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Note: Text has been edited for clarity.

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Oversight of Research Involving Wildlife

Speaker:

Robert Sikes, PhD, Professor of Biology, University of Arkansas at Little Rock, Vice President and ACUC Chair, American Society of Mammalogists

Moderators:

George Babcock, PhD, University of Cincinnati

Susan Silk, MS, Director of Division of Policy and Education, OLAW, NIH

Axel Wolff, MS, DVM, Director of Division of Compliance Oversight, OLAW, NIH

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Slide 1 (Oversight of Research Involving Wildlife)

>> *George Babcock:* Today, it is our pleasure to welcome Robert S. Sikes who will speak to us about the oversight of research involving animal wildlife. Dr. Sikes earned a B.S. from the University of Arkansas at Little Rock, an M.S. from Memphis State University, and a Ph.D. from the University of Minnesota. His academic training and research interests center on the behavioral and evolutionary ecology of mammals. With regard to oversight of animal use, Dr. Sikes served as both an IACUC member, as Chair, prior to assuming his current roles as Professor of Biology and Director of the Basic Animal Services Unit of the University of Arkansas at Little Rock. Dr. Sikes has been a member of the Animal Care and Use Committee of the American Society of Mammalogists [ASM] since 1997 and has Chaired that committee since 2008. He has been a panelist at various symposia on the use of wildlife in research and was co-convener of the 2011 conference on IACUC oversight of wildlife research in Albuquerque, New Mexico. He regularly presents at national meetings on topics related to the oversight of wildlife animal research. Dr. Sikes is a senior author of the 2011 Guidelines of the American Society of Mammalogists for the Use of Wild Mammals in Research. It is my pleasure to welcome Dr. Sikes to the OLAW Online Webinar Series. Bob.

Slide 2 (Collaborators)

>> *Robert Sikes*: Thank you, George. And hello, everyone. Thank you for participating in this webinar about the Oversight of Research Involving Wildlife. The recommendations and resources that I am sharing with you today are the result of a truly enormous effort by many individuals. I just happen to be the spokesperson for today's session. Ellen Paul of the Ornithological Council has been deeply involved in the development of these materials as have Drs. John Bryan with the National Park Service and Stephen Beaupre, past president of the American Society of Ichthyologists and Herpetologists.

Slide 3 (OLAW Education Resources)

This talk is organized to touch on some of the questions and issues that IACUCs wrestle with most frequently. I will point out that many of these issues have been addressed in great detail in some of the recent publications by my colleagues and I. OLAW has provided a link for the resources referenced in this webinar and the slide show and the PowerPoint package that supports it at the URL shown here: [http://grants.nih.gov/grants/olaw/educational_resources.htm]. One of the resources included at this link is a sample protocol that was designed specifically for wildlife activities. This sample protocol document was developed as one of the products from a conference held in Albuquerque in October of 2011 that did focus on oversight of wildlife research. In addition to being reviewed by NIH OLAW, the sample protocol has been reviewed by AAALAC International, which has also agreed to post it as resource material for interested parties.

Slide 4 (ASM Animal Care and Use Committee)

This sample protocol is also available on the websites of the American Society of Mammalogists and the Ornithological Council. Please note that the PowerPoint file that accompanies this webinar has clickable links to the sources referenced herein. And these sites will provide some additional useful materials for you.

[Resources for investigators and oversight personnel:

- [IACUC protocol form specific to wildlife research activities \(2014\)](#)
- [Article on appropriate standards for wildlife research \(Sikes et al., 2012, BioScience\)](#)
- [Recommendations for citing taxon-specific guidelines for wildlife research](#)
- [ASM Animal Care and Use Guidelines Document \(2011\)](#)
- [ASM guidelines for protection from hantavirus pulmonary syndrome \(2010\)](#)
- [Addendum #1 to 2007 ASM guidelines regarding thoracic compression \(2008\)](#)
- [Addendum #3 to 2007 ASM guidelines and ASM position regarding USDA categorization of procedures with wild mammals \(2010\)](#)

- [Addendum #2 to 2007 ASM guidelines regarding release of captive animals \(2010\)](#)
- [ASM position regarding Trap Neuter Release of feral cats \(2010\)](#)
- [Summary of procedures and requirements from CDC regarding importation of scientific research specimens \(by M.S. Hafner\)\]](#)

Slide 5 (Ornithological Council)

The sample protocol is provided as a beta version in Word format to make it easy for institutions to adapt it to their specific situations. The protocol covers topics that are important to oversight of wildlife research and actually provides quite a bit of additional detail and guidance to PIs and IACUCs regarding wildlife research in the introductory material.

Slide 6 (Additional Education Opportunities)

And for those of you seeking even more information, there will be a panel discussion and workshop on wildlife research at the upcoming PRIM&R IACUC Conference in Denver on April 1st and 2nd of 2014 and also at the annual SCAW meeting, Science Center for Animal Welfare, in San Antonio in December of 2014. And finally, there is a brand new wildlife course available through the CITI program written by the same collaborators I have already mentioned.

Slide 7 (Pictures of Wildlife)

After that recap of contributors and resources, let us jump into this topic: the oversight of research involving wildlife. Wildlife research is challenging and the review of any project involving wild animals is also challenging and, I have to tell you, this is equally true for IACUCs that handle wildlife research on a regular basis or even exclusively. The difficulties come from many places, most of which are beyond the control of the IACUC; but the challenges grow when relevant resources are not used or when wildlife activities are evaluated using tools that are not designed for those species and types of work. The goal of this webinar is to highlight approaches and resources that will assist institutions in conducting sound reviews of projects involving wild animals. Many of the ideas that I will present are covered as "Suggestions for IACUCs" that accompany the sample IACUC protocol I discussed earlier. So what makes oversight of wildlife activities so tough? Well, to begin with, whereas most biomedical research involves fewer than 10 or 15 species or so, there are more than 52,000 species of vertebrates that are potential subjects for your investigators. These animals occur in virtually every possible environment and you usually cannot order them from a Class A dealer like you would a laboratory animal. Further, trade in many of these species of wildlife is actually illegal and can land you in jail.

The screen before you now – if you will back up to the wildlife slide just for a second. On this screen you see some of the diversity of activities that investigators

might engage in. The neon mouse on the left side of the screen is one where students actually powdered this with a fluorescent powder and then came back and tracked it at night with blacklights. It may involve capturing birds for an ornithology class, again below the neon mouse, or trapping beaver in the lower left corner of the screen. Or perhaps students are capturing water snakes around minnow ponds as shown on the right screen. In other words, there's a tremendous diversity in the types of animals, the types of questions that one might ask.

Slide8 (Institutions should...)

Given this diversity of species, situations and questions, it is not possible to assemble a committee with expertise in more than a tiny subset, but having at least one member with real expertise in field work with vertebrates is hugely beneficial. These individuals bring not only taxonomic expertise but they bring a familiarity with the ins and outs of field research and an understanding of the different types of questions posed as compared to biomedical work. They also will be familiar with the permitting process that is required for virtually every wildlife project. But even if you have a member with wildlife expertise, you still need to ensure that these individuals weigh in during protocol review. If your institution uses a designated member review system, it is especially important to ensure that members with wildlife expertise are included in the review of these types of protocols.

Now if deliberations require additional expertise, the committee should keep in mind that the PI might well be an expert on the species in question. Additionally, the committee can always reach out to the professional community. As Chair of the mammal society's Animal Care and Use Committee, I regularly field questions from IACUC members and PIs wondering about specific techniques or appropriate capture methods for species X, and I know that my counterparts with the other taxon-based professional societies do as well. If the question is one that we can't answer ourselves, we have the rest of our professional organizations to consult. We will do our best to find an answer or at least identify a resource for you, and we welcome your questions.

Slide 9 (Contacts)

Please note that PHS Policy [[Public Health Service Policy on Humane Care and Use of Laboratory Animals](#)] supports consultation to assist in review of complex issues and such consultation is encouraged by OLAW. So with that, contact information for myself and Ellen Paul are listed here. [Robert Sikes, Vice President and Chair, Animal Care and Use Committee of the American Society of Mammalogists, Professor of Biology, University of Arkansas at Little Rock, 501-569-3516, rssikes@ualr.edu. Ellen Paul, Executive Director, The Ornithological Council, Washington, DC, 301-986-8568, ellen.paul@verizon.net.]

For representatives for the other taxon societies, listeners are referred to their own websites. Even when you have the wildlife expertise on your committee, it is still important to use appropriate tools to evaluate proposed activities and to remain in compliance with all applicable regulations. Whether dealing with laboratory species, wildlife, or agricultural animals, it is imperative that the IACUC be mindful of the wording of the institution's Animal Welfare Assurance.

Slide 10 (Understanding the scope...)

The scope of applicability of this Assurance is critical in determining which guidelines IACUCs may use as primary resources for evaluating proposed activities. As I am sure you are all aware, PHS Policy requires that all PHS-funded activities be conducted in a manner that is consistent with the [Guide for the Care and Use of Laboratory Animals](#). An institution may choose to extend the scope of that assurance to include all vertebrate animals regardless of funding, or they may leave it to those activities that are funded by the PHS. The scope of an institution's Animal Welfare Assurance should be tailored to the needs of the institution and it should ensure that animals are handled ethically, humanely, and responsibly as appropriate to the species. Where the PHS Policy applies, the *Guide* is the primary standard. Other resources can be used to supplement or complement that standard.

Slide 11 (OLAW Useful Links)

In fact, OLAW encourages IACUCs to consult other resources, including the taxon-specific guidelines, and provides links to those resources on the OLAW website shown on this slide. If you will click on that [link](#) there are a variety of wildlife-related materials located under the Species Specific section.

Slide 12 (Critical review...)

So, in instances where the applicability of the Institution's Animal Welfare Assurance does not extend to non PHS-funded activities, then other documents, such as taxon-specific guidelines or the Ag Guide [[Guide for the Care and Use of Agricultural Animals in Research and Teaching](#)], may serve as primary references for details involving the species under consideration. Regardless of the wording of the Assurance, the important point here – the take-home – is that IACUCs should be using the most appropriate resources to the task at hand and they need to understand that they have the latitude to use those resources.

