



poorly predicted by climate variables for 61% of the 105 trees examined. Predictions of stable occurrence patterns in time often masked potential decrease in tree abundance. These results are now being used in other regional conservation studies on adaptation to climate change. The partnerships with governmental and non-governmental organizations insured rapid transfer of knowledge.

2011-12-07 17:45 Impact of urbanization on flower visitors assessed with a country-wide monitoring program based on citizen science.

Deguines N*, *Museum national d'Histoire naturelle*; **Fontaine C**, *Museum national d'Histoire naturelle*; **Julliard R**, *Museum national d'Histoire naturelle*;

Pollinators play a key role in ecosystems functioning. Decline in both honey bee and wild pollinators have recently been documented and habitat loss coupled with agricultural intensification have been highlighted as important drivers of this pollination crisis. The effect of urbanization is less documented, and it has been proposed that due to high availability of floral resources and low pesticide level, urban areas may act as refuges for pollinators. We tested this hypothesis using data from a new monitoring program based on citizen science, where observers sample plant-insect interactions following a standardized protocol. By the end of 2010, about 13000 interactions have been sampled in 2200 localities distributed all across France. Our results indicate first that the majority of flower visitors are negatively affected by urbanization. Second, sensitivity to urbanization differs among insect orders, with hymenopterans appearing more tolerant than dipterans and lepidopterans. Third, within insect orders, urbanization's sensitivity seems to be related to the complexity of the insect life cycle, with for example, parasitic hymenopterans that appear to be more sensitive than non-parasitic ones. These results do not support the hypothesis that urban areas are refuges for pollinators. Citizen science seems an appropriate methodology to study pollinator's communities and their responses to large-scale environmental characteristics.

2011-12-07 14:44 Conservation management frameworks: the what, where and how of managing biodiversity

Deiner, K*, *UC Davis*; **Forrester, T**, *UC Davis*; **Grof-Tisza, P**, *UC Davis*; **Santos, MJ**, *UC Davis*; **Souza, L**, *UC Davis*; **Wilkerson, ML**, *UC Davis*; **Zylberberg, M**, *UC Davis*; **Schwartz, MW**, *UC Davis*

Conservation decision-making tools are being developed to manage the scientific, social, and logistical complexity of large-scale conservation programs. We provide an overview of similarities and differences among eight structured decision-making frameworks. We highlight both the common components for structured decision-making and their important differences. We identify challenges not fully resolved by the development of decision-making frameworks and suggest how to move past difficult challenges. The eight frameworks reviewed differ in approach and process, but converge into similar practices and protocols. Most frameworks embrace three attributes: they define measurable goals to evaluate success and failure of actions, define stakeholder involvement, and develop a robust monitoring structure. In each case, most frameworks encouraged explicit goals for these three attributes. No consensus was reached across frameworks with respect to defining assumptions behind management actions or explicitly defining the adaptive management process. Finally, all frameworks are challenged by four common issues: time and resources, distinguishing cause and effect as a consequence of actions, closing the gap between intent and action, and the implementation of monitoring. This review suggests that conservation management is becoming more transparent, despite the varied challenges, and frameworks are giving substance to formalized conservation action plans.

2011-12-07 11:45 Temperate and Boreal Rainforests of the World: the Forgotten Rainforests

DellaSala, D.A.*, *Geos Institute*;

Temperate and boreal rainforests are restricted geographically to just ten regions of the world where they make up about 2.5 percent of the planet's total forest cover. They occur primarily along coastlines and are biogeographically and climatically distinct from tropical rainforests, which are six times more numerous. Temperate and boreal rainforests represent

some of the most carbon-dense ecosystems on the planet, contain the tallest and oldest trees on earth, have many unique and ancient species, and generally are highly productive due to the overlap of terrestrial, marine, and freshwater systems. Collectively, they store the equivalent of about six times humanity's annual carbon dioxide emissions yet they are not part of global accords to limit emissions from forest degradation and deforestation (e.g., REDD). Only 14 percent have been protected in legally enforced reserves and many areas (e.g., Europe, coastal redwoods, Pacific Coastal USA) are highly fragmented. In recognition of the UN declaration on the International Year of Forests, protection of all the world's rainforests should be greatly increased as part of sustainability efforts and for their biodiversity and ecosystem services, particularly long-term carbon storage and drinking water.

