Management of the Washington State University Bear Research, Education, and Conservation Center:
Findings and Recommendations

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Craig Parks, Special Assistant to the Provost, Chair
Joe Harrison, Department of Animal Sciences, Puyallup
Merle Heineke, Director, Research Laboratories, Spokane
Ram Kasimanickam, Department of Veterinary Clinical Sciences
Fred Loaiza, Large Animal Supervisor, College of Veterinary Medicine
Steve Parish, Department of Veterinary Clinical Sciences
John Swain, Animal Facility Manager, Knott Dairy
Introduction

At the request of Dr. Erica W. Austin, Interim Co-Provost at Washington State University (WSU), this committee was formed to review the Washington State University Bear Research Program. This review was commissioned as a result of an inquiry into the Program that was conducted during the Fall 2015 semester at the request of Dr. Christopher J. Keane, Vice-President for Research. The purpose of this review is to report on the adequacy of the facilities used by the WSU Bear Research, Education, and Conservation Center (Center); the degree and consistency of compliance with regulatory procedures pertaining to research on animals in general and bears specifically; and the extent of interaction between the Center and WSU’s Office of the Campus Veterinarian (OCV). The members of this committee have expertise in large animal health and reproduction, management of large animal housing and research facilities, federal animal research regulations, and standards for animal management recordkeeping.

This report presents conclusions and recommendations that are the result of our review of documents, interviews with relevant personnel and outside experts, visits to the facilities, and internal discussions of said experiences.

Background

The Center is a unit within the School of the Environment, which is co-administered by the College of Agricultural, Human, and Natural Resource Sciences (CAHNRS) and the College of Arts and Sciences (CAS). It is an arm of the Agricultural Research Center within the CAHNRS Office of Research, and as such is not covered by the centers/institutes/laboratories system governed by the Faculty Senate. The Center began in 1986. It is housed in the Environmental Health Services building (EHS) and shares the building with Environmental Health and Safety. There is an adjoining activity area that provides outdoor access and recreation for the bears. The Center also has access to Veterinary Isolation Barn 199G located approximately 0.2 miles away.

EHS was built in 1964 as an animal behavior research facility for the Department of Psychology, with a wing added in the early 1970’s. It was originally called the Comparative Behavior Laboratory. Research was conducted on monkeys, cats, and rats, and there was an intention, never followed through on, to initiate research on sharks. In 1966 Psychology moved its cat and rat laboratories to Johnson Tower, and kept its primate labs in the building. At this point the building name was changed to the Primate Research Center. The primate research program ceased in 1984, and the bear program began in 1986 with two bears. In 1989 the building was given its current name.

Appendix A contains the EHS floor plan. The Center uses rooms 8 – 51. Room 38 is a control room where records are stored and the computer that receives video feeds from the pen cameras is located. Rooms 38A and 38B house the refrigerator and freezer for food storage. Room 26 is a prep room where workers can dress and clean up before/after tending to the bear pens. The portable floor scale is located in the alcove just above room 10, and in non-hibernating times is moved to a walkway where bears can be weighed conveniently. The odd-numbered rooms 11 – 21 are bear dens with connected external pens (11A – 21A). The even-numbered rooms 8 – 22, plus rooms 29, 35/35A, 43, 45, 47, 48, and 51 are used for storage. Room 41 is the pharmacy and also contains a centrifuge. Room 42 is the surgery room. Room 44 is an all-purpose room, though it should be noted that it no longer contains the
dividing walls indicated on the floor plan. Many of the personnel hallways have very low ceilings (~7 feet), and are probably narrower than current code allows.

The Bear Facility is an outside exercise area that has numerous enrichment devices including a climbing structure and various “bear” toys. Also present in the outside area are shade trees and other shaded areas. Further, during the warm months the bears have access to a large metal trough filled with water that they can play and cool themselves in.

**Committee Research**

The committee, absent Harrison, received a tour of EHS from Dr. Keith Blatner, interim Director of the Center, 24 February 2016. The committee also viewed five (5) culvert traps in storage at the Steffen Center complex. Dr. Blatner answered questions during the visit, and answered follow-up questions at a meeting of the committee held 3 March 2016.

