

WILDLIFE HABITUATION—ADVANCES IN UNDERSTANDING AND MANAGEMENT APPLICATIONS

Annual Meeting of the Wildlife Society

September 27, 2005

8:00-12:10

1) 8:00-8:40 – Habituation of wildlife to humans: research and recreation opportunity and common curse for wildlife and hapless humans

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HABITUATION OF WILDLIFE TO HUMANS: RESEARCH AND RECREATION
OPPORTUNITY AND COMMON CURSE FOR WILDLIFE AND HAPLESS HUMANS

Valerius Geist

Abstract: Habituation of wildlife is a double edged sword. It has been enormously useful in studying and filming free-living animals in their natural environment and providing a recreational opportunity. However, it is also a source of mortal danger to its practitioners, to habituated animals, as well as to hapless third parties. Attraction - or positive habituation, in which wildlife seeks out the presence of humans in order to benefit from food, shelter and security, heightens the risk to both animals and humans. It also poses unique management and public relations problems for government agencies. Avoidance – or negative habituation in which human activities lead to a systematic aversion of humans by wildlife also has benefits and costs. It allows us to use natural sites freely for recreation purposes without danger from wildlife. However, this can result in physiologic costs, lost opportunities for foraging, and loss of important areas of habitat. Distinct from attraction or avoidance, habituation as we will use it in this symposium, is a waning response to a repeated neutral stimulus. Habituation allows recreationists and researchers to observe and record typical behaviors of wildlife in natural settings. It can be unsafe unless the practitioner has a fair understanding of the signals communicated by the habituated species. Further, habituation is not without subtle costs to animals, as indicated by elevated heart rates in behaviorally habituated mountain sheep. Moreover, misinterpretation of habituation has played a role in confrontations between large predators and humans, to the detriment of large predators, particularly in national parks and in rural areas. In the last century wildlife was restored continentally bringing large prey and predators to our places of residence and work. In order to coexist with large mammals, especially large predators, we must better understand the human and the wildlife role in habituation.

2) 8:40-9:00 – Physiological measures of wildlife habituation

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CONSIDERATION AND USE OF PHYSIOLOGICAL MEASURES TO ASSESS COSTS OF WILDLIFE HABITUATION

Joshua J. Millspaugh, E. Frances Cassirer, Kerry Gunther, and Brian E. Washburn

Abstract: In many national parks and protected areas, wildlife become habituated to high levels of human activity. On National Park lands, trumpeter swans and large mammals such as grizzly bears, black bears, wolves, coyotes, bison, elk, pronghorn antelope, and bighorn sheep commonly habituate to people. In African parks, elephants and other wildlife tolerate people and vehicles at close distances. Although negative consequences of habituation are often described, there are some benefits to humans and wildlife. Habituation increases wildlife viewing opportunities for park visitors, which provides economic returns and in turn promotes conservation of species such as elephants. Habituation to human activity may also increase the amount of habitat available for wildlife that must share space with people and may allow protection from non-habituated predators. However, despite these tangible benefits, we should also consider less obvious but potentially important impacts to wildlife, such as physiological costs (e.g., stress). Physiological measures may forewarn of possible behavioral modification (e.g., reduced visibility) and therefore help us understand whether animals experience less visible impacts from habituation and human interaction. In this paper we discuss case studies from Yellowstone National Park and South African National Parks that highlight the benefits of habituation to humans and wildlife. We also describe the use of physiological measures, such as stress hormones in feces, when considering the impacts of habituation and discuss “stress” as related to wildlife. We conclude with a critical review of methods to evaluate physiological responses in wildlife with an emphasis on non-invasive procedures. We believe that physiological measures complement behavioral data by providing a means to evaluate subtle costs associated with habituation.

3) 9:00-9:20 – The quandary of wildlife habituation in a national park setting

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THE QUANDRY OF WILDLIFE HABITUATION IN A NATIONAL PARK SETTING
Dave Graber, Steve Gniadek, Deborah Jansen, and Les Chow (*Coauthors still uncertain*)

Abstract: People visit national parks and similar preserves in very large part to view animals. Habituation makes that viewing easier and often more pleasurable, and increases the opportunity to observe natural wildlife behavior indifferent to viewer presence. There are in many cases, however, disadvantages to habituation, either to the animals in question or to people. For example, cougars (*Puma concolor*) have been observed to habituate in some parks, resulting in dangerous proximity to children, which are potential prey. Not infrequently, the benefits and costs of habituation are confounded. This is notably the case with large cervids such as elk (*Cervus elaphus*) or moose (*Alces alces*), or large carnivores such as black and brown bears (*Ursus americanus*, *U. arctos*). These species all have the potential to become habituated to park visitors, providing for more viewing opportunities and reduced likelihood of accidental encounters leading to defensive aggression. On the other hand, by permitting frequent close proximity of humans to these large animals, naive actions by people often lead to injury to one species or the other. If such proximity occurs in developed areas, it can lead to increases in collisions with motor vehicles or inadvertent entry into structures. Moreover, habituation and resulting close proximity all too often lead in turn to anthropogenic food, whether intentionally provided or inadvertently so. Lastly, habituation may be considered to reduce “wildness,” which many consider an important element of national parks. On the other hand, where avoidance of humans is the result of human predation, habituation in a park setting might be construed as a more desirable inter-specific relationship. Such a view, however, will unavoidably result in rare encounters between humans and wildlife that are serious and sometimes fatal.