2011-12-07 14:30 Presidents Roundtable on International Year of Forests

DellaSala, Dominick A.*, *SCB North America Section*; **Dieterich, Martin**, *SCB Europe Section*; **Dovie Delali, Benjamin**, *SCB Africa Section*; **Majiluf, Patricia**, *SCB ANA Section*; **Nemtsov, Simon**, *SCB Asia Section*; **Watson, James**, *SCB Oceania Section*;

2011 marks the International Year of Forests. In recognition, SCB's Section Presidents have prepared a statement on the world's forests along with 12 recommendations for sustainable management that will be presented in this public forum. In general, SCB urges the UN and its member nations to: (1) acknowledge that additional net loss of quality or quantity of forests cannot occur without severe long-term loss of ecosystem services; (2) enhance the conservation of critical forest ecosystems and the services; (3) ensure protection of old-growth and intact forests; (4) establish a representative and functionally connected network of conservation areas with responsible management in the surroundings; (5) provide adequate resources for all nations to monitor and enforce protection of existing reserves; (6) increase funding and participation in global deforestation and forest degradation reduction; (7) adopt science-based carbon accounting methods; (8) ban trade in illegally harvested forest products; (9) monitor changes in forest quality; (10) encourage independent science-based assessments of certification schemes; (11) include in the protection and use of forest resources the rights of indigenous peoples; and (12) empower an Inter-Governmental Science-Policy Platform on Biodiversity and Ecosystem Services to foster better use of the best available science and improved forest management.

2011-12-07 14:45 Forests in the Spotlight: International Year of Forests
DellaSala, Dominick A.*, *Geos Institute*;

Forests cover about a third of the earth's terrestrial surface, support over 80 percent of its biodiversity, play a pivotal role in climate change mitigation, and provide countless other ecosystem benefits. In recognition of the need to sustainably manage forests and their services, the United Nations has declared 2011 "International Year of Forests." In addition, the Food and Agricultural Organization of the United Nations released its global forest resources assessment that includes country-specific forest metrics. This and other assessments indicate that while deforestation has slowed in the past decade, it remains alarming high in South America and Africa. Over half of the world's intact (no roads) forests are gone, and 40 million ha of primary forests were eliminated in the last decade. About 54 percent of the world's forests are in production and multiple use management while just 13% are strictly protected. Even countries that showed increases in broad measures of forest cover (e.g., the United States) suffered losses to old growth and intact forests. I present twelve recommendations that form the basis of a forest proclamation approved by SCB's regional sections, policy committee, and science and publications committee and was submitted to the UN and other forest policy entities.

2011-12-07 11:30 Effective conservation of an endangered newt species (*Triturus cristatus*): determinants from local to landscape scales
Denoe, M*, *University of Liege*; **Perez, A**, *University of Liege*; **Ficetola, GF**, *University of Milano*;

Despite numerous European and national action plans, the great crested newt continues to be one of the most declining amphibian species in Northern Europe (Habitat Annex II species). It is considered as a good



bioindicator of both aquatic and terrestrial environments but the respective influences of the varied ecological determinants of its occurrence are still not clear. Our aim was to determine its regional decline and abundance at varied scales. To this end, we surveyed ponds in a representative agricultural area that was affected by habitat change over the last decades (Pays de Herve). We used GLMs and an information-theoretic approach to identify habitat features allowing high abundance of newts. The great crested newt was positively associated with large and deep ponds, oligotrophic waters, abundant aquatic vegetation, low fish presence, and numerous wetlands and open landscapes (particularly orchards) at close range. Similarly to other European regions, all these environmental features are locally deteriorating. Loss of favorable habitat is likely the cause of the observed decline: 50% of populations disappeared in about 10 years in the studied area. To make effective the conservation of this endangered species, action plans should include preserving networks of ponds within the species dispersal ability, decrease the input of nutrients, manage pond structure to offer enough place and vegetation (shelter and egg laying place), and prevent alien fish introduction.