Heineke and Swain interviewed Dr. Steve Russell, OCV associate, 2 March 2016.
Henieke and Loaiza interviewed Dr. Gaylynn Clyde, OCV associate, 2 March 2016.
Loaiza and Harrison (telephone) interviewed Dr. Nina Woodford, interim Director of the OCV, 3 March 2016.
Kasimanickam and Harrison (telephone) interviewed Dr. Lynne Nelson, Center associate, 3 March 2016.
Parks, Parish, and Kasimanickam interviewed Dr. Darin Collins (telephone), Director of Animal Health at the Woodland Park Zoo, 3 March 2016.
Parish and Swain interviewed Dr. Charles Robbins, Center associate, 4 March 2016.

Committee members reviewed all documents released in response to a Freedom of Information Act request, as well as all SOP’s approved for the Center, the necropsy/histopathology reports for two adult bears euthanized January 2016, and a current animal disposal log. Heineke read the log books for all 12 of the bears in residence on 24 February 2016. The committee requested a copy of the current workplace safety standards available to Center associates, but one was not able to be located. We also reviewed the *Bear Care and Colony Health Standard Operating Procedure* publication, which is referenced in many papers published by Center associates.

**Findings—Adequacy of Facility**

THE COMMITTEE FINDS THE ENVIRONMENTAL HEALTH SERVICES BUILDING TO BE INADEQUATE FOR THE NEEDS OF THE CENTER.

There are some aspects of the building that need attention. Some interviewees expressed concern about their ability to avoid harm should something go wrong while working with a bear, so these steps need to be taken immediately.

1. There does not appear to be an automatic lighting system that would activate if the power goes out. As none of the rooms in the Center’s area of the building have windows, this poses an evacuation hazard. A system should be installed.
2. Similarly, the committee did not observe a sprinkler system, though we did see a fire alarm bell. Sprinklers need to be installed.
3. Moving a bear from a pen to the surgery room requires navigation of two narrow 90-degree hallway turns, and a third such turn into the surgery room. Making these turns requires simultaneously lifting and turning the gurney, posing risk to the animal and the workers. Correction of this problem requires a minor capital improvement to widen hallway 25, best achieved by relocating the pharmacy to room 43, removing rooms 12 and 41, and reducing the size of room 29.

More generally, it is difficult to optimize research potential given building constraints. A maximum of 13 bears can be housed, and only 10 can be hibernated on site. As there are multiple funded studies being conducted at once, the Center needs to be populated at or near capacity at all times. The Center occasionally acquires bears from other sites, and more often breeds their own. Acquired bears should be quarantined for at least 30 days, but the Center lacks a dedicated quarantine room, and must use a "soft quarantine" procedure under which the bear dens by itself, but still has some contact with other bears. When breeding, it can sometimes happen that more cubs are born than can be housed. As will be explained in a later section, the only solution to this problem is to euthanize some animals.

Ultimately, a state of the art bear research facility should be constructed. The Center is engaged in fundraising for such, but given the prominence and popularity of the facility in the public perception of WSU, and the fact that it is located at what is planned to be the new main entrance to campus, construction of a building should be a university development priority. Along these lines, the university needs to give careful thought to the impact of the airport revision on the wellbeing of the bears.

Despite the committee's concerns, it is important to note that all animal research facilities at WSU have been accredited, and are subjected to continuing review, by AAALAC International, the governing body for the humane treatment of research animals. In fact, WSU's accreditation was reaffirmed on the date of this report, 7 March 2016. The reader should thus not equate "inadequate" with a failure to meet minimal professional standards for care and treatment of bears.

Findings—Adherence to Regulations and Policy

THE COMMITTEE FINDS THE CENTER TO BE INCONSISTENT IN ITS ADHERENCE TO CURRENT REGULATIONS AND POLICY ON RECORDKEEPING.

