The Conservation Behaviorist

Animal Behavior Society **Conservation Committee**

The Conservation Behaviorist, an electronic news-update, informs ABS members about the Conservation Committee's activities, research trends in behavior and conservation, and relevant scientific news in conservation research where behavior plays an important role.
www.animalbehavior.org/Committees/Conservation

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The ABS Conservation Committee

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 Committee seeks to generate discussion and promote studies in behavior and conservation.

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ABS Conservation Committee Members

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 **April 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 **Debra M. Shier**

Where does the conservation behaviorist fit in?

FORUM: contrasting views by **Richard Buchholz** and **Colleen Cassady St. Clair**, page 7

In this issue

A CONVERSATION WITH DANIEL T. BLUMSTEIN

"Society should care about conservation behavior because behavioral biologists may have tools that can be used to help manage animal populations but have not yet been used. Understanding how animals choose mates, select habitat, and avoid predators are all useful things that behavioral biologists study…" says Blumstein.

Dan Blumstein has always been interested in animals and their behavior. During his undergraduate studies at the University of Colorado Boulder, he discovered that it was possible to study both behavior and conservation biology. He has been doing that ever since. His PhD combined behavioral studies of marmots with community-based development in Northern Pakistan. During postdoctoral work in Australia, he began to focus on conservation behavior (a term he coined in a 2001 book review). He joined the University of California Los Angeles in 2001, where he is now an Associate Professor of Ecology and Evolutionary Biology.

The Conservation Behaviorist interviewed Dan Blumstein; here is a summary of this dialog:

Q: Why is conservation behavior important? Why should society care about conservation behavior?

Blumstein: *Let's not lose track of the problem: conservation behavior isn't important per se, conservation is important. Preventing or slowing the rate of species extinctions is important. Recovering extinct populations is important. And, managing populations can be important if, by doing so, we help maintain biodiversity.*

Society should care about conservation behavior because behavioral biologists may have tools that can be used to help manage animal populations but have not yet been used. Understanding how animals choose mates, select habitat, and avoid predators are all useful things that behavioral biologists study. Behaviorally 'naïve' management –derived from the fact that many wildlife managers have never taken a behavior course and, therefore, do not to include behavior in conservation decisions- may be improved by applying the knowledge that we take for granted. Let's not get too cocky though; most behavioral biologists have never taken an environmental law or wildlife management course and many know little about on-the-ground wildlife management problems or realities.

I believe that whether or not behavior can help save species and/or be useful to management is an empirical question. I don't believe that we should be forcing behavior into all conservation problems, but rather that there are some cases where conservation outcomes may be improved by applying tools that emerge from behavioral biology.

Q: You raise a crucial point, the importance of conservation behavior for most conservationists. But, shouldn't most conservation problems be minimized, and some perhaps even solved, if society at large leads itself to sustainability, economic growth, and environmental protection? Isn't a common phenomenon among scientists who are really committed to conservation to abandon research and join conservation action at governmental or non-governmental levels?

Blumstein: *Of course, if we addressed the root causes of our problems (over-consumption, population growth, and habitat destruction) we would have fewer conservation problems; however, we'd still have to deal with invasive species. And, while living in sustainable ways may be the ultimate solution to much of our biodiversity crisis, there's still going to be single*

species management that needs to be done to save what we're losing now, and that's well within the realm of conservation behavior.

Daniel T. Blumstein © *photo by M. Abt*

Q: What major conceptual paradigms has conservation behavior generated to guide both the theoretical and empirical work in this area?

Blumstein: *That's a hard question. Certainly, managers should know about ecological traps, but I'm not sure the idea was specifically developed to solve a conservation problem. The more academic conservation behavior that excites me is that which makes conceptual advances and simultaneously offers suggestions for management.*

I believe my 'multi-predator hypothesis' is one of those ideas as it addresses the question of why there is variation in how long antipredator behavior persists, despite the loss of predators, and this principle can be applied to help understand which species might be particularly vulnerable to the introduction of new (or former) predators to their range. When I was thinking about the problem I was simultaneously thinking of the interesting conceptual problem and the applied problem.

'Adaptive management' has come from conservation/management. We have insights about 'mate choice' from those studying reproduction. An understanding of 'endocrinology' comes from physiology. 'Habitat selection' theory comes from behavioral ecology. 'Learning and habituation' has its roots in psychology. While none of these fields have been developed by conservation behaviorists, each includes specific sub-fields that might be useful when applied to a behavioral problem.

Q: Scholars in conservation behavior seem to struggle bringing their work, not only to the public, but to their own audiences? Why is it so difficult to publish scientific articles about conservation behavior in the conservation or behavior journals?