Slide 13 (Taxon-specific Guidelines)

The *Guide for the Care and Use of Laboratory Animals* was developed for biomedical applications. Since most biomedical research, especially at academic institutions, is funded by PHS sources, recognition of the *Guide* as the primary standard in the PHS Policy is understandable. And since most IACUCs deal far more with protocols involving laboratory animals than wild ones, their familiarity and reliance on the

Guide is also understandable, but this document is actually a very poor fit for wildlife activities.

Most of the specifics that are especially important in dealing with wild taxa are not covered in that document whereas these items are the reason the taxon-specific guidelines came into being. A brief review of their origin is appropriate. For those of you who would like additional information on the development of these taxon-specific guidelines, I'll refer you to the 2011 Bioscience article that is included in the reference material for this webinar. That document provides a detailed timeline of this development process.

Briefly, oversight of wildlife research came under the IACUC's purview in 1986 when PHS Policy was issued in response to congressional directive regarding the Health Research Extension Act. The Policy required compliance with the *Guide* as a requirement for PHS funding. The National Science Foundation, which has always funded a large percentage of wildlife research, voluntarily adopted the PHS Policy when it was issued. At the same time, however, the National Science Foundation realized that the application of the *Guide* to wildlife would be problematic and they approached the professional taxon societies of the U.S. and recommended that these organizations develop guidelines specific to the taxa for which they were the recognized experts. As a result of this, in 1987 and 1988 we see the publication, or revision, of guidelines for mammals, birds, fishes, and reptiles and amphibians. At about the same time the agricultural community developed guidelines specific to the farm species. Recent years have seen a growing concern about the overdependence of IACUCs on the *Guide* for evaluating wildlife activities, so much so that in 2013, the National Science Foundation explicitly recognized the suitability of taxon-specific guidelines for work funded by them and involving wildlife.

[*Taxon-specific guidelines:*

- [Guidelines of the American Society of Mammalogists for the Use of Wild Mammals In Research](#)
- [Ornithological Council Guidelines to the Use of Wild Birds in Research](#)
- [American Fisheries Society, American Institute of Fishery Research Biologists, and American Society of Ichthyologists and Herpetologists Guidelines to the Use of Fishes in Research](#)
- [American Society of Ichthyologists and Herpetologists Guidelines to the Use of Amphibians and Reptiles in Research](#)]

Slide 14 (Taxon-specific Guidelines, cont.)

These taxon-specific guidelines are consistent with the laws and regulations governing the use of animals in research and education, but they are tailored specifically for wild animals, particularly wild animals in their natural environments.

As a consequence, they focus on the issues that IACUCs and PIs should be taking into consideration for oversight of work involving these animals. For example, the taxon guidelines cover capture techniques in great detail because this is how one obtains wild animals. In contrast, capture or trapping techniques are not relevant to work with domesticated animals in laboratory settings and, consequently, they are not covered in the *Guide*. Taxon guidelines also cover the permitting process, and that labyrinth is our next topic.

Slide 15 (Permits)

In terms of animal work, permits are pretty much unique to the wildlife arena; and there they are ubiquitous. Virtually every type of work will require one or more of these permits. And all of these permits are usually to be obtained from different agencies. Local requirements typically include a state collecting permit and permits for working on state or local parks or reserves, if those are intended study sites. Federal permits, on the other hand, are required for migratory birds or marine mammals, and import permits if the work involves bringing animals or animal parts into the United States. Work in foreign countries usually will require additional permits from the country hosting the research. Importantly for oversight consideration, all of these permits are issued to the individual PI conducting the work and not to the institution.

Further, even if the IACUC has approved the activities described in the protocol, the work cannot be conducted lawfully without the required permits. Because the permitting deadlines, renewals, and reports all fall on very different schedules than the IACUC review process, this presents a conundrum for IACUCs. Because IACUCs cannot provide conditional approval, there are two options open to them. They can either require copies of all permits prior to protocol review to verify that the proposed work can be conducted lawfully, or they can review and approve the work but specify to the PI, preferably in writing, that any work requiring permits may not be conducted until all required permits are in place and current. Each of these possible approaches has advantages and disadvantages and the best choices will likely depend on the institution.

If permits are required before protocol review, the preparation process really should start far in advance of planned work, perhaps even a year or more. And the different reporting and renewal deadlines will require quite a bit of considerable bookkeeping. In contrast, if the institution places the burden for permit compliance on the PI, it removes a certainty from the institution that all work is conducted in strict compliance with the permit requirements. Regardless of which path that the institution chooses to handle this permitting process, it is recommended that the IACUC not use ambiguous language when communicating with the PI on this matter. You should also note that any work requiring a permit that is conducted without all permits in place is in fact noncompliance and because it's

noncompliance, it's reportable to the appropriate bodies. Listeners should be aware that the sample protocol contains the following statement in bold font. It is on your screen but it is important enough that I'm going to read it again.

If your research requires federal or state permits, it is unlawful to begin work until all permits have been obtained. You may not start the work for which permits are required until the permits are issued, even if your protocol has been approved.

We strongly recommend that such a statement also be included in correspondence with the PI. Beyond the legal requirements of obtaining permits prior to the planned work, there are benefits of the permitting process for appropriate oversight of wildlife research. Additional benefits: the wild animals that are the focus of wildlife research exist in nature as part of a local population and a community. These are terms that have little relevance to the animals used in biomedical work. Whereas concern for an individual animal is important in both arenas, the potential impact on populations is far more important in wildlife research.

IACUCs usually are in a poor position to evaluate the potential impact of proposed activities on populations, but this is a concern and a focus of most permitting agencies which are usually responsible for maintaining an area's biota. As a consequence, IACUCs can view the permit approval as an additional evaluation that impacts on local populations are either minimal or are justified. It is important to note, with regard to permits however, that the permitting agency probably has not evaluated the proposed activities with regard to ethical standards or humane techniques. In almost all instances, the permit application forms simply do not include the same fields that IACUCs will evaluate in their deliberations and the permitting committees are not reviewed – the review process does not include a body with the same composition of an IACUC. The only exception that I know of with regard to this last point is the National Park Service (NPS). Their IACUC will review any project to be conducted on National Park Service lands using a form very similar to the sample protocol we are providing. In fact, our protocol document was modified from that NPS form.

Slide 16 (OLAW FAQ A6)

Now that we have the permits in place and we understand what guidelines we can use, can we get to the fields? Well, what field and what constitutes a field study? Let's explore that just a bit. What constitutes a field study, and are all projects involving wild animals subject to IACUC review? This is a topic that again depends on the language of an institution's Assurance. OLAW's [Frequently Asked Question A6](#) states that if the activities are PHS-supported and involve vertebrate animals, then the IACUC is responsible for oversight in accord with PHS Policy. IACUCs must know where field studies will be located, they must know what procedures will be involved, and they must be sufficiently familiar with the nature of the habitat to

assess the potential impact on the animal subjects. If the activity alters or influences the activities of the animals that are being studied, the activity must be reviewed and approved by the IACUC for example, capture and release, banding. If the activity does not alter or influence the activity of the animals, then IACUC review and approval is not required for example, observational work, photography, and collection of feces.

Slide 17 (Field Studies)

But for activities not covered by the institutions Assurance, the Animal Welfare Act may well apply. The animal welfare act applies to all warm-blooded vertebrates except for birds, rats of the genus *Rattus*, and mice of the genus *Mus*, bred for research. If covered species are used, they must be included on annual USDA reports. However the Animal Welfare Act also has exclusion for field studies conducted in the animal's natural environment that do not involve invasive procedures, harm, or materially alter the behavior of an animal under study. Although the terms "harm" and "materially alter behavior" are not further defined, it is important that the IACUC have a process in place to identify studies that qualify as field studies under this regulatory language. This is a determination that should come from the IACUC and from the IACUC deliberations based on the regulatory definition rather than from a check box completed by the PI stating that work will be conducted in the field. Okay now we've got our guidance, we know what permits will be required. Can we finally get down to working with animals? Not yet. Obtaining wild animals almost always involves capturing them yourself or acquiring them from a colleague. If the latter, there are probably even more state permits involved for interstate transfer of wild animals and material transfer agreements. If the former, then suitable capture techniques must be identified.

Slide 18 (Animal Capture)

How do we go about getting these animals? Given the diversity of species, it really should come as no surprise to anyone that there is also a great diversity of capture techniques and traps and that these methods are constantly evolving as more effective methods are devised. Regardless of the trap used, the objective is always the most humane capture possible if the animal is to be taken alive and a humane death if it is to be killed.

Slide 19 (Picture of a student capturing an armadillo)

Some animals can be captured by hand or net, whether easily or not, that's another question. Others must be taken with kill traps or by gunshot. Coverage of even a fraction of the traps and capture techniques is beyond the scope of this talk, but these topics are covered in detail by the taxon-specific guidelines. The IACUC should ensure that the capture techniques planned are appropriate to the species and the study objectives. Both the PI and the IACUC should also consider the incidental capture of non-target species. Traps and nets are usually not

species-specific, but they often can be set in such a way as to minimize the capture of non-target animals.

Slide 20 (Use of Chemical Agents)

Along with capture, IACUCs and PIs must consider the use of chemical immobilization for wild animals. Beyond relieving pain or distress, anesthetics and tranquilizers are used frequently in wildlife to facilitate handling and to allow collecting needed samples. Depending on the species and requirements, these chemical agents might be an absolute necessity for the safe handling of animals. Because of their fear of humans, many wild animals will thrash about and become dangerous to themselves and to personnel. In these instances there really is no question that the presence of humans causes stress, but seldom does it go so far as to cause distress.

For example, many animals are aged by examining teeth, or tissue samples may be required. While these types of data do not require painful or invasive techniques, if you are taking them from an unsedated raccoon, unsedated bobcat or mountain lion, well that might be a little bit more of an adventure than most researchers wish to experience. Chemical immobilization, in such cases, protects both the animals and the humans. When categorizing these activities for USDA reporting, the IACUC should remain cognizant of why these chemical agents are being used and whether the animal is experiencing pain or distress; or whether the compounds are used for safe handling and the animal is experiencing only stress.

