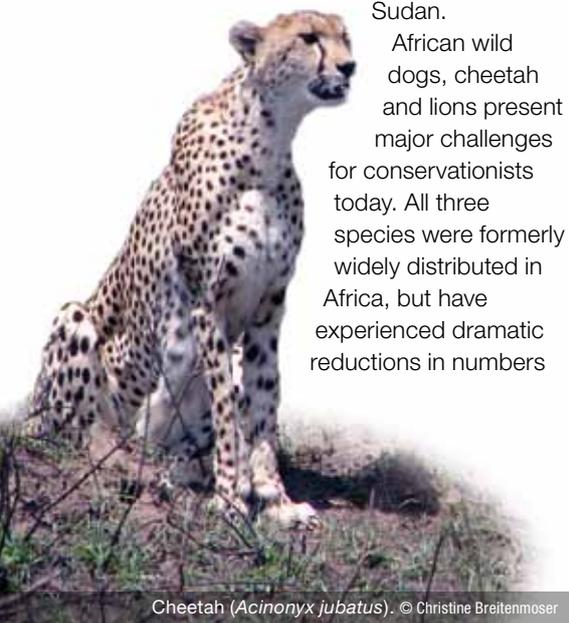
Chair, South American Camelid Specialist Group

## Cats and Canid

### **National conservation action planning workshop for cheetah, wild dogs and lions in Southern Sudan**

A national conservation action planning workshop for cheetah, wild dogs and lions was held 30 March–3 April 2009 in Juba, Southern Sudan.

African wild dogs, cheetah and lions present major challenges for conservationists today. All three species were formerly widely distributed in Africa, but have experienced dramatic reductions in numbers



Cheetah (*Acinonyx jubatus*). © Christine Breitenmoser

and range in recent decades. As human populations encroach on Africa's last wild areas, large carnivores – being wide-ranging and particularly susceptible to habitat destruction and fragmentation – are often the first species to disappear.

Recognizing these concerns, in 2006 the Cat and Canid Specialist Groups of the IUCN/SSC, in partnership with WCS and the Zoological Society of London (ZSL), initiated a Rangewide Conservation Planning process for cheetahs and wild dogs. A key component of this process is a series of workshops, bringing together specialists on the species' biology with conservation managers from governmental and non-governmental organizations. For lions, the IUCN/SSC Cat Specialist Group partnered with a parallel initiative of WCS to organize a Rangewide Priority Setting (RWPS) exercise for lions. Since wildlife conservation policy is formulated, authorized and enforced at the national level, it is critical that conservation planning reflects this. The development of national plans, through national workshops, following regional strategies, is a vital component of the Rangewide Conservation Planning process. The Ministry of Wildlife Conservation and Tourism of the Government of Southern Sudan asked for support to conduct a national workshop to develop action plans for cheetahs, wild dogs and lions. Sarah Durant – ZSL/WCS, Amy Dickman – Ruaha Carnivore Project and WildCRU, and Christine Breitenmoser – IUCN/SSC Cat Specialist Group, supported this workshop as facilitators. The workshop was officially opened by Minister Agnes Poni Lukudu and attended by 34 participants, all of whom worked very enthusiastically and successfully to produce national action plans for the three species during the four-day workshop.

The workshop was generously supported by WCS, ZSL, Panthera, Saint Louis Zoo's WildCare Foundation and the Howard G. Buffet Foundation. The WCS Southern Sudan office provided important logistical support during the workshop.

#### **Christine Breitenmoser**

Co-Chair, Cat Specialist Group



Clouded Leopard (*Neofelis nebulosa*).  
© A. Silwa

## Conservation Breeding and Cats

### **CBSG and Cat SG facilitate Clouded Leopard and Small Felid Summit**

The Clouded Leopard and Small Felid Conservation Summit was held January 28–30 at Kasetsart University in Bangkok, Thailand. Kasetsart University's Faculty of Forestry invited IUCN's Conservation Breeding Specialist Group (CBSG) and IUCN's Cat Specialist Group to facilitate this workshop. Using CBSG tools and processes designed specifically for this type of conservation issue, the workshop brought together a diverse group of 65 participants from 13 countries including field ecologists, population biologists, naturalists, conservation education teachers and zoo professionals.

Southeast Asia has tremendous diversity in wildlife and is particularly rich in felid species, including nine species of small or medium size wild cats: clouded leopard (mainland SE Asia), Sundaland Clouded Leopard (Borneo and Sumatra), Marbled Cat, Jungle Cat, Golden Cat, Flat-headed Cat, Fishing Cat, Bornean Bay Cat and Leopard Cat. Recent findings from field surveys and wildlife trade monitoring indicate that many of these felids may be facing significant population declines, due to the impacts of habitat destruction and fragmentation, declining prey base, and targeted hunting.

Accurate assessment of the conservation status of these species is difficult as little is actually known/ reported about their natural history, relatively few field surveys have been undertaken, and many of these species have large historic geographic ranges.

Due to the wide complement of habitat types utilized by many of these species, the variation in the quality of remaining habitat, and the relatively low natural abundance of these species, it is problematic to generalize survey findings for areas outside study sites. In addition, much of the recent data on the distribution of these felids have been acquired in the course of research on large felids (especially tigers) or non-felid species and is not always disseminated to parties addressing small felid conservation and research issues. As a result, there is a lack of data on the distribution, status, and ecology of small felids to inform conservation planning for these species.

The Clouded Leopard and Small Felid Conservation Summit was conceived to address this issue as well as to facilitate information exchange, communication, and collaboration among the many independent parties working in small felid conservation. Participants summarized all available information and produced population and habitat tables and distribution maps detailing the location, distribution, and abundance of clouded leopards and other small felids in their region. Next, the major issues related to clouded leopard and small felid conservation were identified and prioritized. Based on these results, participants further defined the issues and developed goals to achieve the desired change in the conditions identified in the issue statements. Finally, each group developed specific actions, relevant to

the situation in the various SE Asian range countries, to accomplish the goals, taking into account the scientific information on the species, their habitats, and the threats identified.

The workshop report can be downloaded from the following websites: [www.cbsg.org](http://www.cbsg.org), [www.catsg.org](http://www.catsg.org) and [www.cloudedleopard.org](http://www.cloudedleopard.org).

#### **Christine Breitenmoser**

Co-Chair, Cat Specialist Group

#### **Onnie Byers**

Conservation Breeding Specialist Group

## Chinese Plants

### ***A national Red List for 34,000 species***

The China Plants Specialist Group (CPSG), in collaboration with the Institute of Botany at the Chinese Academy of Sciences, has been requested to compile a national Red List for the flora of China by the end of 2010 in order to deliver a major dataset for 2010, the International Year of Biodiversity. With over 34,000 plant species found in China – of which 16,000 are endemic – this may be the world's largest national Red List endeavor to date.

To help the CPSG start this project, in June 2009 Julie Griffin and Jim Ragle from the Species Programme trained the China Plant Specialist Group, as well as some members of the Korean Plant Specialist Group and the Japanese Plant Red List Authority, on the Red List

Categories and Criteria and the Species Information Service (SIS) software. This workshop was a special occasion because IUCN had never previously brought together multiple plant specialist groups for such training. It was also the first time that IUCN's training curriculum had fully integrated Red List and SIS components.

Of 45,000 records on the IUCN Red List only 12,000 are for plants, but progress is being made: a national Red List for China could add 16,000 plants to the list, and in the near future 12,000 South African plant assessments will be published.