Blumstein: *My opinion: because old guard behavioral biologists often are not interested in conservation and because conservation biologists are often not interested in behavior. Thus, submissions to behavioral journals are often perceived as too applied, and submissions to conservation journals are often perceived as too theoretical and irrelevant for conservation. This may change as we have more people who value conservation behavior involved in editing and reviewing for the behavioral journals, but it's – still- an uphill battle with the conservation journals.*

Studying tammar wallabies at different sites that either had or did not have sympatric predators, inspired Blumstein to propose the multi-predator hypothesis © *photo by D T. Blumstein*

At some level, it's similar to the problem that plagued the birth of conservation biology: conservation was perceived as not being sufficiently academic. Of course conservation biology can be very academic and there are conservation programs both in historically wildlife management departments as well as more theoretically focused biology departments.

These difficulties are calls for us to work harder to make the biological questions we're asking relevant, as well as being sure that we're really addressing a concrete conservation problem. I would suggest that a paper that is entirely focused on a single-species management problem may indeed not be publishable in Animal Behaviour *unless there are some important take-home lessons for other species. The same paper may or may not be publishable in* Conservation Biology*-where they look for generalizations as well. Exciting and generalizable science, whether it has a conceptual or applied focus, should be published in the best journals.*

Q: But conservation biology has changed much during the past decades. When looking at the journal Conservation Biology, for example, readers can tell that the field-based studies, fragmentation oriented research, GIS, and others common a decade ago, have been outnumbered by essays on conservation policy, management of urban-influenced areas, modeling environmental changes at a global scale (climate), to mention a few. Isn't conservation behavior perceived as classical research on, somehow, applied behavioral ecology of local relevance? Journals usually ask authors to work on articles about big- or small-scale case studies but always keeping in mind a broad impact to a particular field. Do we have a broad area where conservation behavior has consistently made a unique difference?

Blumstein: *Yes, the field of conservation biology has changed a lot in the last decade. And it seems that many of the people working in conservation biology don't even come from a natural resource background! Conservation behavior works in the realm of single-species management problems. As long as there are individual species that are being managed, there should be a need to see if knowledge of behavior can be fruitfully applied to help improve management.*

I think there are examples where innovative application of theory to solve a specific problem is indeed much more generalizable to solve other problems. These are the studies that will warrant publication in higher profile general interest journals. This is not to say that the twentieth study that illustrates how feeding young with a hand puppet, rather than by a person, reduces habituation to humans is unimportant. Rather it says that higher impact publications will demonstrate the effectiveness of a particular method which can be applied to other systems.

Q: What do the research funding agencies say about sponsoring conservation behavior studies? What about big funding for such studies?

Blumstein: *It seems hard to justify NSF proposals with a behavioral conservation focus. But, if conservation is a broader impact, and there is a strong conceptual focus in such proposals, then the conservation part might just fly, and indeed be perceived as strength. Of course NIH doesn't care about wildlife conservation. And, my experience with NGOs is that they're each focused on a very well-defined problem and thus don't have the latitude to support more conceptually illuminating applied work.*

My current pet peeve is that conservation behavior illustrates what I'll call translational wildlife research. In NIH-speak, translational research is fundamental research which also has a clear human health benefit (they use the phrase "from the bench to the bedside"). As behavioral biologists, many of us engage in translational research with a clear wildlife conservation

benefit. The field of conservation behavior is explicitly translational in that it translates fundamental advances in behavioral biology to help conserve or manage wildlife populations.

Sadly, we don't have a funding body which has a clearly defined objective to support such translational research. I hope that with the development of the field of conservation behavior we will see interest in explicitly supporting translational behavioral ecology. At this stage, I believe we need to use and define the term whenever possible. Such lobbying is the first step towards developing a funding stream.

The real irony is that even those that are funded to do translational research often fail at the translation part of the equation; the NIH funds an extraordinary amount of basic science, much of which never makes it to the bedside. This does not justify our failings (which may mean species extinction!), but it does put things into perspective; it's hard to apply fundamental knowledge.

Q: Tell us about success stories where wildlife conservation and management have benefited directly from conservation-behavior research.

Blumstein: *I really like the kakapo story where researchers applied sex allocation theory to better manage the sex ratios of offspring. These were managers with a broad fundamental training that realized, hey, this theory might just help us better breed our parrots! I really like the conspecific attraction literature being applied to black-capped vireos. Vireos don't just nest anywhere; they're looking (listening) for other conspecifics to find places to nest. I like too the ideas being demonstrated with prairie dogs and other species where social species do better when translocated as family groups. And the literature on early experience being important for later survival upon reintroduction is both fascinating and illustrates many successes.*

There's a whole captive breeding literature that illustrates how thinking about reproduction from the animal's perspective is essential.

Q: You are working on a textbook on behavior and conservation. What will your work offer that is missing in the classical animal behavior or behavioral ecology texts?

Blumstein: *Esteban Fernandez-Juricic and I are writing 'A Primer on Conservation Behavior' for Sinauer. Our goal is to show readers (behavior students, wildlife biology students, conservation biology students, and managers) specifically how behavioral knowledge has been used, and could be used, to help conserve and manage threatened or vulnerable species. We aim to help develop our readers' intellectual toolkits so that they may have behavioral insights that may be useful when facing a specific conservation problem.*

Thus, we're trying to hit a market that lies between formal behavior courses (which have little conservation), and formal conservation or wildlife management courses (which have little behavior). We're trying also to make it tutorial-in that someone with little knowledge of behavior could be introduced to a potentially useful toolkit.