If chemical agents are to be used on animals that are then released, what are the chances of those compounds then entering the food chain if the treated animal is later killed or dies? What are the likely effects on predators or scavengers? Secondary poisoning is a very real possibility in these cases and it must be considered. Additionally, many of our animal subjects are in studies because they are game animals. In other words, animals that are potentially for human consumption. With that in mind, all parties must be particularly aware of the species and timing relative to local hunting or fishing seasons when chemical agents are used.

Slide 21 (Picture of pocket gopher, collared lizard, and housing)

Some study designs require that wild animals be brought into captivity. When this is the case, the IACUC and the animal husbandry personnel must realize that just because the animals are in cages, like domesticated animals, they certainly cannot be handled as such. Close proximity to humans and unfamiliar surroundings are stressors. These animals are not used to processed diets and they are not used to confinement. For many species the PI and animal care staff will have to develop novel housing arrangements. Both the IACUC and the PI need to be open to trying different systems, keeping in mind that the normal behaviors and habitats are what

you want to approximate and try to make the captive conditions match those wild conditions to the extent possible. This might involve environments with a lot of vertical structure if you're keeping flying squirrels, or may involve caging with suitable refuges in the case of a great number of wild species.

A great example is the intricate system of interconnected chambers that investigators have designed for keeping the eusocial and subterranean naked mole rats in captivity. But what if the research design calls for keeping a solitary subterranean animal like some species of pocket gophers? The animal on the left of the screen is a pocket gopher and the housing system is depicted directly below. This is a housing system that was actually developed by a graduate student working in the lab where she wanted to look at behavior of these animals. Notice that it's three interconnected rat cages and they're connected with PVC tubing. Also notice that each of these has a different bedding substrate. The animal is simply placed in, they can move from cage to cage, from container to container. And they can rearrange the bedding, the substrates, to suit themselves.

To take it even further, the student developed a cover that would fit over one of these and the animal had the choice then of building its nest under the covered container or one of the open containers and moving any substrate anywhere it wanted. They were in control of their own environment. Interestingly in this system the caged tops, the wire cage tops, were turned upside down and fastened to the cages and the food, fresh produce, typically, was placed inside the cage on the substrate. This allowed the animals to cache their food exactly the way they would in nature. Another interesting detail with this system is that the animals existed for two years in the lab and never had access to a water bottle. This is a species that exist in nature and survives on metabolic water, not on free water.

Thoughts on captive housing might also take some serious considerations of the diets animals are provided, such as produce or live prey. I have colleagues that have experienced these issues first hand when they were trying to rear hatchling water snakes on killed rather than live fish. The snakes were not doing well and many were refusing to eat. Their growth rates were depressed to the point where they were becoming emaciated and growth curves were well below those of free-ranging snakes. When the diet was switched to live prey, growth rates returned to what the investigators were seeing in free-ranging animals and the young snakes were thriving. In this situation, by offering the snakes only killed fish the researchers were inadvertently inducing distress whereas when live prey were fed the apparent distress of the subject animals was eliminated.

Once the project is over, what should we do with captive animals? In most instances releasing captive animals back into the wild is not advisable and in fact, it might not be legal. Remember that the local population must be protected and

releasing captive animals can have seriously negative consequences. The captive animals may have no familiarity with the local environment and they're not acclimated to natural conditions. For territorial species, introduction of new individuals will generate conflict and may squeeze resident animals, that is if the introduced animals survive. In many instances the release of captive animals into the environment is forbidden specifically to protect the native populations. These are just some of the factors that should be considered prior to the release of captive animals and I would suggest you look at some of the taxon-specific guidelines that are going to cover these and some additional topics in greater detail regarding release.

Slide 22 (AVMA Guidelines)

Ending the lives of animals is another area where the language of an institution's Assurance is of great importance. Because OLAW recognizes the [AVMA Guidelines for the Euthanasia of Animals](#) (PDF) as the sole reference standard for euthanasia, methods of euthanasia must comply with the AVMA Guidelines for all activities funded by the PHS unless the IACUC has approved a deviation. Deviations must be scientifically justified. If the institution's Animal Welfare Assurance applies to all work with vertebrate animals regardless of funding source, then all activities must be in compliance with the requirements for research funded by the PHS. As I have mentioned earlier in this talk, other funding agencies, including the National Science Foundation (NSF), have voluntarily elected to follow PHS Policy, but the NSF also expressly recognizes these guidelines published by the professional taxon societies as appropriate references.

If the circumstances of field settings or study requirements preclude the use of methods deemed acceptable by the AVMA for euthanasia, the investigators may request approval of alternative methods to humanely end the lives of wild animals. Such a request is consistent with the AVMA Guidelines which recognize that ending the life of wild animals in field settings might more appropriately be considered humane killing than euthanasia. Although the AVMA Guidelines expressly do not apply to humane killing, methods considered acceptable therein are also acceptable and preferred for humane killing where possible. Under PHS Policy, [section IV.C.1.g](#), the IACUC has the authority to approve killing techniques not recognized as forms of euthanasia by the AVMA with scientific justification. Examples of other methods used for euthanasia or humane killing include those approved by the professional taxon societies.

Slide 23 (Whether euthanasia or humane killing...)

Whether you consider euthanasia or humane killing, it is expected that investigators will use the most humane technique feasible that is also consistent with study objectives. As with compounds used for chemical immobilization, care must be taken to ensure that those agents used for euthanasia or humane killing do not

enter the food chain. Carcasses of animals killed by drug overdose can cause secondary toxicosis in any animals consuming them.

Let's move to occupational health and safety. There are risks inherent in field work that simply do not exist in laboratories. Many of these risks are the same ones an individual would encounter hiking or conducting any other outdoor recreational activity. Risks may range from poison ivy and allergic reactions to bee stings, to attacks from cornered study animals and zoonoses where animal contact is involved. Risk assessment should include the likelihood of encountering the various hazards and the seriousness of each hazard. Protective measures should match the real risk. Importantly, risk assessment and education efforts should include unnamed participants when they occur, for example, students taking field courses. In fact, if you look at the slides accompanying this webinar, most of the photographs include students in teaching situations. Suitable precautions usually can be established without inhibiting an institution's ability to offer these field courses or adversely impact research efforts, but it might take some additional consultation or review by the IACUC or the occupational health staff.

Slide 24 (Additional Resources for Zoonoses)

Although any wild animal will be exposed to parasites and pathogens as part of their normal life and might harbor these organisms, most of these are host-specific and pose little threat to humans. Where there are exceptions, however, their effects can be very serious. It is inappropriate to consider every animal in the wild to be rabid, just as it is inappropriate to consider no wild animal to pose a threat. The truth is somewhere in between. This is where input is needed from sources familiar with the threats. Individual investigators are often experts on the species they study and are usually well-versed on potential pathogens associated with those species. As such, they are valuable resources for the IACUC.

Other resources again include the taxon-specific guidelines, the U.S. Centers for Disease Control [and Prevention] and state health departments. Protective measures, whatever is decided on, should be based on the potential hazards present and the likelihood of encountering those hazards given the nature of the project. Preventive measures can range from a simple awareness of potential risks, to immunizations, or to full protective clothing.

[Additional resources for zoonoses:

- [USGS-Zoonotic Diseases \(Mammalian\): Work Smart, Stay Safe](#)
- [USGS-Zoonoses and Travel](#)
- [USGS Field Manual of Wildlife Disease: General Field Procedures and Diseases of Birds](#)
- [AVMA-Disease Precautions for Hunters\]](#)

Slide 25 (Occupational Health)

Perhaps the single most important thing to remember with regard to potential biological hazards is that personnel should be advised to inform their health care provider of their contact with wild animals and field conditions should they become ill.

Slide 26 (Useful Publications)

With that I want to draw this portion of the webinar to a close and I want to thank you all for participating; and I want to thank OLAW for the invitation to talk on this topic. I will leave you with one last slide of additional resources for wildlife work. I will also remind you of the upcoming panel discussions and workshops at the PRIM&R meeting in Denver in April of 2014, the first week in April, and also at the SCAW meetings in San Antonio in December of 2014. These presentations, too, will be wildlife focused and I will be joined on the workshop at PRIM&R by Dr. Axel Wolff also on this seminar. So with that, thank you very much.

[*Useful publications:*

- [Sikes, R.S., E. Paul, and S. Beaupre. 2012. Standards for Wildlife Research: Taxon-Specific Guidelines versus US Public Health Service Policy. *BioScience* 62\(9\):830-834.](#)
- [Sikes, R.S. and E. Paul. 2013. Fundamental differences between wildlife and biomedical research. *ILAR Journal* 54\(1\):5-13.](#)
- [Paul, E. and R.S. Sikes. 2013. Wildlife researchers running the permit maze. *ILAR Journal* 54\(1\):14-23.](#)
- [Nisbet, I.C.T. and E. Paul. 2000. RE: Ethical issues concerning animal research outside the laboratory. *ILAR Journal* 45\(3\):375-377.](#)
- [Ethical and IACUC Considerations for Field Biology Studies. 2013. *ILAR Journal* 54\(1\).\]](#)

Slide 27 (Please send questions to OLAW via the question box on your screen)

>> *George Babcock:* Thank you much, Bob, that was a very informative and interesting talk. Today we will be accepting questions about oversight of research using wildlife. Dr. Axel Wolff and Ms. Susan Silk will be joining us for this portion of the webinar. Dr. Wolff is the Director of the Division of Compliance Oversight at OLAW. Ms. Silk is the Director of the OLAW Division of Policy and Education. Please write your questions in the box on your computer screen in the lower right. We will answer as many as we can in the time that we have. Additional questions that we receive within two weeks after the webinar will be amended to this transcript. The OLAW staff and Dr. Sikes will answer those questions. So send us your questions, now or later. We will start with a question on capturing and housing some of these critters and with questions we received prior to this webinar. I'll start off because a question came to mind. Bob, you mentioned water snakes needing live prey. That made me wonder, in your own research what species has been the most

challenging to work with and keep in captivity? What specialized husbandry and housing did you provide?