In recent years there has been an increase in the required documentation and reporting per federal guidelines. Center personnel submit required daily online reports inconsistently and incompletely. This is partly a function of the Center lacking a manager, but there is also clear evidence of resistance to the work by Center leadership. Reporting requirements, no matter how onerous, must be followed. The OCV has some responsibility here, as it does not appear that OCV personnel exercised their authority to demand the reporting be done. It is also troubling that certain documents cannot be located or are incomplete.

This issue can be addressed in large part by hiring a full-time manager for the Center. This manager should report to the Dean of CAHNRS rather than the head of the Center, to give the manager the ability to demand reporting compliance from all Center associates. However, there must also be a culture change within the Center to insure that complete adherence is a necessity.
THE COMMITTEE FINDS THE CENTER TO BE REASONABLY CONSISTENT WITH CURRENT BEST PRACTICES PERTAINING TO BEAR HIBERNATION.

Hibernation is essential for the research mission of the Center. Two prominent lines of inquiry are the dynamics of rapid weight loss, and processes of insulin resistance and tolerance during and after hibernation. The Center thus must hibernate their bears every year.

Bears are hibernated entirely or mostly on site. When a second site has to be used, two or three bears will be placed into culvert traps and located in 1999. This is a common practice at research institutions. A culvert trap is typically made of metal, will be two to three times the length of the bear’s body, and will be tall enough for the bear to turn in a complete circle without hitting its head or back on the top of the trap. The committee did not take measurements of the Center’s traps, and we have some concern that at least some may be smaller than these standards. We did note that some traps appear to be bigger than others. Culvert traps are also expected to have video cameras to allow for continual monitoring, but the Center’s traps do not. This must be rectified before the traps are next used.

Unknown to us is whether the Center’s employment of the traps is consistent with best practice. The traps should contain at least six inches of straw or wood chips for bedding. Bears who sleep directly on the metal run the risk of developing sores. If two young bears are placed in the same trap, they should be familiar to each other.

In 2015*, the Center placed two compatible yearling bears in a trap. The bears never entered into full hibernation, and had to be removed from the trap. Unfortunately, at the time of removal their health had deteriorated so severely that both bears had to be euthanized. The experience revealed that bears need to learn how to hibernate. Center associates acknowledge that they have revised their best management practice for culvert trap hibernation by only using bears who had previously hibernated in culvert traps.

An alternate practice that the Center might consider is the use of dark rooms. These are successfully employed with other species, and WSU has faculty expertise in setting up and managing such rooms. While we recognize the facility limitations, at the same time the Center has unused storage space (e.g., rooms 20 and 22) that perhaps could be converted to a dark room with minor capital improvement funds.

Regarding the on-site dens, the committee saw that all contained straw. At least two dens housed two bears, and we assume that compatibility of the denmates was established.

THE COMMITTEE FINDS THE CENTER TO BE MOSTLY COMPLIANT WITH ITS APPROVED PROTOCOLS.

Probably the biggest issue that can be raised with the Center’s standard operating procedures (SOP) is that the Center has permission to euthanize bears under certain circumstances. Euthanasia should be, and is, used on ill bears who have no hope of recovery. More controversially, it is also used for population management. As noted earlier, the Center has a firm limit of 13 bears in residence. The Center acquires bears in two ways: On-site birth, and reception of bears from other sites (e.g., zoos, wildlife refuges). The latter method is rarely employed, because the bears are almost always too old to be trained for research participation. Regardless, because a 14th bear will either be habituated to

*The correct date for this occurrence is 2010.
humans (the on-site births) or a management challenge, the Washington Department of Fish and Wildlife prohibits the Center from trying to place the bear in another facility. The only alternative is euthanasia.

The Center follows a strict protocol for euthanasia that has been reviewed and approved by WSU’s Institutional Animal Care and Use Committee (IACUC), which reports to the National Institute of Health’s (NIH) Office of Laboratory Animal Welfare. The protocol is thus compliant with federal guidelines for euthanasia. Interviews with Center associates make clear that they do not take the decision to euthanize lightly. It is a hard choice that they would prefer not to make. However, the limitations of their facility require that they occasionally do so.

