



A BIENNIAL NEWSLETTER BY THE ANIMAL BEHAVIOR SOCIETY CONSERVATION COMMITTEE

Vol. 12 / 2014 / Issue #1

The Conservation Behaviorist

Urban Ecology

Impacts of Urbanization on
Bird Behavior and Human
Behavior in Response to
Birds

p2

Investing in the Future

An interview with the 2014
Animal Behavior Society E.O.
Wilson award winner Rachel
Chock

p3

Noise and Marine Mammals

Auditory Communication and
Conservation Research in our
Oceans

p5

New Member Profiles

Meet our New Animal
Behavior Society
Conservation Committee
Members

P8

The ABS Conservation Committee



Committee Members

Chair: **Bruce A. Schulte**
Western Kentucky University
Lisa Angeloni
Colorado State University
Peter Bednekoff
Eastern Michigan University
Debbie Boege-Tobin
University of Alaska Anchorage
Barbara Clucas
Humboldt State University
Esteban Fernández-Juricic
Purdue University
Misty McPhee
University of Wisconsin at Oshkosh
Sarah Mesnick
NOAA Fisheries Service
Noa Pinter Wollman
University of California, San Diego
Debra M. Shier
San Diego Zoo Institute for Conservation Research

Created in 1997, the Conservation Committee aims to encourage ABS members to participate in research programs addressing the interface between animal behavior and conservation science. By identifying and evaluating the areas in which behavioral research has contributed to conservation, as well as the fields that need development, the Conservation Committee seeks to generate discussion and promote studies in behavior and conservation.

Upcoming events and programs

The 51st Annual Conference of the Animal Behavior Society will be held in Princeton, New Jersey, August 9-14, 2014.

International Society of Behavioral Ecology meeting July 31 - August 5, New York City (City University of New York, CUNY)

Student grant program submission deadline this fall, for details see <http://animalbehaviorsociety.org/>

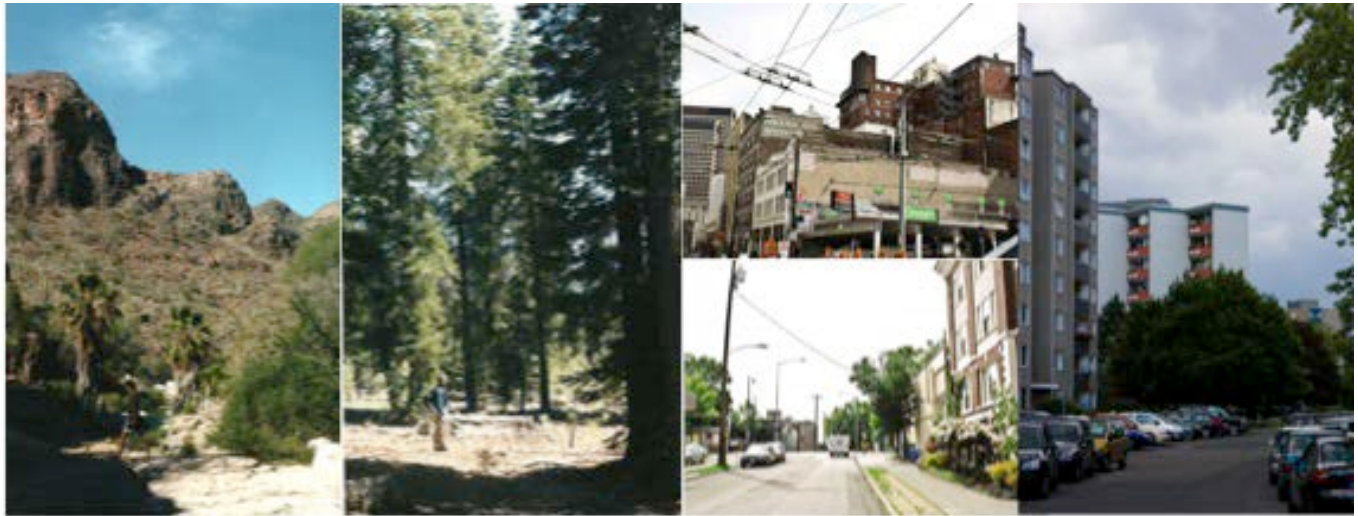


Figure 1. Photographs from the “field”. The two photos on left are in Baja California and Lassen Volcanic National Forest, and on right are sites in Seattle and Berlin (Photo credits: Terry Ord, Jake Clifford and Helena Franke, respectively).

