

Nevin, Owen ORCID: <https://orcid.org/0000-0003-3513-8053> and Gilbert, Barrie K. (2005) Should the relationship between population viability and habitat quality prompt a paradigm shift in carnivore conservation: a case study with bears. In: 19th Annual Meeting of the Society for Conservation Biology, 15-19 July 2005, Universidade de Brasilia, DF, Brazil. (Unpublished)

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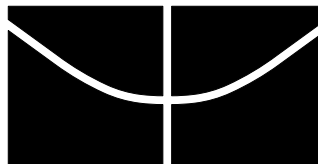
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# 19<sup>th</sup> Annual Meeting of the Society for Conservation Biology

## BOOK OF ABSTRACTS



Universidade de Brasília

**Universidade de Brasília  
Brasília, DF, Brazil**

**15<sup>th</sup> - 19<sup>th</sup> July 2005**

South Africa, jnel@csir.co.za (JLN, DJR, GM, BR, LS); ESJ Dolar Consulting CC, 75 Mountain Breeze Crescent, Pine Acres, Gordon's Bay 7140, South Africa (ESJ); Institute for Water Quality Services, Department of Water Affairs and Forestry, Private Bag X313, Pretoria 0001, South Africa (JM, NK); Botany Department, University of Port Elizabeth, PO Box 1600, Port Elizabeth 6000, South Africa (JA).

This study presents a regional planning framework which provides guidance on how many rivers and estuaries are required to ensure adequate representation and persistence of inland water biodiversity in the region, and which are the most appropriate. A systematic conservation planning approach was used, which included spatial analysis of inland water biodiversity pattern, biodiversity processes and ecological status, in conjunction with explicit conservation targets. Physical "signatures of river heterogeneity", which characterised river reaches according to geomorphological and hydrological descriptors, were used to represent biodiversity pattern of river ecosystems across the landscape. Key landscape-level biodiversity processes were also spatially defined and included in the design of the conservation plan. The ecological status of river ecosystems included an assessment of both riparian and instream integrity. Estuaries were assessed in terms of representation of biodiversity pattern and process, ecological status, protection status and importance in biodiversity processes. Using these spatial data layers of biodiversity pattern, process and integrity in conjunction with explicit targets, different design options for achieving biodiversity representation as well as persistence were considered, taking into account aspects of implementation.

**619. THE AMAZON IN AN AGE OF AGRO-INDUSTRIAL EXPLOSION: RISKS AND OPPORTUNITIES FOR LARGE-SCALE CONSERVATION.** NEPSTAD, DANIEL. Woods Hole Research Center, PO Box 296, Woods Hole, MA 02543 USA IPAM, Av. Nazare 669, Belém, Pará, 66.035-170, Brazil UFPa/NAEA, Campus do Guama, Belém, Pará, Brazil.

The Amazon Basin has entered a new era of natural resource destruction as the principle industries driving deforestation (cattle ranching and soybean farming) are strengthened by expanding world markets for open-range beef and grain through complex economic "teleconnections". The paving of highways into the heart of the region will facilitate the export of Amazon products to world markets as it creates new corridors for explosive frontier expansion. These mounting threats to the Amazon require large-scale, integrated approaches to conservation that cross traditional disciplinary boundaries. The success of these approaches will depend upon (1) conservation analyses that describe the complex interactions among ecosystems, economies, and climate that will unfold into the future, (2) regional conservation planning processes that diminish the environmental destruction of frontier expansion along emerging highway corridors, and (3) the transformation of grain and beef production industries into proponents of Amazon conservation using a combination of market-based instruments and improved government regulation. These three components of large-scale conservation are emerging in the region.

**620. SHOULD THE RELATIONSHIP BETWEEN POPULATION VIABILITY AND HABITAT QUALITY PROMPT A PARADIGM SHIFT IN CARNIVORE CONSERVATION - A CASE STUDY WITH BEARS.** NEVIN, OWEN T.; Gilbert, Barrie K. Centre for Animal Conservation, University of Cen-

tral Lancashire, Penrith, Cumbria CA11 0AH, United Kingdom, onevin@uclan.ac.uk (OTN). Forest Range and Wildlife Sciences, Utah State University, Logan, Utah 84322, USA, bgilbert@cc.usu.edu (BKG).

For many species, reliable evaluation of foraging habitat requires measurement of a multitude of variables. Bears, however, provide a unique opportunity to integrate all these variables into a single measure: salmon consumption. As with Van Horne's measure of habitat quality ( $Q_j$ ), consumption of salmon affects fecundity, age at first reproduction and survival probability. Our analysis revealed a highly significant ( $p=0.005$ ) negative relationship between minimum viable population and food availability/habitat quality lending empirical support to the conceptual form of this relationship proposed by Van Horne. Understanding the relationship between habitat quality and minimum viable population has important implications for conservation area design and the dominant paradigm of carnivore conservation, which emphasizes large areas with little or no human access, may in fact be a poor model for conservation efforts. The historic emphasis on the need for large areas has led to the protection of low productivity sites. This study shows that changes in habitat quality have the greatest impact on the viability of populations in poor or marginal habitat. We therefore suggest that pursuit of the current paradigm through the preservation of large, low productivity areas will be insufficient to ensure the long-term viability of populations of large carnivores.

**621. ACHIEVING SOCIOECONOMIC RECOVERY AND BIODIVERSITY RESTORATION OBJECTIVES THROUGH GRAY WHALE REINTRODUCTION.** Nevin, Owen T.; RAMSEY, ANDREW D. Centre for Animal Conservation, University of Central Lancashire, Penrith, Cumbria CA11 0AH, United Kingdom, onevin@uclan.ac.uk.

This paper presents an ecological and socioeconomic case for the reintroduction of the Gray whale (*Eschrichtius robustus*) to the North Atlantic from the harvestable surplus in the eastern north Pacific. The Gray whale population in the eastern North Atlantic was hunted to extinction in the 17th century. A similar fate almost befell the eastern north Pacific population; however this population has demonstrated a dramatic recovery. European and UK legislation state objectives to 'protect and conserve the ecosystems and the biological diversity of the maritime area, and to restore, where practicable, marine areas which have been adversely affected'. In addition, this reintroduction has broad public support. In a questionnaire based survey 90% of respondents were in favour of Gray whale restoration, compared to only 56% for both grey wolf and brown bear. Successful reestablishment will contribute to the redevelopment of deprived coastal communities through sustainable ecotourism; 81% of respondents would be willing to take a trip to see Gray whales while 53% would add an extra day to their trip. Whilst the proposal appears controversial, there are fewer potential negative impacts of this reintroduction than would be associated with the reintroduction of several terrestrial mammals.

**622. LEAST-COST CORRIDORS BASED ON MULTIPLE FOCAL SPECIES ARE ROBUST TOOLS FOR CONSERVATION PLANNING.** Newell, Shawn L.; BEIER, PAUL. Center for Environmental Science and Education, Northern Arizona University, Flagstaff, AZ 86011 USA (SLN). School of Forestry, Northern Arizona University, Flagstaff, AZ 86011, paul.beier@nau.edu (PB).

Least Cost Corridor (LCC) Analysis is a GIS-based tool in planning wildland networks. We used sensitivity analysis to determine