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USE OF AN ARTIFICIAL HEDGEROW AS FLIGHT PATH BY AN ENDANGERED BAT SPECIES: A FIELD EXPERIMENT AND ITS IMPLICATIONS FOR CONSERVATION

In a fragmented landscape animals have to cross unsuitable habitat. Slow flying bat species often commute in the cover of vegetation corridors, probably to avoid predators. Can newly created linear structures be used as corridors so as to direct bats over green bridges? We connected a roost of the endangered bat species *Rhinolophus hipposideros* to its main forested foraging ground by installing a 200 m long linear structure of bushes in containers, so as to provide a cover between roost and woodland. Bats' use of this structure was monitored with

ultrasound detectors and IR-video equipment.

Over the six weeks of the experiment a significantly increasing amount of the bat population (n=300 individuals) used the newly offered flight path. However, the maximum proportion of bats following the corridor was 20% (mean \pm SD = 12 \pm 2%). Bats flying towards the new hedgerow emerged earlier and returned later to the roost than those bats using another flight path. By enabling the bats to extend feeding activity at dusk and dawn the «artificial hedge» may exert a positive effect on bat energetic balance and, ultimately, fitness, especially since insect prey abundance peaks at that time of the day. Newly created corridors may thus be readily used by bats and function as «time and energy optimizers».

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GLOBAL CLIMATE CHANGE AND MAMMALIAN SPECIES DIVERSITY IN U.S. NATIONAL PARKS

National Parks and bioserves are key conservation tools used to protect species and their habitats within the confines of fixed political boundaries. This may be their 'Achilles Heel' as conservation tools in the face of emerging global-scale environmental problems such as climate change. Global climate change, brought about by rising levels of greenhouse gases, threatens to alter the geographic distribution of many habitats and their component species. With these changes comes great uncertainty about the future ability of parks and protected areas to meet their conservation mandates. We report here on an analysis aimed at assessing the extent of mammalian species turnover that may be experienced in eight selected US National Parks if climate change causes mammal species within the continental USA to relocate to new geographic locations. Due to species losses of up to 20% and drastic influxes of new species, National Parks are not likely to meet their mandate of protecting current biodiversity within park boundaries. This approach represents a conservative prognosis. As species assemblages change, new interactions between species may lead to less predictable, indirect effects of climate change, increasing the toll beyond that found in this study.

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THE LONG-TERM, RANGE-WIDE DECLINE OF A ONCE HYPER-ABUNDANT CARNIVORA: THE EASTERN SPOTTED SKUNK

The eastern spotted skunk (*Spilogale putorius*) was once an economically important furbearer in the United States, with consistent range-wide harvests of 100-200,000 animals/yr. In the 1940s, however, populations seemingly crashed, and the species is currently considered endangered, threatened, or of concern across much of its range. We examined long-term harvest records from 12 states to better understand the 20th century history of the species, to discern whether the perceived decline was biologically real or an artifact of altered harvest pressures, and to identify the timing of the decline. Harvest records reveal unequivocally that the species was common in the Great Plains in the first third of the century. Beginning in about 1940, harvests in these states began to dramatically crash, although declines commenced at different times in each state. By the early 1950s total harvests were <10% of pre-crash numbers. Thereafter, rates of decline slowed, but nonetheless continued, such that by the 1980's harvests were <1% of those during pre-decline years. Analyses show that these declines are real and not an artifact of harvest effort. Although causes of these declines remain unclear, these analyses suggest a need for immediate attention to address the long-term persistence of this species.

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ECOLOGICAL MONITORING OF WORLD FAMOUS KAZIRANGA NATIONAL PARK (INDIA) WITH SPECIAL REFERENCE TO COSERVATION STRATEGIES OF RHINOCEROS UNICORNIS

Kaziranga National Park of Assam (India), is identified as one of the World Heritage sites because of its largest population of One horned Rhinoceros and several other endangered mammals. The question is whether or not these resources can be sustained in the future. Specially, the One horned Rhinoceros, which is killed for its horn, has become an endangered

species. A study was conducted to find out the habitat utilization pattern of Rhinoceros. A vehicle drive was followed to measure the number of sighting and the habitat utilization pattern covering four seasons. Study has revealed that rhino was found more frequently in waterlogged grassland habitat for feeding and wallowing activities. However, those wetlands, which are densely covered with water hyacinth and lantana, have got less frequency of rhinoceros. Besides, it has been found that large areas of the park are infested with Mimosa, which further eliminating the grassland habitat the prime source of food for Rhinoceros. An immediate clearance of water hyacinth, lantana and Mimosa should be done for conservation of the rhino habitat. Uprooting of tree sapling is required to maintain grassland ecosystem. Broad-based conservation education programs, designed to diffuse conservation information to the public, must become an important priority.

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STATUS OF TIGERS, PREY, AND HUMAN-CARNIVORE CONFLICT IN THE NAM ET - PHOU LOUEY
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Unique to Indochina, Laos contains extensive habitat for tiger and their prey, although the abundance or distribution of these populations remains unknown and killing of tigers in response to human-carnivore conflict is largely unmanaged. To design management strategies to alleviate this problem, we examined abundance and distribution of tiger and prey species in the 4200 km² Nam Et -Phou Louey National Protected Area (NPA) on the Laos-Vietnam border, which reports a relatively high incidence of large carnivore attacks on livestock. We did intensive random camera-trap sampling of large carnivores and prey and collected baseline data on incidents of large carnivore depredation of livestock in NPA villages. Tigers as well as several other large carnivores were recorded in all sampling blocks. Large ungulates were found in relatively low numbers compared to smaller prey that was distributed more widely. An average of two large livestock were lost per village per year with most kills occurring when livestock were fenced away from the village to protect crops. Results contribute to management recommendations to address lack of prey and animal husbandry practices that likely underpin problems of human-carnivore conflict.

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UNGULATE DYNAMICS IN THE RUSSIAN FAR EAST: IMPLICATIONS FOR TIGER CONSERVATION

Consensus among tiger biologists suggests that enhancing and monitoring the tiger's prey base is perhaps the single most important task facing tiger conservation today. Sikhote-Alin Biosphere Reserve in the Russian Far East is an important area for conservation of the Amur tiger *Panthera tigris altaica*. Despite long term records from winter track surveys in this area, the densities, spatial and temporal dynamics of ungulates (the principal prey of tigers) are not fully understood. We used data on daily movements of ungulates and over 40 years of results from winter track surveys, to estimate ungulate populations and their changes over time within and outside the Reserve. Here we show that four species of ungulate (including the two most commonly preyed on by tigers, red deer *Cervus elaphus* and wild boar *Sus scrofa*) have increased significantly within the reserve over the past 40 years but remain at very low densities outside reserve boundaries. Our results have implications both for the continued surveying of ungulates in the area, and for the management of tiger habitat within and outside the Reserve. In particular, management aimed at promoting tiger conservation across the region must tackle the causes of a depauperate prey-base outside protected areas.

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