Animal Use Policies and Procedures

Introduction

The Animal Welfare Act (AWA) was first passed in 1966 to address the concerns of the American public regarding the acquisition and use of animals in research. To ensure adherence to the Act, the Congress established a self-oversight mechanism for all research institutions; this oversight is through the Institutional Animal Care and Use Committee (IACUC). The 1985 Amendments to the AWA and concurrent changes in the Public Health Service Policy of Use of Animals by Awardee Institutions (PHS Policy) increased the oversight responsibilities of the IACUC. Today, every institution conducting animal-based research, teaching or testing, must establish an IACUC to oversee the institution's animal care and use program. The IACUC's membership and responsibilities are mandated and defined by federal law and carried out through local policy.

Hawai'i Pacific University (HPU) recognizes that scientific and medical knowledge developed through animal research has saved countless lives, improved human and animal health, and alleviated pain and suffering. The University supports the judicious use of animals in research, education and testing in the interests of human and animal welfare. HPU is aware of its legal and ethical responsibilities to ensure that animals are not used needlessly and are spared all unnecessary pain and distress. To this end, HPU requires review by the IACUC of all protocols involving any live vertebrate animal used or intended for use in research, research training, experimentation, teaching, biological testing, or related purposes.

Institutional Animal Care and Use Committee: Regulations and Guidelines

Since the ultimate responsibility for compliance with regulations that affect the care and use of animals lies with the investigator, it is important that he/she have a working knowledge of the basic regulatory requirements.

Regulations can be defined as those required by law or set forth as a condition of funding. Below is a listing of some of the regulatory controls though individual states and agencies may have additional requirements:

- The Animal Welfare Act (AWA)
- Endangered Species Act
- The Public Health Service Policy including the Health Research Extension Act

A working knowledge of the applicable regulations is necessary if the principal investigator is to insure that proposals for funding contain the necessary information and to assure that the conduct of all research proposals is in compliance with the requirements of the regulatory and funding agencies. While the ultimate responsibility for compliance rests with the principal investigator, institutional policies are designed to provide those responsible for compliance with the necessary resources to do so.

Other Guidelines

- The Guide for the Care and Use of Laboratory Animals ("The Guide")
- The Good Laboratory Practices Act

- CFR Title 9: "Animal and Plant Health Inspection services, Department of Agriculture"
- 2020 AVMA Guidelines on Euthanasia

Field Study Guides:

- Guidelines for The Use of Wild Birds In Research (The Ornithological Council)
- 2016 Guidelines of the American Society of Mammalogists for the use of wild mammals in research and education (American Society of Mammologist)
- Guidelines for the Use of Fishes in Research
  (American Fisheries Society)
- Guidelines for Use of Live Amphibians and Reptiles in Field Research
  (American Society of Ichthyologists & Herpetologists, The Herpetologists' League, Society for the Study of Amphibians and Reptiles)

The Hawai'i Pacific University Institutional Animal Care and Use Committee; Roles and Responsibilities

The Animal Welfare Act and PHS Policy have defined the mandated roles and responsibilities of the IACUC. At Hawai'i Pacific University (HPU), the President appoints members including the Chairperson of the IACUC and has designated the Dean of the College of Natural & Computational Sciences as the Institutional Official (IO). The IACUC advises the IO on issues related to animal care and use and makes recommendations for change in the program or facilities. Certain responsibilities of the Committee are not advisory, but carry the mandate of federal law for the IACUC to be the final authority with regards to the welfare of animals used by the institution.

Authority

The IACUC has the mandated authority to:

- Review once every six months the program for humane care and use of animals, using the ILAR Guide for the Care and Use of Laboratory Animals (The Guide) and the Animal Welfare Act as basis for evaluation.
- Inspect at least once every six months all animal facilities (including satellite facilities) and animal study areas using the Guide and Act as basis for evaluation.
- Review concerns involving the care and use of animals.
- Review and approve, require modifications in (to secure approval) or withhold approval of those components of activities related to the care and use of animals.
- Make recommendations to the Institutional Official regarding any aspect of the animal care program, facilities, or personnel training.
- Prepare reports of the IACUC evaluations conducted as required by this policy and submit the reports to the Institutional Official. The reports shall be reviewed and signed by a majority of the IACUC members and must include any minority views. Reports shall be maintained and made available to regulating agencies upon request. Reports must contain a description of the nature and extent of adherence to the Guide and Act and must identify specifically any departures from their provisions, and must state the reasons for each departure. Reports must distinguish significant deficiencies from minor deficiencies. A significant deficiency is one that is or may be a threat to the health or safety of the animals. If program or facility deficiencies are noted, the reports must contain a reasonable and specific plan and schedule for correcting each deficiency. Non-adherence to plan of correction for significant deficiencies must be reported through the IO to APHIS, OLAW and any Federal funding agency.

- Review and approve, require modification in (to secure approval), or withhold approval of proposed amendments regarding the use of animals in ongoing activities.
- Monitor and confirm that scientists, animal technicians and other personnel involved with animal care, treatment and use are provided with the training in the humane practice of animal maintenance and experimentation, and the concept, availability and use of research or testing methods that limit the use of animals or animal distress.
- The IACUC may suspend any activity that it previously approved if it determines that the activity is not being conducted in accordance with applicable provision of the Guide, Act, or NIH Assurance Statement. The IACUC may suspend an activity only after review of the matter at a convened meeting or a quorum of the IACUC and with the suspension vote of a majority of the quorum present. If the IACUC suspends an activity involving animals, the Institutional Official in consultation with the IACUC shall review the reasons for suspension, take appropriate corrective action, and report that action with the full explanation to APHIS, OLAW and any other federal funding agency.

Required Membership

Adequate numbers of members shall be appointed to carry out the required responsibilities of the IACUC. There shall not be less than five members. The Committee shall include at least one:

- Doctor of Veterinary Medicine, with training or experience in laboratory animal sciences and medicine, who has direct or delegated program responsibility for activities involving animals at the institution;
- Practicing scientist experienced in research involving animals;
- Member whose primary concerns are in the nonscientific area;
- Individual who is not affiliated with the institution in any way other than as a member of the IACUC, and is not a member of the immediate family of a person who is affiliated with the institution. This individual should represent community interests and concerns.

Members will be sought so as to retain a balanced representation of animal users and to represent the spectrum of animal species utilized at HPU. This will give all sectors of the campus opportunity to have input into animal use policies, and will ensure a broad range of expertise.

HPU Membership**:**

- The HPU IACUC consists of at least 5 members. IACUC members shall serve for a term of three years.
- At the end of three years, members may commit to an additional three year term.
- Each March, the IACUC will nominate and discuss prospective new members.
- In accordance with federal regulations, no more than 3 members will be from the same administrative unit. An administrative unit is defined as a department or as a scientific/clinical discipline.
- The IACUC will recommend prospective new members to the Institutional Official, who will ask these persons to serve.
- The IACUC Institutional Officer shall notify OLAW of changes in the composition of the committee each year at the time of filing of the annual report.

The Committee can invite internal or external consultants to assist the Committee in its duties; for example in the performance of protocol review. Such consultants cannot vote, but can provide their professional opinion.

IACUC Member Training

The contents of The Guide for the Care and Use of Animals, Animal Welfare Act, PHS Policies and the policies and procedures of the HPU IACUC will be reviewed. In addition, new members will be introduced to the Report of the AVMA Panel on Euthanasia, the semiannual facility inspection and programmatic review checklists provided by OLAW, Occupational Health and Safety in the Care and Use of Research Animals, and the ARENA/OLAW Institutional Animal Care and Use Committee Guidebook. New IACUC members will be instructed in how to access these and other IACUC resources on the internet.

HPU Training Requirements**:**

- Within three months of appointment to the committee, new IACUC members shall attend a training meeting with the IO or IACUC Chair.
- New members will be introduced to the purpose and function of the IACUC as described in the Guide for the Care and Use of Laboratory Animals, the Animal Welfare Act, PHS Policies and policies and procedures of the HPU IACUC.
- New member training will be documented through notes placed in the IACUC meeting minutes.

