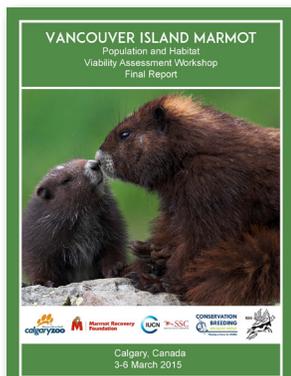
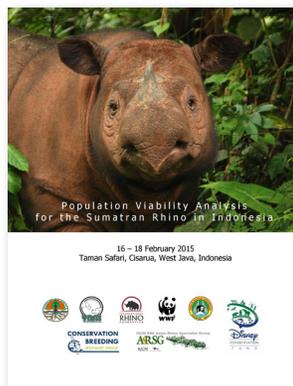


Project Updates

New Workshop Reports Available



Vancouver Island Marmot PHVA workshop report: <http://www.cbsg.org/content/vancouver-island-marmot-phva-report-2015>.



Sumatran Rhino in Indonesia PVA report: <http://www.cbsg.org/content/sumatran-rhino-indonesia-pva-2015>.

Brown Howler Monkey Conservation in Argentina

Update from *Ilaria Agostini (Instituto de Biología Subtropical - CONICET - UNaM, Argentina and CelBA (Centro de Investigaciones del Bosque Atlántico), Argentina)*

In 2015, the Brown Howler Monkey Conservation (BHMC) group continued tackling the actions resulting from the 2013 CBSG-facilitated **Brown Howler Monkey Conservation Workshop** in Argentina. In particular, we succeeded in spreading the word about the project through our Facebook page (<https://www.facebook.com/procarayarojo>). Thanks to the increased visibility on Facebook (over 2500 likes), we received several reports of brown howler presence in areas that have been recently re-colonized following the last yellow fever outbreak and, most exciting, we discovered a new population in a private reserve called Yaguaroundí.

We disseminated the results of our last survey in one communication for the annual meeting of the Argentine Society for the Study of Mammals (SAREM) and published a new paper about yellow fever epidemiological modeling (<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4660615/>).

CBSG eUpdate: February 2016

Contributors: Ilaria Agostini, Onnie Byers, Luis Carrillo, Bob Lacy, Caroline Lees, Phil Miller, Jorge Rodríguez, Kathy Traylor-Holzer

Thanks to our translators, Jean-Luc Berthier and Elizabeth Townsend (French), and Celia Sánchez (Spanish), for helping make this publication available in three languages.



In this issue:

Project Updates	1
Galápagos Finches and Floreana Lava Lizard PVAs...	2
The Ark and Beyond Symposium	2
Whooping Crane Meta-population PVA	3
Mexican Jaguar Specialist Group Meeting	3
Prairie Butterfly Conservation Planning	4
Population Management Workshops at Taipei Zoo	4
Blue-billed Curassow PHVA	5
Mala Conservation Planning	5
Species Masterplanning in China	6
Mexican Wolf Recovery Planning	6
The Future of Species Planning in the SSC.....	7

Visit us at <http://www.cbsg.org>  



This symbol indicates that a project follows the One Plan approach to species conservation planning. Click [here](#) to learn more about the One Plan approach.

Finally, thanks to funding from the Fundación Bunge y Born and the Argentinean National Health Authorities, we are tackling two of the most prioritized actions from the workshop: 1) capture adult mosquitoes in areas where howlers are present and 2) try isolating yellow fever virus from adult and larval mosquitoes. During this period of epidemiological alert, this survey may be extremely useful and necessary for early detection of virus circulation in this region.



Species Conservation Toolkit Initiative Update *from Bob Lacy (Chicago Zoological Society)*

The Species Conservation Toolkit Initiative (SCTI) is a partnership created to ensure that the innovations and tools needed for species risk assessment, evaluating conservation actions, and managing populations are developed, available, and used effectively. We recently held two workshops to further train CBSG Program Officers in the powerful new features for assessing wildlife populations with *OUTBREAK* (for disease modeling) and *METAMODEL MANAGER* (for integrated conservation risk assessments). We are now busy making software improvements that were identified as needs at those workshops, and SCTI is working with CBSG to write and update user manuals.

We are delighted that Copenhagen Zoo recently joined the other SCTI partners (Chicago Zoological Society, Smithsonian Conservation Biology Institute, CBSG, International Species Information System, Auckland Zoo, Zoological Society of London, San Diego Zoo Global, SOS Rhino, Living Desert Zoo, San Francisco Zoo, and Saint Louis Zoo) in supporting this critical initiative. With just one or two more significant sponsors, we will be able to hire a training and support coordinator so that we can assist CBSG members and others in learning and using the software for species conservation. Please contact CBSG (office@cbsg.org) or Bob Lacy (help@vortex10.org) if you can become an SCTI partner and help us to meet this urgent need.



