Animal Behavior Society ABS Conservation Committee

The Conservation-Behaviorist

Electronic news update from the Animal Behavior Society Conservation Committee, a biannual communication. Vol 1, No. 1, May 2003

http://pazymino.freeyellow.com/TheConservationBehaviorist.html

Right from the oven:

ABS Student Research Grant for Conservation Award

The Animal Behavior Society and the Conservation Committee announce the creation of the **Student Research Grant for Conservation Award**. This award seeks to encourage students of animal behavior to participate in meaningful conservation-related research. The award will be part of the ABS Student Research Grant Program and it will support a proposal considered meritorious for its science and its conservation component.
(see Award page 2).

Conservation Tips By Dan Blumstein

Is there anything a behaviorist can do to help conservation?

Study an endangered species. Much of endangered species management is a quest for knowledge about the behavior and ecology of rare species. Decisions are routinely made with remarkably limited data, and not always by those trained in the scientific method. By studying endangered species you can contribute to this needed dataset. More importantly, as a scientist, you should bring needed rigor to your studies and conclusions.

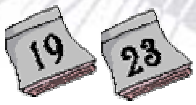
Articles

Contribution of Animal Behavior Research to Conservation Biology*

By Guillermo Paz-y-Miño C.

Behavioral research encompasses the study of the physiological and sensory mechanisms that control behavior, the development or ontogeny of behavior, and the function and evolution of behavior. Conservation biologists have debated about these paradigms for decades, at times not realizing that their discussions have contributed directly or indirectly to the area of animal behavior and conservation. To assess the contribution of behavioral paradigms in conservation studies, I identified and evaluated 277 articles (N=1631) published in Conservation Biology between 1987 and 2002 that were directly related to animal behavior and conservation. Four main areas of behavioral research were commonly addressed in these studies: dispersal and settlement, reproductive behavior and social organization, species interactions, and foraging/feeding and pollination. These areas have helped biologists to understand and alleviate conservation problems such as extinction of endangered species and biodiversity loss, habitat destruction and ecosystem management and restoration (see Behavior and Conservation page 2).

Calendar



19-23 July 2003 Animal Behavior Society meetings, Boise State University, Idaho. The Conservation Committee will meet in Boise (details to be announced). We invite all ABS members to join us and become part of our activities.

Award

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This funding opportunity will become available for the 2003-2004 period. For additional information contact Guillermo Paz-y-Miño C., Chair ABS Conservation Committee, School of Biological Sciences, University of Nebraska-Lincoln, 348 Manter Hall, P.O. Box 880118, Lincoln, NE 68588-0118, USA. Phone (402) 472-1283, Fax (402) 472-2083 pazymino@unlserve.unl.edu

Thanks to:

ABS Research Grant for Conservation donors: Allison C. Alberts, Janine Clemmons, Missy Fleming, Cully Nordby, Guillermo Paz-y-Miño C., Frank von Hippel

Behavior and Conservation

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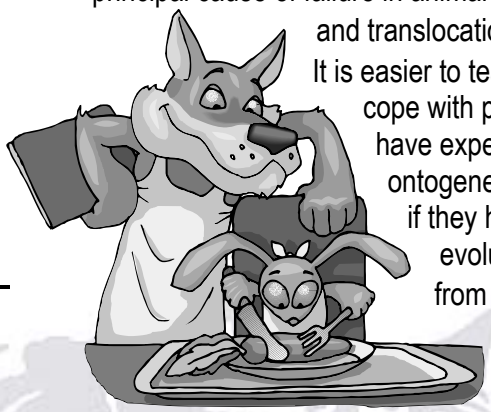
Areas of behavioral research that still need development and that have not yet been applied to conservation in a significant manner include: cognition (perception, learning, decision making, information processing), genetic variability and behavior (biodiversity, behavioral diversity, population genetics and behavior), behavioral endocrinology and physiology (hormones and behavior, physiological traits and behavior), animal communication (information sharing, vocalization, signaling) or behavioral evolution (speciation and behavior, reproductive isolation, tradition = culture, phylogenies and behavior). The full impact of large-scale environmental problems (i.e. global warming, ozone depletion, pollution, mass extinctions) on animal behavior, particularly transcontinental and altitudinal migrations or population cycles, remains unknown.

