TEACHING WILDLIFE RESEARCH ETHICS: A PROGRESS REPORT

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THE GAP

Animals have long been used in laboratory research aimed at improving human lives. In contrast, disciplines such as ecology, wildlife management, and conservation biology aim at the management and long-term survival of species or populations under growing human pressures. Although modeling approaches are sometimes helpful, field studies of animals are typically the only way to test hypotheses and develop realistic management strategies in such research. Concerns over the ethical treatment of animals have led to legislation that prescribes a common-sense account of which practices are acceptable in animal laboratory research (the three Rs, see below) (USDA 2005; ILAR 1996), but both moral theory and the law are almost completely silent about field research which is conducted under very different conditions and where the moral questions typically focus on the well-being of free-living populations or species rather than individual animals. Institutional Animal Care and Use Committees (IACUCs), required by law to review and approve every study involving live vertebrates, find themselves struggling to apply the language and prescribed moral approaches of laboratory research to the questions and methodologies of field biological research. The absence of moral guidelines appropriate to field research results haphazardly in both unnecessary restrictions on some research and permission for ethically questionable research in other cases. Not only is some morally innocuous research barred, some morally questionable research is approved. Professional scientific societies have expressed their concern over the situation and identified some ethical concerns for field researchers within their respective sub-disciplines (Putnam 1995).
The problem is also partially pedagogical. There is little ethical training provided for graduate students or junior scientists doing field research on animals (Elliott 1995), or for the IACUCs entrusted with ensuring the moral acceptability of such research before it can be implemented. Standards have traditionally been haphazardly and informally learned “by the seat of the pants” or at a mentor’s knee. The result is absence of deep understanding of the issues on the part of scientists, a lack of consistency within and among IACUCs, and a confused application of unsuitable standards. Consequently, IACUCs across the nation are searching for guidance for evaluating field research proposals, and graduate programs are in need of educational materials they can use to train future researchers.

The America COMPETES act has made the pedagogical concern more pressing, for it requires postdocs, graduate students, and even undergraduates working on NSF grants to have some training in the responsible conduct of research. Faculty members in disciplines such as ecology, wildlife management, and conservation biology must tell their students something about the morality of field studies. But what?

THE BEST LAID PLANS...

We received a grant from the NSF to fill this gap. Our group initially consisted of a wildlife biologist, a conservation biologist (both with significant experience serving on IACUCs), a philosopher with expertise in ethics, and a social scientist specializing in communication studies and assessment of moral reasoning. Our first step was to hire a postdoc whose interdisciplinary degree spanned moral philosophy and field biology.

Our approach was three-pronged: (1) identify or create appropriate ethical guidelines for field biological research; (2) develop methods for educating current and future PIs about the application of such ethical principles within the existing operational and legal framework; and (3) evaluate the effectiveness of this methodology and modify it based on our findings.

We planned an interdisciplinary research and education project to develop refined ethical principles and applications for field research, and educate graduate students in how to apply these guidelines. In other words, we planned to synthesize a new field of ethics as well as a strategy for teaching it. Our proposed pedagogical strategy had two components: (a) classroom teaching of new materials as they are being developed and
refined, and (b) participation of graduate students alongside IACUC members in the making of real decisions regarding field research. We hoped to reap the benefits of both classroom and apprenticeship pedagogical models. We also planned to rigorously test this novel pedagogical approach for enhancing professionals’ ethical reasoning.

We expected fringe benefits. An immediate benefit would be to make our guidelines available not only to researchers-in-training, but also to the IACUCs currently required to rule on the ethical acceptability of such work. Farther afield, we hoped that parallels to our moral, pedagogical, and assessment approaches could be applied in other scientific disciplines. Moreover, our results might well have important implications in the social sciences for how to enhance ethical reasoning not only with respect to research methods, but also with respect to other complex issues. Finally, in addition to the benefits to wildlife biology and other animal and social sciences, we hoped that our planned unique research and pedagogical context would advance the discipline of environmental ethics.