The Species Programme staff will be helping the CPSG with their critical assessment of the flora of one of the world's most bio-diverse countries.

#### **Dr Qin Hain-ing**

Chair, China Plants Specialist Group

## Crop Wild Relatives SG

### ***An update of major activities***

The wild plants closely related to crops and their progenitors hold the key to sustaining tomorrow's food production and ensuring food security. Their conservation and use is increasingly a critical priority and has received much attention as evidenced by a number of national, regional and international initiatives. The Crop Wild Relative Specialist Group (CWRS) members have been active on many fronts during the past quadrennium through many projects funded by UNEP/GEF, EU and FAO to better understand the status of crop wild relatives globally, and carrying out red-listing activities of selected CWR species.

The group has recently published the 7th issue of its newsletter *Crop Wild Relative*. There is a special feature on the potential for *Triticum boeoticum* as a gene donor for salt tolerance in wheat in Armenia; a regional report from Asia and the Pacific as the centre of diversity and domestication of a range of important food crops; and articles on national CWR projects to illustrate how many national agencies and NGOs are now bringing CWR to the forefront of their conservation action plans.

A UNEP/GEF-funded project on *In Situ Conservation of Crop Wild*



*Triuncialis meghri*. © Andreas Malikyan, Armenian Agrarian University

*Relatives through Enhanced Information Management and Field Application*, with five participating countries (Armenia, Bolivia, Madagascar, Sri Lanka and Uzbekistan), has assessed the conservation status of priority CWR. In Armenia, the conservation status of nine wild relatives of wheat species was determined using the IUCN Red List Categories and Criteria. The study has shown a dramatic decline in the genetic diversity of wild wheat species in Armenia as a result of adverse human impacts such as agricultural expansion, uncontrolled grazing, road development and urbanization. In Bolivia the project led to the publication of a Red Data book on CWR which covers 152 species. The book highlights the number of threatened species which require urgent conservation attention.

A major initiative just started involves the red-listing of 500–600 European CWR species – a project funded by the EU. Red-listing is a key role of the Specialist Groups and this project provides an important boost to raise the profile of CWR, both within and outside of Europe.

Several members of the CWRSO have also contributed to the preparation of the second *FAO State of the World Report on Plant Genetic Resources for Food and Agriculture*, providing a review of the progress made on the *in situ* conservation of crop wild relatives within and outside protected areas. As part of this process, FAO commissioned a study on *Establishment of a global network for the in situ conservation of crop wild relatives: status and needs*. The study report proposes conservation priorities and specific locations in which to conserve the most important wild relatives of 14 of the world's major food crops. The report pointed out that about 9% of the CWR of the 14 crops requires urgent conservation attention. It also highlights that globally there are about 700 highest priority species most closely related to the major and minor crops and the majority of these have yet to be conserved in a systematic manner.

Various CWR activities, such as the production of national CWR inventories, systematic gap analysis and the establishment of *in situ* genetic reserves to protect hotspot diversity, are also ongoing under the European Cooperative Programme for Plant



Eld's Deer (*Rucervus eldi*). © Lisa Ware



Gilded Presba (*Syncordulia legator*). © Michael Samways

Genetic Resources (ECPGR) *In Situ* and On-Farm Conservation Network.

For more information visit <http://www.cwrsg.org/Publications/Newsletters/index.asp>

#### **Ehsan Dulloo and Nigel Maxted**

Co-Chairs, Crop Wild Relatives Specialist Group

## Deer

### **An expanded network and proposed regional Task Forces to meet conservation needs**

The Deer Specialist Group has expanded its network and membership by creating two departments, each focused on a region – old and new world. Susana González (IIBCE-Facultad de Ciencias) will focus on new world species and Bill McShea (Smithsonian Institution) will focus on old world species. Each department will have a Red List Authority: Patricia Black-Decima (Facultad de Ciencias Naturales e Instituto Miguel Lillo) to work with Susana González; Will Duckworth (Wildlife Conservation Society) to work with Bill McShea.

Presently, there are two Task Forces focused on specific species: Huemul (Patricia Black-Decima, chairperson) and Eld's Deer (Budhan Pukazhenth, chairperson); these groups will be continued. We hope to establish additional Task Forces focused on regions as the conservation and

management need arises. The group is organizing a symposium for the International Mammal Congress in Argentina (2009), which will focus on the sustainable management and ecology of neotropical deer species. In 2010 the 7th International Deer Biology Congress will be hosted for the first time in South America in Pucón, Southern Chile. The congress is being organized by DSG members Paulo Corti and Werner Fleuck.

For more details visit: [http://www.deerlab.org/7th\\_international\\_deer\\_biology\\_congress/index.html](http://www.deerlab.org/7th_international_deer_biology_congress/index.html). Inquiries about symposia or activities can be directed to the Specialist Group: [dsg-iucn@iibce.edu.uy](mailto:dsg-iucn@iibce.edu.uy)

#### **Bill McShea and Susana González**

Co-Chairs, Deer Specialist Group

## Dragonflies

### **First global assessments of dragonflies published**

In June 2009, the results of the first global assessments of dragonflies were published by the Dragonfly Specialist Group in *Biological Conservation* (Clausnitzer *et al.* 2009). Based on assessments of 1,500 of the 5,680 extant dragonfly species, 10% of the world's species was found to be Threatened while another 4% is Near Threatened. Dragonflies are freshwater dependent and were therefore expected to be strongly threatened.

That this outcome is more positive than initially preconceived, is probably because dragonflies have relatively wide ranges, and populations can be viable in smaller areas. Many threatened species are found in the Indo-Malayan region, where many species with small ranges are impacted by large-scale logging. Australia also has a high percentage of threatened species due to the threat of climate change to freshwater habitats.

An important outcome of the Red List Species Index is that 35% of the species are Data Deficient. Most of these occur in tropical forest and are more likely to be difficult to find (e.g. parts of Southern America and New Guinea) than threatened. However, areas with high number of Data Deficient species that are likely to be threatened are Madagascar, Indonesia and the Philippines. The Red List Species Index for dragonflies is an important step towards the Global Dragonfly Assessment – a combined effort of IUCN, Conservation International, the National Museum of Natural History, Naturalis (Leiden) and the IUCN Dragonfly Specialist Group.

#### European and Mediterranean dragonflies on the map

IUCN Mediterranean, IUCN Europe and the European Invertebrate Survey have been working to produce Red Lists for North Africa, the Mediterranean and Europe. The former two are ready and will be published this year. A distributional atlas of the Mediterranean and North Africa has already been published (Boudot *et al.* 2009) and presents the distribution of all 179 dragonflies known in over 30 countries. Distribution records of many of the Mediterranean countries have traditionally been collected by volunteers from north-west Europe. However, in recent years dragonflies have become increasingly popular with volunteers in the Mediterranean, resulting in the establishment of several regional and national dragonfly societies. The work on the EU-funded European Red List will be finished later this year and will be published on the internet. One of the main outcomes is that in Central and North Europe the impacts of eutrophication appears to have become less of a problem. However, in the Mediterranean it

appears that climate change is accelerating as the main threat. An atlas for the whole of Europe is in preparation by the European Invertebrate Survey and is scheduled for 2011.