Responsibilities

IACUC Chair

Responsibilities: The IACUC Chair has the responsibility for overseeing the coordination and implementation of effective, efficient systems for protocol review and program review by the IACUC in compliance with the PHS policy and the AWA. Specifically the Chair should:

1. Ensure that the IACUC has a quorum present at all meetings
2. Declare the loss of a quorum resulting in the end of official business if a sufficient number of members depart
3. Prepare and/or oversee the preparation of meeting minutes, agendas and reports and submit appropriate documents to the IO in accordance with PHS policy and the AWA
4. Report to the IO any activities which have been suspended by the IACUC for non-compliance
5. Ensure the establishment of a written system of communication for the IACUC with the investigators concerning the approval status of protocols and the steps necessary to secure approval
6. Stay abreast of the most recent regulatory trends and interpretations
7. Evaluate and champion policy and practice initiatives to improve the animal care and use program
8. Have regular interaction with other institutional committees, occupational health and safety, physical plant, human resources
9. Assign designated reviewers for protocols
10. Advise PIs
11. Educate and support IACUC members, PIs and others regarding the IACUC process
12. Participate in facility inspections
13. Communicate regularly with the IO, Attending Veterinarian, IACUC Administrator and staff
14. Serve as spokesperson for the IACUC

Attending Veterinarian

Responsibilities: The Attending Veterinarian serves on the Institutional Animal Care and Use Committee and has appropriate training or experience in laboratory animal medicine and science and has direct or delegated program responsibilities for activities involving animals at the institution.

The role of the IACUC Attending Veterinarian is to:

1. Provide veterinary consultation on the recognition and palliation of pain.
2. Direct the animal care and use program.
3. Provide medical care.
4. Provide oversight of procedures for aseptic surgery and post-operative care.
5. Provide oversight on multiple major survival surgery resulting from a veterinary condition in an animal that also had experimental surgery.
6. Advise the IACUC on new procedures or procedures with the potential to cause pain and distress that cannot be reliably controlled.
7. Ensure that veterinary care is available to mitigate the illnesses, lesions or behavioral abnormalities associated with animal restraint.
8. Serve as a resource for IACUC members, PIs, graduate students on issues related to animal welfare.
9. Assist with training and education of IACUC members, PIs, students, etc. as needed.
10. Provide expertise on matters of animal health and welfare, including, but not limited to: use of proper anesthesia and analgesia in laboratory animals in the relief of pain and distress; discussion of the possible complications related to procedures used or a disease model proposed; provide a review of the plans for appropriate and timely medical intervention.
11. Serve as a member of the IACUC.
12. Participate in six month facility inspection and program reviews.

Non-affiliated member

Responsibilities: The role of the Non-Affiliated member is to:

1. Play an active role in all IACUC activities.
2. Make persistent, straightforward inquires about matters that are undetected by the institutional members of the IACUC.
3. Critically review protocols
4. Serve as designated reviewer when appropriate
5. Attend IACUC meetings.
6. Participate in six month facility inspection and program reviews.

Non-Scientist

Responsibilities: The role of the Non-Scientist member is to:

1. Play an active role in all IACUC activities.
2. Make persistent, straightforward inquires about matters that are undetected by the institutional members of the IACUC.
3. Critically review protocols
4. Serve as designated reviewer when appropriate
5. Attend IACUC meetings.
6. Participate in six month facility inspection and program reviews.

Scientist

Responsibilities: The role of the Scientist member is to:

1. Play an active role in all IACUC activities.
2. Make persistent, straightforward inquires about matters that are undetected by the institutional members of the IACUC.
3. Critically review protocols
4. Serve as designated reviewer when appropriate
5. Attend IACUC meetings.
6. Participate in six month facility inspection and program reviews.

Alternate Members

Alternate members of the IACUC are appointed by the University President, receive training identical to full members, are specifically designated to which member they are an alternate. Alternate members may attend all meetings and replace (e.g., vote in place of) specifically designated members absent from a meeting. Alternates may also act as a member of the IACUC in authorizing clarifications of approved protocols, in authorizing amendments not requiring full committee action, in approving Exempt Protocols, and as members of Semiannual Program and Facility inspection teams.

Institutional Official

Responsibilities: The role of the Institutional Official:

1. Has the authority to sign the University's Assurance and commit the institution to meet the requirements of AWA.
2. Commits the institution to meet the requirements of PHS policy.
3. Receives inspection reports and recommendations from the IACUC.
4. In consultation with the IACUC, determines whether deficiencies are minor or significant, determines corrective actions or suspensions and reports such actions to regulatory and funding agencies.
5. Receives notification of the IACUC's decision to approve or withhold its approval of animal activities.
6. Receives and transmits annual reports to NIH/OPRR and to APHIS.
7. May subject protocols that have been approved by the IACUC to further review and approval, but may not approve an activity that has not been approved by the IACUC.
8. Ensures that all personnel involved in animal care, treatment and use are qualified to perform their duties and that specific training is provided to those personnel.
9. Ensures that training and instruction and the qualifications of personnel are reviewed with sufficient frequency to fulfill the research facility's responsibilities.
10. Ensures the University has an attending veterinarian who provides adequate veterinary care to its animals in compliance with the AWA.
11. Ensures that the University maintains the required records for the specified time periods.

Meetings

The IACUC shall meet as often as necessary to fulfill its responsibilities, not less than every six (6) months, and be satisfied that all animal use within its jurisdiction is in compliance with institutional, municipal, state and federal regulations. The Committee performs inspections of all animal study areas (animal facilities, laboratories and sights) and performs programmatic reviews every six (6) months.

The IACUC recognizes that there may be occasions when investigators desire to appear before the committee to express concerns or grievances, or to state their position on noncompliance issues, etc. Likewise, there are times when the IACUC may desire that an investigator attend in order to provide clarification or explanation on matters related to protocols or other issues. Investigators may request to be placed on the IACUC agenda to address concerns, state grievances, or state their position on noncompliance issues. Likewise, the Chair of the IACUC may place an investigator on the agenda so that the committee can request clarification or explanation on matters related to protocols or other issues.

Facility inspections and programmatic review: Frequency and timing

To ensure the semiannual inspection of animal facilities and review of the HPU animal program in accordance with federal requirements, HPU has adopted the following policy:

HPU Inspection Policy**:**

- In accordance with federal regulations, at least two members of the IACUC shall inspect the HPU animal facility and review the HPU program for animal use. These reviews will occur semiannually, with no more than six months elapsing between reviews. These reviews will be documented using the OLAW Sample Semi-annual Program and Facility Checklist found at https://olaw.nih.gov/resources/documents/cheklist.htm

- Upon completion of the IACUC's program review and facility inspection, the IACUC must prepare a report to the Institutional Official in accord with the PHS Policy at IV.B.3. The report must contain a description of the nature and extent of the institutions adherence to the Guide for the Care and Use of Laboratory Animals (Guide) and the Public Health Service Policy *(PHS Policy)*. If program or facility deficiencies are identified during the course of the IACUC's review and inspection, they must be classified by the IACUC as either significant or minor, and a reasonable and specific plan and schedule must be developed for the correction of each deficiency. A sample letter may be found at: https://olaw.nih.gov/resources/documents/ioreport.htm

- The IACUC may use subcommittees composed of at least two Committee members and may invite ad hoc consultants to assist in conducting the evaluations, however, the IACUC remains responsible for the evaluations and reports as required by the Act and regulations.