Ethics

Some of the moral problems encountered in the course of field research are very different than those concerning the treatment of animals in laboratory research. All animal researchers must weigh risks to themselves and to the human community against the suffering of animals when designing studies, but such trade-offs involve more ethical issues in field research than in laboratory research for several reasons. First, risks to field researchers are greater and more common. Second, field research poses issues of stewardship that do not arise in laboratory research. Sometimes the value of a relatively undisturbed population or ecosystem to humans is greater than the combined values of whatever items or knowledge humans might extract from the ecosystem. So even if they are considered solely as resources, researchers must determine whether the information to be gained justifies the disturbance to those populations or ecosystems. And of course if populations or ecosystems have intrinsic value, moral standing, then the stakes are even higher. Most importantly, in laboratory research the welfare of individual animals are weighed against human gains, but typically the immediate benefits of field research are to animal populations. Human benefits, while significant, are indirect. Thus, field biologists must often choose between the welfare of individual animals or populations, and the welfares of other animals or populations. Although there are strong advocacy positions on all sides,
little thought has been given to the question of how such tradeoffs should be made.

Dilemmas are common in these spheres, and disputes arise because of the very different assumptions held by various stakeholders. Which animals, species, biotic communities, environments, etc. are morally valuable? How valuable? Why are they valuable? What sort of value do they have? Moreover, since assumptions vary considerably among cultures, the increasingly multicultural nature of field research and its global applications makes such dilemmas and disputes increasingly common, deep, and pressing (Minteer and Collins 2005a, 2005b, 2008; Perry and Perry 2008).

We planned to identify the moral problems particular to the use of animals in field studies by examination of the philosophical and research literature, supplemented by in-depth interviews with researchers active in the field. We identified three lines of thought that might lead to solutions to these problems. First, we planned to investigate the extent to which existing approaches to laboratory research ethics might be extended to effectively address these moral problems. Second, we hoped that contrasting views about the rights and duties of individuals and views about the rights and duties of populations of humans (i.e. societies) would offer a key to resolving some of the complex issues faced in field research. Third, we planned to work out applications of general moral theories (consequentialism, deontology, and virtue ethics) and environmental ethical theories (land ethic, deep ecology, ethics of stewardship) to particular problems in field research. We proposed to use these three approaches in order to create a sub-discipline of ethics which might be called Wildlife Research Ethics.

Pedagogy

While identifying the appropriate ethical framework, we also planned to develop appropriate ways to educate researchers on such material. We intended to provide graduate students with both a standard academic class, and also with hands-on involvement in an innovative apprenticeship program. The class was to have four intertwined, simultaneously implemented components.

First, students would be given or reminded of some simple points such as the distinction between legality and morality, the temptation of rationalization, the inappropriateness of using perfect-compliance theories in the real world, the perils of conflict-of-interest, etc.
One of the major pedagogical problems facing any ethics teacher is the fact that students come to ethics with deep-seated, unconscious assumptions, not only about right and wrong, but also about other claims of philosophy and social science. For example, students often uncritically accept various claims about the proper role of government and religion, the nature of property ownership, the concept of statistical significance, the myriad ways in which some institutions and practices influence others, and so on. Naïve assumptions often block students from giving open-minded consideration to more plausible alternative perspectives. So the second component of our class would be to require students to spend some time struggling to articulate and critically examine their assumptions. As Socrates says, we must first acknowledge that we lack knowledge before we can make progress (Meno 84a-c).

Third, the rudiments of Consequentialism, Deontology, Virtue Ethics, the Land Ethic, Deep Ecology, and the Ethics of Stewardship would be presented. Imparting all of these theories in their full-blown complexity would be impractical as well as unnecessary, but we planned to provide enough detail about the three general moral theories, their implications for animal welfare, and the three environmental ethics theories so that students could internalize, appreciate, and apply them when appropriate.

Finally, students would practice solving specific moral problems through the application of these general theories to specific situations. Moral problem-solving includes at least the following steps: (a) identify the morally relevant factors and options within a situation, (b) determine which moral values and principles to apply to the situation, (c) articulate how they apply, (d) resolve apparent conflicts among applicable principles, (e) all the while remaining open to alternative points of view, willing to revise earlier steps in light of subsequent insights, and vigilant against the temptations of bias, rationalization, and oversimplification. Obviously, this is a non-trivial process, and one which, in practice, is much less formulaic than it sounds. Practice is essential in order to achieve even minimal mastery.