Recent Activities

Population Viability Analyses for Galápagos Birds and Floreana Lava Lizards

Non-native, invasive black rats, house mice, and feral cats are predators of many native species of the Galápagos Islands, including the birds that famously contributed to the thinking behind Charles Darwin's evolutionary theory. As part of an archipelago-wide strategy, Galápagos National Park Directorate, Floreana Parish Council, Island Conservation, and other partners have proposed the eradication of these invasive species from Floreana Island. Consistent with programs elsewhere around the world, proposed methods to remove cats and rodents would include use of toxicants. An *a priori* assessment of the potential exposure to toxins and population-level risks for native wildlife species on Floreana recommended population viability analyses (PVAs) to assess the demographic impact of incidental consumption of toxicant by several native species.

CBSG Mesoamerica was invited by Dr. Birgit Fessl from the Charles Darwin Foundation to collaborate on assessing seven land bird species using *VORTEX*. CBSG Mesoamerica also worked with Paula Castaño from Island Conservation to conduct a PVA for the Floreana endemic lava lizard. The *VORTEX* scenarios they analyzed included: the current risk of extinction in the presence of cats and rodent predation plus other threats; successful eradication scenarios including the relief of ongoing cat and rodent predation and short-term toxicant impacts; and a failed eradication scenario. The results of the PVAs will be presented in a workshop with the Galápagos National Park Directorate and other stakeholders. They will also contribute to the environmental and social impact assessment that will be included in the process to determine if the eradication program is going to be implemented.



Galapagos Flycatcher © Michael Dvorak



Floreana Lava Lizard © Paula Castaño



Medium Tree-Finch © Michael Dvorak

The Ark and Beyond Symposium



CBSG was invited to participate in a two-day symposium organized by Arizona State University and held in Tempe, AZ in November. About 40 zoo and aquarium leaders, biologists, historians, philosophers, and social scientists explored the evolution, character, and practice of zoo and aquarium conservation through presentations and panel discussions. CBSG presented information on the One Plan approach and how both the *ex situ* community and field conservation community can use the IUCN *ex situ* guidelines to evaluate appropriate *ex situ* conservation roles and options for threatened species. This symposium was the second event in a multi-year, National Science Foundation-funded project. The first workshop in 2014 focused primarily on the historical and philosophical foundations of zoo and aquarium conservation, while this symposium concentrated on management and scientific issues. Presentations from these two workshops will be compiled in a forthcoming interdisciplinary book on the subject.



Whooping Crane Meta-Population PVA

The whooping crane (*Grus americana*) is an icon of conservation efforts in North America. Widespread hunting and habitat destruction led to the near extinction of the species, with only 22 birds remaining in the wild by 1941. Decades of conservation efforts have stabilized the remaining wild flock and established a viable *ex situ* breeding population that serves as a source for reintroduction. The original wild flock has grown to ~300 cranes and migrates between breeding grounds in Canada and wintering grounds in Texas. Hundreds of cranes have been released into the wild since 1975 to create three additional wild populations in the US. These efforts have created a meta-population that spans a broad continuum of intensive management.

To effectively manage this meta-population, the International Whooping Crane Recovery Team requested CBSG's assistance in evaluating the viability of these whooping crane populations and assessing various meta-population strategies to promote viability and meet recovery goals. The first step in this process is to develop a baseline population model that includes all five populations (wild, captive, and reintroduced) as part of a comprehensive species meta-population. This model then can be used to evaluate different management options, including those involving interactions among populations.



© Kathy Traylor-Holzer

Discussion of model parameters and structure occurred through a series of conference calls from July to November 2015 with many of the wildlife managers and content experts for the various whooping crane populations. A preliminary *VORTEX* meta-population model was presented and refined at a three-day Population Viability Analysis (PVA) workshop at the Calgary Zoo in December. Potential alternative population management strategies were identified as additional model scenarios. The participants also discussed the issues of risk tolerance and data uncertainty as they affect recovery goals and actions.

The next few months will be spent finalizing the baseline model and developing additional management model scenarios. The resulting model and PVA will serve as a tool to evaluate management actions and revised recovery goals to be addressed at a more comprehensive Population and Habitat Viability Assessment (PHVA) in late 2016 or early 2017. Both the PVA and PHVA workshops involve a broad range of international participants and follow a One Plan approach to developing an integrated conservation plan for managing all populations of whooping cranes.