Slide 28 (Picture of pocket gopher, collared lizard, and housing)

>> *Robert Sikes*: Well, I guess that really is a pretty easy one, and it involves the two species on the screen now. The pocket gophers, I've already talked a little bit about the husbandry. The real challenge with the pocket gophers was actually capturing the animals. The student wanted to work on behavior of these animals and all the commercially available traps were kill traps because these animals are considered pest species and the traps are designed to kill them. That doesn't work well for studying behavior. So we actually had to develop a trap that would allow us to trap these animals, to capture these animals efficiently and unharmed. That took probably a year or year and a half. The other species that was a real challenge was the collared lizards and these are shown on the right side of the screen, lower right, and their experimental enclosures above. This particular enclosure, eight feet long and there were 16 of them in this room, is filled with industrial sand. Basically it's a chipped granite. To set the system up, we had to haul a little over two tons of this industrial sand into the enclosures. We essentially covered the floor of this laboratory four inches deep with industrial sand hauled in five gallon bucket at a time.

Slide 29 (Question 1)

>> *George Babcock*: Thank you very much, Bob. The first question from outside is for Dr. Wolff. **Is it okay for the IACUC to approve a protocol for research with wildlife when some of the permits are approved, but others are pending?**

>> *Axel Wolff*: Well, potentially yes. The protocol could subsequently be amended if an additional permit was approved. However, as Dr. Sykes explained, the protocol should not be approved with contingencies if a key permit is missing that has to be in place before work is allowed to start.

Slide 30 (Question 2)

>> *George Babcock*: Thank you. The next question, question 2. This one is for Dr. Sikes. **Do some wildlife permitting agencies require proof of IACUC approval before they will issue a permit?**

>> *Robert Sikes*: George, I've heard of this. It may happen occasionally. I don't think it's a general rule. In fact, I can't point to any agency that I've ever dealt with that required IACUC approval prior to approval of a permit, but again, I have heard that investigators have run into this, I just don't have any specific examples. I don't think it's common.

Slide 31 (Question 3)

>> *George Babcock*: Thank you. Question 3, this is for Dr. Wolff. **Is wildlife research often an issue for OLAW?**

>> *Axel Wolff*: Generally no, however, NIH has funded some studies such as ones on bird flu which involve trapping and bleeding of a variety of wild birds. In such studies IACUC must ascertain proficiency of the investigators and staff to humanely handle these animals, address euthanasia, and address occupational health and safety issues of personnel in the field.

Slide 32 (Question 4)

>> *George Babcock*: Thank you. Question 4. This one is for Axel also. **How many Assurances with OLAW specify that all vertebrate animal research would be conducted according to the standards of PHS Policy regardless of funding source? What types of research fall under this exclusion?**

>> *Axel Wolff*: Well OLAW's record keeping system doesn't exactly capture this information the way you asked it, however, OLAW does advise institutions that the maintenance of uniform and consistent standards is an essential ingredient in the development and implementation of a quality animal care and use program. Only when an institution can document that the animal care and use program funded by a non-PHS source is entirely separate and distinct, physically and programmatically from PHS-supported activities, will OLAW consider its exclusion from the Assurance. Unless there is such total separation, OLAW cannot accept the potential risks presented to animals involved in PHS-funded research. Institutions should also keep in mind the public perception that institutions not wishing to conduct portions of their animal research program in accordance with the Policy may be applying a double standard of animal care to the detriment of overall animal health and well-being.

Slide 33 (Question 5)

>> *George Babcock*: Thank you. Question 5 is two questions. I'll read them both. And Dr. Sikes, you can comment on them. **The first one, since you do not know how many organisms of the species of interest you will catch, how do you determine animal numbers to request an animal use protocol? And the second part is, how do you account for species of fish caught that are not of interest and not listed in the animal use protocol?**

>> *Robert Sikes*: Well, estimating numbers for wildlife projects is certainly very different from projects that you order from vendors. Field researchers usually worry more about getting an adequate sample size for statistical testing than they worry about having too many, but the opposite can happen occasionally. You might capture more than you want, more than you anticipated. Sometimes by a lot.

Maybe even an order of magnitude, especially if you're setting drift fences for amphibians at certain types of year or perhaps seining fish. So that will kind of pull in that second question. It's important for the PI and the IACUC to realize that the capture success can vary substantially with season and with population density and with local conditions. In writing protocols I would estimate on the high side as far as the number that might possibly be captured, but then set the take number by statistical justification or using some other criteria. You might state in your protocol, for example, that it is possible to capture as many as 500 or perhaps 5,000 salamanders or fish per site using drift fences or seines, but you're only going to retain 30 per site as a collected sample or maybe 30 per sex per site.

A related issue is a potential capture of non-target animals. As I've noted in the talk, many capture techniques are not species-specific. The protocol we developed addresses the potential of non-target species in section one. As a matter of fact, it requests that you list potential non-target species that could be impacted. There's also a statement in that section that species lists can be general such as all native fishes. Because really you don't know what might be in your seine when you pull through this stream. If PIs and IACUCs consider this question in the protocol and in the review, well, it should be adequately addressed. I always encourage very general species lists because you often do not know what or how many of each species [indiscernible]. It depends on the weather, the population levels, and it depends on luck.

Another thing to consider is that capture locations of non-target species are also really valuable data. These specimens themselves may be valuable if they're preserved as vouchers. And if the collecting permits and protocols allow. In other words, when you're collecting these animals, if your permits and your protocols allow, these incidental animals may go into a systematics collection and record base that permitting agency is going to find very useful as well. And, there at least a sample of them, is available for researchers sometime in the future.

As just an aside and an example, my master's thesis dealt with geographic variations in bobcats and I collected data on bobcat skulls out of museums only. Some of the skulls were collected – some of the specimens were put up by Teddy Roosevelt. I don't think he put them up with the mind for me doing this sometime in the future. Studying sample sizes and species lists for a project is where experience with the local taxa and the local conditions really helps inform PI requests and IACUC decisions.

Slide 34 (Question 6)

>> *George Babcock*: Thank you. Here's the next question. This one is rather complicated. It's a series of related questions and I would refer the people to look at the little box at the top because it helps to clarify. So I'll read them all. **First,**

how do you handle species of interest organisms that are caught and are injured, but not as a result of the trapping activity? And species of interest organisms that are injured as a result of trapping? And the same question, but this time for non-target species, that is, how do you handle non-target species that are caught and are injured as a result of trapping activity? And the follow-up would be, and non-target species that are injured as a result of trapping?

>> *Robert Sikes*: Okay. This one is for me, right?

>> *George Babcock*: Yes.

>> *Robert Sikes*: Okay, George. Well, this question actually opens many doors and it's tempting to peek into each one of them, but the simple matter is that you can – what you can do and what you should do really is going to depend on the local conditions, the local situation, and the decision is going to have to be made on the spot given these local situations. The non-target species again, that's addressed in the protocol, that's section one. The PI and the IACUC really should be considering what the potential impact is on non-target species, which ones are likely to get in the traps or in the seines. The injury issue is also dealt with in that protocol. I think it's section five. And the PI is asked to complete a section on how they are going to treat injuries should they occur. And this would include non-target animals.

So let's think about this in field situations. If it's a non-target animal that came into your trap injured, are there injured animals walking about in the wild? Absolutely there are. And you will see them occasionally. One could be detained by your trap. Should you do anything with that animal? In most cases, well, probably not. They may wind up being prey for a predator that evening or sometime later. The point is you didn't cause that injury. And the predators are going to be eating as well. If you decide to euthanize the animal, whether it's a target animal or not, that's actually going to depend quite a lot on the size of the animal. Let's say that you have – there's a big difference between doing something with – with euthanizing an injured mouse and an injured deer or an injured elk. If you're doing this with a chemical agent, what are you going to do with that carcass? You can't really leave that thing out there for these chemical agents to get into the food chain. Packing a mouse out is pretty easy. Packing an elk out is a different matter. Sometimes those non-target species, if you wind up euthanizing it, they may wind up in a systematics collection as well. It's a good record.

For the target animals, these are ones that you caused the injury to by setting the trap. If it was an incidental injury, then, yeah, you do need to own that. And in most cases euthanasia is probably going to be indicated. If you can use the animal – if the animal can be used for the purposes of the study, then it may make a valid sample, particularly if the animal will be killed as a portion of the study.

Slide 35 (Question 7)

>> *George Babcock*: Thank you. The next question is for Dr. Wolff. **If a scientist provides a scientific justification for using a method of euthanasia that is not permitted by the AVMA Guidelines and the IACUC approves that scientific justification, does this have to be reported to the IO as a deviation from the *Guide*?**

>> *Axel Wolff*: No. In this situation the exception is already built in and that the guidelines state that deviations are acceptable if justified for scientific reasons and approved by the IACUC. This would not be a departure from the *Guide* and does not need to be included in the semiannual report to the IO.

Slide 36 (Upcoming Webinars: 2014)

>> *George Babcock*: Thank you. I've thought of one quick last question before we go on to the ones that have recently come in. [Question 8] **We're an institution that does not have a large number of wildlife studies and we're also very much involved in post-approval monitoring, which is one of the emphasis areas. How does that apply to field studies where it could be very difficult?**

>> *Axel Wolff*: We don't expect IACUCs to go out in the field. The investigators should provide as much information ahead of time or during the study for the IACUC to understand what's going on, and this can be supplemented by pictures or videos from the field. But it's not required the IACUC actually perform inspections or physical visits to the study site.

>> *Robert Sikes*: I would agree completely. And you know, in addition to or in place of pictures, perhaps, just a simple conversation with the PIs, I think would be completely appropriate. Find out what they're doing.

>> *George Babcock*: Okay. Thank you. We've had a couple of questions come in which we don't have slides for. And I'll read these. The first one: [Question 9] **Apart from a standard IACUC approval and the state animal permits, are there any special considerations for wild-caught animals that are used for community outreach programs, the public and local animal species, rather than laboratory research?**

>> *Robert Sikes*: You know, we actually keep these animals for these purposes or have in the past as well, and we keep them under a teaching protocol.

>> *George Babcock*: Okay. The next question: [Question 10] **52% of our campus is restored and preserved wetlands and uplands. Interactions with animals occur for both research and educational activities. When we conduct these activities off site required permits are obtained to track the potential harm to the individual animals and overuse. Interactions with the animals on our**

campus are increasing as the researchers and student population grow. Are you aware of other universities conducting wildlife research in a similar situation? If so, I would like to contact them to discuss how they manage both the land and animal resources.

