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The Atlantic Forest is one of the most threatened biomes, represented greatly by short and isolated forest fragments and the functional connectivity, which refers to the biological responses to the landscape structure, is poorly known. Understand how species perceive the environment around their habitats is essential to biodiversity conservation. Our objectives were verify the effect of the distance between Atlantic forest fragments, isolated by pastures or agriculture, on the occurrence of movements between them, for five bird species (*Dysthymus mentalis*, *Thamnophilus caerulescens*, *Automolus leucophthalmus*, *Chiroxiphia caudata* e *Basileuterus culicivorus*), using playback trials. All species were able to cross open areas to reach other fragments. To three of them (*D. mentalis*, *B. culicivorus* e *C. caudata*) this displacements were related to the distance to be traversed. *Chiroxiphia caudata* exhibited the longest critical distance (81m) above which the movements were rare. Considering 80m as a threshold, this distances were esteemed short, since only 0,15% of the fragments in the landscape studied are connected. This may cause disrupted territories of these species and in alterations of the structure and dynamics of their populations, what is thought to influence the proneness to extinction of birds. Thus, more studies on functional connectivity are extremely necessary.

41. THE CONSERVATION IMPLICATIONS OF A 22 YEARS EXPERIMENTAL STUDY OF RECRUITMENT IN AN INTERTIDAL SEA ANEMONE. AYRE, DAVID. Institute for Conservation Biology and School of Biological Sciences University of Wollongong, Wollongong, NSW 2522, Australia, dja@uow.edu.au (DA).

Intertidal populations are often thought to be ephemeral and dramatic changes in area and density are expected to be at least partially driven by pulses of planktonically dispersed immigrants. I use a 22 yr study of recruitment and adult densities and distributions to test these ideas within populations of the asexually viviparous sea anemone *Actinia tenebrosa* on Rottnest Island, W. A. Populations are arrayed in linear strips and maintained by localised dispersal of brooded clonal larvae, although each clone is either male or female and sexually produced offspring are thought to be widely dispersed. By monitoring wholly cleared, partially cleared and undisturbed populations and their surrounds I show that adult distributions are incredibly stable over decades, with the area occupied by local populations fluctuating < 5%. Recruitment is highly correlated with adult density per m, but within cleared areas recolonisation varies dramatically with levels of exposure. Wholly cleared areas > 10m from adult anemones received no recruits during the study and recruits were not detected > 5m from established adults. These data imply that the recovery of populations after disturbance will be extremely limited and conservation efforts must be focussed on the very small areas of current adult habitat.

42. LIVESTOCK DEPREDACTION BY JAGUAR AND PUMA IN THE PANTANAL REGION OF BRAZIL. AZEVEDO, FERNANDO C. C. Department of Fish and Wildlife Resources, College of Natural Resources, University of Idaho, Moscow, ID 83844-1136, USA, azev3517@uidaho.edu.

Habitat loss, close proximity to domestic livestock, and direct competition from poachers removing natural prey, may force

jaguars and pumas to coexist spatially with domestic animals and consequently use them as prey. In an attempt to study livestock depredation in the Pantanal of Brazil, 11 cats (nine jaguars and two pumas) were monitored during 2003-2004 in three livestock ranches. From January to August 2004, of all carcasses of wild prey found (43), predation by jaguars represented the majority of recorded incidents (86.3%, 19 animals). Capybaras, marsh deer and caiman constituted the wild prey most taken by jaguars. A total of 100 domestic animals were found dead or killed during the period. Of all domestic animals found dead, depredation accounted for only 22.0% (22 animals). The average rate of predation of livestock at the main ranch, San Francisco farm, and in two neighbor farms represented $1.45 \pm 1.11\%$ of all livestock. Considering the total number of cattle within San Francisco area at the beginning of 2004 (4.951 heads), predation by jaguars and pumas represented only 0.18% of all cattle. The abundance of wild prey apparently contributed for low depredation of cattle in the area.

43. THE FUTURE MAMMALS OF THE AMAZON. AZEVEDO-RAMOS, CLAUDIA; Amaral, Benedito D. do; Curran, Lisa M.; McDonald, A.; Soares-Filho, Britaldo; Nepstad, Daniel. Instituto de Pesquisa Ambiental da Amazonia, SCLN 210, Bl. C, sala -211, 70862-530 Brasília, DF, Brazil (c.azevedo-ramos@terra.com.br) (CAR., BA). Yale University, School of Forestry and Environmental Studies, 370 Prospect St., New Haven, CT, 06511, USA, (LMC, AM). Centro de Sensoriamento Remoto/Centro de desenvolvimento e Planejamento Regional, Universidade Federal de Minas Gerais, 31270-901 Belo Horizonte, Brazil (BSF); Woods Hole Research Center, P.O. Box 296, Woods Hole, MA, 02543, USA (DCN).