Mexican Jaguar Specialist Group Meeting

CBSG Mexico was invited to facilitate a one-day meeting for the government of Mexico's Mexican Jaguar Specialist Group. The goal of the meeting was to analyze, update, and propose actions for jaguar (*Panthera onca*) conservation in Mexico. Twenty-five people attended, including field biologists and representatives from NGOs and the federal government. The meeting began with researchers presenting updates on the species and research status at their study sites. The government then presented their plans for jaguar conservation, including:

- the National Information System for the Jaguar, a database for compiling data about jaguar sightings and research information;
- the National Standardized Photo-ID Monitoring Program, where photographs of Mexican jaguar spot patterns are accessible to researchers for identifying individual specimens; and
- roads designed with jaguar conservation in mind.

Using CBSG tools and methodologies, CBSG Mexico guided participants to develop priority actions for short- and medium-term jaguar conservation in Mexico. The workshop was held at the Zoológico Los Coyotes and financed by the Comisión Nacional de Áreas Naturales Protegidas – PROCER program.



Poweshiek Skipperling and Dakota Skipper: An *Ex Situ* Assessment and Planning Workshop

The endangered Poweshiek skipperling (*Oarisma poweshiek*) and threatened Dakota skipper (*Hesperia dacotae*) are small butterfly species found in remnant pockets of native prairie in the upper Midwestern United States. Both species have declined due to large-scale conversion of their prairie habitat to agriculture, and likely through the widespread use of pesticides in the region.

The US Fish and Wildlife Service and Canadian Wildlife Service are working with the *ex situ* community, led by the Minnesota Zoo (CBSG's office host), to investigate the feasibility of rearing both species under intensive management conditions as a component of a holistic species conservation strategy. The Minnesota Zoo invited CBSG to design and facilitate a science-focused planning workshop for the two species. The broad objectives of the workshop were to:

- review the species' status and the threats to their long-term persistence;
- define the role(s) that *ex situ* management could play in the overall conservation of the species;
- determine the characteristics of the *ex situ* population required to fulfill each potential role;
- identify the feasibility and risks associated with each potential *ex situ* population role; and
- make an informed and transparent decision on if and how to utilize the *ex situ* population community in overall species conservation.



Poweshiek skipperling © Minnesota Zoo

To accomplish these objectives, CBSG staff used the *IUCN SSC Guidelines on the Use of Ex Situ Management for Species Conservation* as a set of guiding principles for all workshop discussions. The group of species experts and managers developed a mixed-programs strategy for the Poweshiek skipperling. The strategy features a head-start program to augment extant populations for intra-site reinforcement; a research program on a surrogate species to understand key elements of successful *ex situ* management and rearing of individuals; the development of an insurance population to ensure long-term survival of the species; and ultimately a reintroduction program to locations with historic records that are currently extirpated. The analogous program for the Dakota skipper features the restoration of the species within its historic range where it has been extirpated, the provision of skippers for research projects that are integral to the species' conservation, and the completion of a protocol used by zoos or other facilities for *ex situ* management of the species.

The product of this workshop marks a significant milestone in the management of these important prairie species, and is a valuable example of the linked *ex situ* – *in situ* approach embodied in CBSG's One Plan approach to species conservation. The final report from this workshop will be available on the CBSG website in February.

Population Management Workshops at Taipei Zoo

Since 2012 the Taipei Zoo has hosted an international conference in October to bring together Asian and international zoo professionals to further *ex situ* population management in Asian zoos. Each year, CBSG has been invited to participate to give presentations, provide training, and facilitate species conservation planning discussions. In 2015, CBSG (represented by Jennifer Mickelberg, CBSG North America/Zoo Atlanta) led two efforts. The first was a two-part training course on *ex situ* population management that incorporated basic principles, a *PMx* overview, and an application of the One Plan approach to conduct a species-specific threat analysis and assessment of potential *ex situ* conservation roles.



CBSG also facilitated and provided population management advice for the third meeting of the Asian Orangutan Regional Species Management Plan (RSMP), a collaboration of Asian zoos to manage both orangutan species (*Pongo abelii* and *P. pygmaeus*) effectively within Asia. Participants from Taiwan, Thailand, Singapore, Indonesia, South Korea, Japan, P.R. China, and the Philippines, as well as advisors from North America and Europe, met to review program progress and consider new directions. Since its inception, the RSMP has led to improved International Studbook data (both in quantity and quality) and increased resolution of taxonomic identity issues to develop quality data needed for effective regional management. The first transfer recommendations have been made, and a small working meeting will convene in March in Omaha.