>> *Robert Sikes:* Well, I don't know of any offhand that are doing this, but I tell you the resource that I would turn to for this type of question. This would be an excellent question to post on a number of different listservs. One of them would be the IACUC listserv. You could just send this anonymously and have people reply or you could send it with your name attached, either way. I think it's a completely fair question and these are listservs that put people in contact that have this sort of information.

>> *George Babcock:* Thank you. The next one: [Question 11] **Are you aware of the concept of blanket protocols, that is a protocol that encompasses many species, research methods, and multiple investigators? Can you identify any concerns with this type of protocol?** I think Dr. Wolff would be appropriate for this.

>> *Axel Wolff:* Well, yeah, we are aware of those types of protocols and in general we don't find them to be a good idea. It's important to be very project specific and precise. If a protocol is too broad it's often very difficult for the PI and the IACUC to actually track what's going on, and this can lead to noncompliance. Teaching protocols could potentially have varied species and research methods and some specimen collection work may involve different species and collection methods, but even with those types of protocols it's very important that they're very clear and that the ability remains to track the specific procedures and the species involved.

>> *George Babcock:* Thank you. Susan, are there any other questions?

>> *Susan Silk:* Yes, there are. In fact, they're flying in. So many are coming in that we're going to extend for 15 minutes beyond our normal time, so if any of you have to leave, we understand. Just go ahead and log out and these questions will be included in the webinar transcript.

The first one I'm going to read I think is a good one for you, Bob. [Question 12] **Can you provide information on transportation for wild-caught animals, including health and safety concerns?**

>> *Robert Sikes:* Okay, transporting wild-caught animals. Obviously you want to know what species, what are the special hazards associated with those species, and the individuals need to have the proper screening for working with animals to begin with. In some instances it may be suitable to use microisolator tops or something like that. In other cases depending on the species and the potential hazards, they may need to be outside a passenger vehicle – outside the passenger compartment of a vehicle, perhaps in an enclosed trailer. Regardless, however you're hauling the

animals you need to make sure that it is climate controlled and appropriate for the animal.

>> *Susan Silk*: Okay, thank you. The next one, we'll call this [Question 13], is for Axel. **Has OLAW taken a policy position on the application or adoption of the Canadian Council on Animal Care's 2003 guidelines on the care and use of wildlife by Assured institutions for review and approval of protocols involving wildlife and field studies?** And the person who wrote this provided the link. You will be able to see that link on our website – on our transcript [<http://www.ccac.ca/Documents/Standards/Guidelines/Wildlife.pdf>].

>> *Axel Wolff*: Well, OLAW hasn't taken a specific policy position on this, per se, but we would treat it the way Dr. Sikes mentioned, any of these taxon-specific guidelines that they can be a supplement to what we already require. So if there are things in there that are very specific to a species that someone is studying and it goes into greater detail than the *Guide* it may be appropriate to refer to this.

>> *Susan Silk*: Here's another one for you, Axel. [Question 14] **In your example of feeding live fish to water snakes, Bob's example, what does an IACUC do about the distress and welfare of the fish?**

>> *Axel Wolff*: Well, if indeed live prey needs to be fed, that needs to be ascertained first, but it's clear that many animals will only eat live prey. The IACUC does need to address the care of these animals, the prey species, up until the time they are used. There will be a brief period of distress when they're being chased or captured, but that's part of it. The idea is to minimize the amount of stress. So up until the time during rearing or housing, they need to be kept separate and appropriately cared for. And then the charge to the IACUC is to make sure that pain and distress is limited to the amount necessary for that study. And we acknowledge there will be some pain and distress by the prey, but in this situation it's a necessary part of the study.

>> *Robert Sikes*: Axel, can I chime in on that one?

>> *Axel Wolff*: Absolutely.

>> *Robert Sikes*: The way that I'm familiar with how this particular protocol went, the fish were actually obtained as food from a bait shop. So they were acquired the morning that they were fed. They came in to the animal lab and then went into site cages.

>> *Axel Wolff*: Well, I think that certainly minimizes the amount of time that they would have been subjected to any distress. Sounds like a reasonable approach.

>> *Susan Silk*: [Question 15] **Bob, when animals have to be captured, what are the guidelines that your IACUC uses for assigning a USDA pain distress category?**

>> *Robert Sikes*: Oh, actually great question. And I'm going to refer to the taxon-specific guidelines. In fact, the Ornithological Council and the mammal society collaborated on a position statement with regard to this exact question and went through some of the examples of how these pain and distress categories would translate into the capture and use of wild animals. So those are actually contained in the latest edition of the mammal guidelines. [[Guidelines of the American Society of Mammalogists for the Use of Wild Mammals in Research](#)]

>> *Susan Silk*: And they can find the link to that in the slides that are going to be posted and in the transcript that's going to be posted from this webinar on the OLAW website.

>> *Robert Sikes*: Absolutely.

>> *Susan Silk*: This again is for you, Bob. [Question 16] **Would you differentiate humane killing from euthanasia? Many use both terms interchangeably.**

>> *Robert Sikes*: Well, the latest version of the AVMA Guidelines makes a distinction there. And it's not defined one way or the other than to say that in many instances these wild animals, because they can't be brought to hand, that applying the terms euthanasia to the techniques used may not be a very good fit. So this is an option that the AVMA has provided. Quite frankly, I think that in field settings using that language would be very appropriate.

>> *Susan Silk*: Well, here's another one for you. [Question 17] **Do you recommend a health and safety review as part of the IACUC review for field studies?**

>> *Robert Sikes*: Well, I can tell you what we do. So this is a one off example, I guess. We have a questionnaire that everyone that is working in field settings completes. And this includes students in classes. So before these students can participate in this work, then they have to do the screening. We get an email back from health services that says students X, Y and Z are cleared to go so that there's no HIPAA violation there. We are not in possession of their medical information. We just have a list of cleared students. If there are cases that the health services center is concerned about, then they can talk with the student. This is repeated for at least annually if the students are still enrolled in classes. So yes, they are reviewed and this includes the personnel working on these projects.

>> *Susan Silk*: So that sounds like a best practice, doesn't it, Axel, do you agree?

>> *Axel Wolff*: Yes.

>> *Susan Silk*: Bob, [Question 18] **Do the guidelines address engaging the local wildlife rehabilitator community for assistance with housing, diet, enrichment, and release?**

>> *Robert Sikes*: They do not, but these are certainly resources that any PI or investigator could avail themselves of. Usually we try to put the people in contact – the interested party in contact with whomever we know that has expertise with that taxon.

>> *Susan Silk*: Here's one for you, Axel. [Question 19] **In the case of animals that need live prey, do we need a separate IACUC review and approval for the prey animals?**

>> *Axel Wolff*: These prey animals are live vertebrate animals that would not otherwise be used other than for the study. So there needs to be some kind of IACUC oversight somewhere, whether this is in the form of an actual protocol. It could also be handled in the form of a Standard Operating Procedure (SOP); that here are the prey animals, this is how we kept them, and this is how they're fed. So they're appropriately handled up until the time that they're actually used as food. So there's got to be IACUC oversight, but whether it's on the protocol or an SOP, that's really up to the institution.

>> *Susan Silk*: Axel, [Question 20] **Are the use of avian embryos or eggs covered by the Animal Welfare Act?**

>> *Axel Wolff*: Birds are not currently regulated by the Animal Welfare Act.

>> *Susan Silk*: Bob, [Question 21] **Most of this session referred to research on wildlife within the United States. What have you experienced in handling international wildlife research and permitting that can take up to a year to obtain?**

>> *Robert Sikes*: I have done some of that. I have not done international work recently. I wish – well, I would – if I were posed questions regarding that, I would reach out to my colleagues because I don't have the current information. I know that many of those permits take very long periods to get through. So I can't answer that directly.

>> *Susan Silk*: Okay. Back to you, Axel. [Question 22] **If a faculty member has a permit to collect road kill for comparative skeletal elements, does this require IACUC review?**

>> *Axel Wolff*: Well, in this case the animals are dead and they were not killed specifically for the study, so they are not considered to be live vertebrate animals, so there would not be an IACUC review requirement. However, the institution for liability reasons and for protecting the investigators may wish to address safety concerns that could be encountered in this type of a study.

>> *Susan Silk*: And here's another one for you, Axel. [Question 23] **Under what circumstances, if any, could thoracic compression as a method of euthanasia for wild rodents be considered acceptable?**

>> *Axel Wolff*: Again, something like this would need to be addressed under scientific justification and IACUC approval. If there really is a scientific need to do this and it's IACUC approved, that would be, as we mentioned before, one of the acceptable deviations. Of course, in an emergency, if an animal is in distress, then there's no other way to relieve the suffering, that would be considered a humane slaughter or humane emergency killing at that point in time and be acceptable under that circumstance.

>> *Susan Silk*: Bob, [Question 24] **Do you know of guidelines for feral cats and/or dogs?**

>> *Robert Sikes*: Guidelines, no. There is a position statement on the ASM website under one of the links. It's under the animal care and use tab of the mammal society and it's a position statement from the American Society of Mammalogists regarding feral cats.

>> *Susan Silk*: So they can look there?

>> *Robert Sikes*: Yes.

>> *Susan Silk*: Bob and George maybe both of you could comment on this. [Question 25] **What is your greatest challenge in post-approval monitoring of field studies? Can you recommend any strategies that have worked well for you?**

>> *George Babcock*: Well, we don't have many, and we sort of have gone along with what was mentioned earlier. We talk to the investigator. We have looked at photographs. We don't require these, but sometimes investigators are glad to show off a photograph of their field studies. So that's pretty much how we do.

>> *Susan Silk*: Bob?

>> *Robert Sikes*: In my situation, talking with the investigator usually is the go-to. Ours is a relatively small institution. I serve on the graduate committees for many of the students that are doing this. And let's face it, we enjoy getting out and doing this stuff, so I go out in the field with them. Many of the – some of the other IACUC members go out in the field with them. If we can, we're going to.

>> *Susan Silk*: Either of you that would like to answer: [Question 26] **How do you handle a numbers justification for wildlife studies?**

>> *George Babcock*: I can talk a little bit on what they're doing. If it's a clear-cut study where they know the composition and maybe the degree of change if they're actually doing something to the animal, then you can use pretty much typical statistics such as power statistics. But if they're just doing observation with or without trapping, then it's a little more difficult. If they're trapping to collect samples, then usually they can also use the statistical approach. If they're trapping

to collect numbers for some observation, then we have to essentially go along with what the PI feels is a reasonable number of animals to just trap and release.