Recordkeeping requirements

The IACUC Staff shall maintain the following IACUC records:

1. Minutes of IACUC meetings, including records of attendance, activities of the Committee, and Committee deliberations;
2. Records of proposed activities involving animals and proposed significant changes in activities involving animals, and whether IACUC approval was given or withheld;

3. Records of semiannual IACUC reports and recommendations (including minority views), prepared in accordance with the requirements of 9 CFR § 2.31(c)(3), and forwarded to the Institutional Official.
4. All records and reports shall be maintained for at least three years. Records that relate directly to proposed activities and proposed significant changes in ongoing activities reviewed and approved by the IACUC shall be maintained for the duration of the activity and for an additional three years after completion of the activity.
5. All records shall be available for inspection and copying by authorized APHIS or funding Federal agency representatives at reasonable times. Release of any such materials, including reports, summaries, and photographs that contain trade secrets or commercial or financial information that is privileged or confidential will be governed by applicable sections of the Freedom of Information Act. Whenever the Agency notifies a research facility in writing that specified records shall be retained pending completion of an investigation or proceeding under the Act, the research facility shall hold those records until their disposition is authorized in writing by the Agency.

Protocol Submission Process

Only Hawai‘i Pacific University fulltime faculty or scientists are permitted to submit applications for the use of animals in research or teaching to the IACUC. In addition, federal law requires that all individuals who use animals in research or teaching must have the appropriate qualifications. To this end, all individuals named on the application form must receive general and species-specific training prior to the approval of the application by the IACUC.

The IACUC application consists of the following **essential** elements:

- Proposal Submittal Form (OSP-1)
- Conflict of Interest Form (OSP-5, if applicable)
- IACUC Protocol Application Form
- The technical portion of the grant proposal or contract, if applicable, that describes the proposed use of animals.

If applicable, the following **additional materials** must be submitted with the application:

- The Use of Biohazardous Materials in Laboratory Animals Form (to be reviewed by the University Safety Committee)
- The Use of Radioactive Materials in Laboratory Animals Form (to be reviewed by the Safety Committee)

The PI must consult with the Attending Veterinarian during planning and prior to submission of an animal use protocol that might cause more than momentary pain or distress of the animal.

IACUC Protocol Application Form

The IACUC approves protocols for three (3) years or the length of the approved funding, whichever is shortest. PI’s must also submit a progress report annually as referenced below. The IACUC Protocol Application Form should be submitted to the IACUC office for review.

Protocol Application Review

Prior to IACUC review, each member of the Committee shall be provided with a list of proposed activities to be reviewed. Written descriptions of all proposed activities that involve the care and use of

animals shall be available to all IACUC members, and any member of the IACUC may obtain, upon request, full Committee review of those activities. If full Committee review is not requested, at least one member of the IACUC, designated by the chairman and qualified to conduct the review, shall review those activities, and shall have the authority to approve, require modifications in (to secure approval), or request full Committee review of any of those activities. If full Committee review is requested for a proposed activity, approval of that activity may be granted only after review, at a convened meeting of a quorum of the IACUC, and with the approval vote of a majority (50%) of the quorum present.

No member may participate in the IACUC review or approval of an activity in which that member has a conflicting interest (e.g., is personally involved in the activity), except to provide information requested by the IACUC. Nor may a member who has a conflicting interest contribute to the constitution of a quorum.

The IACUC may invite consultants to assist in the review of complex issues arising out of its review of proposed activities. Consultants may not approve or withhold approval of an activity, and may not vote with the IACUC.

Under no conditions can a study begin before IACUC review and approval.

Full Review

All protocols are reviewed by a full committee unless the IACUC Chair determines that a Designated Member Review is warranted. Activities Requiring Full Committee Review include:

a. Use of Non-routine or Harmful Invasive Procedures:

   It is the policy of the HPU IACUC that protocols that involve non-routine or harmful invasive procedures such as major multiple survival surgery are not eligible for designated member review, and must always be reviewed by the full Committee. In most instances, multiple survival surgical procedures on a single animal are discouraged. However, under special circumstances, more than one major surgical procedure on a single animal may be approved provided they are related components of a research or instructional project. Major surgery is defined as any surgery in which a major body cavity is opened.

b. Prolonged Restraint:

   The HPU IACUC policy states that protocols that involve prolonged restraint are not eligible for designated member review and must always be reviewed by the full Committee. Standard tethering systems for rats that allow full mobility within cage space are not considered prolonged restraint by the IACUC.

c. Use of Animals With a Serious Natural or Experimental Disease Maintained for an Extended Time:

   It is the policy of the HPU IACUC that protocols that involve the long-term maintenance of animals with serious debilitating diseases must always be reviewed by the full Committee. An example of such a protocol is one including maintenance of animals with naturally occurring or experimentally induced paralysis.

d. Methods of Euthanasia Other Than Those Approved by the AVMA:

The IACUC currently approves all methods of euthanasia that are in agreement with the 2020 AVMA Panel on Euthanasia recommendations. Exceptions to these recommendations are reviewed individually by the IACUC and approved when deemed acceptable. This requires scientific justification by the investigator and may require observation of the proposed method by IACUC members.

Designated Member Review

The policy of the IACUC is to discourage expedited review of new protocols except in certain circumstances. An application excluding use of non-routine or harmful invasive procedures, prolonged restraint, multiple survival surgery, use of animals with a serious natural or experimental disease for an extended period of time or methods of euthanasia other than those recommended by the American Veterinary Medical Association (AVMA) may be reviewed using the designated member review method.

This process involves submitting the full application package as described above to the IACUC Chair. The Chair of the IACUC will select one or two reviewers to evaluate the application. At the same time, the Chair will notify the other members of the IACUC that an application has been received for designated member review (the protocol, sponsor, and principal investigator will be named). The protocol shall be made available to all IACUC members and any member may request full Committee review. If no such request is made, the application will be reviewed and acted upon by the selected reviewers and the IACUC Chair.

A protocol that is the same as a previously approved protocol, but is being submitted to a different sponsor, resubmitted to the same sponsor, or being renamed, may also receive designated member review and approval. The principal investigator need only complete the first part of the IACUC application (in particular, listing the protocol number of the previously approved application) and submit the remaining elements of the application package described above. The Chair of the IACUC, or a designated IACUC member, will review this application and the previously approved protocol and if they are indeed the same, the protocol will be approved.

Protocols approved by Other Institution's IACUC

Finally, protocols approved by an IACUC at another institution, but that will be conducted at Hawai'i Pacific University (e.g., grant transfer) must be reviewed and approved by IACUC. However, to facilitate the transfer of the protocol to HPU, the IACUC will grant a conditional approval, if needed, to order animals. This conditional approval is granted with the understanding that the IACUC application will be submitted to the IACUC within thirty days of the investigator's relocation to the institution. No animals can be used until the IACUC has approved the protocol.

Categories of IACUC Actions

As a result of the review of the protocol applications, the IACUC Chair may make a recommendation for approval in current form, modifications required for approval, or withhold approval. The IACUC may also defer or table review if necessary.

- Modifications required for approval – This determination is that the protocol is approved, contingent on receipt of a specific modification, with final approval by the IACUC Chair or by Full Committee once the PI has completed revisions necessary for approval. A study cannot begin until final approval is granted.

- Approval in current form – Meets all the review criteria for approval in current form.

- Withhold Approval – The IACUC determines that the proposal has not met all of the requirements, as applicable. A designated reviewer may not withhold approval. This action can only be taken using the full committee method of review. The reasons for disapproval are given to the PI who may respond in person or writing to appeal the decision or may submit a revised Protocol.

Applications and proposals that have been approved by the IACUC may be subject to further review and approval by other University officials. However, these officials may not approve those sections of the application or proposal related to the care and use of animals if they have not received IACUC approval.

Exceptions to the Standard Review Process

The HPU Animal Use Policies apply to the use of live vertebrate animals in research, research training, experimentation, teaching, biological testing, or related purposes. However, certain proposed activities involving the use of animals in research or teaching are either exempt from IACUC review or follow a procedure that is different from the standard review process for IACUC applications described above. These situations are as follows:

Exempt from IACUC Review

Activities that involve using animal tissue or cells obtained from an outside source or a previously approved protocol are exempt from IACUC review and approval. The principal investigator should keep records of the procurement of all animal tissues and/or cells regardless of source.