The data indicate that, in the short-term, the experimental design for a most effective study in behavioral conservation should include (1) more than one endangered species that (2) interact and live in fragmented or degraded habitats, and that (3) need imminent management to prevent their extinction. This sinecological study in behavioral ecology should focus on (4) species interactions, particularly predator and anti-predator behaviors, territoriality, and competition for food, mates and nest sites; (5) reproductive behavior and social organization, including not only parental care and cooperation/helping, but also mating systems, mate choice, and kinship; (6) dispersal and settlement, particularly phylopatry or emigration, habitat selection, establishment and home range; and (7) foraging and feeding strategies. Because habitat fragmentation and degradation are the sources of most conservation problems worldwide, current studies in behavioral conservation may be most valuable when conceptualized and conducted under patch-dynamic theory (including patch size, edge effects, patch-matrix interactions, landscape composition, and connectivity), population viability principles applied to fragmented areas (i.e. effective population size, inbreeding depression, extinction), as well as species diversity (both biodiversity and behavioral diversity) and abundance.

* From the ABS Newsletter 48 (1): 1-2. With permission from ABS Newsletter editors.

Did you know that

(1) animals that have been isolated from predators, either throughout their lifetime or over evolutionary time, may no longer express appropriate anti-predator behavior. **(2)** Mortality due to predation is the principal cause of failure in animal reintroduction and translocation programs. **(3)** It is easier to teach animals to cope with predators if they have experienced ontogenetic isolation than if they have undergone evolutionary isolation from predators. **(4)** Learning theory principles can be used to predict which anti-predator responses can be enhanced or recovered by training animals prior to their reintroduction into the wild or translocation into new habitats. **(5)** Anti-predator training techniques involve classical conditioning procedures in which animals learn that model predators are predictors of aversive events.



(see Griffin et al. 2000, Bunin & Jamieson 1996, Stone et al. 1994 in Interesting Articles page 4).

Interact with the Conservation Committee

Send letters, comments and contributions to
The Conservation-Behaviorist
pazymino@unlserve.unl.edu
Deadlines for articles are the 15th of the month preceding the next news update. The next deadline is **October 15th**. Contributions submitted by members of the Animal Behavior Society and judged by the Conservation Committee to be appropriate will be published in The Conservation-Behaviorist. The publication of such material does not imply ABS or Conservation Committee endorsement of the opinions expressed by contributors.

Editor Guillermo Paz-y-Miño C.
Associate Editor Allison C. Alberts

Farewell and thanks to Rich Buchholz for his contribution to the Animal Behavior Society Conservation Committee. Rich was appointed chair of the committee in 1997. His role has been fundamental to fulfill the committee's mission: *"encourage ABS members to participate in research programs addressing the interface between animal behavior and conservation science".* In previous years, when the Conservation Committee was an *ad-hoc* group of enthusiasts interested in conservation-related research, Jim Ha (current ABS program officer) also played an instrumental role in organizing this team and making it an "official" committee within ABS. Thanks to our former chairs Rich and Jim for their efforts, and good luck to Guillermo Paz-y-Miño C., new chair.

Members

The ABS Conservation Committee was created in 1997. One of its goals is to encourage society members to participate in research programs addressing the interface between animal behavior and conservation science. Our members are interested in a variety of topics, including behavioral ecology, behavior and evolution, cognitive ethology, wildlife management, and conservation policy. Current and past committee members include Allison Alberts, Dan Blumstein, Rich Buchholz, Janine Clemmons, Corey Fincher, Missy Fleming, Elizabeth Gray, Jim Ha, Peg Halloran, Cully Nordby, Guillermo Paz-y-Miño C., Bruce Schulte, Sharoni Shafir, Debra Shier, Frank von Hippel, Joseph Wahome.

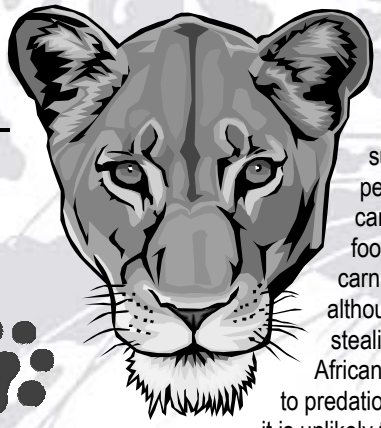
Editor's Favorites

Selection in captivity can lead to rapid changes in critical life-history traits

Heath et al. (*Science* 299: 1738-1749, 2003) indicate that captive breeding and release programs, widely used to supplement populations of declining species, minimize juvenile mortality to achieve rapid population growth. However, raising animals in benign environments may promote traits that are adaptive in captivity but maladaptive in nature. In chinook salmon, hatchery rearing relaxes natural selection favoring large eggs, allowing fecundity selection to drive exceptionally rapid evolution of small eggs. Trends toward small eggs are also evident in natural populations heavily supplemented by hatcheries, but not in minimally supplemented populations. Unintentional selection in captivity can lead to rapid changes in critical life-history traits that may reduce the success of supplementation or reintroduction programs.