We assessed how land-cover change in Amazonia would potentially affect forest cover within mammal species ranges with future trajectories of deforestation in Amazonia. Land use change from 1996 to 2001 was generated from Landsat ETM+ and projected for 50 years using DINAMICA model. A mammal vulnerable index was calculated using multicriteria analysis on available variables (habitat use, IUCN red list categories, CITES categories and hunting pressure). We identified species assemblages with similar habitat requirements using cluster analysis. Based on a comparison between land-cover change and the vulnerable index, we generated maps identifying vulnerable regions for mammals under different development scenarios. This approach can be easily adapted regionally or to other taxa. Maps are powerful tools to visually access complex systems. These results may help decision makers to consider ecological costs and benefits of different development strategies for Amazonia and assist conservation biologists to identify vulnerable species and regions for conservation strategies.

44. POPULATIONAL GENETIC STRUCTURE OF *Manilkara huberi* (DUCKE) A.CHEV., A HEAVILY LOGGED AMAZONIAN TIMBER SPECIES. AZEVEDO, VANIA C. R.; Ciampi, Ana Y.; Kanashiro, Milton. Programa de Pós-graduação em Biologia Molecular, Departamento de Biologia Celular, Instituto de Biologia, Universidade de Brasília, Brasília, DF, Brasil. azevedover@unb.br (VCRA). Embrapa Recursos Genéticos e Biotecnologia, PqEB final W5 norte, CEP 70770-900 Brasília DF, Brasil (VCRA, AYC). Projeto Dendrogene, Embrapa Amazônia Oriental, Belém, PA Brasil (MK).

Molecular markers have been increasingly used to gain understanding of population genetic structure, to quantify the effects of habitat fragmentation and guide conservation strategies. This

research, part of the Dendroene Project (www.cpatu-embrapa.br/dendro/index.htm), aims to study the genetic diversity and population genetic structure of a natural population of *Manilkara huberi*, known as maçaranduba, using microsatellite markers to identify possible logging impacts as input for the design of conservation strategies. This species is intensively harvested due to its suitability for the construction industry. Three hundred adult trees and nine hundred seedlings were sampled in a two hundred hectare plot at the Tapajós National Forest, Pará, Brazil. All individuals were genotyped using an automatic sequencer ABI 377 with seven highly polymorphic microsatellite loci. The following estimates were obtained for adults and seedlings: observed heterozygosity (H_o) 0,71 and 0,63; genetic diversity (H_e) 0,86 and 0,82; fixation index (f) 0,17 and 0,23. All the estimates are significant (CI 95%). The adult population shows significant spatial genetic structure. This results show that this species is endogamic and will be very useful as a tool, together with more genetic studies that are being conducted, to help design strategies for forest management to meet production and conservation goals.

45. AFRICAN WILDLIFE COLLEGE AND CAPACITY BUILDING TO ADDRESS THE BUSHMEAT CRISIS THE EXPERIENCE OF GAROUA WILDLIFE COLLEGE (CAMEROON). BABALE, MICHEL; Bailey, Natalie D. Ecole de Faune de Garoua, BP 271 Garoua, Cameroun, Tel: 237 956 56 09, Fax: 237 227 31 35 (mbabale@yahoo.fr) (MB); Bushmeat Crisis Task Force, 1700 Connecticut Avenue, NW Suite 403, United States of America, Tel: 202 588 1924, Fax: 202 588 1069 (NDB).

At the start of the 21st century, the threats facing African wildlife have become increasingly alarming. In the Congo Basin in particular, the unsustainable illegal, commercial bushmeat trade consumption has reached record levels, depleting the forest ecosystem of its wildlife. To counter the bushmeat crisis, Central African institutions have engaged in a variety of initiatives to raise awareness, develop capacity, enforce laws, develop appropriate policies and identify bushmeat alternatives. Garoua Wildlife College in particular has worked to build the capacity of African wildlife managers through the development of a bushmeat training course module with the support of WWF-U. S. R. E. Train Education for Nature program and the Bushmeat Crisis Task Force. Approximately 30 professionals from nine countries have been trained during the first two training sessions. An evaluation of the module was completed following the second training session (2004). In this session, we will present results and lessons learned from the first two years of bushmeat training courses in Francophone Africa.