The following activities are exempt from review:

a. field studies conducted with free-living wild animals in their natural habitat, which do not involve invasive procedures, capture, or handling of the animals, and which do not harm or materially alter the behavior of the animals under study, are exempt from review

b. observational studies of captive wild animals held at licensed facilities, which do not involve invasive procedures or handling of the animals, and which do not harm or materially alter the behavior of the animals under study, are exempt from review

Annual reviews for Approved Protocols

Annual reviews must be completed each year for all approved protocols. The reviews must be approved within one year after the original approval date or the last annual review. Annual reviews are submitted using the *Annual Review Form* (See http://grants.nih.gov/grants/olaw/references/contop96.htm for template) and include a description of progress made over the previous year. Annual reviews are sent to the IACUC Chair and will be submitted for designated review unless any of the IACUC members request a full committee review.

Amendment for Animal Use Procedures

Any proposed modification to an approved protocol must be approved by the IACUC prior to implementation. This includes, but is not limited to, changes to procedures, housing requirements, pre- or post-operative care, euthanasia, the addition of animals greater than or equal to 10% of what was originally approved, or the addition or deletion of personnel. Investigators who wish to initiate a change in a protocol must submit an *Animal Use Amendment Form* to the Chair of the IACUC describing in detail the proposed modifications, justification for the proposed changes, and any effects that the

modifications may have on the animal(s). The chair may decide that the amendment represents significant procedural changes that require the submission of a new IACUC protocol. Amendments may be approved by the Chair of the IACUC or his designee on an ad-hoc basis.

An Amendment is to be used to gain acceptance for a variation in the conduct of a protocol. In general, an amendment is used to correct problems that arise during the conduct of a study or to continue a study where the goal has not changed but the methods and procedures have been modified to better achieve the goals. An amendment requires action by the HPU IACUC before the changes can be initiated. Justification must be given for the changes requested.

a. The anticipated animal number is significantly above (>=10%) what was originally approved by the IACUC (an increase over 25% requires a new IACUC proposal).
b. proposals to switch from nonsurvival to survival surgery.
c. a change in degree of invasiveness of a procedure or discomfort to an animal.
d. a change in personnel involved in animal procedures.
e. a change in anesthetic agent(s) or the use or withholding of analgesics.
f. a change in methods of euthanasia.
g. a change in the species used.
h. a change in duration, frequency or number of procedures performed on an animal.

Amendments are not allowed under the following circumstances and full protocols must be submitted:

a. An amendment cannot be used if a different investigator wants to independently perform a similar procedure as an existing protocol that belongs to someone else.
b. If a primary investigator leaves the University with unfinished active protocols and an existing associate investigator does not want to continue the study as a primary investigator, those protocols must be terminated. An exception may be made if a new person is interested in continuing the study. That individual must be present at the University, be familiarized with the existing protocol and the use of animals, and demonstrate his/her qualifications to use the species and perform the work.
c. A new protocol is required when the overall approach to a research issue must be changed.

<u>Request for Additional or Replacement Animals</u>

A concerted effort to minimize the use of animals is undertaken by the HPU IACUC at the time of initial review of all research protocols involving the use of animals. Federal guidelines for research animal use stipulate that investigators should seek to refine, replace, and reduce animal use ("The 3 Rs"). Reduction refers to the use of the minimum but sufficient number of animals needed to yield statistically meaningful results. Similarly, federal guidelines require the IACUC to evaluate the "appropriateness" of the numbers of animals to be used. However, there is the possibility of unforeseen technical difficulties and additional or replacement animals may be necessary for completion of an approved research protocol.

HPU requires that:

- Investigators should seek to use the fewest animals necessary to yield statistically meaningful results. It is not the purpose of the IACUC to prescribe the method by which investigators arrive at the minimum number of animals needed for a research project. The number of animals to be used may be derived from citations of relevant literature, past experimental findings of the investigator, recommendations of sponsors, or through a power analysis.

- Investigators must clearly state in their protocol or protocol amendment how they arrived at the number of animals requested.
- Investigators opting to perform a power analysis may benefit from using power analysis algorithms available on-line, such as:
  - https://statpages.info/#Power
  - http://www.ncss.com/pass.html

Approved animal protocols specify the number of animals to be used in a project. Sometimes a small increase in number is necessary. The IACUC has provided means to increase the number of animals which may be used in an approved protocol:

- Less than 10% increase or 1 animal is permitted without written request to Committee;
- Greater than or equal to 10% and less than 25% increase requires an amendment request, with IACUC administrative review;
- Greater than or equal to 25% increase requires the submission of a new IACUC protocol.

Federal regulations require the IACUC to closely monitor the numbers of animals required and used for each approved project. This policy provides the flexibility needed when a modest increase in number of animals is needed for a particular project.

Transfer of Animals

The transportation of animals should be in accordance with the Animal Welfare Act (7 U.S.C. 2131 et. seq.) and other applicable Federal laws, guidelines, and policies. During the course of research, it is common for principal investigators to request the transfer of animals from one protocol to another or to another institution. All transfer of animals requires IACUC approval. Transfer of animals from one protocol to another or to another institution requires approval each time an animal is transferred.

For transfer of animals from one protocol to another or to another institution, please use the form entitled *Request for Transfer of Animals Application Form*. Please make sure that the exact number of animals to be transferred and the protocol numbers are clearly mentioned on the form. These forms also request investigators to provide information on whether the animals transferred were part of any other study in this or at any other institution.

If an investigator is receiving animals from another institution, he or she must comply with all federal, state, local, and Hawai‘i Pacific University regulations or policies. The originating institution’s attending veterinarian or IACUC chair’s signature is required on the form mentioned above. If an investigator is releasing animals to another institution, the Hawai‘i Pacific University IACUC Chair will contact that institution’s veterinarian or research animal facilities to assure that they are ready to accept them. Once the transfer is approved by the Chair of the IACUC, a copy of the approval will be sent to the Principal Investigators to ensure that the number of animals involved are appropriately added to or subtracted from the protocols.

Animal Use Training and Certification Program

The privilege of using animals in research is subject to three Congressional Acts: the Health Research Extension Act (Public Law 99-158), the Food Security Act (Public Law 99-198), and the Animal Welfare Act (AWA) [7 U.S.C. 2131-2156]. The AWA details requirements for the care and use of animals in

research, testing and education. Specifically, Subpart C, Section 2.32, Personnel Qualification, requires that:

- It shall be the responsibility of the research facility to ensure that all scientists, research technicians, animal technicians, and other personnel involved in animal care, treatment and use are qualified to perform their duties. This responsibility shall be fulfilled in part through the provision of training and instruction to those personnel.

- Training and instruction shall be made available, and qualifications of personnel reviewed, with sufficient frequency to fulfill the research facility's responsibilities under this section.

PI Responsibility

It is the Principal Investigator's responsibility to assure that his or her staff are trained and qualified. The Institutional Animal Care and Use Committee (IACUC) is responsible for the oversight and content of the HPU Animal Use Training Program.

HPU Personnel Affected

The following HPU personnel must complete the required training in the care and use of animals in research and instruction if they have contact with any living vertebrate animals:

- Scientists
- Research technicians and research animal technicians
- Summer students
- Visiting scholars
- Volunteers
- Other individuals involved in the care and handling of animals
- PIs and Co-PIs on Animal Use Protocols, even if those individuals will not have direct animal contact.

In addition, sufficiently detailed information on the experience and training of each individual involved must be included on the IACUC-approved protocol before any hands-on work may be done.

Implementation

The HPU Animal Care and Use Training Program consists of six components:

1. Basic Ethical and Regulatory Requirements (BRER)
2. Species-Specific Training
3. Laboratory-provided Training
4. Other IACUC-Mandated Training
5. Periodic Retraining
6. Facility orientation

1. Basic Regulatory and Ethical Requirements

ALL animal users must take one or both modules as appropriate, regardless of prior training,

The core module, BRER, is mandatory for all first time users named on animal care and use protocol capacity. It covers

- Ethical and scientific issues related to animal research;
- Laws, regulations, and policies related to animal research;
- Methods whereby animal care and treatment are reported;
- Responsibilities of the IACUC, research and veterinary staff;
- Alternatives to the use of animals and to the procedures planned;
- Pain and discomfort, anesthetics, and analgesics;
- Euthanasia;
- General safety, health and environmental considerations (Zoonoses).