Carnivores' complex co-existence

Caro and Stoner (*Biological Conservation* 110: 67-75, 2003) point out that the general importance of interspecific competition as an ecological factor for carnivores is unknown and its conservation significance may have been inflated by intensive research conducted on a few vulnerable species. These authors examined the potential for interspecific competition across carnivores on one continent, Africa, by calculating, for each of 70 carnivore species, the number of other carnivore species that overlapped it in geographic range, habitat, and diet, and that could potentially kill the species in question. The average carnivore in Africa shares some of its geographic range and habitat with 26 other species suggesting competition could be pervasive. More specifically, carnivores may have to share food resources with 22 other carnivore species, on average, although the potential for food stealing is far lower. The average African carnivore may be vulnerable to predation by 15 other species although it is unlikely to be eaten by other carnivores. These analyses indicate that exploitative competition and interspecific killing are of potential widespread importance for a large number of carnivores in Africa, rather than being restricted to a few selected carnivores highlighted in the current literature.



(see Editor's Favorites page 4)

Editor's Favorites

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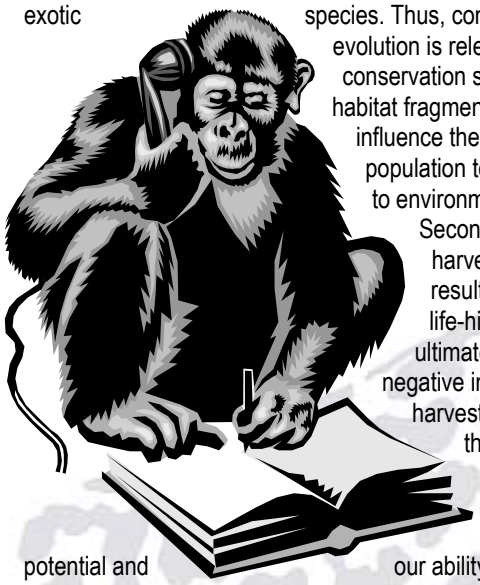
"Contemporary Evolution": a new paradigm in conservation science?

Stockwell et al. (*Trends in Ecology and Evolution*: 18, 94-101, 2003) "challenge conservation biologists to consider evolution in the short term rather than just in the long term". The authors mention that recent research has revealed that evolution often occurs on contemporary timescales. Contemporary evolution is associated with the same factors that are driving the current extinction crisis: habitat loss and degradation, overharvesting and exotic species. Thus, contemporary evolution is relevant to many conservation situations. First, habitat fragmentation might influence the potential of a population to adapt in response to environmental degradation. Second, certain harvesting strategies can result in the evolution of life-history traits, ultimately resulting in negative impacts on harvestable yield. Third, the establishment of exotic species can be influenced by their adaptive potential and our ability to limit that potential. Furthermore, contemporary evolution is of concern for intensively managed species, because it might reduce their fitness in native habitats. Ultimately, contemporary evolution is influenced by complex interactions among population size, genetic variation, the strength of selection, and gene flow, making most management scenarios unique. In a world filled with contemporary evolution, conservation efforts that ignore its implications will be less efficient and perhaps even risk prone.



Interesting Articles

Anthony, L. L. & Blumstein, D. T. 2000. Integrating behaviour into wildlife conservation: the multiple ways that behaviour can reduce *Ne*. *Biological Conservation*, **95,** 303-315.

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Caro, T. M. & Stoner, C. J. 2003. The potential for interspecific competition among African carnivores. *Biological Conservation*, **110,** 67-75.

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Griffin, A. S., Blumstein, D. T. & Evans, C. S. 2000. Training captive-bred or translocated animals to avoid predators. *Conservation Biology*, **14,** 1317-1326.

Heath, D. D., Heath, J. W., Bryden, C. A., Johnson, R. M. & Fox, C. W. 2003. Rapid evolution of egg size in captive salmon. *Science*, **299,** 1738-1740.

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Stone, P. A., Snell, H. L. & Snell, H. M. 1994. Behavioral diversity as biological diversity: introduced cats and Lava Lizard wariness. *Conservation Biology*, **8,** 569-573.

Sutherland, W. J. 1998. The importance of behavioral studies in conservation biology. *Animal Behaviour*, **56,** 801-809.

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