2011-12-09 10:45 A Novel Approach for Global Mammal Extinction Risk Reduction

Di Marco, M*, *Department of Biology and Biotechnology, Sapienza University of Rome, Viale dell'Università 32, 00185, Roma, Italy*; **Cardillo, M**, *Centre for Macroevolution and Macroecology, Research School of Biology, Australian National University, ACT 0200, Canberra, Australia*; **Possingham, HP**, *School of Biological Sciences, The University of Queensland, St. Lucia, 4072, Queensland, Australia*; **Wilson, KA**, *School of Biological Sciences, The University of Queensland, St. Lucia, 4072, Queensland, Australia*; **Blomberg, SP**, *School of Biological Sciences, The University of Queensland, St. Lucia, 4072, Queensland, Australia*; **Boitani, L**, *Department of Biology and Biotechnology, Sapienza University of Rome, Viale dell'Università 32, 00185, Roma, Italy*; **Rondinini, C**, *Department of Biology and Biotechnology, Sapienza University of Rome, Viale dell'Università 32, 00185, Roma, Italy*;

With one fifth of the world's mammals being threatened with extinction and limited conservation budget to save them, adopting an efficient conservation strategy is crucial. Previous approaches at setting spatial conservation priorities at a global scale assumed all species to have an equal conservation value or they were focused on species with a high extinction risk, species that may be hard to save. We take a new approach and focus on species having the greatest opportunity for recovery using a new conservation benefit metric, the Extinction Risk Reduction Opportunity (ERO). This metric considers both the current level of threat, and the potential for recovery of each species (related to its intrinsic risk of extinction). We found that 65-87% of all threatened and potentially recoverable species would be disregarded using other approaches. We also found that less than 10% of priority areas (mainly in South America and South-east Asia) for reducing mammal extinction risk according to ERO metric are currently protected. While spending money on the most threatened species could be an inefficient way of allocating limited conservation funds, ERO metric allows to identify threatened and potentially recoverable species. Optimizing extinction risk reduction provides a cost-efficient solution to minimise species losses.

2011-12-08 15:30 Real-world conservation planning: maximizing economic return to guarantee biodiversity persistence

Di Minin, E.*, *Durrell Institute of Conservation and Ecology (DICE), School of Anthropology and Conservation, University of Kent, Canterbury, UK*; **Slotow, R.**, *Amarula Elephant Research Programme, School of Biological and Conservation Sciences, Westville Campus, University of KwaZulu-Natal, Durban, RSA*; **MacMillan, D.C.**, *University of Kent, Canterbury, UK*;

Socio-economic and political factors affecting biodiversity persistence are rarely included into conservation planning. Furthermore, most conservation plans that consider economics largely frame their models in terms of cost-effectiveness of alternative plans, but this approach is not relevant to the real world where biodiversity conservation is increasingly determined by market forces rather than land purchase. The Maputaland-Pondoland-Albany hotspot plays a crucial role in the recovery of the critically endangered black

rhino and the endangered African wild dog, as well as other biodiversity, but current protected area (PA) network was not developed to guarantee their long-term persistence. Local conservation authorities have limited financial resources and recognize the importance of involving private and communal landowners to expand the PA network. However, little information is available on most suitable areas for re-introduction and their financial viability from conservation operations compared to competing land uses. Species distribution models were first used in combination with metapopulation models to identify most suitable areas for the re-introduction of African wild dog, black rhino, cheetah, elephant, leopard and lion and to calculate the total number of individuals that could be supported by the same. A choice experiment approach was then used to evaluate tourists' preference for different big game species, including the Big Five, and develop best marketing strategies. Investment returns from a range of competing land uses (sugar cane, eucalyptus) were then compared to those from conservation (ecotourism and hunting) in order to select conservation areas with highest ecological and financial viability and set real-world conservation targets for the study species.