Blue-billed Curassow PHVA

Blue-billed curassows (*Crax alberti*) are among the most threatened bird species in the world. Wild populations of these Critically Endangered cracids survive only in small patches of remaining habitat in Colombia, making them an Alliance for Zero Extinction (AZE) species. In December 2015, a Population and Habitat Viability Assessment (PHVA) was held in Cartagena, Colombia to create the basis for the development of a National Conservation Plan for the blue-billed curassow in Colombia. Participants included representatives from governments both national and local, field biologists, zoos from Mexico and the US, and NGOs. CBSG Mexico designed and facilitated the workshop, guiding the participants through the development of actions for the conservation of the species.



© Patrick Coin

The workshop began with an opening by Farah Ajami, President of the Colombian Zoos and Aquariums Association (ACOPAZOA), after which participants introduced themselves and shared their concerns about blue-billed curassow conservation. After presentations from field biologists about the biology and conservation status of the species, participants were divided into groups where they identified challenges in conserving the species and developed goals and accompanying actions. CBSG Mexico and Juan Cornejo (Loro Parque Fundación) modeled different scenarios to assess the viability of the species and its various populations. The workshop, which was supported by Houston Zoo and ACOPAZOA, closed with a visit to the Aviario Nacional, the only institution that has successfully bred blue-billed curassows in captivity in Colombia.

Andrew Schumann, Animal Collection Manager at White Oak Conservation, said about the PHVA: "I feel confident that CBSG Mexico made this one especially productive. There are many challenges ahead for this species but with such a passionate group of people there is no doubt in my mind that the blue-billed curassow will be conserved in Colombia, especially with CBSG facilitating along the way."



Planning a Future for Mala in the Australian Desert

The mala (*Lagorchestes hirsutus*) is a charismatic wallaby that was saved from extinction on mainland Australia when the last 22 animals were rescued in the early 1980s and secured in predator-proof enclosures. The last wild population perished in a wildfire in 1991. Remaining mala are currently dispersed among six isolated predator-free sites, located in three different states and territories and supporting populations ranging in size from 20 to approximately 300 individuals.



© Ken Johnson

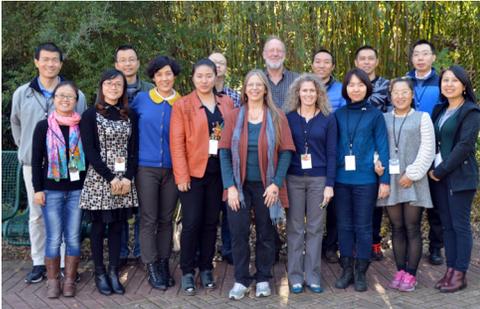
In November 2015, the Mala Recovery Team (13 people from eight organizations) met to take a national view of mala management and to identify what it would take to move beyond saving the species from immediate extinction and towards securing its long-term future. The workshop was funded by public donations and facilitated by CBSG.

Though an essential conservation tool for the short to medium-term, current enclosures are considered to have a number of disadvantages: relatively high intensity of management, tendency for periodic over-population, potential for some relaxation of wild selection pressures, and ongoing susceptibility to inbreeding accumulation and gene diversity loss due to small population size. Participants envisaged a long-term future for the species in much larger fenced areas with sufficient habitat heterogeneity to support larger, viable, demographically self-regulating mala populations under minimal management.

In the interim, agreed goals targeted improvements in the viability and resilience of populations at current sites by: 1) formalizing and implementing meta-population-wide, best practice management with respect to disease risk, wildfire prevention and mitigation, vertebrate pest control, and carrying capacity; and 2) instigating regular, strategic transfers between sites to improve gene diversity retention and slow inbreeding accumulation. The report will be available in February.

Promoting Effective Species Masterplans in China

For over 20 years CBSG has assisted the Chinese Association of Zoological Gardens (CAZG) and the State Forestry Administration (SFA) in the development of population management capacity and species-specific *ex situ* management plans for China. Since 1995 CBSG has supported the *ex situ* management of the South China tiger (*Panthera tigris amoyensis*) through biomedical surveys, training, and population management advice. CBSG initiated a similar collaboration with CAZG and SFA for giant pandas (*Ailuropoda melanoleuca*) the following year in 1996. Since then CBSG has provided population management advice for each of these priority Chinese species, often on an annual basis.



Species masterplanning training workshop participants.