Integrating animal behavior and conservation: Why urban ecology?

By: Barbara Clucas, Humboldt State University

I spent my PhD years studying animal behavior in the “field” which meant out in wild areas from deserts to mountains and forests and away from humans. I was a little hesitant when I took on a postdoctoral position to study human-avian interactions in urban areas – why would I trade my wild study sites for urban ones (Figure 1)? Part of my decision stemmed from a desire to integrate conservation into my research and I knew that would involve studying animals in conflict zones.

Since 2008, over fifty percent of humans live in urban areas and this is only expected to increase. Urban land expansion rates are greater than or equal to urban population growth rates (Seto et al. 2011), which will lead to further conversion of wild areas to urban. As urbanization increases worldwide, conservation biologists will need to consider the impacts on nature - both at the interface of urban and wild areas and within urban areas. While some species thrive in human-modified landscapes, others species go locally extinct. By studying the patterns of diversity and the processes that create them in these urban areas we can begin to understand the impacts of urbanization on nature, but if we want a full understanding of urban ecosystems, we will also have to examine the behavior of urban species, including humans.

The goal of the emerging field of urban ecology is to not just study ‘ecology in the city’ but rather the ‘ecology of the city’ (McDonnell 2011). In order to study urban ecosystems researchers need to investigate the physical, natural and social aspects, which will necessitate collaborations across disciplines. I quickly learned this when I started my postdoc examining human-avian interactions in urban areas. I worked with social scientists (including an economist), ecologists, and ornithologists and I found that combining the input of these experts with animal behavior led to novel questions and approaches and creative study designs.

My postdoctoral research investigated how variation in actions and attitudes of humans towards birds influences avian diversity, abundance and behavior in urban areas. In a large-scale comparative study, I investigated human-avian interactions in Berlin, Germany and Seattle, Washington. The study was conducted across an urbanization gradient in each city and involved two phases: conducting human surveys that asked residents a range of questions concerning their opinions of birds and about

actions directed towards them (such as if they fed birds or if they directed any discouraging behavior towards birds), and assessing bird diversity, species abundances and behavior.

What is urban?

The use of the term ‘urban’ in the scientific literature can be ambiguous and vary geographically. Typically, urban areas are dominated by the built environment (all non-vegetative, human-constructed elements) and have relatively high human population densities. In order to conduct research across disciplines and scales (single city to international), urban areas should be defined by standard quantitative variables (e.g., percent sealed surface)

Humans varied in the ways they interacted with birds between Berlin and Seattle as well as across the urbanization gradient. Berliners were more likely to feed birds and also less likely to discourage birds than were Seattle residents (Clucas and Marzluff 2012). Rural and suburban people provisioned birds more than city dwellers in both cities. In Seattle, residents in rural sites employed relatively high levels of discouraging behavior (e.g., shooting birds) compared to more urban sites. Cultural differences in attitudes towards wildlife may account for these differences in human behavior towards birds (Clucas et al. 2011, Clucas and Marzluff 2012).

At the community level, bird diversity varied across the urbanization gradient. In both Berlin and Seattle, the number of species increased from the city center into dense and light suburban sites, peaking in rural sites and then decreasing in forested sites. This is a common pattern as drastic land cover changes in urban areas filter out many bird species leaving behind few native species and facilitating invasion by exotic species. Suburban and rural areas tend to have higher levels of diversity due to the heterogeneous nature of the land cover. Diversity was again lower in homogeneous forested areas.

Abundances of particular birds varied across the urbanization gradient depending on the species. For instance, crow species reached their highest

abundances in the city centers while other species peaked in suburban or rural sites (Figure 2). The abundances of species that readily use bird feeders were highest in suburban and rural sites. This pattern may not be surprising - as these sites are where residents are most likely to provide food for birds - but it demonstrates the tight coupling of humans and birds that may characterize urban ecosystems.