The other half of our pedagogical approach was a novel apprenticeship program of ethics training. We planned to apprentice each student to a current IACUC member in a “Shadow Program” where IACUC members would individually mentor students through the animal use protocol review process, lab and field site visits, and the animal care program. Students would discuss case studies requiring ethical decisions regarding animal use. Students would be involved in actual ethical
decision making regarding field research projects, guided by their mentor. They would accompany their mentors physically to site visits and consultations with PIs, and intellectually through the sometimes intricate labyrinths of moral decision-making. This process would be time and resource intensive, but we believed that this kind of hands-on involvement would be far more effective than just a stand-alone standard academic course in advancing participants’ ethical reasoning and capacity to apply that reasoning. Working with real decisions affecting real people, animals, and ecosystems would significantly increase the students’ investment in the program. Students generally become more interested and insightful as they become more involved and invested. Moreover, moral psychologists have long held that reasoning alone is but one factor in ethical behavior (Rest, 1983). We anticipated that being called on to make real ethical decisions would not only make our students more sensitive in detecting and resolving ethical issues, they would also become more motivated to apply their moral knowledge both during and after the program.

We also anticipated that this experience would provide additional moral clarity current to PIs and IACUCs for the decisions which they now make on a regular basis without sufficient guidance. Both mentors and students would learn from a two-way dialog. The students would bring to the table the theory which they learn in class; the mentors would bring their experience and practical wisdom.

**Assessment**

We expected up to 20 graduate students per semester in a cohort. We planned to randomly assign students who volunteer to participate in our ethics curriculum to two groups: those taking our class plus shadow program, and those taking related courses without ethics components acting as a control group. Both control and experimental subjects would receive identical pre- and post-curriculum surveys. These surveys would allow us to examine effects both within subject, which offers greater statistical power, and between cohorts of subjects, which helps rule out history and maturation effects. In total, we hoped to include up to 120 graduate students in the experiment over a three-year period, with half randomly assigned to a control group and the other half as experimental subjects.

We planned a multi-trait, multi-method approach to measuring the effectiveness of our curriculum. As moral psychologists have noted, ethical reasoning is a necessary but not necessarily sufficient condition
for ethical action. Thus, we planned to look beyond reasoning to other important inputs to ethical action—ethical identity and empathy. The Defining Issues Test (DIT) should be relevant to moral reasoning regarding field research because it primarily measures the capacity to apply ethical principles to moral issues. While the DIT is about ethics applied to other people, the theory behind the DIT suggests that the capacity to utilize ethical principles is a general cognitive ability that should apply even in novel contexts such as reasoning about nature and wildlife.3

In addition to using the DIT, we also planned to develop and test our own measure of field research ethics based on Q methodology, a psychometric measurement approach that has been thoroughly tested for reliability and validity (McKeown and Thomas 1988; Barrya and Proops 1999). This consisted of a series of statements about how to think about and solve field research ethics issues. Statements represent different fundamental ethical approaches to the dilemma. Participants were asked to rank the statements in order of importance. We sought to determine whether, after completing our curriculum, participants will use the same ethical approaches more consistently across ethical issues and whether their rankings change significantly.

...OFTEN GO AWRY

Ethics

Our first thought was to apply existing moral theories to the new moral problems posed by field studies. Philosophic accounts of animal welfare flowing from the three currently mainstream, moral theories have been reasonably well articulated. Consequentialists typically take the welfare of animals to be worthy of considerable consideration because the ability to feel pleasure and pain, or the bare ability to take an interest in one’s own welfare, is thought to confer moral standing (Singer 1990). Historically, Deontology has been less animal-friendly, considering animal welfare to have ethical importance only insofar as it impacted humanity. However, that has been changing, and some contemporary deontologists argue that animals have certain rights because they are experiencing subjects of a life (Reagan 1983). The moral importance of animal welfare is easy to see within Virtue Ethics, which argues that virtues such as compassion and thoughtfulness generally yield caring actions and attitudes toward animals, whereas vices such as cruelty, greed, and self-indulgence yield the opposite (Clarke 1977; Hursthouse 2006).
By contrast animal welfare takes at best second place in the more narrowly focused and controversial theories of environmental ethics. The *Land Ethic* takes the whole biotic community, rather than particular individuals or even species, to be the fundamental object of moral value (Callicott 1989). Similarly, *Deep Ecology* insists that the flourishing of the environment as a whole has intrinsic value (Naess 1989). An *Ethics of Stewardship*, emerging from some theological traditions, understands the environment as a resource which humans have a moral duty to manage responsibly for the benefit of present and future people, rather than for animals (Linzey 2000; Attfield 2003). Thus, although the Land Ethic, Deep Ecology, and the Ethics of Stewardship are all naturally concerned with animal welfare, it is at best a means to something else. Animals’ interests are not deemed intrinsically valuable.