#### African Freshwater Assessment

A final workshop for the African Freshwater Assessment Project was held in Cairo from 3–7 May 2009. The Specialist Group was represented by seven experts from various regions. Prior to this workshop, assessments were undertaken on regional level for East, South, Central, West, North and North-east Africa. During the workshop, assessments of 703 known dragonfly species from mainland Africa (excluding Madagascar) were validated and distribution maps produced. The result is a point-locality database for Africa which has over 70,000 entries for approximately 850 species covering Africa, Madagascar and the Mascarenes. A workshop to deal with any remaining problems in taxonomy and georeferencing is scheduled for October 2009.

#### Vincent Kalkman

Chair, Dragonfly Specialist Group

#### Viola Clausnitzer

Red List Focal Point, Dragonfly Specialist Group

## Galliformes

#### A new Galliformes SG – consolidating resources and expertise

In Al Ain, in February 2008, a meeting of the chairs and co-chairs of four SGs then representing different families within the avian order Galliformes, proposed the formation of a single

Specialist Group to pool resources and gather together experience and expertise.

This new Galliformes SG (GSG) is responsible for a total of 288 species, 73 (25%) of which are threatened. Although taxonomically unrelated, a further 47 Tinamou species (including five on the Red List) of South America are to be covered on a caretaker basis, as they share ranges, ecology and field scientists with Galliformes species.

The GSG's interim Co-Chairs' Advisory Board represents the previous SGs, important themes (e.g. Red List assessment, conservation breeding) and hitherto poorly-represented regions (e.g. Africa, South America). The Board is expected to evolve and, in particular, provide for effective succession beyond 2012. There are 250 GSG members worldwide, of which more than 35% are experts in grouse ecology and conservation biology. The merger will greatly improve access to this bank of knowledge to members working on our other threatened taxa.

Alongside SSC a second parent-body, the World Pheasant Association (WPA), is supporting the current re-launch and will be advocating action based on technical advice provided by the GSG. BirdLife International (as the RLA for birds) has worked with us on their Red List assessments for Galliformes species since 1992.

The GSG is identifying a few candidates for SSC's new process of Strategic Planning for Species Conservation. This will require engagement with new partners to find an holistic but practical way forward for species most urgently requiring conservation action.

#### Peter Garson and Ilse Storch

Co-Chairs, Galliformes Specialist Group



Sichuan Partridge (*Arborophila rufipectus*).  
© James Eaton, Birdtour Asia



Palawan Peacock-pheasant (*Polyplectron napoleonis*). © James Eaton, Birdtour Asia

## Hawaiian Plants

### **Conserving rare Hawaiian plants through the Plant Extinction Prevention Programme**

The Hawaiian Plant Specialist Group's (HPSG) mission is "to prevent the extinction of native Hawaiian plants and provide for their recovery through a cooperatively administered off-site plant conservation system in collaboration with on-site management partners to sample, propagate, and reintroduce rare plants, and to advance the preservation of native plants and their habitats through effective communication and public education".

The Plant Extinction Prevention (PEP) programme initiated by HPSG continues to build momentum. The programme aims to manage wild populations of extremely rare (less than 50 individuals in the wild) species *in situ*, while also collecting propagules for storage and reintroduction efforts into protected habitat. The programme has expanded to coordinators on five of the Hawaiian Islands, covering a sixth from nearby, and has an archipelago-wide coordinator overseeing the programme. To date, the programme has worked on 141 species: 111 species surveyed, of which 18 species were rediscovered or new populations; 102 species placed into genetic storage; threats managed for wild populations of 28 species; and 17 species reintroduced.

Other efforts are still ongoing:

1. the development of a state-wide rare plant database to share the most up-to-date status and threats to each rare plant population; and
2. providing a mentoring programme for private landowners interested in rare plant management and reintroduction.

The HSPG met in April 2009 and discussed new issues to address, including:

- Conduct meetings on each island with plant experts to gather the latest species status information, which may lead to Red List assessments;
- Conduct a workshop on protocols for handling rare plant collections and data collection;
- Convene a forum on past

reintroduction efforts from small founder numbers and what we can learn from them; and,

- Determine a process to certify commercial nurseries to grow material for restoration to insure proper genetic and sanitation protocols.

### **Marie M. Brueggemann**

Chair, Hawaiian Plant Specialist Group

## Hippo

### **Pygmy Hippo researchers discuss conservation strategies and regional coordination**

Pygmy hippos were upgraded to Endangered on the IUCN Red List in 2004. Extant populations of Pygmy Hippos are found only in four West African countries (Guinea, Sierra Leone, Liberia, Côte d'Ivoire) and are believed to number in the range of 3,000–6,000 individuals – although there has been no confirmation of that estimate. In April 2009, scientists representing research teams from all four countries gathered in London to discuss the state of Pygmy Hippo populations, research and conservation efforts. Hosted by the Zoological Society of London, the one-day meeting described ongoing efforts in the Gola Forest Reserve, Sierra Leone, Sapu National Park, Liberia, Tai National Park, Côte d'Ivoire and N' Zérékoré Forestry Centre, Guinea. The meeting also involved key representatives from captive facilities and organizations, including the coordinator for the European



Pygmy Hippo (*Choeropsis liberiensis*).  
© Glenn Feldhake/Susan Stone

Association of Zoos and Aquariums and the Institute for Breeding Rare and Endangered African Mammals.

The meeting represented an important turning point for Pygmy Hippos, since it was the first time scientists and conservationists have met to discuss opportunities and goals for collaboration specific to this species. Exploring innovative approaches to surveys (e.g. utilizing remotely-sensed information, camera traps), standardization of field methods, genetic research and telemetry were all identified as important avenues for continued efforts. The group plans to continue to work together to catalyze regional approaches to pygmy hippo research and conservation.

### **Dr Rebecca Lewison**

Chair, Hippo Specialist Group

## Macaronesian Plants

### **Building knowledge for improved conservation management**

Azores (Portugal) is the most northerly Macaronesian archipelago, comprising nine volcanic islands scattered over an area of approximately 1,000 km<sup>2</sup> in the North Atlantic. The nine islands that compose the archipelago are rich in rare plant species and habitats. Human pressures on the fragile ecosystems of the Azores Islands, particularly in the lower coastal areas, have been severe.

Above 500 m, almost all natural habitats are wetlands, including a significant area of peatlands. These peatlands represent a hydrologic resource from which the Azores populations are dependent. They are also extremely important in plant biodiversity, with several rare protected species identified in the bog habitat or in its limits. Of these, the most common type is forested peatlands dominated by the endemic species, *Juniperus brevifolia*, which is classified as Endangered on the IUCN Red List.

Recognizing the importance of these peatland areas and the species that depend upon them, Geva (Applied Vegetation Ecology Group of Azores University), has instigated several studies focusing on distribution, ecology, flora and major threats identification. The objective of these



Flores. © Cândida Mendes

studies is to provide data which will enable more effective landscape management for the region.

Geva is also working on a study of Azores' natural vascular flora and will publish the Azorean Rare Species Atlas later in 2009. Included in this study is the *Azorina vidalii*, which is a coastal species developing in several natural and secondary habitats. Recent data confirmed the existence of *Azorina* in all Azorean islands. More than 40 natural populations were studied, including 19 new ones. *Azorina* is a monospecific genera of the *Campanulaceae* family.

Major threats to these species populations are the presence of exotic plants such as the *Carpobrotus edulis* and the fact that most of these species populations are located in high human pressure areas (beaches, roads, construction sites, etc).