Bird behavior also varied across the urbanization gradient (Clucas and Marzluff 2012). Flight initiation distances increased from urban to rural sites in both cities. Human discouragement behavior in Seattle also affected flight initiation distances. In contrast to hooded crows (*Corvus cornix*) in Berlin, American crows (*C. brachyrhynchos*) in Seattle showed exaggerated wariness of humans in rural sites where residents employed relatively high levels of discouragement behavior.



Figure 2. On left, a hooded crow takes flight in Berlin. On right, an American crow in an urban Seattle neighborhood.

What I found in Berlin and Seattle provides an interesting picture: it is not only land cover changes that influence birds, but also encouraging

and discouraging behavior by humans. If we delve deeper, I also found that age, income level and home ownership can influence human behavior towards birds. Thus, it will be important to not only look at structural changes in the environment but also include humans (and their behavior) as components of urban ecosystems. Furthermore, rather than focusing only on how humans influence birds, we should study the reciprocal relationships between human and birds (Clucas and Marzluff 2011). Humans can promote the conservation or creation of bird habitat and in turn, birds can provide a window into nature, which can improve human health and well-being. A full understanding combining biological and social components of these reciprocal relationships will increase our ability to conserve and restore urban ecosystems that benefit both humans and birds.

References

- Clucas B and Marzluff JM (2012) Attitudes and actions towards birds in urban areas: human cultural differences influence bird behavior. *Auk*. 129: 8-16.
- Clucas B, Marzluff JM, Kübler S & Meffert P (2011) New directions in urban avian ecology: reciprocal connections between birds and humans in cities. In *Perspectives in Urban Ecology*, pp 167-195 (ed W Endlicher et al.) Springer.
- Clucas B and Marzluff JM (2011) Coupled relationships between humans and other organisms in urban areas. In *Urban Ecology: Patterns, Processes, and Applications*, pp 135-147, (ed. J. Niemelä) Oxford University Press, Oxford, UK.
- McDonnell, MJ (2011) The history of urban ecology: an ecologist's perspective. In *Urban Ecology: Patterns, Processes, and Applications*, pp 5-13, (ed. J. Niemelä) Oxford University Press, Oxford, UK.
- Seto KC, Fragkias M, Güneralp B, Reilly MK (2011) A meta-analysis of global urban land expansion. *PLoS ONE* 6(8): e23777.

RACHEL CHOCK, UNIVERSITY OF CALIFORNIA, LOS ANGELES RECEIVES 2014 E.O. WILSON CONSERVATION AWARD

"I was thrilled! I've been a member of ABS since I was an undergrad and greatly admire E.O. Wilson and his work. I am so excited about the field of conservation behavior and receiving this award is really an honor for me," said Chock on learning that the ABS grant committee chose to fund her proposal "The Role of Interspecific Competition in Reintroduction Biology of the Pacific Pocket Mouse (*Perognathus longimembris pacificus*)". She received the 2014 E.O. Wilson Student Research Grant for Conservation.

Chock's study will examine interspecific competition in a small rodent assemblage in a coastal sage scrub community in Southern California

and use this information to direct reintroduction efforts of one member, the endangered Pacific pocket mouse.

"Rachel's research investigates the effects of interspecific competition on reintroduction success in an endangered prey species, the Pacific pocket mouse", says advisor Debra Shier, Associate Director of Applied Animal Ecology at San Diego Zoo Institute for Conservation Research. "Reestablishing endangered prey is particularly difficult because of the many selective forces that challenge their existence. Much research in reintroduction biology has focused on the effects of predation following release, but there is little understanding about how putative competitors may impact release success. Rachel's research is novel and necessary for improving reintroduction methods. Rachel is an excellent scientist and promises to be a leader in the field of behavior conservation."



Rachel Chock



San Diego Pocket Mouse



Behavioral observations through night vision goggles



PPM at captive breeding program

The Conservation Behaviorist talked with Rachel Chock about the E.O. Wilson Conservation Award:

CB: What was your immediate reaction to receiving the E.O. Wilson award?