CBSG, along with Jonathan Ballou from the Smithsonian Conservation Biology Institute, attended the annual masterplan meeting for each of these species in November. The giant panda meeting in Dalian included a five-year review of the program's progress and discussion of revised breeding strategies as this expanding population moves into a new phase of maintenance at its target size and production of pandas for release. Shortly thereafter, the South China tiger meeting was held in Zhengzhou, where CBSG facilitated a discussion of the revision of population goals and management strategies for this 20-year-old program. Both species have tripled their *ex situ* populations since cooperative management began, and have slowed the rate of gene diversity loss and

inbreeding through genetic management. Challenges continue, especially for the tiger population, which is based on few founders and is extinct in the wild.

CBSG also promotes the expansion of *ex situ* population management expertise in China, and has conducted a series of CAZG training courses in China since 2009 in studbook development, population data analysis, population planning, and collection planning. In December, CBSG continued this process with focused training on masterplans for select China species. Eleven Chinese zoo biologists attended a four-day training course, organized and hosted by Memphis Zoo, to address species-specific issues and practice their masterplanning skills. New masterplanning activities are planned in China for the coming year.

Recovery Planning for the Mexican Wolf: Revisiting Population Viability Analysis for the Species

Recovery planning for the Mexican wolf (*Canis lupus baileyi*) remains a very contentious process in the southwestern United States and Mexico. Earlier attempts over the past decade to revise the existing Recovery Plan have been stymied by numerous complexities both biological and sociological. Believing that the time is right for another round of analyses and discussions, the US Fish and Wildlife Service reached out to Mexico and the states of Arizona, New Mexico, Colorado, and Utah to coordinate a series of workshops designed to review the existing biological, ecological, and social parameters of recovery in the current Plan. This will be accomplished through the continued use of population viability analysis, detailed habitat suitability analysis, and participatory planning to ultimately produce a revised Recovery Plan by the end of 2017.



The US Fish and Wildlife Service invited CBSG to facilitate a series of workshops in 2016-2017 to accomplish this goal. The first workshop was held in Arizona in December 2015, with a focus on reviewing the current population viability analysis using the simulation modeling package *VORTEX*. This workshop will be followed by a second workshop in early 2016 that will focus on finalizing the demographic (PVA) component of the analysis, while turning to the issue of suitable habitat across the species' historic and contemporary range. If feasible, a third workshop will be held later in 2016 to bring together the analytical results with the many concerns and perspectives brought forth by the diverse stakeholder community impacted by Mexican wolf management in the US and Mexico. CBSG will be heavily involved in the design and facilitation of all of these workshops, with the added responsibility of updating the *VORTEX* model in consultation with species experts and local population managers.

The Future of Species Planning in the SSC

In November 2015, IUCN SSC Chair Simon Stuart called a meeting of key leaders in species conservation planning in the Species Survival Commission (SSC) to develop an ambitious, big-picture vision to expand conservation planning in the SSC's overall program of work, and to discuss how the entities present could contribute to achieving that vision.

Participants included representatives from CBSG, the Species Conservation Planning Sub-committee (SCPSC), and the SSC. Jo Gipps (Global Conservation Network), Bengt Holst (Copenhagen Zoo), Jonathan Wilcken (Auckland Zoo), and Mark Craig (Al Ain Zoo) joined CBSG Chair Onnie Byers to represent CBSG and the Global Conservation Network (GCN: the non-profit organization that supports the work of CBSG). Because of our 30+ years dedicated to "planning a future for wildlife", this move to elevate the role of planning across the Commission is a positive and highly relevant development for CBSG.

The group drafted a vision statement:

The status of species is improved through conservation planning to support governments and wider society in achieving United Nations Sustainable Development Goal-Target 15.5 "to take urgent and significant action to reduce degradation of natural habitat, halt the loss of biodiversity, and by 2020 protect and prevent the extinction of threatened species."

They then agreed that all of the SSC's planning processes should have the following essential characteristics (these echo CBSG's long-held philosophy):

- be participatory, collaborative, and culturally sensitive,
- be based on evidence and the best available science,
- use an adaptive process of best practice, and
- lead to actions that result in measurable improvement in species status.

The group agreed, in very general terms, on the concept of a two-part structure involving governance and management/implementation intended to deliver greatly increased capacity for species conservation planning in the SSC. To continue the development of ideas around this structure, a consultant has been hired to do an external review of the situation and to provide recommendations for a way forward.

The CBSG team did a fantastic job of highlighting how uniquely well-positioned CBSG is to help move the SSC forward in this area. The planning expertise in the SSC goes far beyond CBSG, and harnessing and supporting this will be essential regardless of how the SSC chooses to move forward. This meeting was a good first step and a potentially significant turning point in terms of the SSC's commitment to species conservation planning. CBSG looks forward to continuing to contribute to this effort.