2. Species-Specific Training

In addition to the basic training described above, species-specific training will be required for all personnel who will be in direct contact with animals, as follows:

- Any new user with less than 12 months of experience in the specific species must attend the appropriate species-specific course(s).
- The IACUC will determine during the review process the need for, and extent of, training for others listed on the protocol, and for additional hands-on or similar training, and include any requirement as a condition of IACUC approval of the protocol.

The specific content and degree of detail will vary depending on the knowledge, previous experience and expertise of the target audience. The modules will contain, as appropriate:

- Selection and procurement of animals;
- Husbandry and care;
- Handling and restraint;
- Anesthesia, analgesia, peri-operative monitoring, medications;
- Survival surgery and post-surgical care;
- Skill-building for selected procedures (hands-on sessions);
- Identification and records;
- Species-specific euthanasia;
- Species-specific safety, health and environmental considerations; and
- Other specific issues as needed.

3. Laboratory-provided Training

Individual PIs and/or their designees can apply to the IACUC members to conduct and document their own equivalent of the Species-Specific training sessions. For approval, such laboratories/investigators will work with the IACUC to develop the content of the training session and the method for documenting training. IACUC will maintain a database of individuals approved to provide introductory training in PIs' laboratories.

4. Other IACUC-Mandated Training

As stated above, the IACUC may mandate additional training for individuals or an entire group if:

- During the initial protocol review process, the need for more training is identified.

- The procedures in the protocol are changed or amended substantially enough to warrant additional training (e.g., changing from acute to survival surgery).

- The IACUC identifies violations of the protocol due to lack of understanding of procedures or insufficient training.

5. Periodic Retraining

All individuals listed on an animal research protocol must undergo periodic retraining as prescribed by the IACUC every three years to retain their privilege to conduct research involving the use of animals. The retraining modules will be designed to address new, or changes in existing, regulatory or policy requirements.

6. Facility Orientation

For most facilities where animals are housed, new individuals should meet with the relevant area supervisor or principle technician to receive orientation for that particular facility.

Occupational Health Program

The Guide for the Care and Use of Laboratory Animals, latest edition (Institute for Laboratory Animal Resources) and the Occupational Health and Safety in the Care and Use of Research Animals (NRC) describe the requirements for an Occupational Health and Safety program.

The occupational health program at HPU is monitored by several interactive committees and departments. The purpose of this policy is to serve as a reference to all policies and requirements that effect personnel creating or working under an IACUC protocol. The occupational health program is an important component of the institution's animal care and use program. In order to maintain a high level of safety for all individuals involved in the care and use of research animals it is necessary to monitor use of hazards materials in the lab.

These policies are general in natural and will not provide all safety needed by each individual laboratory. It is ultimately the Principal Investigator's responsibility to assure that all personnel are trained properly in the use of equipment, chemicals, and other possible hazards.

Applicability

This policy applies to any University employee (faculty, staff, and student, both wage payroll and work-study), volunteer, or visitor who works with vertebrate animals and/or tissues, fluids, secretions, and excretions from vertebrates. The policy also applies to those who handle cages and related equipment contaminated by animal tissues, secretions, and/or excretions.

Participation in the Occupational Health and Safety Program is not required for students whose only exposure to animals is in a classroom setting. However, the instructor must inform the students about any health risks associated with the species with which they will be working. Instructors are responsible for providing this information.

Volunteers and students are required to follow all safe work practices and visitors must be made aware of animal-related hazards before they enter the premises. Facility supervisors are responsible for providing this information.

A risk-based assessment of all persons involved in animal care is conducted to determine their level of participation in the Occupational Health and Safety Program. This assessment considers the nature and duration of exposure, hazards posed by the animals and materials used, and susceptibility of personnel. This assessment includes a review of information provided on the completed *Animal Worker Questionnaire* by staff.

Responsibilities

Principal Investigators shall ensure that all regular employees and student employees who are required to do so under this policy enroll in the Occupational Health and Safety Program. In addition, they shall ensure that job descriptions accurately reflect the types of animal-related activities expected of the employee, the animal species with which the employee will have direct or indirect contact and conditions in the job that may affect the health of the employee. Performance of these functions will ensure compliance with applicable state and federal health and safety rules, regulations, standards, and procedures.

The IACUC is responsible for conducting a review of the University Occupational Health program as it pertains to animal use. The IACUC requires that all employees (faculty, staff, student employees) who are associated with a research or teaching activity involving animals are enrolled in the Program before approving their participation in the activity.

Reporting and Treatment of Illnesses, Injuries or Accidents

All injuries, illnesses or accidents shall be reported immediately to the employee's supervisor. Persons with job-related injuries that require immediate medical attention should report to the nearest emergency room. Job-related injuries that occur after regular business hours, and that do not require immediate medical attention, should be reported to the Human Resources Department on the next business day. All employee, student or visitor accidents, injuries or illnesses will be investigated promptly by the supervisor. Appropriate corrective measures to prevent reoccurrence shall be implemented.

Employees, students and visitors shall report all unsafe conditions, practices or equipment to the supervisor, instructor or Safety Officer whenever deficiencies are noted.

Investigations of Concerns Involving the Care and Use of Animals

The IACUC will review and/or investigate any concern relating to animal care and use brought to the attention of the Committee.

Procedures for Filing a complaint

1. Concerns should first be addressed to the individual(s) or unit at whom/which the complaint is directed. If the concern is not adequately addressed, the individual has the option to take the concern to the next level.

2. The concerned individual(s) begins the process of filing a Formal Complaint by contacting one the following:

- The Institutional Official
- A member of the IACUC
- Assistant Vice President of Sponsored Projects
- HPU Campus Police

3. The following information is to be provided for any concern:

a. The complainant's name (voluntary)
b. The individual(s) or unit the complaint is against
c. Description of the event or charge including the dates of observation of the alleged Violation(s)
d. Copies of any written, photographic, or taped documentation to substantiate the charges
e. Names of any other witnesses to the events/charges being described or made (voluntary)
f. Signature of the Complainant (voluntary)

4. The IO or IACUC member will assist the complainant in completing the written description and will submit the complaint on to the IACUC Chair.

5. Complainants must be the actual individual(s) who have witnessed the violation.

6. While hearsay complaints cannot be formally filed, individuals who have serious concerns based on hearsay evidence can call any of the individuals listed above. The Institutional Official or an IACUC representative will follow up on concerns by means other than the formal complaint process (such as review of protocols, discussions with other employees, or unannounced laboratory inspections). This process may lead to the filing of a Formal Complaint.

IACUC Review of Complaint

The Formal Complaint will be presented and a meeting will be scheduled within a month of receipt of the complaint by the IACUC Committee. A sub-committee will be designated by the chair of the IACUC and shall have at least two (2) IACUC members. The Sub-committee will review the complaint and talk with the IO or IACUC member who has brought the complaint forward. If evidence warrants a formal investigation, the sub-committee members will so recommend by a majority vote of those present. The Sub-committee will:

a. Document the review findings of the Sub-committee and schedule a meeting of the full Committee at the earliest possible date.
b. Inform the Complainant, if known, that the IACUC will be performing an investigation of the complaint.

Should the Sub-committee, following the review of the complaint, find that the complaint is insufficiently substantiated, the Subcommittee will:

a. Document the review findings of the Sub-committee.
b. Provide a confidential written response to the Complainant, if known, explaining the findings of the Sub-committee.
c. The IACUC Chair shall place the complaint form, sub-committee's report, and all correspondence into a separate IACUC file for formal complaints, by year.
d. Provide an opportunity for all IACUC members to review the Complaint and Sub-committee report to provide a minority view, should they so desire.
e. At the discretion of the Sub-Committee, inform the Pertinent Individual (principle investigator, Facility director, etc), in writing that a complaint was made. The investigator will then receive a summary of the concerns without reference to the individual(s) name(s) who filed the complaint and a copy of the Sub-committee's Report.