RC: I was thrilled! I've been a member of ABS since I was an undergrad and greatly admire E.O. Wilson and his work. I am so excited about the field of conservation behavior and receiving this award is really an honor for me.

CB: Why do you work in the interface of animal behavior-conservation biology?

JT: It seems very natural to me to work in conservation behavior. Since I was young I've cared deeply about conservation, and when I discovered the field of animal behavior as an undergraduate I was completely hooked. I think there are a lot of ways that understanding animal behavior can be applied in conservation, and the interface of these two disciplines is a growing field and an exciting place to be.

CB: What do you think about the award? Will it encourage students to present more proposals with conservation content?

RC: I think it's a fantastic award and definitely highlights that animal behavior and conservation can go hand in hand. I think it's a great way to encourage students to think about how their research and interests in animal behavior can be used for conservation.

CB: How do you see your research contributing to the conservation of small mammals?

RC: My goal is to be able to take the findings from my research on interactions between multiple rodent species in a coastal sage scrub community and apply them during the reintroductions of the endangered Pacific pocket mouse populations that are currently being bred in captivity. Interspecific competition is rarely ever considered during reintroductions, and

for a species like PPM that is part of rich community, it could be an important factor. During the reintroduction we may manipulate densities of heterospecifics or find release sites with suitable communities.

CB: Do you view your research on small rodent conservation having broad impacts on ecosystems?

RC: As reintroductions and translocation are becoming more widely used as conservation measures I think it's important to have as many tools as possible to contribute to the success of these efforts. Interspecific competition may be an important component to consider not only for small rodents but many other species that will face competitors, either native or introduced, at a reintroduction site.

CB: How did you become interested in the effects of interspecific competition and translocations?

RC: Applied conservation techniques like translocation and reintroduction have always been exciting to me because I feel like they have very tangible and important outcomes. The opportunity to study interspecific competition in relation to reintroduction is amazing- it seems like an important piece of the puzzle that is missing. This research project also allows me to spend a significant amount of time in the field, trapping and observing all the rodent species in the community, which I love.

CB: How do you see yourself in the future? Academic work? Conservation-oriented work?

RC: I've always anticipated going into conservation oriented work and ideally will find a career where I can continue research in animal behavior and applied conservation. I also enjoy teaching, though, so am keeping any options open at the moment!



The E.O. Wilson Award

Deadline for the ABS Student grant proposals is in November 2014, check the ABS website for application information in the fall

The Edward O. Wilson Conservation Award seeks to encourage graduate students of animal behavior to participate in meaningful conservation-related research. This single award of up to US \$2000 is given in recognition of a research proposal considered meritorious for its integration of behavior and conservation. E. O. Wilson, professor at Harvard University, who in 2002 received the ABS Distinguished Animal Behaviorist Award, is one of the world's most eminent scientists and pioneers in biodiversity conservation.

Students who have paid their society dues in full will be eligible to submit a grant application. Applications can submit proposals by logging in through the ABS website after they have contacted the ABS Central Office to verify their status. Questions about membership or the submission process should be directed to the ABS Central Office (aboffice@indiana.edu). Example applications are available on the [grant application website](#).

13 THINGS A BEHAVIORAL BIOLOGIST CAN DO ABOUT *CONSERVATION

1. Study an endangered species.
2. Work in an endangered habitat.
3. Work on a question of conservation concern.
4. Study more than one species at a time.
5. Capitalize on 'unnatural' experiments.
6. Apply Tinbergen's Four Questions to a conservation question.
7. Develop and test predictive models of animal behavior that apply to endangered and non-endangered species.
8. Talk with a wildlife manager.
9. Comment on a conservation plan.
10. Teach conservation behavior.
11. Go to lunch with a population biologist.
12. Go public.
13. Don't give up!

* based on the *10 Things a Behavioral Biologist Can Do to Help Conservation* by Dan Blumstein modified by the Conservation Committee; For full descriptions see <http://animalbehaviorsociety.org:8786/Committees/ABSCConservation/thirteen.html>

AUDITORY COMMUNICATION, NOISE AND MARINE MAMMALS

As human populations continue to dominate the planet, even the remotest habitats are increasingly being impacted. Research on anthropogenic effects on animal behavior is growing with studies on an ever increasing breadth of taxa. The first evidence of anthropogenic effects on animals probably comes from the effects of sonar on marine mammals.