4) 9:20-9:40 – Psychological bases for human behavior leading to wildlife habituation

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PSYCHOLOGICAL BASES FOR HUMAN BEHAVIOR LEADING TO WILDLIFE HABITUATION

Tommy L. Brown, Sandra A. Jonker, Cynthia A. Jacobson, and Daniel J. Decker

Abstract: The “causes” of habituation typically are tied directly or indirectly to interactions of wildlife with humans or human environments. Most discussions of wildlife habituation are concerned in part about human activities that lead to habituation; i.e., human behavior that leads to changes or responses in wildlife behavior. Thus, a comprehensive treatment of the topic of wildlife habituation includes understanding human behavior with respect to wildlife and related facets of the natural environment. This specialized area of inquiry is encompassed within the human dimensions of natural resources management. Over the last 30 years, social scientists have learned much about the social psychology of humans and their interactions with wildlife, in habitats that often are shared with wildlife. Studies of values, beliefs, attitudes, and norms have revealed insight regarding how people think about and care to interact with wildlife. This paper will review these concepts, and apply them to address two questions: *Which human beliefs, attitudes and behaviors may contribute to wildlife habituation (and which do not)? How might social norms promote or hinder human behavior that leads to habituation?* Exploring these questions may reveal insights about how policy and management could affect the human bases for wildlife habituation.

5) 9:40-10:00 – Habituation of humans to wildlife—A different perspective

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HABITUATION OF HUMANS TO WILDLIFE—A DIFFERENT PERSPECTIVE

Harry C. Zinn, Michael J. Manfredo, and Daniel J. Decker

Abstract: The focus of inquiry about wildlife habituation has been on the physiology and behavior of wildlife with respect to interactions with humans and human-dominated environments. However, if policy and management concerns are paramount, it may be important to take a broader view of habituation. We believe that a human-centric rather than wildlife-centric perspective leads to a question, *do people habituate to wildlife?* Furthermore, *can wildlife habituate to humans without human habituation to wildlife?* No study we are aware of has addressed this topic directly, so we approach it by assuming that humans can habituate to wildlife and then seeking evidence for the phenomenon. A simple stimulus-response framework can explain wildlife habituation to humans, but human learning is far more complex. Therefore, we look for ways that different human learning processes and opportunities might influence values, risk perception, wildlife acceptance capacity, and habituation to wildlife. For example, to what extent can different learning processes and opportunities explain why some people interpret a human-wildlife interaction positively while others interpret the same interaction negatively? Similarly, to what extent can different learning processes and opportunities explain why people sometimes form strikingly disparate perceptions of risk from human-wildlife interactions? And, how might individual differences in the interpretation of interactions and perception of risk reflect habituation to wildlife? Finally, and of particular importance to wildlife managers, *does human habituation to wildlife result in higher objective risk of negative impact to or from wildlife?* We do not have definitive answers to these questions. Our intent is to stimulate thinking about wildlife habituation from an unconventional perspective, one that we hope will augment the wildlife-centric perspective that has traditionally been brought to bear on habituation issues.

10:00-10:30 – BREAK

6) 10:30-10:50 – Wildlife habituation: A source of social conflict for wildlife management agencies

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WILDLIFE HABITUATION: A SOURCE OF SOCIAL CONFLICT FOR WILDLIFE MANAGEMENT AGENCIES

James C. deVos, Jr

Abstract: One consequence of an ever-growing human population in the United States is conversion of formerly intact wildlife habitat to areas of human concentration. This in turn increases the frequency of wildlife-human encounters that are often neutral or positive to wildlife. Positive encounters result when humans provide resources such as access to food resources, either purposely via wildlife feeders or inadvertently by planting vegetation consumed by wildlife or by poor garbage and pet food management. Both of these situations facilitate habituation of wildlife to humans, and in some cases, human habitation to wildlife. As mutual habituation occurs, both people and wildlife can benefit. People tend to benefit from increased contact with wildlife; a situation that may be limited to many urbanites. Wildlife can also benefit as additional food and water resources are available. Conversely, both wildlife and people can have negative consequences from the habituation. There is concern that wildlife can be exposed to pathogens at a higher rate as they are concentrated at sources such as backyard drinkers or feeding stations. Wildlife that live in urban areas can be more prone to being killed by vehicles. While wildlife such as birds are welcomed in these urban areas, there are many instances where the presence of wildlife such as pumas (*Puma concolor*), bears (*Ursus americanus*), coyotes (*Canis latrans*), collared peccary (*Pecari tajacu*), or white-tailed deer (*Odocoileus virginianus*) are cause for considerable conflict among neighbors. Some humans are thrilled to see these animals and purposely provide food or water to attract them, while others express high concern for injury or loss of human life or pets. Wildlife management agencies are then places squarely in the midst of conflict over management of these issues. Further complicating this management challenge is a growing concern by segments of society that are advocates for animal rights, which in some cases necessitate that wildlife management agencies develop new strategies to manage the conflict over habituated wildlife. There have been several recent or on-going human-wildlife conflicts in Arizona that will be discussed relative to the approach taken to reduce the conflict over habituated wildlife.