We quickly discovered that no one of these accounts yielded plausible solutions for the new moral problems posed by field studies, for each account neglected important insights and intuitions expressed by some of the others. A variety of incommensurable values are in play in field studies, and none of these theories managed to acknowledge all of these values. In particular, the animal-friendly versions of utilitarianism, deontology, and virtue ethics did not acknowledge the intrinsic value of ecosystems, while the theories of environmental ethics did not acknowledge the intrinsic value of animals. Yet combining these theories also proved impractical. The core commitments of each theory were not just incidentally absent from its rival theories, but rather these commitments were functionally precluded by central doctrines of the other theories.

Although existing theories will not satisfactorily resolve the moral problems posed by field research, our attempts to extrapolate these theories to field research were hardly a waste of time. Attempts to reconcile these theories with each other are ongoing in the literature (Fraser 1999; Fraser 2010; Jamieson 1998; Johnson 1991; Varner 1998). We are now in a position to publish an account of why such attempts are doomed. Moreover, we have found that it is pedagogically useful for students to work through the process of applying these six theories to various cases. (See below.) Indeed, we are currently writing case studies to assist faculty in shepherding students through this exercise.

Our next move was to look for a procedural rather than a principled solution to the various moral problems of field research. The procedure of requiring the divider of birthday cake to choose last typically results in a fair distribution of birthday cake. Similarly, we described a negotiation
procedure among stakeholders (plus certain boundary conditions) which would have a good chance of finding a morally acceptable outcome to these problems.

Stakeholder negotiation would be modeled upon the way in which medical decisions for young children are currently made. Since children are not competent to make their own decisions, parents or guardians make decisions for children. Someone is designated as each child's advocate to act in the interests of the child. Similarly, we suggested that each type of valuable entity affected by wildlife research (e.g. individual animals, ecosystems, animal populations, humanity, the scientific community) be represented by a knowledgeable, sympathetic advocate to act in its interests. Our proposal was that when a solution satisfactory to all parties is unavailable, representatives should turn to stakeholder negotiation in order to obtain a satisficing solution. No stakeholder representative would get all of what he or she wants in tough cases where several values are in conflict. But no stakeholder representative would get none of what he or she wants, either.

We envisioned this negotiation taking place within IACUC meetings, with committee members playing the role of stakeholder advocates. Alternatively, the whole process might take place in the head of a thoughtful individual researcher. He or she would consider his or her own projected research program first from the perspective of one stakeholder, then another, then a third, etc. in order to acquaint himself or herself with the various pros and cons and their tradeoffs. That is, stakeholder negotiation can be thought of as a thought-experiment engaged in by a researcher to insure that the interests of all of the entities affected by his or her projected research program are given due consideration.

But this line of thought failed, too, for two reasons. First, it is all very well to say that the stakeholder representatives should reach a negotiated compromise, but how is that to be done? Unless one gives a method for achieving a decision, one is just passing the buck to the IACUCs. To enjoin them to reconcile or weigh fundamentally opposed ethical considerations without giving any action-guidance is irresponsible. Second, upon reflection we realized that we were not describing a new method, but merely describing how IACUCs already work when they are working well. We were reinventing the wheel rather than improving it.

This investigation was not a waste of time, either. We believe that it would be useful for researchers, IACUC members, and even for non-researcher to know what IACUCs ideally should do, even without
knowing how they do it. So we plan to publish our description of ideal IACUC operation.