CB: You are currently Associate Professor of Marine Conservation Technology in the Nicholas School of the Environment and the Edmund T. Pratt, Jr. School of Engineering at Duke University. What is your educational background and how does that relate to the work you do now?

DN: I went to graduate school at M.I.T. and Woods Hole Oceanographic Institution, and that gave me the opportunity to take some engineering courses at M.I.T., on signals and systems as well as advanced calculus. [One of my professors there] said one of the great things about oceanography is if there's a question you want to answer and there's no data collection method to do it, you create it. Make it yourself. And that's always been a lot of fun to me. It's basically about getting to develop new toys, toys for big boys. I applied that to several different things, whether it was using head imagery to look at manatees to look at their hearing apparatus or helium filled balloons overhead with video cameras underneath them. So, developing those tools to get at questions I was interested in was really how it all got started.

CB: What is the focus of your research?

DN: My research is focused on the link between acoustic and motor behavior in marine mammals, primarily cetaceans and manatees, more specifically, how they use sound in ecological processes. Sound propagates very efficiently through sea water, and marine mammals take advantage of this medium to communicate and explore their environment. A few areas of my research are the effects of anthropogenic noise on marine mammals, circumstances surrounding collisions between vessels and endangered marine mammals, cetacean foraging ecology, and odontocete (specifically the bottlenose dolphin) foraging behavior and biosonar.

Despite decades of research we are still learning about how marine mammals are impacted by human use of our oceans. Dr. Douglas Nowacek, who is the Randolph K. Repass and Sally-Christine Rodgers University Associate Professor of Conservation Technology in the Nicholas School of the Environment and the Edmund T. Pratt, Jr. School of Engineering studies and his lab at Duke University study the behavior of marine mammals, sound communication and human impacts. The Conservation Behaviorist talked with Dr. Nowacek about his research.

CB: What has inspired your efforts to work at the interface of animal behavior and conservation?

DN: I am motivated largely by my own appreciation for animals and the interactions we have with them, as well as the joy I experience in seeing animals in their own habitats interacting with their conspecifics. I'm also motivated to give my own children a cool place to live. There are so many fascinating species we live with today and I want my kids to have the chance to enjoy these animals as much as I have. I also hope to impart to my children a value for nature and animals that they can carry with them in whatever they choose to do.

CB: What projects are taking up the majority of your time at the moment?

DN: One project is our work at Cape Hatteras with sperm whales, pilot whales, Risso's dolphins and beaked whales. This project involves some basic behavioral ecology with playback experiments. We are looking at the difference in response as mediated by the social structure of the different species of whales and dolphins. The response of these marine mammals to a threat should be very different depending on whether or not they live in social groupings. This study will also have applications to naval sonar.

A second focus has been our work on Antarctic cetacean ecology. We are conducting long-term ecological research along the Antarctic Peninsula, that involves studying interactions with penguins, seals, and whales. The Antarctic has been a fascinating place to work and has provided us with important data relevant to issues of both animal behavior and conservation.

I have several projects in acoustics, as well. One in particular is in passive acoustics between dolphins and fish. Interestingly, the acoustics scientists have observed between bats and insects are very analogous to what we are finding occurs between dolphins and fish. The development of acoustics in both species is a classic example of an arms race. While the acoustic ecology of echolocating bats and their prey is rather well understood, our studies of marine predators and prey are less developed, which makes this a stimulating research area.

Lastly, I have numerous other projects underway with my different graduate students that include studies on Antarctic humpbacks, bottlenose dolphins, and deep diving beaked whales.

CB: You are currently one of the scientists on the Western Gray Whale Advisory Panel (WGWAP), which was formed by the International Union for Conservation of Nature (IUCN), to provide advice and recommendations to Sakhalin Energy on how they might minimize risk associated with its oil and gas operations on the western gray whales—a Critically Endangered species, with only about 150 individuals in existence—and two important feeding grounds for these whales off Russia's Sakhalin Island in the North Pacific Ocean. How did you become involved in this project?