**Eduardo Dias, Cândida Mendes**  
Macaronesian Island Plants  
Specialist Group

## Marine Turtles

### **Tracking illegal capture of marine turtles**

Critically Endangered marine turtles from Southeast Asia are being targeted by foreign vessels originating from Hainan, China, and (to a lesser degree) from Vietnam. These boats leave port with the express purpose of catching marine turtles, a practice which is illegal both in their home countries and in the waters of countries in which they fish. The last half decade has seen such a noteworthy increase that there is a need to determine the severity of this practice. How much poaching goes unrecorded or undetected? How severe are the impacts to turtle populations? What drives this trade, and how can it be curtailed?

Significant and urgent inroads need to be made into curbing this illegal trade and further research is needed to fully understand the market forces at play in

illegal wildlife trade in order to design economic deterrents to it.

In June 2009 members of the IUCN Marine Turtle Specialist Group co-organized a workshop along with the Terengganu State Government, University Malaysia Terengganu, the Marine Research Foundation, Conservation International (Philippines) and the IUCN Marine Turtle Specialist Group. The purpose of the workshop was to document the apprehensions of foreign vessels and fishermen involved in the illegal direct capture; to present information on the declining trend of marine turtles in the region and the efforts undertaken to arrest the decline; and to demonstrate that direct capture of adult and sub-adult marine turtles will rapidly cause a collapse of turtle populations in the Southeast Asian Region.

Solutions to the direct capture of sea turtles were discussed, and there are plans to address the problem through a partnership with Chinese authorities and scientists, analyzing market forces, raising awareness amongst the fishery, training of customs staff in turtle meat and parts identification, tracking consignments through DNA evaluation, translation and provision of conservation materials into Mandarin, and continued dialogue and information exchange sessions.

### **Nicolas J. Pilcher, Chan Eng Heng and Kevin Hiew**

Marine Turtle Specialist Group

*The State of the World's Sea Turtles* (SWOT) report is produced by the Marine Turtle Specialist Group in partnership with Conservation International and Duke University. The

Flatback Turtle (*Natator depressus*). © Carmen PilcherNetted Hawksbill Turtles (*Eretmochelys imbricata*). © CI Philippines

fourth volume, released in 2009, features the first-ever map of global flatback turtle *Natator depressus* nesting data, genetic stocks, and in-water distribution. Other highlights include articles about why leatherback turtle populations vary globally, how retail sales help communities and sea turtles in Brazil, and how fishermen are aiding conservation efforts in Canada.

The full report can be downloaded at [www.seaturtlestatus.org](http://www.seaturtlestatus.org)

**Roderic Mast and Nicolas J. Pilcher**  
Co-Chairs, Marine Turtle Specialist Group

## Mauritian tree rediscovered

The *Dombeya mauritiana*, an endemic Mauritian tree previously thought to be extinct in the wild, was found by Cláudia Baider and the chair of the Mascarenes Plant Specialist Group, in the Black River Gorges National Park, Mauritius, in April 2009.

The species was previously known from a single 10 m tall plant discovered in 1976 in a dry native forest in the Black River District. It was described by Francis Friedmann in 1981 as a new Mauritius endemic. Despite further survey efforts in the area, no other plant had been found. In a paper by Wyse-Jackson *et al.* in 1989 it was reported that 89 cuttings were taken of the plant; all the cuttings failed. Further cuttings were taken and some were successful. In 1994 the single wild plant was dead and it was declared Extinct in the wild.

The exact cause of 'extinction' of the species in the wild is not fully understood. It is reported that the plant got 'sick' and died despite attempted treatment. However, what is known is that the 'sickness' appeared after the huge number of cuttings were taken in 1989. The cause of decline (at the level of the whole species) appears to be a combination of habitat destruction, with 95% of the natural habitats of Mauritius transformed into agriculture or urban areas, and the impacts of invasive alien species.

The site where the species has been relocated is highly invaded by alien plants, particularly the strawberry guava *Psidium cattleianum*. The forest habitat is however very rich, with about



*Dombeya mauritiana*. © Vincent Florens

a 100 species of native or endemic flowering plants so far recorded. These include some very rare species like the Mascarenes endemic *Dombeya populnea* of which eight plants were found, resulting in more than a doubling of its known wild population for Mauritius.

Further field visits to the area have failed to locate other *D. mauritiana* plants, but the search continues. None of the seeds collected from the plant and sown three months ago have germinated.

The National Parks and Conservation Services are interested in controlling invasive alien weeds in the vicinity of the plant, and the Mascarenes Plant SG is planning to raise funds to restore the habitat of the plant and try propagation and augmentation in the wild.

**Vincent Florens**  
Chair, Mascarenes Plant Specialist Group

## Seagrass Red List Authority

### First-ever seagrass red-listing nears completion

Seagrasses are important marine plants that live submerged in the coastal oceans worldwide. They provide habitat for fish and shellfish and are food for sea turtles, dugongs, manatee and some birds and fish. Seagrasses filter coastal waters, interacting in the tropics with mangroves and coral reefs and in temperate zones with salt marshes and oyster reefs. As the coastal regions of the world experience ever-increasing stress from human populations and practices, there are many threats to seagrass survival, and ultimately to marine biodiversity and to the humans



Si Star (*Protoreaster lincki*). © F.T. Short, SeagrassNet/UNH

who rely on healthy coastal marine ecosystems for food and livelihoods.

The IUCN Red List criteria are being applied to all seagrass species based on information from *The World Atlas of Seagrasses* (Green and Short 2003) and three convened workshops of regional experts in Dominica, the Philippines, and California. Using knowledge of seagrass distribution, ecology, life history and threat information, several species will be designated in threatened categories (Vulnerable and Endangered), although the large proportion will be listed as Least Concern. The major threats to seagrass have been identified as reduced water quality, coastal development and habitat destruction from practices such as aquaculture and land reclamation. Seventy-two seagrass species were examined in a collaborative project of the IUCN Species Programme (Global Marine Species Assessment), Conservation International and SeagrassNet, a global seagrass monitoring programme.

**Frederick Short**  
Chair, SSC Seagrass Red List Authority

## Sturgeon

### Regional Training Workshop on Sturgeon Hatchery Practices and Management

The major part of Caspian Sea sturgeon stocks is essentially based on artificial breeding and the release of sturgeon fingerlings. These activities are carried out to support recovery of sturgeon stocks in the Caspian Sea. In order to support and reinforce such activities, the FAO, in collaboration with UNDP/GEF, the World Bank and the State Fishery Committee of



Beluga Sturgeon (*Huso huso*).  
© International Sturgeon Research Institute, Iran

Kazakhstan, convened a regional Training Workshop on Sturgeon Hatchery Practices and Management on 15–18 April 2009 in Atyrau, Kazakhstan.

Representatives of the Caspian Littoral States (excluding Turkmenistan) each presented a national report. The workshop provided an arena to exchange views and experiences, to build capacity on hatchery measures to improve restocking efficiency, to introduce technical guidelines on modern hatchery management and practices, and to increase awareness and build capacity on financing hatchery operations, on the cost effectiveness and on ownership models.

At a time when hatcheries are facing a severe decline in spawners, focus was given to the significance of adopting genetic principles in artificial breeding programmes. Emphasis was also placed on conducting joint research to determine fishery return

coefficients, and to identify each of the populations as the most effective conservation strategies for sturgeons in the Caspian Sea.