Q: You have been a contributor to *The Conservation Behaviorist* since Volume 1, and we have highlighted your *'Ten Things a Behaviorist Can do To Help Conservation'* in various issues. What problems in the field of conservation or its practice led you to conceptualize these ten tips? Is there anything missing in these ten ideas that now should be addressed, or revised?

Blumstein: *Conservation behavior is about action. If we're going to do something, making simple declarative lists really cuts to the chase of what could or needs to be done. These were some of the things that I'd been thinking of at the time. Of course there can be many things added to this list but at the time I was thinking 'what are the impediments to action and what can individuals do to circumvent them'.*

It's still essential for behavioral biologists who want to translate knowledge of behavior into

conservation outcomes to work with conservation biologists. We may have a useful tool (or not) but we can't do conservation behavior in a vacuum. Conservation behavior, as a field, will be useful as we continue to help solve real-world conservation problems.

Q: A broad and final question, where is the 'field' of animal behavior going, particularly considering the new technology available to field work and lab research, and where should conservation behavior go?

Blumstein: *I've got two approaches to this. A very pragmatic and a more conceptual; both parallel my interests.*

The pragmatic one is that conservation behavior should address problems that conservation biologists and wildlife managers face. Controlling predation, managing population sizes, managing habitat use, are a few of many things that wildlife managers do on a day-to-day basis.

Conceptually, there are a lot of new tools and methods available today (e.g., the field of genomics is starting to generate novel behavioral insights), but we still don't have predictive models to explain a lot of behavior.

For animal behavior in general, I question whether chasing the newest hot idea is the really the best way to make fundamental advances. If we step back and note that while we might be able to explain variation in mating success in some species, we can't predict what traits might be sexually selected. These sorts of foundational questions have gone unanswered.

I think we can gain a lot by developing predictive models. If we develop predictive, mechanistic models, we can clearly identify fitness consequences of behaviors and by doing this we'll identify links to population biology and ultimately management. Why are some, but not all, species vulnerable to human activities? What makes species vulnerable? If we can predict vulnerability, we can identify species that require extra management help ■

46th Annual Meeting
Animal Behavior Society
June 22 to 26, 2009
Pirenópolis, Brazil

Distinguished Animal Behaviorist

Richard Dawkins, Oxford University

Plenary Lectures

Daniel Rubenstein, Princeton University
Marlene Zuk, University of California – UC Riverside

ABS Presidential Symposium

Beyond the Selfish Gene: Research Inspired by the Contributions of Richard Dawkins; organizers: **Jerry Wilkinson**, University of Maryland & **Jane Brockmann**, University of Florida.

Symposia

Interacting Phenotypes: Applying Indirect Genetic Effects to Behavioral Ecology; organizers: **Bronwyn H. Bleakley**, University of Exeter & **Stephen Shuster**, Northern Arizona University.

An Integrative Evaluation of the Production, Perception, Transmission, and Evolution of Color Visual Signals; organizers: **Marina Anciães**, Instituto Nacional de Pesquisas da Amazonia & **Kevin McGraw**, Arizona State University.

Pre-Meeting Workshops

Sibling Competition: **Hugh Drummond**, Universidad Nacional Autónoma de México.

Sexual Selection: **Marlene Zuk**, University of California, Riverside.

How to Become More Certain about Uncertainty: An Introduction to Biostatistics: **Donald Blomqvist**, Göteborg University

Behavioural Endocrinology: An Integrative Approach: **Rui Oliveira**, Instituto Superior de Psicologia Aplicada

Coloration and Visual Communication: **Stephanie Doucet**, University of Windsor ■

FORUM

Where does the conservation behaviorist fit in?

"…as trained experts in the evolution of communication, animal personalities and the structure of dominance hierarchies, [behaviorists] should be prepared to work with society at large to ensure positive outcomes for protecting biodiversity…" says **Richard Buchholz**

"…conducting effective Conservation Behavior is more likely with broad training, on-going flexibility, and a focus on the ends rather than the means… behavior will nearly always contribute only partially to conservation solutions…" says **Colleen Cassady St. Clair**

As the field of Conservation Behavior continues to develop, graduate students are beginning to ask how to prepare for a career in this highly rewarding but specialized subfield. Should they attempt to tailor their graduate training to Conservation Behavior? Or should they get a solid foundation in Animal Behavior and plan to branch into research with a conservation application after graduate school? These questions are often posed to ABS Conservation Committee members and the issue sparked a lively discussion among our membership last spring. We found that there were many different views on the topic and a more thorough discussion was necessary. The following essays by ***Richard Buchholz*** and ***Colleen Cassady St. Clair*** explore the pros and cons of specialized training in Conservation Behavior.