DN: I was at Florida State when a group was convened to evaluate the plans for Sakhalin 2. Randy Reeves was the chair of the panel and they had numerous acoustic questions. Sue Moore was offering important contributions in this area, but they needed more help on the noise and sound issues, so I went to a few of the early meetings. When this original panel proved to be a success and they started the long term WGWAP, I continued on.

CB: In your opinion, how is the WGW project coming along?

DN: It is a very interesting system on a few fronts. From the animal behavior side, these cetaceans are still quite mysterious to scientists. For instance, while they are genetically distinguishable, there is quite a lot of mixing between the western grey whales and eastern grey whales. Also, we don't know where these whales go in the winter time. Some individuals spend some time near the coast of Japan, but for the most part we don't know where they are for over half of any given year. This means we basically have very little understanding of the overall ecology of the animal. Thus, it is difficult to know how we can manage the exposure of these animals to stressors.

We have gotten into to some very complex analyses trying to use existing data to extrapolate between different species, areas, seasons, etc. The data are sparse, which makes it a real challenge to answer questions about what these animals need to survive. For instance, in developing plans for seismic surveys with the WGW project, criteria for acoustic exposure were located from the 1980s that were based on very limited and diverse data sets. These were pieced together in this current project to create new acceptable standards, which is not a particularly systemic way of collecting data.

In general, we are currently in need of more systematic behavioral data collection in marine mammals, like the work done by late ABS member Amy Samuels, who we lost to cancer recently and did an excellent job developing standards for systematic data collection based on her work with Jeanne Altmann on baboons in Africa.

CB: In your experience, how is the behavioral data influencing decisions made by Sakhalin Energy and or the position of the Russian government? And, in general, how has or could behavioral data persuade corporations and government to make decisions that are more sensitive to wildlife and the environment?

DN: When Sakhalin Energy received loans for their project, the loan agreement included stipulations that they had to follow the recommendations of an independent review panel. Thus, if the Advisory Panel makes a recommendation, Sakhalin Energy must follow through unless they can provide a valid reason why they are unable to do so. Therefore, the behavioral data is very influential to Sakhalin Energy, because they must take our recommendations.

The Russian government is an important player in the fate of western gray whales, as they have an internal working group of scientists and politicians that make decisions that influence the grey whales. Presently, this working group has a lot more clout within the Russian government than the Advisory Panel, which is the international group of scientists assembled by IUCN. However, the behavioral data the Advisory Panel has collected and presented has the potential to be influential to the Russian scientific community in the long-term. I believe that the research processes used by each of the scientists on the Advisory Panel to understand the western grey whales is influencing how the Russian scientists see these animals because my colleagues on the Panel are respected as a group of specialized and skilled researchers in the fields of animal behavior, marine sciences, acoustics and engineering.

In general, one thing we don't talk about enough in conservation is about managing humans. At this point in the history of the planet we're talking more about managing humans and animal behavior data can be influential in persuading people to make better decisions.

CB: Last year, for the New York Times, you wrote a piece on how climate change issues may be the greatest threat whales will have ever faced. How do you imagine studies in animal behavior may specifically and effectively help address issues of climate change?

DN: This article was written in the context of the Antarctic, which is warming fast. Changes in climate can drastically change ecosystems. For instance, there are currently, on average, 50 more ice-free days per year on the Antarctic peninsula. It is warming faster than anywhere in the world. Antarctic krill need ice for many things, one of which may be protection from predators, such as humpback whales. In the short term the whales are thriving with the abundance of krill. As an illustration, in 2011 we saw a super aggregation of krill with no less than two million tonnes of krill and five hundred humpbacks feeding above them! This is



Photo Scott Taylor

Doug Nowacek



Photo Ari Friedlaender

Humpback whale, Western Antarctic Peninsula NMFS Permit 808-1735 and Antarctic Conservation Act



Photo Alison Stimpert

Doug with colleagues, from right, Andrew Westgate, David Johnston, and Ari Friedlaender at Port Lockroy, Antarctica.

good news in the short term for humpbacks. The bad news is that in the long term we do not know the fate of the humpbacks if the krill are unable to adapt to the changing conditions in the Antarctic or a loss of protection from the whales. These studies in animal behavior help us explore important questions, such as: Since humpbacks are incredibly plastic in their foraging ability will they be able to adapt to a depletion of krill? How important is the Antarctic? How important are the behavioral systems there? How do we set up protected areas for specific species in the Antarctic? How will resources be partitioned between species, such as between humpback whales and penguins?