MSE in Fisheries: Broadening the scope from single species approaches
Dichmont, Cathy*, *CSIRO Marine and Atmospheric Research*;

Management Strategy Evaluation (MSE) in fisheries is reasonably well established. They have been used in many contexts, but progress can still be made in incorporating a wider range of components other than just target species, such as the effect of fishing on the seabed, species at risk to fishing, or the ecosystem itself. Furthermore, MSE is generally still technically "high-end" when data poor fisheries are common. In this paper, we use two case studies to demonstrate where MSE has made progress. The first example is one in which an MSE is undertaken that includes target species, economic and biological components, the effects of trawling on the seabed and species at risk to trawling. The results show that a target of Maximum Economic Yield actually benefits fishers, but also the environment. The resultant management strategies have been implemented so these strategies can be robust for management purposes. The second example uses a qualitative method with a series of stakeholder groups to develop social, biological, governance and economic objectives. The same group also developed different management strategies and assessed these semi-quantitatively. Analysis of this data clearly highlighted a management strategy that was rated by all stakeholders as producing the best outcomes. This example shows the power of using a stakeholder process to provide their combined knowledge into developing what is essentially a data poor MSE. These two examples show that MSE can be applied in many domains to develop broader management strategies that are still robust to management implementation.

2011-12-07 17:30 Identifying priority targets for conservation under climate change for amphibians and mammals: separating sensitivity from exposure in predicting risk

Dickinson, Maria G*, *Imperial College London; Grantham Institute for Climate Change*;

I will discuss a method to assess species extinction risk from climate change using separate indicators of: (i) the amount of climate change species will face, their "exposure"; and (ii) species' differing abilities to withstand change, their "sensitivity". Sensitivity is derived from the variability in climate species currently experience across their ranges; the magnitude of predicted climate change across each species' range is used to derive exposure. Species "at risk" are those with both high sensitivity and exposure. This method is a move away from the complexity of climate envelope models. It bridges a gap between the need for rigorous global assessments of climate change extinction risk and the current data-hungry methods for predicting that risk. Applying the method to amphibians and mammals reveals overlaps in sensitive species richness across groups, suggesting the potential for landscape-scale conservation targeting of cross-taxonomic sensitivity hotspots. However, these sensitivity hotspots are found in regions with low exposure to climate change. This emphasizes the need to examine sensitivity to climate change separately from exposure, rather than prioritizing areas or species predicted to undergo the greatest magnitude of climate change. Sensitivity hotspots were instead found to be located in areas of high projected habitat loss, showing the importance of incorporating the multiple threats that species will face when identifying priority conservation targets.



ICCB 2011: Engaging Society in Conservation

Te Whenua, Te Moana, Te Papa Atawhai Whakamaua ki Tina

ABSTRACTS



years of SCB

Society for Conservation Biology

25th International Congress for Conservation Biology
Auckland, New Zealand • 5-9 December 2011

- 10:30 **Seeing the Forests Through the Trees: A Big Picture View of Tropical Rainforests**
Pimm, SL*, *Duke University*
- 11:00 **Ecosystem decay of Amazonian forest fragments**
Laurance, William F.*, *James Cook University*; Lovejoy, Thomas E., *George Mason University*
- 11:15 **Maintaining Biodiversity in Highly Dynamic Forested Landscapes**
Hunter, Malcolm*, *University of Maine*
- 11:30 **High Conservation Value Forest Assessments in Boreal Canada**
Stritholt, JR*, *Conservation Biology Institute*
- 11:45 **Temperate and Boreal Rainforests of the World: the Forgotten Rainforests**
DellaSala, D.A.*, *Geos Institute*
- 12:00 **Status and Trends of High Conservation value forests in Africa**
Edward N. Mwavu*, *Makerere University*
- 12:15 **Status of New Zealand's forests**
Norton, David*, *University of Canterbury*; Manley, Bruce, *University of Canterbury*