Our current proposal for addressing the moral problems of field research is to create a set of moral guidelines for field research by extrapolating from the “three Rs,” a widely accepted theory of laboratory animal research ethics (Russell and Burch 1959). The three Rs are general strategies for improving a research plan from an animal welfare perspective. Researchers should try to eliminate harm by replacing the animals targeted by the initial research plan with entities that cannot be harmed (e.g. computer models, tissues, germs) or entities that would be less harmed, reducing the number of animals targeted by the initial research plan, or refining or modifying their research technique so as to inflict less harm on each targeted animal. We extrapolated the three Rs in three stages. First, we found it necessary to investigate the concepts of animal harm, scientific knowledge, ecosystem part, ecosystem integrity, and tradeoffs among incommensurables. Second, we introduced a fourth R. When a research plan is so badly conceived that it has no significant chance of gaining any valuable knowledge, or when the knowledge gained would not be worth the suffering inflicted, then the researcher should refuse to proceed with the initial research plan. Third, in order to make these four animal Rs applicable to field studies, we develop environmental analogs to them. Overall, we ended up with a theory of environmental research ethics parallel to the four animal Rs.

Wildlife research ethics is then a combination of the animal and environmental Rs. Our current view is that tradeoffs between knowledge-gained and harm to individual animals are governed by the four animal Rs. Tradeoffs between knowledge-gained and harm to ecosystem parts (including animal, plant, and microbes populations, processes, sub-ecosystems, and abiotic conditions) should be governed by the four environmental Rs. Finally, tradeoffs between harm to ecosystem parts and harm to individual animals should be handled by assigning animals extra, although not overwhelming weight.

**Pedagogy**

Our students were recruited predominately from graduate programs in the biological sciences. Although our students had little or no background in philosophy, a general introduction to ethics and some specifics of environmental and animal ethics was easily taught. Choosing good case studies that portray the problems and pitfalls of our general project was more complicated. Getting the students to leave their
“comfort zones” in order to apply philosophical views far removed from their own to these case studies was even more complicated.

We met less resistance to the idea of ethical theory than is usually encountered in an introductory ethics class, perhaps because ours were graduate students studying material directly relevant to their own research projects. On the other hand, the students found it difficult to keep numerous different theories (plus our own evolving views) straight. To assist these non-philosophy students in organizing their thoughts, we devised several matrixes in which we placed the basic views explored. For example,

Figure 1: Example Matrix

<table>
<thead>
<tr>
<th></th>
<th>Utilitarianism</th>
<th>Deontology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anthropocentric</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ecocentric</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biocentric</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Although not all philosophers fit exactly one rubric, these categories helped students follow a single line of thought when discussing the specific cases.

Selecting good case studies was a difficult process for two reasons. First, we wanted to begin with cases that highlighted specific problems, and then advance to more complex problems. In many actual cases a bewildering multitude of issues arise, making the discussion of specific conflicts more difficult. We sought to find or create scenarios illustrating only one or two specific dilemmas. Second, we wanted to advance from cases with which the students were somewhat familiar and would have a clear preference because of their background (e.g. ecological restoration v. social recreational preferences), to cases in which the political, philosophical, and ecological questions were less familiar as well as more complex (e.g. African elephant control and management). Overall, we wanted to begin by raising questions within their “comfort zones” so that by the time we got to more complex and alien issues they would be ready and able to step out of their respective personal worldviews and utilize different perspectives to analyze these issues.

Since most of our students approached the course as scientific researchers with an emphasis on ecological thinking, they felt comfortable arguing cases from a land ethic perspective. Deep ecology was too far out for the students; the ethics of stewardship did not allow them to assign intrinsic value to ecosystems. Perhaps for similar reasons,
it was easier for most of the students to use utilitarian arguments than deontological arguments. Deontology, from the basic ethics represented by Kant, to Regan’s “animal rights” and Taylor’s “respect for nature” were much harder for the students to follow, and even harder for them to use in arguments. We didn’t even try to introduce virtue ethics.

To practice different views we divided the students into groups and had each group argue some of the cases from a different perspective. We succeeded in getting them to articulate their own assumptions and the assumptions of various competing views, although they tended to return to their comfort zones, arguing mainly from an ecocentric/utilitarian view.