>> *Susan Silk*: I have two comments here, and I'm going to read both of these and then if you would like to comment on them you can. This participant says, not a question. [Comment 27] **We have an investigator who wishes to use kangaroo rats and will trap them on national park service land. They told her she had to settle an approved protocol before they would consider her application.** Another participant wrote in with a comment on agencies requiring IACUC approval before issuing a permit. **We had a situation where an agency (they don't remember which specific agency) required IACUC approval before issuing the permit. In that case we submitted a letter indicating that the protocol was ready for approval after receiving the permit. We did not give an approval date. The agency issuing the permit accepted this letter and granted the permit.** So that was kind of in line with what you said in your talk, Bob.

>> *Robert Sikes*: Right.

>> *Susan Silk*: So let's go on, we can maybe get another question or two in here. [Question 28] **If the design of a live trap is necessary, should an IACUC request regular updates on the design progress and the number of animals unintentionally killed?** And this is for you, Axel.

>> *Axel Wolff*: I would say yes. Here you're unintentionally killing animals and maybe subjecting others to pain and distress and the IACUC should always be striving to limit and reduce this. So there might be after starting the study ways to improve on how this is being done. There should always be feedback to the IACUC on what's going on in the field, especially if things aren't going exactly as originally planned.

>> *George Babcock*: I was going to comment a little further. I think what we would do, and I agree with what Axel said, we would probably also put a time frame. If it was a brand new design, we would like to see some information at X time, two months or whatever.

>> *Susan Silk*: Axel, this is for you. And this will be our last question. [Question 29] **I am curious about what most IACUCs do when it comes to owl call surveys or field provisioning of animals to facilitate observations. But the animals are not captured or restrained or otherwise manipulated.**

>> *Axel Wolff*: Okay. If it's clearly just listening to calls in the field and there's no other manipulation of the animal such as putting out a tape-recorder or something like that with other calls on it, that would not necessarily need IACUC oversight if there's no impact on the population. If you're provisioning animals in the field, putting out bait or something like that, if that's what this is referring to, then you

are manipulating the normal behavior of the animals, you could be causing some problems to the population as Dr. Sikes had mentioned and that would need to have IACUC oversight because then there is an impact on the animals and the population. So this question has two different answers. One would probably not need IACUC oversight and the other one would.

>> *Susan Silk*: We have come to the end of our time together. Bob, this has been informative and very interesting. I particularly enjoyed your photographs. Thank you for all the work you and your colleagues have done. I know that our IACUCs appreciate the resources you have made available that will help them in their mission to provide humane animal use in a context of good science. I'm getting a bulletin here from Pat who says we got lots more questions and we will answer them. Yes, indeed we will. More work for you, Bob and Axel. Thanks also to Axel Wolff, George Babcock, Lori Hampton, Patricia Brown and the rest of the OLAW staff for their contributions to this webinar.

And lastly, thanks to all of you for participating in our webinar. Today we have 350 registered participating groups that include participants in all 50 of the United States, Puerto Rico, Canada, Argentina, St. Kitts/Nevis, Mexico, Panama, Peru, Spain, France, the United Kingdom, India, Iran, Pakistan, Japan, Singapore, Thailand, China, and South Africa. Bob, imagine how many species you could capture, that you could study, if you went to all those countries. It has been a pleasure for us to spend this hour with you in all of these time zones. We hope that you will take advantage of the recorded versions of this and [previous webinars](#) that are posted on the OLAW website. And, that you will join us for the next webinar in our series, Alternative Searches, that webinar will be presented on June 26, 2014. Good bye for now.

Additional Submitted Questions Not Addressed During the Webinar

OLAW thanks our colleagues at USDA APHIS [Animal Care](#), the [Ornithological Council](#), and the [American Society of Mammalogists](#) for their thoughtful responses to the following questions and comments. Ms. Ellen Paul is the spokesperson for the Ornithological Council and Dr. Robert Sikes is the spokesperson for the American Society of Mammalogists.

The following are comments and questions posed by participants in the OLAW Online Webinar "Oversight of Research Using Wildlife." OLAW thanks the participants for contributing to a conversation that will improve the IACUCs knowledge and ability to oversee humane use of wild animals in research.

1. IACUC Review

1.1. If a study is observational, but uses mirrors to look into high nests, does that constitute enough contact to need IACUC review?

- **OLAW:** No, not if the mirrors do not alter the behavior of the birds or impact the nesting behavior in any way. If these mirrors are used while the parents are away, there could be minimal impact. If permits are required, IACUC involvement may be necessary. Note that the IACUC should be involved in occupational health oversight.
- **Ornithological Council:** Any time a nest is approached, there is a risk of premature fledging or damage to the nest. Therefore, IACUC review is appropriate.

Permits are required for endangered and threatened species, The Endangered Species Act refers to this as *harass by survey*. The Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) have no such provisions. They prohibit "take, possess, import, export, transport, sell, purchase, barter, or offer for sale, purchase, or barter, any migratory bird, or the parts, nests, or eggs of such bird except as may be permitted under the terms of a valid permit." The term *take* is defined as "pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to pursue, hunt, shoot, wound, kill, trap, capture, or collect." Consistent with this definition, which focuses on the act and not the consequence of the act, the MBTA has been implemented over many decades under the interpretation that no MBTA permit is required for activities that do not entail capture or handling.

1.2.a. How have IACUC's justified feeding of live prey, both fish and mice?

1.2.b. In the case of animals that need live prey, do we need a separate IACUC protocol approval for the prey animals?

1.2.c. Would live prey need to be added to the IACUC protocol?

- **OLAW:** IACUC oversight is required for all live vertebrate animal activities used in research, testing, or training. This includes prey species. IACUC oversight could be in the form of a separate protocol, inclusion in the primary protocol, or standard operating procedure.
- **American Society of Mammalogists:** One approach would be to simply include them in the primary protocol as the normal diet of the focal species.

- **Ornithological Council:** The use of live prey, whether to be consumed or as lures (as are used for the capture of raptors) should be included in the protocol. This is true of all live vertebrates. Very specific guidelines, with references to more detailed information, for the use of lure animals in the capture scenario are spelled out in [Guidelines to the Use of Wild Birds in Research](#).

1.3. Must the IACUC approve the number, husbandry, and use of live feeder animals as they would for experimental animals? If yes, should these feeder animals be considered Category E?

- **OLAW:** It's OK to use generalized numbers such as 3 fish/mice fed every day. These are not USDA regulated species and do not fall under the USDA pain categories.
- **USDA:** Fish and mice do not fall under USDA jurisdiction and hence would not be required for the annual report.

Regulated species used as feeders are considered food/fur/fiber and therefore not subject to regulation under the AWA. It is, however, a best practice for IACUCs to ensure that they are appropriately and humanely cared for.

- **American Society of Mammalogists:** Even when feeder animals are USDA regulated, they may be considered simply as the food required for research animals and not research subjects. In these cases it is important to remember that, although we are bringing these wild animals into a captive environment for a specific reason, they are still wild animals and we need to accommodate their needs and normal behaviors to the extent possible while remaining consistent with research requirements.

1.4. In your example of feeding live fish to water snakes, what does an IACUC do about the distress and welfare of the fish?

- **OLAW:** Keep the prey separate until fed, thus reducing the potential pain and distress to the least amount needed for successful conduct of the study.

1.5. Do owl call surveys or field provisioning of animals to facilitate observations when animals are not captured, restrained or otherwise manipulated require IACUC review and approval?

- **OLAW:** Owl call surveys would not impact wild animal behavior if purely aural monitoring is being conducted. If recorded calls are being played, it

would impact behavior. Field provisioning clearly impacts animal behavior and requires IACUC review. Impact on behavior is the trigger for IACUC oversight, not capture, restraint, or manipulation all of which require oversight.

See OLAW [FAQ A.6](#), "IACUCs must know where field studies will be located, what procedures will be involved, and be sufficiently familiar with the nature of the habitat to assess the potential impact on the animal subjects. If the activity alters or influences the activities of the animal(s) that are being studied, the activity must be reviewed and approved by the IACUC (e.g., capture and release, banding). If the activity does not alter or influence the activity of the animal(s), IACUC review and approval is not required (observational, photographs, collection of feces)."

- **Ornithological Council:** We assume that by "owl call surveys" the question refers to the use of recorded calls and not simply to listening for owls calling without any stimulus on the part of the researcher. In the former case, (playback, not passive observation) the IACUC should determine if review and approval are needed.

1.6. Do grouse surveys (i.e., transects) require IACUC review and approval?

- **OLAW:** Not unless the survey impacts the behavior of the animals.
- **Ornithological Council:** There are several species of grouse and they live in very different habitats and have very different behaviors. The answer to this question is dependent on the species and the time of year. Generally, grouse are hunted species (except for those now or about to be listed as threatened or endangered, including Lesser Prairie-chicken and Attwater's Prairie Chicken).

Therefore, they are extremely sensitive to human presence and very easily disturbed, particularly during the breeding season. However, for Spruce Grouse and Ruffed Grouse, a transect survey (walking through the woods) is unlikely to do more than cause the bird to flush if approached too closely so review and approval are not required.

For prairie chickens and sage grouse, the lekking (group display) behavior is critical to successful mating and the birds are extremely sensitive to disturbance at this time. Any research undertaken during the mating season should be reviewed and approved. At other times of year when the birds are dispersed, a transect is not likely to more than cause a bird to flush if approached too closely, so review and approval are not required.

2. Permits

2.1. How can an IACUC obtain a description of the permitting review process from the permit-granting agencies?

- **Ornithological Council:** It is probably best to work with the scientific societies that have published very [detailed permit guides](#), papers, and other informational products and that have frequent interaction with the permitting agencies to obtain this kind of information. It is quite challenging to obtain a comprehensive description of permitting requirements (which species, which activities), let alone the internal review process, from state or federal agencies. The agencies themselves have such substantial staffing shortages that it is almost impossible for them to take the time to have the detailed and prolonged discussions needed to give an accurate answer to very specific situations. Most agencies have at least some information on their websites but determining which species are covered by one or more of the species protection laws at both the federal and state levels requires a substantial amount of effort. The standards for review, i.e., the criteria upon which a permit may be granted, denied, or limited, are those established by the regulations as augmented by the knowledge of the permit biologist of the status of the particular population to be studied and of the type and nature of impact the activity is likely to have.