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• **CS 37: LANDSCAPE ECOLOGY**

New Zealand Room 2

Wednesday, December 7, 10:30 to 12:30

- 10:30 **Assessing the impact of climate and land use change on Midwestern United States river systems**
Krueger, DM*, *Michigan State University*; Wang, L, *Institute for Fisheries Research*; Infante, D, *Michigan State University*; Whelan, G, *Michigan Department of Natural Resources*; Tsang, Y, *Michigan State University*; Wiefelich, D, *Michigan State University*; Cooper, A, *Michigan State University*
- 10:45 **Field Estimates and Modelling of the Tonle Sap Lake Floodplain Vegetation Biomass and Production**
Arias, ME*, *University of Canterbury*; Cochrane, TA, *University of Canterbury*; Killeen, T, *Conservation International*
- 11:00 **Big tropical floodplain forest systems around the world – what do we know?**
Parolin, Pia*, *University of Hamburg, Biodiversity of Plants*
- 11:15 **From extinction processes to conservation management: a new perspective in freshwater ecosystems**
Bergerot, B*, *Cemagref*; Hugueny, B, *IRD*; Belliard, J, *Cemagref*
- 11:30 **Effective conservation of an endangered newt species (*Triturus cristatus*): determinants from local to landscape scales**
Denoe, M*, *University of Liege*; Perez, A, *University of Liege*; Ficetola, GF, *University of Milano*
- 11:45 **Salt marsh as a coastal filter for the oceans: changes in function with increased nitrogen loading and sea-level rise**
NELSON, JOANNA*, *University of California, Santa Cruz*; Zavaleta, Erika, *University of California, Santa Cruz*
- 12:00 **Effects of climate change on the quality of caribou and reindeer summer fodder in low arctic tundra**
Zamin, TJ*, *Department of Biology, Queen's University, Canada*; Grogan, P, *Department of Biology, Queen's University, Canada*
- 12:15 **Glitches in the matrix: To what extent does increased productivity in agricultural systems lead to ecosystem decay in adjacent natural habitats?**
Deakin, L*, *University of Canterbury, Christchurch, New Zealand*; Tyljanakis, JM, *University of Canterbury, Christchurch, New Zealand*; Barker, GM, *Landcare Research, Hamilton, New Zealand*; Schipper, L, *Waikato University, Hamilton, New Zealand*; Didham, RK, *University of Western Australia, Perth, Australia*

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• **SY 11: SETTING PRIORITIES FOR ERADICATING INVASIVE ALIEN SPECIES: PERSPECTIVES FROM GLOBAL TO LOCAL**

New Zealand Room 3

Wednesday, December 7, 10:30 to 12:30

ORGANIZER(S): Butchart, S, BirdLife International; Croll D, University of California; Holmes N, Island Conservation

Conservation Management. Invasive Alien Species (IAS) are among the greatest threats to biodiversity, being a major driver of recent extinctions and impacting a substantial proportion of threatened species, as well as having major impacts on ecosystem services and human health. Islands are particularly vulnerable to this threat, as they contain a disproportionate percentage of global biodiversity (including a large number of endemic and threatened species) that are impacted by IAS, especially introduced vertebrates. However, advances in technology and knowledge mean that we are more capable than ever before in controlling or eradicating alien vertebrates on islands. Nevertheless, with over 180,000 islands globally, the scale of the problem relative to available resources means that prioritization of interventions is required. This symposium will bring together leaders in the field to present and discuss approaches to priority-setting for tackling island IAS, including an overview of the problem, the first robust global datasets on insular biodiversity and threat, national scale examples, and promising new prioritization approaches.