Draft conclusions with recommendations were developed jointly by the participants. To improve the draft technical guidelines, FAO will conduct a side event with relevant experts before the 6th International Symposium on Sturgeon (ISS6).

**Mohammad Pourkazemi**  
Chair, Sturgeon Specialist Group

## Tapir Specialist Group (TSG)

### **Progress with National Action Plans and improvements to communications with a revamped newsletter and updated website**

The Tapir Specialist Group Country Coordinators are making considerable progress on the development of National Action Plans for Tapir Conservation in several range countries in South and Central America, as well as Southeast Asia. Our Ecuadorian Regional Action Planning Committee has just held an action planning workshop in May to finalize their National Action Plan for Ecuador. Argentina is taking the final steps on the development of their National Plan. Guatemala, French Guiana and Indonesia are planning for a series of activities related to tapir action planning.

The team of editors of *Tapir Conservation* has been working tirelessly to improve our newsletter. We have put together a new Editorial Board and developed new guidelines for contributions. The Houston Zoo in the United States continues to sponsor the printing and distribution of two issues per year. The newsletter is also made available online on the TSG website.

The TSG webmasters are currently re-designing and updating our entire website ([www.tapirs.org](http://www.tapirs.org)). In a few weeks we will have an entirely new navigation format, new sections for the general public, and pages focusing on field projects. The TSG Education and Marketing Committee is also working on building profiles for the TSG on several vehicles of social media and networking such as Facebook, Flickr and YouTube, among others.

Our Virtual Library continues to grow. We currently have 550 bibliographical references available online in PDF format for all TSG members. The references include scientific papers, BS, MSc and PhD dissertations, magazine articles, etc. Our members have been helping us keep our library as up to date as possible.

We have recently established a Steering Committee for the TSG, which is formed by a group of 14 members representing several different professional backgrounds, institutional affiliations, and range countries. The current structure of the TSG, which includes a variety of committees, taskforces and working groups, works very efficiently and in a very integrated way. However, the group felt the need to have a Steering Committee dedicated to discussing the group's major issues and, most importantly, helping us implement our Strategic Plans and Action Plans.

**Patrícia Medici**  
Chair, Tapir Specialist Group



Lowland Tapir (*Tapirus terrestris*). © Carlos André Zucco

# SSC Sub-Committee Update

## SSC Invertebrate Conservation Sub-Committee

### Conserving the multitude

An estimated 99% of all organisms are invertebrate species. The threats facing these small animals very much mirror those facing other terrestrial and marine organisms. Among insects, it has been estimated that a quarter may go extinct over the next few decades. With these challenges, it has been essential that there be a unified body that represents all these animals at the species level, which is the objective for the Invertebrate Conservation Sub-Committee (ICSC).

The two main goals of the ICSC are red-listing and mainstreaming invertebrates into overall biodiversity conservation. The ICSC recognizes that invertebrate conservation is closely associated with conservation of ecosystem services, such

as soil formation and pollination.

The ICSC is divided into two areas: the Terrestrial and Freshwater Invertebrate Red List Authority (TIRLA) and the Marine Invertebrate Red List Authority (MIRLA). There are currently three Specialist Groups (SG's) working with the TIRLA: the Freshwater Crab and Crayfish SG, the Dragonfly SG, and the Mollusc SG. Working with the MIRLA is the Coral SG, which links equally with the Marine Conservation Sub-Committee. All these SGs have been involved in large-scale assessments, as well as red-listing.

Red-listing of crayfish, freshwater crabs, dragonflies, molluscs and corals is channeled through the SGs. In the case of other invertebrates, this is undertaken by TIRLA or MIRLA. Assessments are received, either by appointed scientific specialists, Focal Points (FPs), or by individuals in the wider community, and then reviewed by TIRLA or MIRLA.



The Intermediate Decticine (*Platycleis intermedia*), which has undergone severe decline in southern France. With landscape fragmentation, it comes into close acoustic contact with *P. affinis*, whose stronger song modifies that of *P. intermedia*. © Michael Samways

The ICSC sees red-listing as an important step both for invertebrate conservation and overall biodiversity conservation. The reason for this is that firstly, the ICSC is global, and has a role to play in uniting species-level conservation efforts. Secondly, red-listing also has an equalization role, with a worm and a wasp being equivalent to a woodpecker or a whale. Thirdly, red-listing is an important input into conservation planning, as shown by the freshwater

assessments. These assessments show how invertebrates can help solve major conservation and community issues such as water resource quality.

The ICSC is thriving and welcomes any interest from conservationists, particularly if they are a taxonomic specialist and can act as a new Focal Point.

### Professor Michael Samways

Chair, Invertebrate Conservation Sub-Committee

# Steering Committee Update

On 3 June 2009, Simon Stuart (as the newly elected Commission Chair) welcomed the Species Survival Commission (SSC) Steering Committee members to the first meeting of the 2009–2012 IUCN Quadrennium. The governance structure of the SSC must be re-constituted every four years, as per the IUCN Statutes, and the new membership of the Steering Committee had been approved by the IUCN Council at its meeting in February. The list of Steering Committee members is provided at the end of this article, and includes new members, as well as a number of members continuing from the previous quadrennium. The IUCN Council also appointed a new Deputy Chair of the SSC, Dr Jon Paul Rodríguez from Venezuela. Jon Paul has had a long history of involvement in the SSC, and was previously Chair of the National Red List Working Group.

The SSC Steering Committee is responsible for overseeing the implementation of the SSC's mandate as approved by the IUCN World Conservation Congress. The purpose of each meeting is to bring together all members of the Steering Committee, to assist and advise the Chair in formulating policy and setting both strategic and operational directions to achieve the goals of the SSC.

The meeting was held at the IUCN headquarters in



SSC Steering Committee 2009. © Russ Mittermeier

Gland, Switzerland, and was attended by the great majority of the Steering Committee members. Besides enabling the members to meet one another and integrate as a Committee, the meeting had a packed agenda with many issues to discuss, proposals to be considered, and decisions to be made.

As a newly appointed member of staff to the SSC, what first struck me (besides the sea of acronyms!) was the diversity of subjects covered in the span of a three-day meeting: Sub-Committees, Specialist Groups, species, protected areas, Red Lists, and of course the major challenges currently faced by global conservation. And this list is merely a small sample representing the complexity of the SSC's role. And complex, not only in terms of the range of issues it tackles, but also operationally with the relationships it deals with

(internally and externally), the programmes requiring input, and the mandates to be implemented.

An important theme running through the meeting was bringing the focus of conservation back to the species level. It was strongly felt that conservation was moving heavily in the direction of ecosystem services, but that species were being deliberately excluded in many fora. However, it was recognized that the public still relate to species, which should be exploited for promoting the work of the SSC and raising its profile.

Other items of prominence included revision of the IUCN Policy Statement on the Translocation of Living Organisms and Re-introduction Guidelines. It was agreed that these documents need to be updated to reflect the modern realities of, for

example, climate change and extreme habitat disappearance. It was proposed that a dedicated full-time coordinator should be allocated to lead the SSC work on this issue.

In line with the SSC's mandate to convene and lead the process for the development of criteria for Key Biodiversity Areas (KBAs), it was proposed that the SSC, in collaboration with the World Commission on Protected Areas (WCPA), should focus on identifying the critical sites where concentrations of threatened species live. To proceed forward, it was suggested that the aim should be to align current approaches for identifying sites of global biodiversity conservation significance under a single, unified set of criteria. Proposals were made on how the SSC and WCPA would work together, with the establishment of a formal joint Task Force.