Behavioral data will be increasingly useful for conservation applications as the sampling techniques for marine mammals improve. Due to the relatively young age of marine mammal behavioral sampling, we have studies that are based primarily on observation, which is not very rigorous. Two data collection methods I have used are non-invasive tags and focal animal sampling at the surface. A fair amount of data can be collected from the surface, since a lot of socialization happens there. We also do a lot of interval sampling for group composition, group spread, etc.

CB: Would you be able to share a success story of how applying behavioral studies has helped make headway in conservation goals?

DN: I believe the work with North Atlantic right whales is a good example. Currently, there are approximately five hundred individuals left of this species worldwide. These whales are found off the east coast of the United States and Canada. They often get hit by ships and entangled in fisherman's nets. One idea to help prevent ship strikes was to put alarms on boats to alert the whales of the presence of a ship. To test the efficacy of this idea, we played 'alarm signals', with different patterns, that would span the hearing range and pique the auditory system of the right whales. We tested the response of six individual whales to the different alarm tones. (As an aside, one problem in working with whales is often only small sample sizes are available.) Upon hearing the alarm, the whales raced to the surface. However, they didn't just sit at the surface but swam just underneath the surface, which is plausible as an anti-predator response. While this response may be adaptive to predation it is maladaptive to avoiding ship strikes because the individual is now near the surface and vulnerable. Furthermore, the whales moved in all directions upon hearing the alarm, which did not reduce their chances of being hit.

This has helped clarify to governments and corporations with large boats that boat alarms are not effective techniques to prevent ship strikes. As a result, no one really talks about ship alarms as a solution to this problem. These experiments also revealed that these whales consistently demonstrate escape behavior at relatively low received sounds levels, 130-140 dB re: 1 Pa in this case. Currently, 160 decibels is the behavioral threshold allowed in US waters. Fortunately, these experiments are helping provide evidence that behavioral sound thresholds need to be lowered, since whales responded strongly at levels below the current threshold.

Related to this, at approximately the same time the alarm studies were happening, the Marine Mammal Commission was compiling some data that demonstrates that the speed of a boat is the most important known factor in causing morbidity and mortality from ship strikes. More specifically, when ships are going 12 knots or more the behavioral data reveals that more fatal strikes occur. Thus, based on the 2008 Ship Strike Rule, ships are now required to slow down when they come into port.

CB: In the process of working at the intersection of behavior and conversation would you be willing to be a little vulnerable and share some of what you've tried that has not worked so well?

DN: I participated in Randy Well's study in Sarasota Bay Florida, the longest running continuous mammal study in the world. I hung a video camera from a helium balloon to film dolphins feeding. The "oops" was that the balloon crashed a series of times when I first started experimenting. It seemed this wasn't such a great idea after a few crashes, but I realized the data were so good that I kept trying to make it work. Eventually, this ended up being quite a successful project. Part of the message for me was to persevere when things are not going smoothly and if I'm having a difficult time collecting data, keep refining my data collection methods.

CB: As discussed earlier, you say that you enjoy bridging your skills in engineering and behaviorism/marine sciences because you enjoy creating methods of data collection—or in your words—or “new, little toys, toys for big boys.” Are there any new “toys” you've been working on lately to help with data collection?

DN: One of my PhD students is a vet looking at indicators of health in bottle-nosed dolphins and large whales. To study this we have been using helicopters, actually “multicopters” with between four and six blades and high resolution filming capabilities. We use these to get up over the animals and make observations on individuals and groups of marine mammals. We are looking to see if they have entanglement or ship strike scars, lesions, hot spots, etc. While these multicopters have a lot of advantages, a couple downsides are that they have very short flight times and they are not the best tool for behavioral studies.