This paper provides a reasonably thorough description of the species-based, place-based, and activity-based permit requirements in the United States: E. Paul and R.S. Sikes. 2013. Wildlife researchers running the permit maze. [ILAR Journal 54\(1\):14-23](#). doi: 10.1093/ilar/ilt013.

2.2. Most of this session referred to research on wildlife within the United States. What has been your experience in handling international wildlife research and permitting that can take up to a year to obtain?

- **Ornithological Council:** Actually, obtaining permits within the United States can take a year or more. This is particularly true in two cases. First, in states that suffered extreme cutbacks and furloughs due to the recession, the backlogs that were as long as six months have grown to 12 months or more. On occasion, some of the U.S. Fish and Wildlife Service offices will develop backlogs. One region currently has a 15-month backlog due to staffing shortages. Second, endangered species permits can take many months because the law requires that notice of applications for these permits be published in the Federal Register. It takes time to prepare the notice for publication. Once published, the USFWS must then allow 30 days for public

comment. Only after the comment period closes can the permit be issued. With regard to imports into and exports from the United States, the duration typically depends on the type of permit. For CITES Appendix I species, both import and export permits are needed and the U.S. will not issue the import permit until the export permit has been issued by the exporting country. Further, the USFWS Division of Scientific Authority needs to make a "non-detriment" finding before issuing the permit and doing so often entails communication with the range countries. Therefore, it can take many months to obtain the requisite export and import permits for CITES Appendix I species. Import of a CITES Appendix II species requires only an export permit from the country of origin. The time needed for issuance of export permits (CITES or otherwise) and permits to work within a country varies widely; many countries do not have formal rules, applications, or standard processes.

- 2.3. If a faculty member has a permit to collect road kill (for comparative skeletal elements), does this require IACUC review?
- **OLAW:** In most cases, IACUC review is not required. This is not a live vertebrate animal activity and animals were not killed for use in the study. Note that there are situations in which a permit is required for collection of road kill.
 - **Ornithological Council:** Note that for species covered by the Migratory Bird Treaty Act (MBTA), Endangered Species Act (ESA), or Bald and Golden Eagle Protection Act, permits are required for salvage of dead animals. Generally, in the case of endangered species, the U.S. Fish and Wildlife Service (USFWS) must be notified if a dead animal is salvaged. In some cases, species protected under the MBTA must be turned over to the USFWS Division of Law Enforcement. These restrictions will be detailed in the permit conditions.
- 2.4.a. We have an investigator who wishes to use kangaroo rats, and will trap them on National Park Service (NPS) land. They told her she had to have an approved protocol before they would consider her application.
- 2.4.b. Comment on agencies requiring IACUC approval before issuing a permit: We had a situation where an agency (don't remember the specific agency) required IACUC approval before issuing the permit. In that case, we submitted a letter indicating that the protocol was ready for approval after receiving the permit. We did not give an approval date. The agency issuing the permit accepted this letter and granted the permit.

- o **Ornithological Council:** The National Park Service (NPS) is one of three federal agencies that has a functioning IACUC nationwide (the others are the U.S. Geological Survey (USGS) and the National Marine Fisheries Service (NMFS), implemented by that agency's Office of Protected Resources). The U.S. Fish and Wildlife Service (USFWS) has a functioning IACUC only in the Alaska Region; the Forest Service is in the process of developing an IACUC system. The NPS requires [proof of an approved IACUC protocol](#) along with a copy of the actual study plan and may also conduct its own review.

In terms of timing, the [NPS permit guidelines](#) (PDF) state that IACUC approval and a copy of the study plan must be submitted with the permit application. However, in practice, it can be difficult to obtain protocol approval far enough in advance to submit the permit application with enough lead time for issuance. If IACUC review and approval are pending, the applicant can submit the study plan and give the anticipated date for review and approval and then supplement the application as soon as approval is obtained. Note that the NPS requires that a permit applicant submit a protocol for species not covered requiring IACUC review.

Except for bird banding/marking permits, the USGS does not issue permits. The Bird Banding Lab does not require the submission of an approved protocol.

The National Oceanic and Atmospheric Administration (NOAA) [permit application for scientific research involving marine mammals or endangered species](#) (MS Word) states, "Where an IACUC Institutional Animal Care and Use Committee review is required, include a copy of the protocols submitted to the IACUC, and the signed approval and comments. If the protocols have not been approved, indicate the status." This permit is also required for non-Endangered Species Act-listed (ESA) species for what is called Level A harassment (defined as the potential to injure a marine mammal or marine mammal stock in the wild).

Research activities on non-ESA-listed that will not exceed Level B harassment (defined as potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering but which does not have the potential to injure a marine mammal or marine mammal stock in the wild) can be covered under a General Authorization. This is basically for observational work; no IACUC protocol approval is required in order to obtain the Letter of Confirmation that will allow the research to proceed.

We are aware of only one state – Alaska – that requires submission of IACUC approval. If the protocol has been submitted but not yet approved, submit the study plan and give the anticipated date for review and approval. Supplement the application as soon as approval is obtained. Further, the Alaska Department of Fish and Game is aware that there are instances in which none of the Animal Welfare Act criteria apply to the institution, and so there is no IACUC. In these cases, the requirement for IACUC approval is not imposed on the permit applicant.

3. Capture

3.1. If design of a live trap is necessary, should the IACUC request regular updates on the study progress and the number of animals unintentionally killed?

- **American Society of Mammalogists:** The IACUC can specify regular updates but another approach might be to simply require notification of unexpected results that exceed a set frequency.

3.2. Should you consider the provision of emergency veterinary care for injured, endangered non-targeted animals for trapping in your protocol?

- **OLAW:** Yes. You must make provisions to treat these animals humanely including providing euthanasia, if required. Note that there are federal laws that specify that certain endangered species are not to be treated. This needs to be established and planned for in advance of conducting the experiment.
- **Ornithological Council:** Under the Endangered Species Act (ESA), Bald and Golden Eagle Protection Act (BGEPA), and Migratory Bird Treaty Act (MBTA) permits, there is no express prohibition on treatment. The issue is what is allowed under the permit. If on-site care such as first aid is available, it would not be a *per se* violation of the law to provide treatment but it could violate the terms of the permit, which would itself constitute a violation of the law.

If on-site care is not available, the issue is “take” which would include removal of the animal from the wild. A MBTA permit may be worded broadly to include entire groups of species (i.e., all passerines) and if the injured animal falls within that group, then it would be permissible to transport the animal to a veterinarian or a wildlife rehabilitator who holds a MBTA rehabilitator permit. The ESA permit applications actually ask if the activity could result in injury or mortality and if so, what efforts will be taken to

minimize injury or mortality, which would include treatment, both on-site or at a different location.

It is certainly illegal to euthanize any species protected by the, ESA, BGEPA, or MBTA unless allowed under the permit.

The Ornithological Council has been suggesting to the U.S. Fish and Wildlife Service that standard permit conditions address first aid, veterinary care, and euthanasia. The matter is still under discussion. In the meanwhile, a possible solution is for the investigator to request authority to provide or obtain veterinary care or to euthanize the animal.

4. USDA Category

4.1. What criteria should be used to determine which wild animals are reported on a USDA report?

- **USDA:** Wild animals used in field studies as defined in 9 CFR § 1.1 are not required to be included on the Annual Report. The USDA acknowledges that there are many grey areas for wild animal studies. In general, most live trapping where the intent does not include killing, collection for prolonged captivity (over 12 hours as a general rule of thumb) or highly invasive procedures would fall under a field study as defined in 9 CFR § 1.1. However, for specific situations that are unclear, facilities are encouraged to contact the appropriate regional offices for guidance based on the circumstances in question.
- **American Society of Mammalogists:** The first question is whether or not the animals are covered species. Secondly the IACUC must decide whether or not the activities meet the regulatory definition of a field study. If the activity is designated as a field study, the animals are not reported. Additional guidance regarding USDA reporting of wild animals is available on page 8 and appendix A of the [sample protocol](#) (MS Word).

4.2. When animals have to be captured, what are the guidelines for assigning a USDA pain/distress category?

- **USDA:** As previously stated, the USDA acknowledges that there are many grey areas for wild animal studies. In general, most live trapping where the intent does not include killing, collection for prolonged captivity (over 12 hours as a general rule of thumb) or highly invasive procedures would fall under a field study as defined in 9 CFR § 1.1. However, for specific situations

that are unclear, facilities are encouraged to contact the appropriate regional offices for guidance based on the circumstances in question.

- **American Society of Mammalogists:** These topics are covered in detail in the [Guidelines of the American Society of Mammalogists for the Use of Wild Mammals in Research](#) on page 239 and in a joint statement by the American Society of Mammalogists and Ornithological Council.

5. Euthanasia and Humane Killing

5.1. Would you differentiate humane killing from euthanasia? Many use both terms interchangeably.

- **OLAW:** Yes. Animals are to be euthanized in accordance with the [AVMA Guidelines for the Euthanasia of Animals](#) (PDF) (AVMA Guidelines). In emergency situations, humane killing/slaughter may be necessary to prevent additional pain and distress.
- **American Society of Mammalogists and Ornithological Council:** The AVMA Guidelines characterize humane killing (in the context of free-ranging wildlife) as “the quickest and most humane means of terminating the life of free-ranging wildlife in a given situation [but that] may not always meet all criteria established for euthanasia (i.e., distinguishes between euthanasia and methods that are more accurately characterized as humane killing).” (page 81). Humane killing is not limited to emergency situations but is dependent on circumstances, which could include emergencies. However, circumstances may also include research objectives that are scientifically justified and approved by the IACUC.

5.2. Under what circumstances, if any, could thoracic compression as a method of euthanasia for wild rodents be considered acceptable?

- **OLAW:** Thoracic compression of wild rodents would be acceptable as a form of humane killing in emergency situations. In rare circumstances, this may be necessary for scientific reasons and must be scientifically justified and approved by the IACUC. The justification and approval is unique, case specific, and not anticipated to be a common procedure.