The species-related Resolutions and Recommendations from the IUCN World Conservation Congress in Barcelona, were presented with a view to establishing a coordinated plan on how, and to whom, they should be communicated. It was noted that the IUCN Council has prioritized seven resolutions, three of which are species-related (Climate Change Guidelines for the Red List; Stopping the Amphibian Crisis; and the proposed World Species Congress). The Steering Committee agreed on prioritizing five of the remaining resolutions, in addition to the three listed above, and progress reports will be provided at each future Steering Committee meeting. The five prioritized by the Steering Committee are: Biodiversity Data and Information; Conserving Global Plant Diversity; Guidelines Regarding Research and Scientific Collecting of Threatened Species; Quantitative Thresholds for Categories and Criteria of Threatened Ecosystems; and Cross-Commission Collaboration on Sustainable Use of Biological Resources.

There are a number of major challenges that the world's species are facing; of notable significance are the issues of climate change and the crisis facing Asian large animals. The SSC is already working actively on climate change, but it was felt that a more strategic approach was necessary with clarification of the SSC's niche and priorities. The Steering Committee agreed on a number of proposals reached by a separate break-out group. Amongst these priorities were: a proposal to focus on

a series of flagship species; ensuring that IUCN position papers clearly reflect biodiversity concerns, including the SSC and Species Programme on the IUCN delegation in Copenhagen (UNFCCC-CoP15); and developing climate change guidelines for the Red List.

An overview of the severe conservation situation facing large animals in Asia was presented by Simon Stuart. The high profile species are well known conservation problems (tiger and Asian elephant), but almost all groups of large animals are seriously affected, such as turtles, deer, wild cattle, pigs, primates, cetaceans, cats, large freshwater fishes, etc. In facing this challenge, a number of decisions were made by the Steering Committee. It was agreed that a new task force would be formed and that key people (from NGOs active on the ground) need to be brought into the initiative. The relevant Specialist Group Chairs/Co-Chairs and other experts would be involved together with key government people. The IUCN Asian Regional Office would also be approached for its engagement. A coordinator needs to be brought in to get the Task Force going and to move things forward.

As the Convention on Biological Diversity's 2010 Biodiversity Target rapidly approaches, discussions are already well advanced on what target or targets might replace it post-2010. As this will have a very significant impact on the SSC's work over the coming decade or more, it was considered important to determine the position of the IUCN (and the SSC) in relation to these

discussions. It was noted that there has been a pronounced shift away from references to diversity, in favour of ecosystem services, in these discussions, and often references to species have been omitted altogether. A breakout group worked on the conceptual basis for SSC's input into the forthcoming meetings relating to the post-2010 Target. It was also agreed that a roadmap of events leading up to the CBD CoP would be circulated, and that the SSC will seek to influence IUCN's policy on the post-2010 Target to ensure that the focus on species is maintained.

At the IUCN Congress in Barcelona, an announcement was made on the formation of a threatened species fund, built around a Save Our Species Campaign (SOS). The Global Environment Facility and World Bank have each committed US\$5 million to this initiative, and additional contributions are being sought from private corporations that have species as their logos. A breakout group discussed three areas in detail: the targets of the initiative, the grant niche, and how it should be monitored. One of the main areas of focus was the provision of an emergency fund (qualifying what would be termed as an emergency), and what kind of indicators could be used for monitoring the success of the project. It was agreed that a further report would be provided at the next Steering Committee meeting.

All members were in agreement that the meeting had been extremely constructive and successful – much ground had been

covered and many decisions had been reached. There was also an overall feeling of enthusiasm and support for the future direction of the SSC and its operations. The action points from this meeting are to be addressed in preparation for the next meeting (27–29 January in Venezuela). **For those wanting more detail, the minutes of the June 2009 meeting can be found on [http://www.iucn.org/about/work/programmes/species/about\\_ssc/governance/#Minutes](http://www.iucn.org/about/work/programmes/species/about_ssc/governance/#Minutes)**

#### **List of Steering Committee Members**

Simon Stuart  
Jon Paul Rodríguez  
Luigi Boitani  
Topiltzin Contreras  
MacBeath  
John Donaldson  
Brahim Haddane  
Hans de Iongh  
Robert Lacy  
Frédéric Launay  
Danna Leaman  
Patricia Medici  
Russell Mittermeier  
Anders Rhodin  
Yvonne Sadovy  
Michael Samways  
Stella Simiyu  
Xie Yan

#### **Institutional observers**

Alison Stattersfield  
Amanda Nickson  
Jon Hutton  
John Robinson  
Jonathan Baillie

#### **IUCN Secretariat**

Jane Smart  
Jean-Christophe Vié

# Species Programme Update

## Biodiversity Assessment Unit

### Mammals

The first-ever comprehensive assessment of the world's mammals was launched at the World Conservation Congress in Barcelona in October 2008. Since then, key activities have included individual assessment updates and the organization of a symposium on the future of the world's mammals for the International Mammalogical Congress in Argentina in August 2009. Jan Schipper is serving as guest editor on a special issue of *Small Carnivore Conservation* to be launched at this meeting. Finally, we have been working to ensure a smooth and successful transition of the mammal data to the University of Rome.

### Marine

A number of important marine species groups, such as mangroves and seagrasses, have been completed and will appear on the IUCN Red List later in 2009. Three workshops took place in the first half of 2009 on sea snakes, Indo-Pacific wrasses and Indo-Pacific blennies. A collaboration has been established with the Coral Triangle Initiative (CTI), running a thematic workshop on threatened species in Bali in June 2009. A second grant was received from USAID for species assessments of marine fish in the CTI. The results of multi-taxa analyses for the Eastern Tropical Pacific and Mediterranean region are also in preparation.

### Freshwater

The BAU submitted successful proposals to the Critical Ecosystem Partnership Fund for freshwater assessment work in the Indo-Burma and Western Ghats Biodiversity Hotspots, and provided advice to IUCN Oceania for a proposal on assessments, including freshwater fishes, in Polynesia/



Mangroves. © Nick Leonard

Micronesia. Proposals have also been developed for the Caribbean and Australia.

### Reptiles

The assessment of the world's reptiles has been steadily continuing through 2009, with the analysis of data collected from workshops for the species in Europe, Turkey, the Caucasus region and Iran. This information has contributed to the publication of the European Red List of Reptiles. Species assessments carried out in collaboration with Conservation International for the 167 endemic snakes and lizards of the Philippines have been finalized. Reptile assessment work is continuing in southern Africa, Madagascar, South Asia, New Caledonia and the Pacific.

### Amphibians

Efforts have concentrated on updating and maintaining the amphibian dataset. The European Red List of Amphibians was launched in May 2009 and the Amphibian Red List Authority is in the process of being implemented. The BAU also provided support to the first Amphibian Conservation Mini-Summit in August 2009.

## Climate Change

### Assessing Species Vulnerability to Climate Change

This project is entering its final stages and climate change vulnerability assessments for global birds, amphibians, corals and South African Proteaceae will be made available in 2010. Plans for the project's second phase include



Red-eyed Tree Frog (*Litoria chloris*). © Teejaybee

developing results into user-friendly conservation tools and assessing further species groups.