One of the best toys for behavioral studies of marine mammals are tags, either non-invasive or invasive (or implantable) tags. Designing tags that work well on marine mammal studies is challenging because marine mammals, with their sleek and hydrodynamic bodies, have adapted to keep things from attaching to them. We have collected behavioral data from humpback whales using multi-sensor acoustic recording tags that are attached to the animal using suction cups. These tags can measure numerous variables, such as temperature, pressure, and the animal's position, whether they are upside down, turning, etc. These data, coupled with studies in kinematics, have opened up ways of understanding the energetic costs of various environmental factors on marine mammals. Currently, I am working with a few others on designing non-invasive tags that attach better, which will hopefully give us more understanding and appreciation for these remarkable animals.



Photo Ari Friedlaender

Digital acoustic recording tag (DTag)
attached to a humpback whale, Western
Antarctic Peninsula NMFS Permit 808-
1735 and Antarctic Conservation Act
Permit 2009-014

MEET THE NEW ABS CONSERVATION COMMITTEE MEMBERS



Dr. Noa Pinter-Wollman

Noa Pinter-Wollman is a research scientist at the BioCircuits Institute at UCSD. Dr. Pinter-Wollman received her B.Sc. in biology from Tel-Aviv University, Israel. She received her M.S. and Ph.D. in animal behavior from the University of California, Davis for her work on the behavior of translocated African elephants.

She has since been studying the collective behavior of ant colonies and continues to combine animal behavior and conservation biology in her research.

Dr. Peter Bednekoff

Dr. Peter Bednekoff is a behavioral ecologist and a professor at Eastern Michigan University. His research examines the many ways that animals balance finding resources and avoiding predators. Much of his research studies how the lives of birds are shaped by the local gradients of urbanization in southeastern Michigan. Through collaborations, he has also investigated antelope in Botswana, marine iguanas in the Galapagos, scrub-jays in Florida, yellow-bellied marmots in Colorado, and wall lizards on islands in the Aegean Sea. These projects have caused him to think about how historical changes in predation risk and anthropogenic change shape what animals do and can do.

At Eastern Michigan University, Peter regularly teaches classes in behavioral ecology, evolution, ornithology, and global ecology. He lives in Ann Arbor with his wife and their two very active children. Peter has long been involved in conservation initiatives at very local through international scales, and looks forward to serving on the Conservation Committee.



Dr. Barbara Clucas

Dr. Barbara Clucas received her PhD in Animal Behavior in 2008 from the University of California, Davis and did her postdoctoral work at the University of Washington integrating the fields of animal behavior and urban ecology. Currently, she is a Research Associate at Humboldt State University in the Department of Wildlife. Her general research interests are in animal behavior, urban ecology and conservation biology. In particular, she is interested in interspecific interactions and she has studied communication in heterospecific flocks of songbirds, predator-prey interactions in rattlesnakes and ground squirrels. Her current research focuses on how species adapt to urbanization and survive in human-dominated environments, as well as how we can conserve nature in urban areas to benefit both humans and wildlife. Recent projects she has worked on include investigating human-avian interactions in urban areas, perception of human gaze in crows, economic valuation of urban songbirds and conservation of urban songbirds, and behavioral methods to reduce conflict between corvids (crows and ravens), humans and threatened species. See Dr. Clucas article "Integrating animal behavior and conservation: Why urban ecology?" page 2.



ARE YOU A PROSPECTIVE GRADUATE STUDENT INTERESTED IN FINDING A MENTOR IN BEHAVIOR CONSERVATION?

The ABS Conservation Committee put together an updated list of faculty members interested in advising student in behavior conservation. Check it out at:

<http://animalbehaviorsociety.org/Committees/ABSConservation/Mentor>

Interact with the Conservation Behaviorist

Send letters, announcements, comments and contributions to: The Conservation Behaviorist dshier@sandiegozoo.org. 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 the Conservation Committee endorsement of the opinions expressed by contributors.

Editor: **Debra M. Shier**

Editorial Staff: **Chelsea Blake, Meg Masquelier , and Elizabeth K. Petersen**