On page 82, the AVMA Guidelines states, “Many conventional euthanasia techniques and methods can be applied to free-ranging wildlife, if the animals are sufficiently under the control of personnel. However, because of the variety of conditions under which euthanasia of free-ranging wildlife may

need to be conducted, choice of the most humane method will vary by species, situation and, and individual animal."

- **Ornithological Council:** In addition to instances where scientific justification has been provided, the AVMA Guidelines state that thoracic compression may be used in rare circumstances in animals that are deeply anesthetized or otherwise unconscious or as a final, confirmatory method to ensure death when the animal's status is uncertain.
- **American Society of Mammalogists:** Although thoracic compression was not deemed an acceptable method of euthanasia by the AVMA in its 2013 guidelines on euthanasia, in its [literature review](#)^{*} on the technique, the AVMA stated explicitly that "thoracic compression should not be prohibited where its use is necessary to minimize animal suffering or is scientifically justified (such as under the oversight of an Institutional Animal Care and Use Committee)."

* "AVMA literature reviews are science-based peer-reviewed literature summaries of select topics relevant to animal health and welfare. They are written by AVMA professional staff in response to demonstrated need for summary information.... AVMA literature reviews are not AVMA policy, and generally do not draw conclusions; they simply report what we know from the literature or other verifiable data about a given topic.... Peer-review for literature reviews is similar to peer-review used for publication of articles in scientific and other professional journals." (AVMA website, accessed 5/13/14)

5.3. Does the euthanizing of a game animal have to coincide with hunting seasons, or does the research game permit this?

- **Ornithological Council:** As there are game birds, we would point out that if allowed by the permit, euthanasia may take place at any time. It is not restricted to the hunting season.
- **American Society of Mammalogists:** Permits are not usually tied to hunting seasons even for game animals.

6. Restraint

6.1. For procedures that involve the use of chemical agents only for safe handling, would this be considered an invasive procedure?

- **OLAW:** When used as a method of restraint, the use of chemical agents is not an invasive surgical procedure.

- **USDA:** Most substantive data collection on individual wild animals involves immobilization with sedation or tranquilization as a measure to minimize material alteration of the animals' behavior. This is therefore acceptable in many circumstances. Traditionally, the use of tranquilizers/sedatives has been permissible in field studies provided other conditions for a field study apply namely that the procedures are not extremely invasive and the intent is not to kill or capture for prolonged periods of time i.e. > 12 hours.

7. Post Approval Monitoring

7.1. What is your greatest challenge in post approval monitoring of field studies?

- **OLAW:** The PHS does not require post approval monitoring of field studies. OLAW [FAQ E4](#) states, "While semiannual IACUC inspections of field study sites are not required and in many circumstances are impractical, IACUCs should be apprised of the circumstances under which studies are conducted so that they can consider risks to personnel and impact on study subjects. This may be partially accomplished by written descriptions, photographs, or videos that document specified aspects of the study site. The IACUC should also ensure that appropriate permits are in place. USDA animal welfare regulations exempt areas containing free-living wild animals in their natural habitat from inspection."
- **American Society of Mammalogists:** The remote nature of field sites obviously makes immediate contact difficult and prohibits most onsite visits. IACUCs will need to collaborate with PIs and devise alternate means. Realize, however, that feedback regarding how the activities are progressing can come in a wide variety of ways and all of this constitutes post approval monitoring.

7.2. Can you recommend any strategies for post approval monitoring that have worked well for you?

- **American Society of Mammalogists:** I find that conversations with PIs work well. Other options include photographs, videos or written reports of activities. The latter are usually easily extracted by the PI from their research notes because they will have records of animals captured, marked, etc. for report to permitting agencies.

8. Animal Numbers

8.1. How do you handle numbers justification for wildlife studies?

- **OLAW:** Anticipate the maximum number of both target and non-target species that may be captured. After the first capture activity, if the number of animals collected is close to being exceeded, that the PI should amend the protocol for future events. PHS Policy and the AWAR allow for approximate numbers of animals to be proposed.

8.2. Dr. Sikes said that it is best to estimate a higher number of animals than required by the study when estimating animal number in a wildlife animal study proposals. Doesn't this go against the guidance that the minimum number required be requested for study?

- **OLAW:** No. Wildlife studies often involve large numbers that can be justified in population or collection studies. A comparatively large number could still constitute a minimum number needed to successfully complete the study.

8.3. If euthanasia is needed in order to collect samples, which statistical approach is recommended to know that the study is not going to affect natural populations?

- **American Society of Mammalogists:** This is a question IACUCs are not prepared to address. I recommend leaving this to the permitting agencies, which typically are charged with managing the biota. If they approve a given number of animals, the IACUC can view this approval as an outside evaluation that the potential impact is negligible or is justified.
- **Ornithological Council:** We assume that the question is how the IACUC will know if the investigator's analysis is sound, and not how the IACUC can determine which statistical approach it should use to make this determination. As an initial matter, we remind the IACUCs that in cases that entail permits, that decision has been made by agency biologists with the requisite expertise and knowledge about the size of the population to be studied. It is out of the investigator's hands except to the extent that the investigator may have had to supply this kind of information to obtain permit. In the case where no permit is required – an increasingly rare situation everywhere in the world – there is rarely a need to take so many individuals that the population will be affected, even on a very local basis. That being said, there are a number of models to determine the impact of removal of a given number of individuals of a given age or sex. Generally, these are known as population viability models and they are based on the demographic parameters of the species. Most allow for ranges for each parameter because as to wildlife, these are not always known with precision and, of course, vary. They also allow for an estimate of initial population size

because this is not usually known, not with with precision. Using a Monte Carlo simulation, the models run various combinations of the inputs and generate a distribution of possible outcome values. It is rarely necessary to go to this effort because if it is so small or declining so rapidly that removal of a few individuals will jeopardize the population, the species is protected either by law or because no permit will be issued.

9. Health and Safety

9.1. Can we have a link to the pre-approval health and safety questionnaire that you use?

- o **American Society of Mammalogists:** Below is an example of the type of questionnaire that we use.

Example Questionnaire for Participation in Biology Field Experience

Completion of this document is required prior to participation in any field exercises as part of a class or research activity. The questionnaire must be completed and turned in to Health Services. If you answer "no" to all of the questions, after you deliver the form to Health Services, you will receive a "Clearance to Participate in Field Experiences" slip from that office. You must return this slip to your instructor prior to participation in field activities. If the response to any question is "yes", you must make an appointment with one of the Advanced Practice Nurses in order to be cleared to participate prior to any field excursion.

Course number _____

Instructor name _____

Instructor's email address _____

1. Do you have asthma or have you ever experienced an induced asthma attack? [No/Yes]

2. Do you have any known allergies to food, plants, insect stings or bites? [No/Yes]

3. Do you have any known allergies to any species of haired animal? [No/Yes]

4. Do you have any known allergy to latex? [No/Yes]

5. Do you have any other condition that might compromise your ability to participate in field activities? [No/Yes]

Student name (printed) _____

Student ID number _____

Signature _____

Date _____

9.2.a. Why was the investigator handling an armadillo bare-handed. This would violate our IACUC requirements.

9.2.b. Why were gloves not worn by the person handling the bat?

9.2.c. The vast majority of photos showed individuals without PPE. Were these really good examples for individuals to see?

- **American Society of Mammalogists:** In the images I used, the species, locations, and conditions did not pose risks for which additional PPE were required. Risks were assessed as part of the review process and actions depicted were consistent with required precautions. The individual handling the bat was current on rabies vaccinations. Additional PPE are always available but were not required under the situations shown.

10. Training

10.1. We are in the process of writing an experiment protocol that will have our staff and staff from another company to conduct our field study. I'm assuming we have to document their roles in our protocol with their experience?

- **OLAW:** Yes.

We will train them to conduct data collection according to our SOPs, which we will maintain training records.

- **OLAW:** Okay.

Species Related Questions

11. Aquatic animals

11.1. Please provide a reference for zoonotic diseases in fish.

- **OLAW:** T. Lowry and S.A. Smith. 2007. Aquatic zoonoses associated with food, bait, ornamental, and tropical fish. [JAVMA. 231\(6\):876-880.](#)

12. Birds

12.1. When the animals under study are raptors in the care of permitted falconers, and the study involves observing what the raptor does when taken to hunt by the falconer, what should annual review include? (Note that the PI does not know in advance the identities of the falconers who will agree to participate in the study.)

- **OLAW:** The annual review assesses the status of the study, any proposed changes, and problems encountered. The IACUC is not required to visit the field site or staff in the field.

12.2. Should the annual review form ask for the names and qualifications of the falconer with whom the PI worked that year, and the location where each falconer houses his birds?

- **OLAW:** If this is part of the study, yes this can be part of the protocol.

12.3. Should the date and location of each hunting trip be recorded?

- **OLAW:** Yes, if this is part of the study.

12.4. Should the IACUC check that the days were legal hunting days in those locations?

- **Ornithological Council:** A few years ago, the U.S. Fish and Wildlife Service turned over falconry regulations to the states, although not every state wrote its own regulations. Some just continued under the U.S. Fish and Wildlife Service regulations as to taking or breeding of falconry birds. However, the hunting season dates are set by the states. The IACUC should be sure that the researcher has determined the hunting season dates for that state but need not verify that information itself.

12.5. Should the IACUC ask for a log of activities (falconer, bird used by falconer, species of bird, date and place observed, equipment used that was attached to the bird during flight)?

- **OLAW:** Yes, if this information is available and part of the study.

12.6. Should any injuries that occur during the hunting trip be recorded, if they are due to equipment attached to the bird that enables recording the hunt?

- **OLAW:** Yes.

13. Companion Species

13.1. Do you know of guidelines for feral cats and/or dogs?

- **American Society of Mammalogists:** American Society of Mammalogists has a policy on Trap Neuter Release of feral cats. The link is <http://www.mammalsociety.org/committees/animal-care-and-use#tab3>. There are also resources from The Wildlife Society at <http://www.wildlife.org/policy/fact-sheets>.
- **Ornithological Council:** Do you mean for the study of feral cats and dogs? The ASM policy and a similar policy from The Wildlife Society are about the practice of TTVNR (Trap, Test, Vaccinate, Neuter, Release), not about research. This is also true of the American Veterinary Medical Association policy.

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