Yes, specialized graduate training is necessary to become a Conservation Behaviorist

By **Richard Buchholz***

Despite being a relatively new discipline, conservation behavior has an abundant theoretical literature recommending it as a tool to help stop extinctions (see references in Buchholz 2007 and Caro 2007). The actual execution of conservation behavior in the realm of conservation management, however, remains rare. Arcese et al. (1997) point out why conservation teams should include behaviorists, but a decade later Angeloni et al. (2008) conclude that conservationists and animal behaviorists are not showing much evidence of interacting to save biodiversity. The reason for this disconnect, I believe, is that specialized training is necessary for the conservation behaviorist to successfully translate his/her research into conservation action. Conservation biology is inherently multidisciplinary; disparate fields from the social, biological and other sciences contribute data and methodology that are used to conserve species. The activity of actually saving a habitat patch or threatened population requires that this team of disparate experts, along with policy makers and local 'stakeholders,' agree to an effective plan of action. Where does the conservation behaviorist fit in? He or she is an expert team member whose expertise comes from integrative training in ethology.

Richard Buchholz* © *Olemiss PPRR

To be an effective conservation behaviorist requires training in Tinbergen's four approaches to ethology (see Buchholz 2007 for an explanation), experience with case studies where animal behavior has been used to help develop solutions to conservation management problems, and an understanding of how to connect behavioral information to population viability issues. Typically, a graduate program in ecology and evolution, or one in wildlife management, would be lacking in one or more of these areas. For example, a graduate program in ecology and evolution might not place much emphasis on

behavioral mechanisms, such as the sensory systems, even though these proximate causes of behavior are intimately linked to conservation issues such as human-wildlife conflict and the non-lethal impacts of pollutants. Wildlife biologists might not be trained in the ontogeny of behavior, despite its importance to managing the anti-predator tactics or migratory movements of reintroduced captive-bred wildlife. Even programs in animal behavior may be lacking in the elements necessary to link behavioral study to conservation action. Thankfully, some graduate animal behavior programs have anticipated this problem. Students in the Behavior and Conservation of Wild Animals option of the graduate Animal Behavior program at the University of California, Davis, for example, are required to take course-work in population-level processes, such as population viability analysis (PVA). Programmatic limits are notable impediments at smaller universities where such courses are not readily available in other departments in the same institution. For example, a student in the Animal Behavior and Conservation concentration of the Master of Arts in Psychology at Hunter College in New York might need to look to other local institutions to find a course on PVA.

Thus conservation behavior training is unique (and perhaps a bit odd) in that it should be integrative within its focus on behavior, and interdisciplinary in that it must link to population-level and landscape-level ecological, evolutionary and human economic consequences. A conservation behaviorist serving on a conservation management team is likely to be the only person present with exhaustive training in how and why animals behave. It is crucial that they are able to explain to non-behaviorists comparable conservation problems that have been aided by behavioral knowledge, and can translate behavioral information into the population level currency of decision-makers.

Is it possible to get a job as a conservation behaviorist? More than likely, it will be sometime before we see employment opportunities titled this way. It is important to keep in mind that 'conservation biologist' jobs in academia were rare at the outset of this new discipline, and the same is likely to be true of conservation behavior. Fortuitously, the beauty of being trained as a conservation behaviorist is that one is suitable for related job titles as well: mammalogist, entomologist, vertebrate ecologist, reproductive endocrinologist, zoo curator and comparative psychologist are all possible employment positions, for example, depending on one's area of research specialization within behavior. If conservation behaviorist positions are advertised in academia, they will most likely occur first in smaller, regional colleges and universities. Success at smaller schools might not be as dependent on multi-million dollar biomedical grant-getting. As a result departments can be less *neophobic* about new disciplines such as conservation behavior.

I think the harder 'sell' for the conservation behaviorist will be to get hired by state and federal wildlife agencies, and non-governmental environmental organizations. These employers may have established tasks that are required of the employee, and it is unlikely that they will be immediately receptive to overhauling their data collection procedures to incorporate behavioral variation. For agency positions, I suspect, it will be much more critical to have prior connections with existing personnel than would be required to get a faculty position in academia. Unfortunately, the aspiring conservation behaviorist is unlikely to meet very many US Fish and Wildlife Service researchers at an Animal Behavior Society meeting. They'll need to attend regional wildlife management conventions and forge research alliances with local agency personnel in order to develop a network of colleagues that can assist in finding employment.

Because zoos and aquariums often have a stronger focus on individual animals under their care, I think they will be more open to the idea of hiring a conservation behaviorist. Many zoos and aquariums have active conservation programs for the in-house propagation and care of endangered species (e.g. CRES at the San Diego Zoo in California), as well as for field-based management of threatened animals (e.g. the Wildlife Conservation Society's international field programs based at the Bronx Zoo, New York). Again, I don't think it is likely that they will advertise for a conservation behaviorist *per se* any time soon. The zoo conservationist position description, however, almost certainly will mention an emphasis on hiring a candidate experienced in behavioral biology.