IACUC Investigation of Alleged Violations

Should the Sub-committee, following the review of the complaint, find that the complaint is sufficiently substantiated, the Subcommittee will vote to initiate an investigation.

1. When the Sub-Committee has voted to initiate an investigation, the IACUC Chair will schedule a meeting of the full committee at the earliest possible date.

2. The Committee as a whole will review the documentation and determine a course of action, which may include assignment of the investigation to a sub-committee or individual.

3. The Chair will notify the Institutional Official of the initiation of the Investigation.

4. The Chair will notify the Principal Investigator, animal facility administrator, or other pertinent individual of the IACUC's intention to carry out the investigation.

This notification will include:

a. Citation of the section of the federal regulations which allow for investigations of concerns related to animal care and use.
b. Description of the complaint and the sub-committee's review report.
c. An invitation to meet with the IACUC, IACUC Chair or sub-committee to personally discuss the allegations.

5. The IACUC may use a variety of methods to obtain information to assist the investigation. These will include, but are not limited to the following:

a. Unannounced visits to the laboratory or animal facility in question to review procedures, lab/facility documents, or talk with personnel prior to formal notification of the pertinent individual.
b. Submission of documentation from the pertinent individual, co-workers or employees, or from the animal facility where animals were housed. Such documentation could include: research records relating to animal experimentation, surgical records, animal health records, purchase orders, standard operating procedures, diagnostic laboratory reports, quality assurance reports, or others which will provide information which will assist in the investigation.
c. Documentation supporting the allegations provided by the Complainant.
d. The pertinent individual will be invited to provide a written response to the Complainant and any additional documentation provided by the Complainant. (Names, addresses, or other information which could result in breach of the Complainant's confidentiality will be deleted from materials provided to the pertinent individual).
e. Review of Animal Care and Use Protocols, IACUC inspection reports, Reports of Programmatic Reviews, USDA, or any other pertinent IACUC record.
f. Letter of documentation solicited from other University employees who can provide insight into the investigation. For example: letters from animal facility, managers, or other facility personnel; letters from other committees, such as the Safety Committee; or other individuals.
g. Letters of outside evaluation of protocols, programs, or documentation related to the complaint performed by external reviewers chosen by the Committee. Such reviews would be done confidentially, with signed confidentiality statements by reviewers. The pertinent individual may be asked to assist the IACUC in selection of reviewers.
h. Invited site visits by external reviewer(s) to critique facilities or programs.

i. IACUC interviews with the pertinent individual, complainant or other individuals who can provide information for the investigation.

6. Once the IACUC sub-committee has completed its fact gathering period, the IACUC will reconvene the entire committee to review all the information. A quorum of the Committee must be present and at least the non-university member and the veterinarian at the meeting. The sub-committee may select individual members of the IACUC to review and summarize information which will be presented to the IACUC. Individual members will have access to all documentation, should they wish to review the entire package.

7. The Committee will review the package and fully discuss all issues. Once discussion is complete, the Committee will form recommendations for action. Recommendations will be individually voted on all actions must pass by a majority vote. Such actions could include, but are not limited to:

a. Requiring an amendment to the IACUC approved protocol
b. Requiring a change in procedures previously approved in an IACUC protocol or requiring a change in procedures or program of the animal facility in question.
c. Requiring a re-submission of a currently approved IACUC protocol.
d. Conducting additional unannounced laboratory inspections to observe procedures or unannounced facility visits to observe conditions, procedures, and/or review programs. In either case, the end result of the inspection(s) may include any of the actions outlined in this section.
e. Suspension of the research activity (Protocol).
f. Sanction against the pertinent individual.
g. Find that the complaint was unwarranted or unsubstantiated.

8. With the Investigation complete and actions contemplated, the IACUC will invite the pertinent individual to meet with the Committee to review the Committee's findings. This meeting will provide an opportunity for the pertinent individual and Committee to resolve issues and work together to find solutions to the issues raised in the investigation. Harsh actions such a suspension or sanction can hopefully be avoided by this process and result in the mutual agreement and satisfaction of the Committee and the pertinent individual.

9. After the pertinent individual has met with the Committee, the Committee will formulate its final actions and vote on these individually. All actions must pass by a majority of quorum vote and minority opinions be recorded.

10. The Committee shall complete the investigation by the following documentation and notifications:

a. The Institutional Official shall receive a summary document of the findings of the Committee and the final actions which will be taken.
b. If suspension is the action being taken and the activity is supported by PHS, the IACUC, through the Institutional Official, shall file a full report with Office for Protection from Risks (OPRR). A full report, for suspensions involving covered species, must be filled with APHIS.
c. If sanction of the animal care program is to occur, the letter will be directed to the Administrator to immediately halt inhumane care, use, or treatment of animals.
d. The Complainant will receive a summary of the actions taken, but any confidential and information concerning the protocols will not be included.

e. The pertinent individual will be informed, in writing, of the final conclusions/actions of the Committee and of any response that is required from the pertinent individual.
f. If the Complaint was found to be unwarranted or unsubstantiated, a strong letter of support will be provided to the pertinent individual from the Committee for the research, animal care facility, or other program, as appropriate.

11. The Committee will complete a final report and close the file, keeping all documentation for the complaint, review, investigation, and all other information in the Formal Complaint file, by year.

12. The IACUC Chair will provide notification of completion to all individuals who assisted in the investigation.

Confidentiality of Complainant

Per Regulatory Authority: Animal Welfare Act Section 2.32(c) (4), "No facility employee, Committee member, or laboratory personnel shall be discriminated against or be subject to any reprisal for reporting violations of the regulations or standards under the Act."

The confidentiality of any complainant will be maintained by all individuals involved in the review and/or investigation of alleged violations of animal care and use regulations and standards. Information on any documentation which is provided to individuals other than the Director or members of the IACUC which would identify the complainant shall be removed by cross out, white out, black out or other method.

Should charges be brought that are false and in malicious manner by the Complainant to purposely harm the University or any of its departments, divisions, or units, the IACUC, or any individual, then such will be handled according to pertinent classified staff, academic professional, or faculty policies of the Hawai‘i Pacific University which are applicable to the given case.

Reporting Requirements

Once licensed, the University must report at least annually to the USDA that the provisions of the Animal Welfare Act (AWA) are being followed and that professionally acceptable standards governing the care, treatment and use of animals are being followed by the University during actual research or teaching. In these annual reports, the University shall provide information on the species and number of animals per species involved in IACUC approved activities. The report must also list the number of animals involved in activities likely to produce pain or distress and provide assurances that the University are adhering to the standards as described in the AWA. Any deviations from the standards as described in the AWA must be reported and fully explained

For PHS funded protocols, the IACUC must, through the Institutional Official, make an annual report to OLAW on: 1) any change in the program or facilities that would place the institution in a different category from that stated in the assurance; 2) any changes in the program for animal care and use or IACUC membership; and 3) the dates that the IACUC conducted its bi-annual evaluations of the facilities and submitted said report to the Institutional Official. If there have been no changes, the IACUC shall submit a letter, through the Institutional Official, stating that there are no changes, and provide dates of the IACUC inspections.

If the IACUC suspends or terminates a protocol sponsored by PHS funds, the Institutional Official must report this action with full explanation to Office of Laboratory Animal Welfare (OLAW).

University Field Study Policies

The Animal Welfare Act Regulations (AWAR) definition of animal (§1.1) includes most warm-blooded mammals. However, because of other regulations the IACUC is required to review all protocols involving vertebrate animals ranging from fish to mammals. The regulations specifically exempt the IACUC from the requirement to review field studies if the following conditions apply:

- Experiments do not involve an invasive procedure
- No harm done to the animal
- Experiments do not involve material alteration of the behavior of an animal under study (§2.31(d) (1).