7) 10:50-11:10 – Federal protected areas: Perspectives on wildlife habituation, policy and actions

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**FEDERAL PROTECTED AREAS: PERSPECTIVES ON WILDLIFE HABITUATION,
POLICY AND ACTIONS**

William Supernaugh

Abstract: Federal land managers, wildlife biologists and policy officials increasingly must deal not only with the direct issue of wildlife that have become accustomed to human presence but must also contend with the public's reaction to management solutions. Today's wildlife manager must not only possess the administrative familiarity with agency and bureau policy as well as the biological knowledge to describe and implement a prescriptive course of action to deal with habituated wildlife but must also have the ability to work through the public involvement process and understand the sociological biases present in today's society.

Habituated wildlife come in many species and occupy a wide range of environments shared by humans. Well documented incidents involve large numbers of Canada geese present on recreational sites but some surprising examples of habituation such as bighorn sheep in high mountain wilderness areas, and deer at the bottom of the Grand Canyon also occur. The session will present examples of these and other human-wildlife interactions that required management intervention and the public's reaction to it. Successes - and failures – in communicating the necessity of management actions ranging from education and awareness to aversive conditioning, relocation or lethal removal of problem animals will be discussed. Suggested methods for gaining public understanding and support will be shared.

8) 11:10-11:30 – Finding the middle ground for managing habituated wildlife

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FINDING THE MIDDLE GROUND FOR MANAGING HABITUATED WILDLIFE
Colleen Cassady St. Clair, Stephen Herrero, and Thomas E. Hurd

Abstract: The gradual expansion of human populations and infrastructure into wilderness areas inevitably creates opportunities for wildlife habituation. Habituation is most likely when humans value close approaches to wildlife or when habituation is associated with resource acquisition. In such situations, habituation typically generates costs, usually measured as risk, and benefits for both humans and wildlife. Finding the right middle ground — where wildlife exhibit enough tolerance to persist without compromising human, wildlife, or ecosystem health — is a challenge for managers. Identifying a sustainable balance of the costs and benefits of habituation requires three things: (1) use of precise terminology, (2) identification of explicit objectives that set limits for both wildlife and human behaviour, and (3) adaptive management to achieve the stated objectives. We demonstrate aspects of these steps with case studies of brown bears (*Ursus arctos*) in Yellowstone and Alaska, and elk (*Cervus elaphus*) in Banff. In those contexts, we find the term overt reaction distance helpful for quantifying animal tolerance and to assess the potential for habituation, without assuming that habituation is the mechanism of tolerant behaviour. For elk, we use the behavioural measure captured by flight response distance to define a public safety goal that limits the proximity of humans to wildlife. Achieving such goals requires a species- and context-specific prescription of action that can be adjusted to changing information and circumstances. Principles of adaptive management and the dearth of information about the process of habituation in wild animals both encourage more experimental work. Finally, we suggest more generally how the three elements in our approach can be used with diverse taxa to achieve a healthy balance of costs and benefits concerning wildlife habituation.

9) 11:30-12:10 – Wildlife habituation: The dark side, the light side and the prospects (summary and discussion)

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WILDLIFE HABITUATION: THE DARK SIDE, THE LIGHT SIDE AND THE PROSPECTS
R. Bruce Gill

Abstract: Like Greek theater, wildlife habituation has 2 faces, a dark face representing the problems society and wildlife accrue when wildlife habituate and a light face representing the physical and psychological benefits people and wildlife derive from habituated animals. The dark face of habituation is reflected in an abundant professional and popular literature. People have been injured or died from attacks by bears, coyotes, wapiti, moose and other wildlife. Property damage and injuries result when wildlife, such as foxes, raccoons, skunks, and deer, habituate to the extent they invade urban and suburban habitats. Wildlife and human diseases spread more rapidly when habituated wildlife interact with people. Habituated wildlife are prone to injury or death when they no longer regard people or their cultural artifacts as threats to be avoided.

The light face is reflected in the millions of people who enjoy viewing habituated wildlife up close and personal. Birds become so habituated at feeders that they will alight on the feeder while feeders are being recharged. Hummingbirds have been coaxed to land on the fingers of human feeders and have even been banded while otherwise occupied with foraging at artificial feeders. Red foxes, coyotes, even wolves have been known to den in proximity to human residences and business, affording remarkable viewing opportunities. Finally, research into animal behavior has been hugely augmented by the use of habituated wildlife.

Habituation *per se* is neither good nor bad. Rather, the value (negative or positive) of habituation to both people wildlife depends upon context and perception. The future of habituation management will require an objective evaluation of context and perception to encourage habituation when and where it is a benefit and discourage habituation when and where it is a detriment.