In conclusion, I believe that specialized training is required of the conservation behaviorist. Because the conservation behaviorist is likely to be *the* sole behavior expert on a conservation team, it is essential that they are well-versed in all areas of ethology (i.e. the mechanisms, ontogeny, adaptive function and phylogeny of behavior), even if they specialize in only one of these. In addition, they have the burden of convincing others on the team that variation in the behavior of individual animals is of significance to the population- and landscape-level phenomena that determine whether threatened animal species can be managed so that they can thrive despite anthropogenic threats. The last kind of training that conservation behaviorists should have may not be 'specialized' in any scientific sense, but it is nonetheless critical to conservation success. That is, the conservation behaviorist must develop a penchant and desire for outreach to wildlife managers, policy makers and the general public. Conservation projects are easily scuttled by legal, political and biological misunderstandings. As

trained experts in the evolution of communication, animal personalities and the structure of dominance hierarchies, we should be prepared to work with society at large to ensure positive outcomes for protecting biodiversity.

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Training in Conservation and Behavior is only the beginning

By **Colleen Cassady St. Clair***

Highly specialized training in Conservation Behavior is not only difficult to achieve, it's counter-productive to the employment prospects and potential contributions of a would-be Conservation Behaviorist. In Canada, for example, with a tenth of the US population and correspondingly fewer positions for participating in conservation solutions, a Conservation Behaviorist needs to be flexible and very broadly trained. In this essay, I'll explain why I think that broader education is an asset and I'll retrace some of the developmental steps of this nascent discipline to offer my opinion as to why a need for breadth is likely to remain. Then I'll suggest that a primary focus on conservation outcomes can guide both education and career choices. By the end, I hope to convince the reader that Conservation Behavior is best served by the same principles that benefit all conservation endeavors: flexibility, breadth of expertise, and a focus on the ends rather than the means.

My position about the limitations of specialization is illustrated by my friend John who is a drummer. John is not just a drummer, but a specialist in steel drums. Not just steel drums, but big West Indian steel drums, which he especially loves. John plays and teaches drumming professionally but, predictably, this is not an easy way to make a living in a northern Canadian city. Luckily, John is also skilled at carpentry and he does that professionally as well. When we chatted last week about the recent downturn in Edmonton's boom and bust building economy, John mentioned that he's applied for some research assistantship positions with his honors sociology degree. John is a passionate specialist while maintaining the option value of a generalist.

I think similar logic applies to a prudent student of Conservation Behavior. Like West Indian steel drums, Conservation Behavior is a specialization within a specialization. Degree designations in my own Department of Biological Sciences suggest just how specialized it is. Despite being the largest biology department in Canada (with ~70 faculty members), and offering undergraduate specializations in 13 sub-disciplines, 'Ecology' is the most relevant distinction it can offer to a budding Conservation Behaviorist. The options for degree designation in Behavior are no better. But even without this apparent lack of degree specialization, the diverse course offerings in this department (~120) provide surprisingly comprehensive coverage of the biological disciplines relevant to Conservation Biology. Both characteristics are mirrored for graduate students, but that doesn't seem to matter to the practice of producing conservation research. A recent survey identified this university as being the most productive in Canada for its conservation publications (Grant et al. 2007), but I know of only two individuals who were hired as conservation biologists. Recently we hired our first Conservation Behaviorist, Peter Biro. Peter is passionate about the link between conservation and behavior, but he won the position as a Fisheries Ecologist for his solid contributions to fish ecology and conservation. Like John the drummer, many of us have favorite specialties, but we can wear many hats.

Colleen Cassady St. Clair

The short history of our discipline has a lot to do with the lack of specificity in degree designations and job advertisements. Conservation Biology itself dates only from the mid 1980's (Soule´ 1985). Conservation Behavior followed as a recognizable sub-discipline barely a decade ago (Clemmons & Buchholz 1997), but in that time it has mushroomed in both scope and application. Conservation Behaviorists, as we've only recently begun to call ourselves, are justifiably excited about the prospects. Four edited collections, a handful of synthesis articles, and dozens of research contributions support this enthusiasm (Buchholz 2007). Nonetheless, the real

test of the importance of Behavior to Conservation will be the frequency with which knowledge of animal behavior is integral to conservation solutions. Experts differ in their views of this frequency. Tim Caro thinks that such examples are quite rare (Caro 2007). And, indeed, examples of conservation behavior are rare in some of the quarters where we would most like to see them thrive. A decade ago, Bill Sutherland showed that there were no examples of Conservation Behavior in the journal *Animal Behaviour* (Sutherland 1998). Recently, Angeloni et al. (2008) revealed that the situation hasn't changed much despite the support of our parent Animal Behavior Society (Conservation Behavior: From Implications to Applications 2007).