## Human Utilized Species in Africa's Albertine Rift

The MacArthur Foundation has agreed to fund a joint IUCN Species Programme-TRAFFIC project to assess the climate change vulnerability of Albertine Rift species that are important for human use and livelihoods. This exciting two-year project will pilot a new approach to climate change adaptation planning.

## SSC Specialist Group climate change survey

An online survey was set up to determine Specialist Groups' perceptions of climate change impacts, current and planned climate change related activities, and to assess how best IUCN can help groups to deal with climate change. A summary report highlighting groups' responses has been circulated and is available on request ([wendy.foden@iucn.org](mailto:wendy.foden@iucn.org)).

## Preparing for Copenhagen

Representatives from the SSC and Species Programme form part of IUCN's delegation participating in the United Nations Framework Convention on Climate Change (UNFCCC) conference in Copenhagen in December. IUCN continues to highlight the importance of species and biodiversity both in motivating for sufficiently stringent and timely CO<sub>2</sub> emission reductions, as well as in helping the world to adapt to an altered climate. SSC members who are attending the Copenhagen meeting are asked to contact [wendy.foden@iucn.org](mailto:wendy.foden@iucn.org).

## Communications

2009 has seen an increase in the number of press releases on the IUCN Red List and general species work, with strong



Icebergs. © Jade Berman

interest from the media. So far this year the Species Programme and the SSC have published and promoted 11 publications and there are more to follow in the last few months of 2009.

A new structure is being developed for the Species website and it is hoped that this will be live before the end of the year. The new structure includes a much larger section on "our work" which will enable us to profile all of the species groups on which we work, offering a better platform of information to our readers, and enabling stronger links to the Specialist Group work.

The response to the new IUCN Red List logo that was launched just before congress has been very positive. We have been working closely with WAZA and BIAZA to implement the logo and scale on zoo and aquarium signage. Currently there are 15 zoos or aquariums that are in the process of adding the scale and logo to their signage.

## Freshwater Biodiversity Unit

### Africa Freshwater Biodiversity Assessment

Assessments are now almost complete for Africa's freshwater fishes, odonates, molluscs, crabs and selected plant families. The results are being published through a series of regional reports, with the southern Africa report published in March 2009. The remaining 18 months of the project will be devoted to analysis and publication of the results, including a comprehensive pan-Africa report. Work continues on four sites demonstrating the integration of biodiversity assessments into environmental planning.



Example of enclosure signage, Edinburgh Zoo



Example of signage in the Bristol Zoo Aquarium



Wetlands. © Michael McCullough

## Expansion into Asia

Three new projects have been initiated in Asia, with another in the pipeline. These will lead to an estimated 5,000+ new species assessments, representing a major step towards a comprehensive Asia assessment. The HighARCS Project, initiated in January 2009, is focusing on sustainable use of freshwater resources in the upper catchments of Asia. The Eastern Himalayas Assessment started in July 2009 and will assess all target freshwater taxa (excluding plants) in those river basins overlapping the Eastern Himalayas hotspot. Assessments will build on the use and livelihoods focus of the HighArcs Project. The Indo-Burma Assessment starts in September 2009 and we have received funding (CEPF) to complete an assessment of the Western Ghats hotspot to start November 2009.

## Toolkit for Integrated Assessment of Wetlands

*"An Integrated Wetland Assessment Toolkit: A guide to good practice"* was published in July 2009. The Toolkit provides guidance to integrate methods for species biodiversity assessment, economic valuation, and livelihoods analyses, enabling a more comprehensive valuation of wetlands as fully functioning ecosystems.

## Key Biodiversity Areas (KBAs)

Candidate Freshwater KBAs have been identified for southern Africa and funds have been received from Conservation International to run a workshop in Cambridge in December 2009 to finalize the Freshwater KBAs for Africa and to work on rationalizing boundary overlaps with other KBAs such as Important Bird and Plant Areas.

## Climate Change

The FBU is a partner in an exciting new project to be funded by the EC. The project, named BioFresh, is expected to start in early 2010. It will build an information portal to enable research on the main drivers of freshwater species distributions, predicted future species distributions, gap analysis for protected areas, and much more.

## Future assessment plans and fundraising

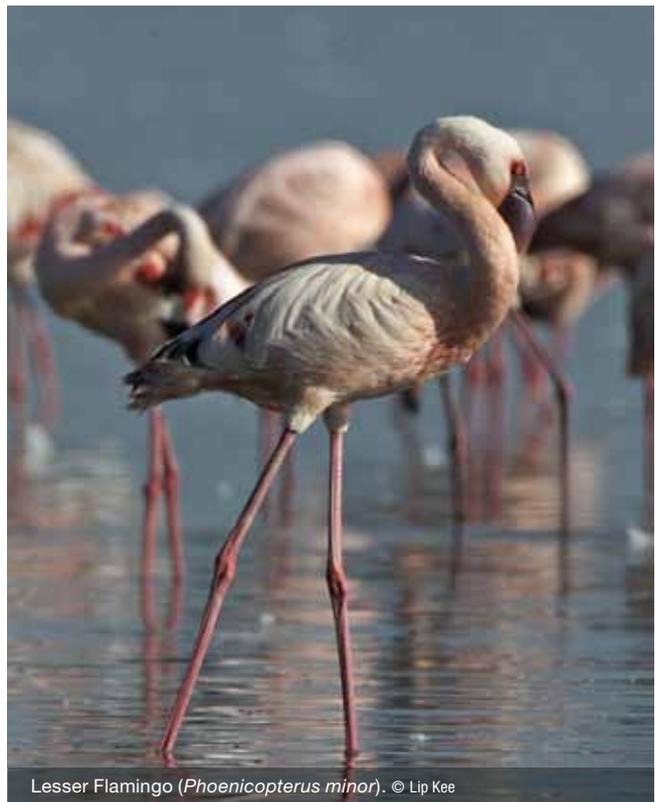
Our collaboration with Conservation International to take forward the global freshwater assessments has been highly

successful in terms of fundraising. Future priorities for the FBU include a global freshwater fish assessment and additional multi-taxon regional assessments.

## Supporting the SSC Network

Dena Cator and Julie Griffin coordinate Species Programme support and engagement with the SSC network. This includes working with the SSC Chair's Office on the re-appointment of Specialist Group Chairs, support for communications products, work with the marine and plant sub-committees, regular liaison with SSC Chairs on IUCN policy work, species work across the Union and fundraising opportunities. Julie and Dena also increasingly assist with training for the IUCN Red List and SIS.

Policy engagement with CITES and CBD has been a major activity: Dena continues to work intensively on CITES, representing the IUCN delegation at various CITES Committee meetings, and providing input to the Plants Committee meeting in February 2009. She is working closely with Thomasina Oldfield to prepare for the upcoming CITES CoP15 meeting in March 2010. Julie leads on IUCN's work for the CBD Global Strategy for Plant Conservation, and both will contribute to preparations for CBD CoP10 in 2010 and other activities to highlight SSC's work in the International Year of Biodiversity.

Lesser Flamingo (*Phoenicopterus minor*). © Lip Kee

## Red List Unit

### Red List Website

In October 2008, there was a major update of The IUCN Red List of Threatened Species™. More than 24,000 assessments were processed for this update, including a reassessment of all birds and all mammals, and the first comprehensive assessments of groupers and freshwater crabs. The total number of species assessments on the IUCN Red List is now approaching 45,000, with over 16,900 species listed as threatened.