Our greatest setback was the IACUC shadowing program. Members of the committee are mostly active researchers with teaching, research, and mentoring responsibilities beyond their IACUC ones. Getting both them and the students to find the time to seriously discuss the committee’s responsibilities and go over specific protocols at length proved impractical. We eventually replaced the shadow program with four things: (a) a lecture introducing the students to the role and responsibilities of the IACUC, (b) a discussion of several specific protocols with the chair of the committee, (c) sitting in on the monthly IACUC meetings and (d) shadowing semi-annual program and facility inspections or veterinary rounds. This combination seemed to work much better than did the shadow program. The students improved their protocol writing skills, and came to understand the reasoning behind the university’s IACUC form. Most importantly, they came to recognize that IACUC requirements have a sound ethical and scientific basis. They accepted that IACUCs are more than “necessary evils.”

Assessment

An impediment to assessment has been a lower turn-out for each field research class than had initially been expected, with the result that we have too few participants at this point to reliably discern significant changes from pre- to post- measures. A qualitative analysis of the open-ended responses of graduate students taking the field research ethics course found that the students after the course offered more and more nuanced reasons regarding a particular field research ethics quandary than prior to the course. The quandary concerned whether research involving toe-clipping (amputation) to identify individual animals in the field should proceed. Students proved to include substantially more and more diverse points along the lines of the four Rs,
as well as more sensitivity to the political context of field research ethics issues.

The Q methodology measure yielded two interesting findings thus far. First, few respondents modified their initial responses to the measure during the course of taking the survey. The idea of a Q-sort involves sorting responses (ethical considerations in this case) into answer categories (degree of importance of the consideration), examining whether all the answers in a given category really belong in the same answer category, and changing responses so grouped considerations are deemed to fit into the same category. Given that respondents rarely changed their responses, it seems they either (a) believe their initial choice is correct, with little need to see the considerations grouped by the web-based Q-sort software, or (b) they do not realize that the re-rankings are an important part of the assessment, or (c) they simply do not bother to reread their responses. Given that they take the Q-sort measure on their own time from any Internet-capable computer, there was little pressure to carefully consider responses. On the other hand, the high test-retest reliability of the measure suggests that answers may be nearly as accurate as they can be. In any event, it does not appear that the additional machinery of Q-sort methodology adds much to the data, though we continue to present all considerations on the same page and ask respondents to review their responses to insure that considerations with equal answers go together.

Second, examining the Q-sort results from graduate students and some from undergraduates in an extended effort to validate the test, the Q-sort responses prove to be highly similar when comparing subjects’ beginning-of-semester and end-of-semester responses. The high similarity in responses across extended periods of time suggests that the measure is quite reliable and thus taps real and quite stable attitudes. High inter-temporal stability occurs rarely enough in social research on attitudes, reinforcing the perception that the test taps strong and stable underlying tendencies. In addition, patterns of response make sense for biology students, with high priority given to considerations such as species preservation and low priority to aesthetic values and non-ethical considerations. The measure may prove to be a good way to capture varying types of ecological ethical reasoning in the population. Additional efforts are underway to establish the instrument’s validity and reliability.

The high test-retest reliability thus far observed raises the question of whether, even with more graduate student respondents, we would find significant change in the measure as a consequence of our curriculum. If
not, a question is raised regarding whether it is reasonable to expect a few months course to fundamentally alter students’ core values. Alternatively, it may also be asked whether the curriculum needs to be modified to ensure an observable effect on students’ practical moral judgments. It is too early, however, to determine just what would happen with a more adequate sample size. Also, the Q-sort measure till recently did not contain questions tapping four R considerations, the considerations that change most in qualitative analysis of open-ended responses to the same ethical quandary.

Informal discussions with the students after the semester ended correspond with the Q-sort results and suggest similar questions. Most students expected their future research planning process to be affected by the information we presented, and by the discussions within the class. Some admitted that they were initially skeptical about the need for ethical training for field research, but even these students found the class relevant and thought provoking. We believe that most of the students retained the basic attitudes with which they began the class, but gained an awareness and a better understand of several alternative views.

Additional analyses are underway to determine whether the curriculum enhanced students’ knowledge of the IACUC process and ability to apply specific ethical theories as well as determine whether their moral reasoning sophistication, as measured by the DIT, improved.

HOPE SPRINGS ETERNAL...