AWAR §2.38 (f)1 then applies: "Handling of all animals shall be done as expeditiously and carefully as possible in a manner that does not cause trauma, overheating, excessive cooling, behavioral stress, physical harm, or unnecessary discomfort."

Public Health Service (PHS) Policy II requires compliance with the AWA. The PHS policy III.A defines an animal as any live, vertebrate animal used or intended for use in research training, experimentation, or biological testing or for related purposes. Therefore, all vertebrate animals used in field studies are subject to the PHS Policy III.A.

The Guide (page 5) states that "Biomedical and behavioral investigations occasionally involve observation or use of vertebrate animals under field conditions. Although some of the recommendations listed in this volume are not applicable to field conditions, the basic principles of humane care and use apply to the use of animals living in natural conditions." The Guide also states that "Investigators conducting field studies with animals should assure the IACUC that collection of specimens or invasive procedures will comply with state and federal regulations."

Thus, it is important for the IACUC to review wildlife studies conducted in the field on AWA regulated species that involve obtrusive procedures.

Required Federal and State Permits for Field Studies

Please be advised that a single research protocol may be subject to multiple laws and therefore, multiple permits may be required. In general both state and federal permits are needed in addition to site-specific permits for research conducted on federal or state owned property. Below is the list of permitting agencies which may be contacted for obtaining permits. For detailed information about these agencies, please contact the Office of Research Compliance at 808-543-8023.

Fish and Wildlife Services*:* Permits are by the U.S. Fish and Wildlife Service (USFWS) under federal regulations 50 CFR 1-100 (specifically 50 CFR 13).

CITES (Conservation on International Trade in Endangered Species): This is an international treaty codified in the U.S. law as part of the Endangered Species Act. It regulates import and export of wildlife and plants listed on its three appendices. For more information, go to http://www.cites.org/.

Endangered Species Act: It prohibits the taking of any species listed as endangered or threatened. Please note that exceptions are made for scientific research and for activities that will enhance the survival of the species. Permits are required for such activities and are issued by USFWS. For more information, go to https://fws.gov/program/endangered-species

Lacey Act: This act and amendment to it promulgated in 1981 is not specific for research, but pertains to research involving the import and export of wildlife (50 CFR 14). While the regulations require import of

wildlife through designated sites, for scientific purposes wildlife can come through non-designated ports. For further information, go to http://www.animallaw.info/articles/ovuslaceyact.htm.

Marine Mammal Protection Act (MMPA). The 1988 amendments include the listing of conditions under which permits may be issued to take marine mammals for the protection and welfare of the animals, including importation, public display, scientific research and enhancing the survival or recovery of a species. Scientific permits are provided for by 50 CFR 18.
For further information go to https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-protection-act-policies-guidance-and-regulations

National Marine Fisheries Association (NMFS): Protection can also include laws regarding allowable proximity to the animals. For example, in Hawaiian waters, humpback whales may not be approached (by boat or otherwise) closer than 100 yards. For more information about protection, consult the NOAA Fisheries site.

Migratory Bird Treaty Act (MBTA): The specific provisions of the statute (MBTA) are described under 16 U.S.C. 703. The title MBTA is a misnomer because the Act does not apply only to birds that migrate long distances or across international borders, but to nearly 830 species of birds. Permits for MBTA are found at 50 CFR 21. Branding and marking activities require a permit under 50 CFR 21.22. These permits are issued by the U.S. Geological Survey-Biological Resources Division's Bird banding Laboratory. Other permits for scientific collecting (50 CFR 21.23) are obtained from USFWS.
For further information go to https://fws.gov/law/migratory-bird-treaty-act-1918

Wild Bird Conservation Act (WBCA): It prohibits the import of any bird into the United States other than those specifically in the regulations as permissible. For any other species, a permit is required. Permits may be issued for scientific research. This law supplements CITES. The regulation for scientific permits is found at 50 CFR 15.22. For more information go to https://www.govinfo.gov/content/pkg/USCODE-2017-title16/pdf/USCODE-2017-title16-chap69.pdf

These are additional permits to the permits described above. A permit to conduct research on a federal property confers no right to conduct research without other legally required permits.

Bureau of Land Management (BLM): It has no specific requirement or permits for scientific research activities.

National Parks: The National Park Service (NPS) has no specific regulation pertaining to scientific research. The NPS policy for research is found in its Administrative Guide, which pertains to all scientific research, Application Procedures and Requirements for Research and Collecting Permits and the Guidelines for Research, and the Guidelines for Study Proposals. Researchers are required to submit research proposals, which are reviewed by the NPS for scientific validity and actual or potential impact of park resources, among other things. A specimen collection permit may be issued only to an official representative or a reputable scientific or educational institution or a State or Federal agency for specific purposes described in the regulations (36 CFR 2.5).

National Forests: Forest Service laws and regulations prohibit all activities that are not expressly allowed by regulations or permit under 36 CFR 251, and 36 CFR 251.54. These regulations do not address scientific research specifically.

National Wildlife Refuges*:* When a national wildlife refuge is created, it is considered closed to the public until it is expressly opened by its manager.

State Law and Regulations

Hawai‘i Administrative Rules § 13-209-5 and § 13-209-5.5: relate to the management of the Natural Area Reserves System. A compilation of the rules can be accessed at: https://dlnr.hawaii.gov

Investigator Responsibilities

Any field work involving vertebrate animals requires a written protocol and approval by the Institutional Care and Use Committee (IACUC) prior to the start of the project. The information listed below should be included in the IACUC protocol form. Potential alternative methods and procedures due to unexpected conditions should be considered and listed to prevent unauthorized activities.

Deviations from the protocol must be documented immediately and reported to the IACUC within 5 days of reaching a location where communication can occur.

- The investigator must assure the IACUC that all necessary federal and state permits have been or will be obtained before the research begins. In addition, if the research is being conducted in a foreign country, the investigator must assure the IACUC that all necessary local permits have been or will be obtained before the research begins.
- Species Selection*:* the investigator should provide information on the population to be studied, rationale for choosing that population and risk to that population. The IACUC reserves the rights to consult with biologists with relevant expertise.
- Site Selection*:* The investigator should explain how the study would maximize the opportunity for data collection and minimize disruption caused by the investigator.
- Methodology Employed*:* The potential short- and long-term effects of procedures on individual animals should be described in all protocols. If animals are to be captured, the method used, species and the number involved should be detailed in the protocol. There should be a description of measures taken to prevent injuries and alleviate pain and distress.
- Protocol should describe the possible impact of capture on subsequent behavior and survival of animals.
- Protocols must provide in sufficient detail on methods to be used (e.g., trapping, tagging, collaring, blood collections, euthanasia), frequency of observations, and a contingency plan for animals hurt in the collection process.
- When animals are wild-trapped, describe how long the trapped animals will be kept in a contained environment and what will be done to make sure that the animals are not in distress and properly taken care of in terms of food, water, etc.
- If animals are to be monitored individually, the protocol must describe whether they will be identified by natural markings or they will be artificially marked and describe the trauma associated with the marking.
- The investigator must inform the IACUC whether physiological or behavioral data collected are minimally invasive and when possible minimally invasive procedures must be used.
- When individual animals are removed to take measurements or tissue samples, the investigator should describe the degree of invasiveness of the procedure and potential problems associated with return of the animal to the field. For example avoiding predators, seeking shelters and surviving inclement weather.
- The investigator should describe in the protocol whether individual animals are treated experimentally to alter their behavior or physiology by the surgery or drugs.
- The protocol should describe whether any invasive surgery, such as organ removal or implanting transmitters, is done, if so, these procedures should be done using aseptic technique.

- The investigator should describe the use and choice of anesthesia and justify in some circumstances whether field conditions limit the use of certain anesthesia since some agents are difficult to transport or use in field conditions.
- The investigator must describe procedures and justify procedures involving site manipulation. For example, addition of a predator in well-justified cases. If fences are erected to limit movement of individuals or populations, the impact on other species should be considered.
- Euthanasia of wildlife in the field can raise unique and challenging issues. The investigator should consult the Report of the AVMA Panel of Euthanasia, which includes considerations and techniques for euthanasia of wildlife.