The website has been redesigned and includes new features to enable more detailed searches and the sending of search results to others. Guidelines and a tutorial are available from the website to guide users through the new search functions on the site.

In June, 414 regional assessments for European mammals and reptiles were added to the Red List website, marking the start of the IUCN Red List displaying sub-global assessments carried out through IUCN regional biodiversity assessment projects.

### Red List Training

There has been a substantial increase in the number of requests for Red List training workshops. Now that the Species Information Service (SIS) is being used to capture species and Red List assessment data, there is also a need to carry out formal SIS training. Increasingly, SIS is now being included within the Red List training workshops. Since January 2009, nine training workshops have been completed.

## Species Trade and Use

Species Programme has been very involved in Species Use and Trade Activities during 2009. Species Programme contributed to both the CITES Plants and Animals Committee meetings which took place in March and April respectively and where trade in species such as Bigleaf mahogany, Euphorbias, Solomon Island dolphins and sharks were discussed. IUCN Species Programme also led a delegation at the CITES Standing Committee meeting in July, where such issues as crocodile ranching, sturgeon, elephant management and ivory trade were discussed. We are now preparing for the 15th CITES Conference of the Parties to be held in Doha in March 2010, with research for the agenda discussions. With TRAFFIC we are carrying out an analysis of the proposals submitted by Parties to amend the appendices. These Analyses aim to provide an objective assessment of whether the proposals meet the CITES listing criteria. The expertise in the SSC is vital to this process and Specialist Group members' assistance is greatly appreciated. In addition, Thomasina Oldfield, who has been seconded to TRAFFIC from the Species Programme, and the SSC Medicinal Plant Specialist Group are continuing work on developing the Indicators for Biodiversity for Food and Medicine. The suite of indicators being developed through the Biodiversity Indicators Partnership will demonstrate our progress towards meeting the CBD's 2010 Target "to achieve by 2010 a significant reduction of the current rate of biodiversity loss at the global, regional and national level as a contribution to poverty alleviation and to the benefit of all life on Earth."

# Publications Summary

## The Status and Distribution of Freshwater Biodiversity in Southern Africa

Biodiversity within inland water ecosystems in southern Africa is highly diverse and of great importance to livelihoods and economies. However, development activities are not always compatible with the conservation of this diversity. One of the main reasons is a lack of readily available information on the status and distribution of inland water taxa. In response to this need for information, the IUCN Species Programme, in collaboration with the South Africa Institute for Aquatic Biodiversity (SAIAB) and the South African National Biodiversity Institute (SANBI) conducted a regional assessment of 1,279 taxa of freshwater fishes, molluscs, odonates, crabs, and selected families of aquatic plants from across southern Africa.



## Guidelines for the *in situ* Re-introduction and Translocation of African and Asian Rhinoceros

This authoritative set of guidelines seeks to share and synthesize the knowledge and experience of rhino translocations in Africa and Asia, and to provide decision makers and senior wildlife managers with guidelines on 'best practice' for the translocation of African and Asian Rhinos.



## Indo-Pacific Bottlenose Dolphin Assessment Workshop Report

This report is based on a workshop on the assessment of Indo-Pacific Bottlenose Dolphins (*Tursiops aduncus*), with the Solomon Islands as a case study, that took place from 21–23 August 2008 in Samoa. Some of the topics covered by the workshop included management goals and assessment options, general biology and life history of Bottlenose Dolphins and threat factors including live-capture.



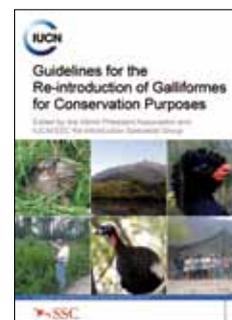
## Strategic Planning for Species Conservation: A Handbook

This handbook provides guidance to IUCN/SSC Specialist Groups on when and how to create Species Conservation Strategies (SCSs). It includes advice on how to conduct a thorough status review; how to develop a vision and goals for the conservation of a species or species group; how to set objectives to help achieve the vision and goals; and how to address those objectives through geographically and thematically specific actions. Brief case studies, examples of SCSs, and references to sources of additional help are also included.



## Guidelines for the Re-introduction of Galliformes for Conservation Purposes

Re-introductions are increasingly being used as a wildlife management tool to restore extinct or depleted wild populations into suitable habitats. The Guidelines for the re-introduction of Galliformes for conservation purposes have been developed to provide guiding principles for the restoration of viable Galliformes populations in the wild. These guidelines provide background information on the aims and objectives of a re-introduction and the issues to consider during the planning phase.



## Best Practice Guidelines for the Prevention and Mitigation of Conflict Between Humans and Great Apes

The IUCN/SSC Primate Specialist Group has published a new set of guidelines on the prevention and mitigation of conflict between humans and great apes. Presented as part of the Best Practice series for great ape conservation, this report is designed to help researchers and wildlife managers understand the causes of human – great ape conflict, and find equitable ways to resolve it.



## Wildlife in a Changing World. An Analysis of the 2008 IUCN Red List of Threatened Species™

Beginning with an explanation of the IUCN Red List as a key conservation tool, it goes on to discuss the state of the world's species and provides the latest information on the

patterns of species facing extinction in some of the most important ecosystems in the world, highlighting the reasons behind their declining status. Areas of focus in the report include: freshwater biodiversity, the status of the world's marine species, species susceptibility to climate change impacts, the Mediterranean biodiversity hotspot, and broadening the coverage of biodiversity assessments.



### The European Red List of Reptiles

The European Red List is a review of the conservation status of c.6,000 European species (mammals, reptiles, amphibians, freshwater fishes, butterflies, dragonflies, and selected groups of beetles, molluscs, and vascular plants) according to IUCN regional red-listing guidelines. It identifies those species that are threatened with extinction at the regional level – in order that appropriate conservation action can be taken to improve their status. This Red List publication summarizes results for European reptiles.



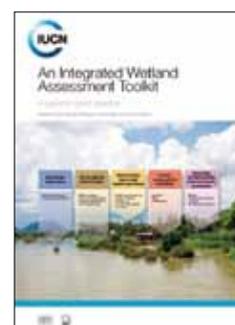
### The European Red List of Amphibians

The European Red List is a review of the conservation status of c.6,000 European species (mammals, reptiles, amphibians, freshwater fishes, butterflies, dragonflies, and selected groups of beetles, molluscs, and vascular plants) according to IUCN regional red-listing guidelines. It identifies those species that are threatened with extinction at the regional level – in order that appropriate conservation action can be taken to improve their status. This Red List publication summarizes results for European amphibians.



### An Integrated Wetland Assessment Toolkit

This toolkit sets out a process for integrated assessment and provides a set of methods that can be used to investigate the links between biodiversity, economics and livelihoods in wetlands, and to identify and address potential conflicts of interest between conservation and development objectives. The integrated approach presented in the toolkit also enables practitioners to assess a wetland in terms of its combined biodiversity, economic and livelihood values. It is intended to help overcome the current methodological and information gaps in wetland assessment, thereby facilitating the factoring of wetland values into conservation and development decision-making and management planning.



# CAN WE STOP THE EXTINCTION CRISIS?

Eastern Gorilla (*Gorilla berengei*)



© J. Martin



THE IUCN RED LIST  
OF THREATENED SPECIES™

The world's most comprehensive information source  
on the global conservation status of plant and animal species.

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