Why don't more behaviorists value conservation research? Although the total suite of reasons is as diverse as the individuals who study behavior, two main problems are usually apparent. Both are also among the reasons that Conservation Behaviorists need very broad training in Ecology. First, conservation is necessarily focused on the viability of populations in a way that smacks of group selection to many senior behaviorists. These are people who cut their teeth in the hay-day of optimality when it founded the still-young discipline of Behavioral Ecology. Conservation endeavors geared to the benefit of populations and species are inherently uninteresting to many people who have spent entire careers exploring the fascinating intricacies of individual variation. This difference in the biological units of study promotes a second reason that Conservation and Behavior are difficult to integrate: the theoretical underpinnings of the two disciplines are radically different. Most behaviorists are not interested in management problems like population viability and reserve design. They never talk about social-science things like conservation values and market externalities. Conservation theory just doesn't offer many academic attractors for classically-trained behaviorists. This enduring bias makes a primary focus on conservation a much safer bet for those with interest in both conservation and behavior.

Staking a primary claim in conservation requires real breadth of training for a budding conservation behaviorist. She cannot expect to impress conservationists, or make important contributions to conservation problems, with behavior training alone. Just as classical behaviorists don't value conservation applications, conservationists do not have much time for the theoretical basis or history of behavior. Conservationists don't think about Tinbergen's questions, levels of analysis, reproductive skew, or sex ratio evolution *unless* these issues are made relevant to specific conservation problems and solutions. Because conservation biology is such a crisis discipline, it never has the luxury of spending time, money, or education on tangential issues of potential or historical relevance. It wants tangible solutions to specific problems by the fastest route possible.

The urgency with which conservation solutions are invariably sought further supports my contention that every working conservation biologist, behaviorally-inclined or otherwise, needs a broad tool kit of expertise. I think that this breadth is compromised by overly-specific training at undergraduate or graduate levels. My own graduate students demonstrate the need for breadth well. In our studies of movement behavior in fragmented habitats, we concentrate principally on the behavioral processes of movement and habitat selection. But my students also need advanced skills in GIS, GPS, statistics, and vegetation measurements. This need for breadth increases exponentially when students enter the real world. Several of my former students work for private consulting companies, provincial or federal agencies, or non-governmental organizations devoted to conservation issues. None works exclusively with behavior and too much specialization in it would be a liability. A consulting company with a single biologist could not afford for that person to provide only behavioral expertise. A provincial species at risk biologist could not expect to apply a behavioral component to every population decline or its recovery. Those employed by NGO's, which have notoriously thin budgets, would need to address conservation problems with every disciplinary tool at their disposal, reaching well outside of biology let alone Behavior or Conservation Behavior.

As I mature in my own career and have more involvement in civic, provincial, national, and international conservation initiatives, I realize even more how essential it is to have broad expertise in a range of ecological domains. Sometimes I need to know about stream hydrology, plant succession, predator-prey dynamics, taxonomy, or genetic introgressions; topics I have not studied since I was an undergraduate, if at all. National and international conservation involvement takes me even farther from my comfort zone and into the realm of policy, sociology, and advocacy. Practically every day of my working life I find myself wishing I knew more about more disciplines. It doesn't happen very often that I feel the same urgency to know more about Behavior, except out of interest and for the purposes of keeping my Behavioral Ecology course fresh and current. When I need to know more about a specific behavioral domain for research purposes, I know exactly where to look and I am well-armed with a library of resources and well-connected to a network of experts. Somewhat counter-intuitively, I can afford to be less immediately informed about every dimension of my specialization precisely because I know enough to get more informed easily and quickly.

The final component of my position on Conservation Behavior is the importance of approaching conservation

with a solid focus on identifying problems and finding solutions, not the methods by which we do so. If we want to halt the decline of a species in a particular region, we need to know two things: what is causing the decline and how can it be stopped. Behavior plays a role in understanding both the problems and the solutions of a large percentage of conservation problems, particularly when we include human behavior, but it is almost never the elegant panacea provided by the famous wood duck example (Eadie et al. 1998). In many instances, behavior is likely to play a more minor or convoluted role. Every one of my students measures biological phenomena beyond behavior despite sharing with me that primary interest. I firmly believe that without this multi-pronged approach, we could not provide balanced descriptions of conservation problems or their solutions. I think this practice is widespread. Indeed, one reason that behavior appears not to be more integrated in conservation research may actually be an issue of prevalence rather than presence when we survey the literature.

In this essay, I've tried to convince readers that conducting effective Conservation Behavior is more likely with broad training, on-going flexibility, and a focus on the ends rather than the means. I suggest we all benefit in our current studies from the broader training we acquired in the parent disciplines of Conservation and Behavior and that behavior will nearly always contribute only partially to conservation solutions. Conservation Behavior is a passion for a growing cadre of Behaviorists, all of whom have wider dimensions to their interests and research programs. But like my friend John, who really enjoys playing West Indian steel drums, these behaviorists do not need to make their entire living with Conservation Behavior to enjoy advancing that passion. And like John, they would be foolish to try. The very process of trying to make Conservation Behavior fit every conservation context would deny us of the pleasure of recognizing the rarer – but still common enough– instances of a perfect fit.

