patterns of genetic structure of black-backed woodpeckers, a fire specialist and then compared these patterns to hairy woodpeckers, a common generalist. The black-backed woodpecker showed no spatial structure across a vast spatial scale (3500 km) whereas the hairy woodpecker showed a strong pattern of isolation by distance. This led us to simulate two basic models of dispersal: frequent colonization of new patches and stable migration among static patches to understand the mechanisms that created the observed patterns of genetic structure. The simulation results suggested that frequent colonization of newly created habitats at intermediate dispersal distances provide a mechanism for producing a pattern of low genetic differentiation and no isolation by distance across vast spatial scales, consistent with the empirical results on black-backed woodpeckers. This research exemplifies the need to consider dispersal behavior when interpreting empirical patterns of genetic structure across large spatial scales.

2011-12-07 10:30 Seeing the Forests Through the Trees: A Big Picture View of Tropical Rainforests
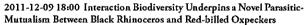**Pimm, SL*,** *Duke University;*

Tropical moist forests hold the greatest variety of terrestrial species. Just how extensive they are and how many species they contain are not well-documented. Much depends on how one defines them, of course. Without clear definitions estimates of how fast tropical forests are shrinking and how much carbon their destruction emits into the atmosphere are also uncertain. Even with estimates of where the forests are, estimates of their species richness begs the question of how many species are not-yet known to science. I will synthesize and compare existing estimates of these key parameters.

2011-12-06 11:30 Connecting the General Public to the Science of Saving Tropical Species
Pimm, SL*, *Duke University;*

I will relate two stories. First: just over a decade ago, there was still considerable scepticism in some quarters about whether tropical forests were indeed shrinking — and at the alarming rate the scientific community claimed. The ready availability of GoogleEarth imagery changed all that, but those images became available almost certainly because of a concerted effort on the part of the conservation community to make Landsat images widely and cheaply available. Second is the issue of how one can engage the public on a subject that is so unrelentingly depressing as species extinction. I shall present an example of a restoration project, entirely motivated by the need to prevent the maximum number of extinctions as cost effectively as possible. What has made this project compelling to its donors is the ability to see the forest restoration taking place — again, using readily available remote sensing imagery.

2011-12-09 18:00 Interaction Biodiversity Underpins a Novel Parasitic-Mutualism Between Black Rhinoceros and Red-billed Oxpeckers
Plotz, RD*, *Centre for Biodiversity & Restoration Ecology, School of Biological Sciences, Victoria University of Wellington, NZ & Centre for African Conservation Ecology, Department of Zoology, Nelson Mandela Metropolitan University, Port Elizabeth, R.S.A.;* **Linklater, WL,** *Centre for Biodiversity & Restoration Ecology, School of Biological Sciences, Victoria University of Wellington, NZ & Centre for African Conservation Ecology, Department of Zoology, Nelson Mandela Metropolitan University, Port Elizabeth, R.S.A.;*

Ecosystems and communities are structured by interspecific relationships, but most are poorly understood. Long-term biodiversity conservation may be achieved better by focusing on the maintenance of these relationships, rather than the biodiversity involved. We quantified the complex relationship between the red-billed oxpecker (Buphagus erythrorynchus) and the critically endangered black rhinoceros (Diceros bicornis) that is mediated by specialized rhinoceros ecto- and endo-parasites and large predators of rhinoceros, particularly humans. We show experimentally that (1) rhinoceros with large haemorrhaging lesions caused by a parasitic filarial nematode (Stephanofilaria dinniki) were a critical food source for oxpecker, (2) oxpecker exacerbated lesions size and severity but that (3) oxpecker also acted as sentinels for rhinoceros against human predatory threat. Thus, we demonstrate that a conditional parasitic-mutualism relationship between black rhinoceros and oxpecker, is made possible by other parasitic

and predator biodiversity relationships. Here strong evidence is provided that a critically endangered flagship species is the keystone in a network of biodiverse interactions among multi-trophic coexisting species. The first step to conserving interaction biodiversity requires a better understanding of the complex dynamics within which they occur.

2011-12-06 14:28 Developing an adaptive management framework for the conservation of an endangered amphibian
Pollard, CJ*, *The University of Newcastle;* **Stockwell, MP,** *The University of Newcastle;* **Garnham, JI,** *The University of Newcastle;* **Pickett, EJ,** *The University of Newcastle;* **Clulow, J,** *The University of Newcastle;* **Mahony, MJ,** *The University of Newcastle;*

The once common green and golden bell frog (Litoria aurea) began to experience large-scale population declines in NSW during the 1970s, and is now listed as endangered in this state. One of the largest remaining L. aurea populations in NSW is situated at Sydney Olympic Park, where it has been continually monitored since its discovery in the early 1990s. One of the aims of this study was to evaluate the effectiveness of a range of management actions that have been implemented for the conservation of L. aurea at this site throughout the past two decades, using the data collected during this long-term monitoring regime. One such action was the draining of ponds to temporarily remove a predatory fish, which was found to significantly increase the reproductive success of L. aurea. The second aim of the study was to develop an adaptive management framework based on the assessment of the effectiveness of previously implemented actions. By incorporating the results of previous management actions into the decision making process for the selection of future actions, the adaptive management process has the potential to improve management success in the long-term.

2011-12-08 14:30 Challenges for detecting and projecting climate change impacts on marine mega fauna
Poloczanska, E.S.*, *Climate Adaptation Flagship, CSIRO Marine and Atmospheric Research;* **Richardson, A.J.,** *Climate Adaptation Flagship, CSIRO Marine and Atmospheric Research;* **Marine Climate Change Impacts Working Group,** *National Centre for Ecological Analysis and Synthesis;*

While impacts on ecological systems consistent with climate change are increasingly apparent, it can be difficult to rigorously ascribe these to climate change to underpin policy and conservation responses. Identifying the mechanisms driving change is especially challenging with biological data, which are inherently noisy because of short-term biotic and abiotic influences superimposed upon natural decadal climate cycles in the ocean-atmosphere system that can mask or interact with climate change. This may be even more challenging for marine mega-fauna with long and complex life history and migratory movements among feeding, breeding and nursery grounds. We compiled a database of >3000 observations of climate change impacts on marine biology and found <2% of observations comprised turtles, polar bears, seals, whales and dolphins. We discuss the challenges to understanding climate change impacts on these mega-fauna. We provide here a set of guidelines for detecting and understanding climate impacts in ecological data based on the application of robust statistical approaches and the clear reporting of metrics of change. Evidence to develop expectations can be drawn from several sources: ecological and evolutionary theory, analogy to past condition, and manipulative experiments and can inform monitoring programmes.

2011-12-09 16:30 Marine mammals global distribution patterns: implications for conservation
Pompa, S.*, *Laboratorio de Ecología y Conservación de Fauna Silvestre, Instituto de Ecología, Universidad Nacional Autónoma de México.;* **Ehrlich, P.,** *Center for Conservation Biology, Biology Department. Stanford University; Stanford, California, USA.;* **Ceballos, G.,** *Laboratorio de Ecología y Conservación de Fauna Silvestre, Instituto de Ecología, Universidad Nacional Autónoma de México.;*

20 global key conservation sites were indentified based on the geographic ranges of all marine (123) and freshwater (6) mammal species. Patterns of species richness, endemism, and risk were variable among all species and species groups. Key conservation sites were determined either by their