We proposed to explore an ethically gray zone that has received very little attention, pioneer a method for teaching current and future researchers about it, and assess our method’s effectiveness. Unsurprisingly, our initial ideas of how to proceed in each of these areas have met with various setbacks, and we have shifted in various ways to compensate.

On the one hand, existing ethical theories cannot solve the moral problems of wildlife research ethics, but on the other hand these theories are pedagogically useful. A procedural approach will not provide a solution to the moral problems, either, but by presenting a model of ideal deliberation within an ideal IACUC, we may be able to improve the actual deliberation of actual IACUCs. By accepting the three animal Rs, philosophically explicating some technical terminology, and extending the animal Rs to the practice of environmental research, we hope to gain
the agreement of almost all stakeholders to a set of simple, obvious moral principles governing environmental research.

Pedagogically, our approach of working through case studies using both existing theories and our own developing views moved the students past formidable, initial obstacles and enabled them to clarify and articulate both their own views and various alternative views. But the similarity of pre- and post-test responses plus our informal exit interviews suggest that we are not changing the students’ fundamental beliefs. Since our aim was not to change their worldviews, but rather to expose and open the students to alternative views, we consider the class to be a success.

We hope to transform the moral evaluation of animal research in field settings and introduce new, more appropriate educational methods, guidelines, and policies for field research and perhaps in laboratory-based animal research. Because all university and federally funded field research involving animals must by law be evaluated by IACUCs, our project has the potential to change the way ethics are employed in all biological studies. Although we are addressing specific needs for field research guidelines and pedagogy, we hope that our model will carry over into adjacent fields such a biology, ecology, and environmental sciences providing useful pedagogical and institutional insights for ethical training of the next generation of scientists.

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ENDNOTES

1 “The Guide does not specifically address farm animals used in agricultural research or teaching, wildlife and aquatic animals studied in natural settings, or invertebrate animals used in research; however, many of the general principles in this Guide apply to these species and situations” (ILAR 1996). “In the Act, the term “exotic animal”, as well as “wild animal”, is included … to make clear that all warm-blooded animals (other than those specifically excluded) are covered by the regulations when used for research, teaching, testing, experimentation, exhibition, or as a pet” (USDA 2005).
2 For example, “Fishes are specifically included within the scope of the Guide for Care and Use of Laboratory Animals ... None of the laws, nor general guides such as the Guide for the Care and Use of Laboratory Animals, provide detailed guidance; therefore, additional supplemental guidelines are needed. In fact, the ILAR Guide specifically calls for the development of detailed guidelines by knowledgeable groups...” (American Fisheries Society et al. 2004). The American Society of Ichthyologists and Herpetologists commented that “Successful care and husbandry of amphibians and reptiles depends on procedures different from accepted guidelines for birds and mammals commonly used in biomedical research, and the welfare of wild-caught animals often requires considerations different from those applicable to captive-bred or domesticated species” (Beaupre et al. 2004). The American Ornithological Union similarly stated, “Guidelines for the care of laboratory mammals often are not appropriate to wild vertebrates, even those held in captivity. On the other hand, the uses of wild animals have aspects that are not encountered in laboratory situations” (Gaunt and Oring 1999). Finally, the American Society of Mammalogists indicated that “Differences between medical research and basic research on mammals frequently pose problems for field researchers because regulations developed for laboratory environments and domesticated taxa are increasingly and inappropriately extrapolated to the field” (Gannon et al. 2007).

3 The DIT has been extensively tested for reliability and validity (Rest 1979; Rest 1983; 1986). It is widely used in research on accounting and business professionals (Goolsby and Hunt 1992; Bay 2002). Criticisms of political and gender bias in the DIT are readily addressed by the research evidence (Rest 1979; Bailey et al. 2005). Those with high scores on the DIT are significantly more likely to engage in a wide range of prosocial behaviors. High scorers are significantly more likely to cooperate even if the other partner in a prisoner’s dilemma experiment does not (Rest 1979). High scorers also employ more egalitarian rules in distributing money in an experimental situation. High scorers have lower levels of anti-social behavior (juvenile delinquency), controlling for IQ, SES, and SAT scores. The DIT 2 test, which we planned to use, is an update of the DIT test that is briefer and has greater reliability (Rest et al. 1999).

BIBLIOGRAPHY