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The E. O. Wilson Conservation Award 2009

The Edward O. Wilson ABS Student Research Grant for Conservation seeks to encourage graduate students of animal behavior to participate in meaningful conservation-related research. The award is part of the **ABS Student Research Grant Program** and it supports a ***proposal*** considered meritorious for its science and conservation component.

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.

Award Recipients

2008: **Julie Jedlicka**

University of California Santa Cruz

2007: **Jordan Thomson**

Simon Fraser University

2006: **Alysa Remsburg**

University of Wisconsin

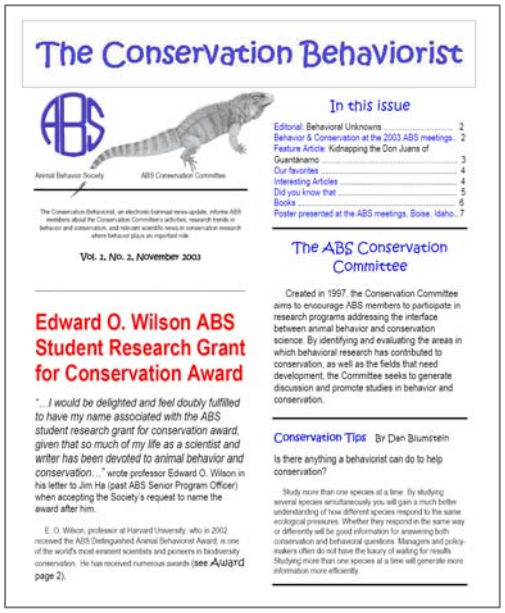
2005: **Heidi Fisher**

Boston University

2004: **Jason Munshi-South**

University of Maryland College Park

For additional information on this award visit *www.animalbehavior.org/ABSGrants* or contact the **Conservation Committee** *cstclair@ualberta.ca*



The Conservation Behaviorist

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Vol. 2, No. 2, November 2003

In this issue

Edward O. Wilson ABS Student Research Grant for Conservation Award

"...I would be delighted and feel doubly fulfilled to have my name associated with the ABS student research grant for conservation award, given that so much of my life as a scientist and writer has been devoted to animal behavior and conservation..." wrote professor Edward O. Wilson in his letter to Jim Ha (past ABS Senior Program Officer) when accepting the Society's request to name the award after him.

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. He has received numerous awards (see Award page 2).

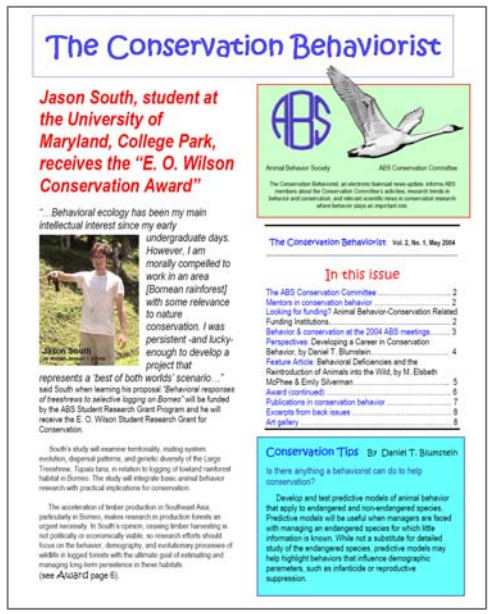
The ABS Conservation Committee

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 Committee seeks to generate discussion and promote studies in behavior and conservation.

Conservation Tips By Dan Blumstein

Is there anything a behaviorist can do to help conservation?

Study more than one species at a time. By studying several species simultaneously you will gain a much better understanding of how different species respond to the same ecological pressures. Whether they respond in the same way or differently will be good information for answering both conservation and behavioral questions. Managers and policy-makers often do not have the luxury of waiting for results. Studying more than one species at a time will generate more information more efficiently.



The Conservation Behaviorist

Jason South, student at the University of Maryland, College Park, receives the "E. O. Wilson Conservation Award"

"...Behavioral ecology has been my main intellectual interest since my early undergraduate days. However, I am morally compelled to work in an area [Bornean rainforest] with some relevance to nature conservation. I was persistent -and lucky- enough to develop a project that represents a 'best of both worlds' scenario..." said South when learning his proposal 'Behavioral responses of treeshrews to selective logging on Borneo' will be funded by the ABS Student Research Grant Program and he will receive the E. O. Wilson Student Research Grant for Conservation.

Jason South

South's study will examine territoriality, mating system evolution, dispersal patterns, and genetic diversity of the Large Treeshrew, Tupaia tana, in relation to logging of lowland rainforest habitat in Borneo. The study will integrate basic animal behavior research with practical implications for conservation.