46. MONITORING DHOLE (*Cuon alpinus*) POPULATION AND PREY IN THE NILGIRI BIOSPHERE RESERVE, SOUTHERN INDIA. BABU, V. N. Asian Nature Conservation Foundation, c/o Centre for Ecological Sciences, Indian Institute of Science, Bangalore, 560012, India, narendra@asiannature.org.

Dhole, *Cuon alpinus*, packs were monitored between 2000 and 2003 in the Mudumalai WLS and Nilgiri North Forest Division, an area covering approximately 300 km² in the Nilgiri Biosphere Reserve, southern India. Prey densities were also monitored during the same period across different habitats and the locations of the resting sites of the dhole's principle prey - chital (*Axis axis*) were mapped. Habitats types across the study area were characterized using classified satellite imageries. Location data of four dhole packs ranging across this study area showed a home range (minimum convex polygon) that varied between 15 to 66 km². The

dhole population showed high intra annual fluctuations due to high pup mortality in the study packs. Higher mortality (disappearance) was observed among pups of smaller packs. The densities of the dhole's prey namely chital, sambar (*Cervus unicolor*) and black naped hare (*Lepus nigricollis*) were found to be stable across the study period and hence served as a good prey base. It was found that core areas of dhole home ranges had a significantly higher number of chital herds than non-core areas. Areas surrounding chital resting sites and the habitats within the dhole home ranges contained a higher percentage of open habitats.

47. BIODIVERSITY CONSERVATION IN RESTORED CORAL LIMESTONE QUARRIES ON THE KENYAN COAST. BAER, SABINE; Kahumbu, Paula. Lafarge Eco Systems, P.O.Box 81995, Mombasa, Kenya (Sabine.Baer@bamburi.lafarge.com).

East African Coastal Forests are one of the 25 of the world's biodiversity hotspots, supporting one of the highest densities of plant endemism in the world. However, forest loss is considerable, and many of the endemic species are threatened with extinction. This paper presents a unique case of biodiversity conservation in disused coral limestone quarries of a cement plant on the Kenyan coast. A total of approx. 100 ha of disused quarries have been restored into indigenous coastal forest ecosystems over the last 30 years; the restoration area is increasing as mining continues. Initially *Casuarina equisetifolia* is planted as pioneer species to colonize the open quarry, and over the years create humus from leaf litter and a suitable microclimate for other plant species to grow. *Casuarina* plantations are thinned to create room for the introduction of indigenous coastal vegetation. Over the last 15 years more than 400 coastal plant species have been introduced into the mature *Casuarina* plantations. While the main aim is to create diversity, special emphasis is laid on timber trees and threatened species. 31 threatened plant species have been established successfully, 11 of them producing seeds. The restored forests are used as demonstration site for local communities.

48. BLACK RHINOCEROS BROWSING FACILITATES RESOURCE AVAILABILITY: IMPLICATIONS FOR DONOR POPULATION MANAGEMENT. BAGGALLAY, THADAIH; Linklater, Wayne L.; Owen-Smith, Norman; Swaisgood, Ron R. Centre for African Ecology, University of Witwatersrand, School of Animal, Plant & Environmental Sciences, Jan Smuts Avenue, Private Bag 3, Witwatersrand, Johannesburg 2050, South Africa. tbaggallay@yahoo.com (TB, NOS). School of Biological Sciences, Victoria University of Wellington, P.O. Box 600, Wellington, New Zealand, and Terrestrial Ecology Research Unit, University of Port Elizabeth, South Africa (WLL). Conservation and Research for Endangered Species, Zoological Society of San Diego, P.O. Box 120551, San Diego, CA92115, USA (WLL, RRS).

Up to 27 black rhinoceros (*Diceros bicornis*) have been removed each year since 1980 from Hluhluwe-iMfolozi Park (HiP), South Africa, for introductions elsewhere and to encourage compensatory reproduction in this strategically important donor population. However, HiP's population has not responded positively to reduced densities; population size and fecundity appear static. Perhaps substantial removals actually reduce habitat quality by allowing trees to out-grow rhino reach because browsing controls tree height and encourages coppicing? We measured black rhinoceros browsing on eight preferred food species and compared them in areas of high and low removals. Black rhino select for browse