Adherence to other protocols is sometimes absent. The committee has found instances of associates administering drugs that were not approved on the applicable SOP, or taking samples that were not indicated on the protocol. There is a need for IACUC to review all Center protocols, and IACUC should take this opportunity to remind Center associates of the need to not vary from approved procedures. This said, it is important to note that an associate who became aware of the sampling problem alerted the OCV, with no apparent response.

Findings—Relations between the Center and OCV

THE COMMITTEE FINDS THE COMMUNICATION BETWEEN THE CENTER AND OCV TO NEED IMPROVEMENT.

Emails and interviews document over 20 years of difficult relations between the Center and OCV, a history that spans multiple leaders of the OCV. This must be rectified immediately and as follows:

1. Center leadership must acknowledge and accept that the OCV is the final authority on all issues related to bear health.
2. In turn, WSU must add someone to OCV staff with expertise in zoo animal health. It is unreasonable to expect someone with no training in this area to act as an authority on bears. The need is made more urgent by the soon-to-increase demands on the OCV with the advent of medical research in Spokane. A zoo animal expert will have knowledge that is of value beyond the bears. For example, this person can assist our avian researchers.
3. The Center and OCV need to come to a common understanding regarding the on-site caretaker’s responsibilities, and the OCV’s responsibilities. The caretaker is not a representative of the OCV and should not be expected to act as one. This conversation needs to be facilitated by a knowledgeable third party.
4. The Center must make sure that daily reports are being fully completed. All bears should be identified by an acceptable method so personnel can easily identify individuals. Daily each bear should be observed with the caretaker noting and reporting appetite for food and water, stool character, and any concerns regarding the health and wellbeing of the bear. These observations should be undertaken daily regardless of season or hibernation.
5. No procedures should be undertaken on a bear without the OCV’s awareness. No major procedures, especially surgical procedures, should be undertaken without a member of the OCV present or attending veterinarian.
6. The OCV needs to be more assertive in making sure it is properly involved in the Center. While we certainly do not advocate that it micromanage, at the same time the OCV has final authority over animal health, and it needs to exercise that authority more consistently than it has.
7. A mechanism needs to be created whereby Center personnel can submit a same-day, urgent-care request to the OCV.

8. The OCV should conduct twice-yearly visual assessments of every bear, before and after hibernation, which should at minimum include body condition, physical wellbeing, observation from all sides, walking and dietary review.

9. At least once a year routine laboratory analysis should be performed on each bear which should include CBC, serum chemistry, fecal analysis for parasites and serum banking.

Beyond these, we suggest that the Center establish an external advisory committee to work with them on their needs, problems, and fundraising. Failing this, we at least encourage retention of an external advisor, like Dr. Collins, who can help with some of these functions.

Conclusion

The Bear Research, Education, and Conservation Center is an important contributor to WSU’s mission of research and engagement. Its associates have undertaken a number of research projects that can inform human health and wellbeing (perhaps most excitingly, the discovery that bears become insulin-resistant when they enter hibernation, and insulin-tolerant when they exit hibernation, a finding that has major implications for human diabetes). The research is multidisciplinary and its associates are productive, with 22 papers published since 2010. There is a desire to add polar bears, a species that is of great interest to the federal government. It is a key ambassador for the public, as it is one of the most popular stops for campus visitors. It functions as a national training center for zoo personnel who need to learn about bear management. We are confident that investment of the time and resources indicated in this report will rectify the problems that we have identified.

The committee also wants to acknowledge the efforts of both Dr. Robbins, who has directed the Center continually since its inception, and Dr. Russell, under whose leadership WSU has passed AAALAC inspection with no citations, a rare occurrence, and who has developed a state-of-the-art health database for our researchers.
Craig Parks, Chair

Joe Harrison

Merle Heineke

Ram Kasimanickam

Fred Loalza

Steve Parish

John Swain