The acceleration of timber production in Southeast Asia, particularly in Borneo, makes research in production forests an urgent necessity. In South's opinion, ceasing timber harvesting is not politically or economically viable, so research efforts should focus on the behavior, demography, and evolutionary processes of wildlife in logged forests with the ultimate goal of estimating and managing long-term persistence in these habitats (see Award page 6).

The Conservation Behaviorist

The Conservation Behaviorist Vol. 2, No. 1, May 2004

In this issue

Conservation Tips By Daniel T. Blumstein

Is there anything a behaviorist can do to help conservation?

Develop and test predictive models of animal behavior that apply to endangered and non-endangered species. Predictive models will be useful when managers are faced with managing an endangered species for which little information is known. While not a substitute for detailed study of the endangered species, predictive models may help highlight behaviors that influence demographic parameters, such as infanticide or reproductive suppression.

The Conservation Behaviorist

Captive breeding, conservation and behavioral research

The Conservation Behaviorist Vol. 2, No. 2, November 2004

In this issue

"How can we justify confining animals in small enclosures, often far removed from many salient features of the animal's natural environment? ...How can we justify the expenditure of money to maintain a few representatives of endangered species in captivity when the same funds could significantly enhance in situ conservation efforts? ...These questions are interrelated because minimal well-being is a prerequisite for reproduction for conservation breeding..." says Ronald R. Swaisgood in our Feature Article: *"What Can Captive Breeding Do for Conservation and What Can Behavior Research Do for Captive Breeding?"* (page 3)

Conservation Tips By Daniel T. Blumstein

Is there anything a behaviorist can do to help conservation?

Apply "Tinbergen's Four Questions" to a conservation question: the physiological and sensory mechanisms that control behavior, the development or ontogeny of behavior, its function and evolution. Applying our major conceptual framework can provide novel management questions and can help structure the scientific study of an endangered species. Share this conceptual framework with others! It works well for behaviorists and it can surely work well for mainstream conservation biologists.

The Conservation Behaviorist

Heidi Fisher, student at Boston University, receives E. O. Wilson Conservation Award

The Conservation Behaviorist Vol. 3, No. 1, May 2005

In this issue

"...As a field biologist, it is difficult not to become a conservationist, particularly when you study animal behavior. An animal's first response to a stressor is often a change at the behavioral level. Behavior is a reliable indicator of ecological disturbance..." says Fisher. Her proposal "Communication breakdown and hybridization in *Xiphophorus* fishes" will be funded by the ABS Student Research Grant Program and she will receive the 2005 E. O. Wilson Conservation Award.

(see Award page 8)

Conservation Tips By Daniel T. Blumstein

Is there anything a behaviorist can do to help conservation?

Work in an endangered habitat. Even if you are not focusing on an endangered species, by working in an endangered habitat you will illustrate, by example, the value of the habitat and you may be able to collect additional information that will be useful for endangered species management.

The Conservation Behaviorist

Vol. 4 No. 1 - May 2006

Building a Case for Conservation Behavior

In this special issue of The Conservation Behaviorist (TCB) we include articles published since 2003 and new essays. The area of conservation behavior has grown significantly during the past decade and the Animal Behavior Society Conservation Committee has played an important role in this process. Besides TCB, the Committee has created the E. O. Wilson Conservation Award, three data bases available online (funding opportunities for behavioral research, publications in conservation behavior, mentors in conservation behavior), and has also sponsored scientific events at the Society's annual meetings. We are confident that our efforts benefit ABS, the conservation community, and the public at large.

The ABS Conservation Committee

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Interact with the Conservation Committee

Send letters, announcements, comments and contributions to The Conservation Behaviorist gpaz@mail.wcnorcester.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

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University of Mississippi
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Debra M. Shier
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Ronald R. Swaisgood
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Vol. 4 No. 2 - November 2006

Colleen Cassady St. Clair, New Chair of the Conservation Committee

Greetings Conservation Behaviorists! It's an exciting time to be working on conservation behaviour and it's a pleasure to take on the reigns of the Animal Behavior Society's Conservation Committee. In the coming years, I hope I can share with you inspiring development of behavioural approaches to conservation problems.

As incoming Chair of the Committee, I'd like to begin my term with some appreciation. I am sure I speak for everyone in thanking Guillermo Paz-y-Miño C., outgoing chair, for his tireless efforts

(continues on page 2)

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The Conservation Behaviorist

Vol. 1 No. 1 - May 2007

Social behavior and Conservation...

"This is the first evidence that a predator training regime, which incorporates the target species social environment, can mimic experiences in the wild and improve long term survival post-release..." says **Debra M. Shier** in our Feature Article: **"Social influences on predator training for conservation"** (see page 6)

In this issue

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annual meetings of the Animal Behavior Society will take place in Burlington, VT, July 21-26

The Conservation Behaviorist

Vol. 5 No. 2 - November 2007

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Volume 6 - Number 1
May 2008

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Julie Jedlicka receives *ABS Edward O. Wilson Conservation Award*

Project: nesting success and foraging behavior of cavity-nesting birds in vineyard landscapes, page 11

In this issue