IACUC Responsibilities

- The IACUC should review the protocol addressing species selection, site selection and methodologies employed. The IACUC is required to review field studies that involve animal trapping for appropriate animal care and use.
- The IACUC must review zoonoses and occupational health and safety issues so that the field studies do not compromise the health and safety of other animals or persons working in the field. The IACUC may request the Hazardous Materials Safety Committee to review the procedures to ensure occupational safety and protect the health of personnel.
- When animals are wild-trapped, the IACUC must review trapping in terms of type of trap, frequency of checking and euthanasia of injured or to be collected animals.
- Facility review: The institution, through the IACUC, is still responsible for all animal related activities regardless of where animals are maintained or the duration of housing. The IACUC must have reasonable access to those areas for the purpose of verifying the activities involving animals are being conducted in accordance with the proposal approved by the IACUC. Federal regulation AWAR §2.31(c) (2) states "That animal areas containing free-living wild animals in their natural habitat need not be included in such inspection;" Neither the Guide nor PHS policy addresses the issue of inspecting field studies. Likewise, PHS Policy does not specifically discuss wild animals or field studies. 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.
- Annual Report*:* The AWAR §2.36(b) does not exclude animal used in field studies; however, collecting information on animal used in field studies is difficult since there may not be direct inspections and there is no ordering information. Thus, for PHS funded studies, IACUC will request an annual summary report from the investigator on the animal number and number of species used during the reporting period.

<u>General Animal Use Procedures</u>

Animal Use Protocol: Blood withdrawal

The University's policy is to protect animal well-being by establishing limits to the volume, frequency, and site of blood collection from animals used on approved teaching and research protocols.

Most mammals contain ~6.7ml blood/100 gm body weight. Studies have shown that hemodynamic changes result from losses >30% of total blood volume. Studies in rats, dogs, and horses have shown that when erythrocytes are returned and plasma replaced, up to 33% of blood volume may be removed weekly for several months without causing harm to the animal.

Recent advances in the humane care of laboratory animals have included recommendations that blood be removed from the facial artery of mice ("submandibular" bleeding), as a humane alternative to retro-orbital sinus bleeding, which is considered more stressful to mice, and has the potential to result in greater tissue damage and pain versus submandibular bleeding.

HPU Policy:

- The maximum volume of blood that can be safely collected from an animal is that volume which represents 1.5% of the animal's body weight over the course of two weeks. (This figure was derived as follows: Blood volume = 6.7% of body weight; 22% of blood volume can be safely removed from an animal each two weeks.) Blood collection in excess of 1.5% of body weight in a two week period may be approved by the IACUC if scientific justification is provided by the investigator.
- When erythrocytes are returned to the animal, up to 33% of total blood volume (2.2% of body weight) may be removed weekly. Plasma should be replaced with an equal volume of lactated Ringer's solution, normal saline, or suitable volume expander.
- For mice, acceptable sites of blood collection include the facial artery (submandibular bleeding), saphenous vein, heart (under anesthesia), or tail artery. Retro-orbital bleeding (under anesthesia) may only be performed by trained personnel when justified for scientific reasons and when approved by the IACUC.

Animal Use Protocol: The Use of Physical Restraint of Research Animals

It is frequently necessary to physically restrain animals during examination as well as while administering substances and collecting samples. In most cases, only a short period of immobility is required. Occasionally administrations, sample collections, or treatments require a prolonged period of physical restraint. These guidelines are intended to insure that: (a) the method of restraint is appropriate for the species of animal, (b) the period of restraint is the minimum required for experimental objectives, (c) the personnel performing the restraint have been appropriately trained, and (d) when prolonged physical restraint is necessary, the physical, physiological and psychological effects on the animal are minimized.

The Guide for the Care and Use of Laboratory Animals provides the following definition of physical restraint: "Physical restraint is the use of manual or mechanical means to limit some or all of an animal's normal movement for the purpose of examination, collection of samples, drug administration, therapy or experimental manipulation." During physical restraint, an animal is prevented from making normal postural adjustments.

HPU Policy:

- Personnel performing the restraint must be familiar with the equipment and appropriate method of restraint for the species.

- The period of restraint must be the minimum necessary to accomplish research objectives.

- Restraint devices should be appropriate for the species and be designed to prevent injury to animals and personnel.

- Prolonged physical restraint (lasting longer than 15 minutes) must be scientifically justified and requires prior approval by the Institutional Animal Care and Use Committee (IACUC).

- Less-restrictive systems that do not limit an animal's ability to make normal postural adjustments, such as a tether system for caged animals, are recommended when compatible with protocol objectives.

Animal Use Protocol: Food or Fluid Restriction Guidelines for Traditional Laboratory Animal Species

Food and/or fluid restriction may be required in order to achieve a variety of research and/or husbandry objectives.

a. Conditioned response research protocols require withholding food and/or water in order to train animals to perform a task while providing food or water as a reward for correct behavior.

b. Nutrition studies may require altering the levels of specific nutrients.

c. Limit feeding is common for some sedentary laboratory species in order to control obesity.

d. For many species, food may be withheld for a specified period prior to surgery in order to prevent vomiting and aspiration of food while anesthetized.

It has been shown that some methods of food and/or fluid restriction are physiologically and/or psychologically stressful and, if restriction is allowed to exceed acceptable levels, can be physically harmful to an animal.

The goal of these guidelines is to insure that:

a. Dietary restriction is appropriate for the species and satisfies study objectives.

b. Animals subjected to dietary restriction are appropriately monitored.

For the purpose of these guidelines, food or fluid restriction will include any deviation from the normal husbandry procedures.

HPU Policy:

- Food and/or fluid restriction that deviates from the normal husbandry procedures should be described in the IACUC Proposal Application.
- Withholding of food and/or water for a period of greater than 18 hours requires scientific justification and a literature search for alternatives.
- The investigator is responsible for assuring that specially formulated diets are nutritionally adequate and palatable.
- The investigator should plan to monitor parameters such as body weight, hydration status, body condition, and food consumption.
- Endpoints should be specified in advance. Examples of specific endpoints include:

  a. Failure of growing animals to gain weight.
  b. Loss of greater than 20% of the body weight of a mature animal.
  c. Body condition score of 2 - Mouse is underconditioned: (a) segmentation of vertebral column is evident; (b) dorsal pelvic bones are readily palpable.

Specific Animal Use Procedures

Animal Use Protocol: Fish in research

These policies are to provide HPU fish researchers with information and guidelines for evaluating and submitting Animal Care and Use Protocols involving research with fish. The HPU IACUC supports the policies in American Fisheries Society (AFS) Guidelines for the Use of Fishes in Research.

Fish larvae in research

Occasionally, investigators propose to conduct experiments using newly hatched fish larvae. It is known that larvae obtain sustenance from their yolk sac post-hatching. Thereafter, they must feed or starve. The age at which fish become sufficiently neurologically mature to require approval of an animal care and use protocol varies widely by species.

HPU Policy:

- The HPU IACUC requires approval for projects involving fish after they begin to consume food.

Field studies involving fish

This policy is to ensure that IACUC and field researchers utilize sound scientific and professional guidelines in evaluating and submitting animal use protocols for field investigations involving fish and to promote the principle of humane euthanasia of fish involved in field studies.

The HPU IACUC supports the policies in Guidelines for the Use of Fishes in Research with regard to collecting methods, live capture techniques, field restraint (anesthesia and other chemical restraint), handling and transport, physical facilities for temporary holding and maintenance, field acclimation, collection of blood and other tissues, and marking and tagging and field euthanasia.

HPU Policy:

- Protocols should adhere to the procedures outlined in the AFS guidelines to the extent possible within the constraints of the scientific investigation or field survey and protocols should state their adherence to these guidelines.
- In instances where the proposal would not adhere to AFS guidelines the protocol should provide scientific justification for the proposed variance.
- In instances where field manipulations of fishes are not covered by policies in the AFS guideline, the investigator should provide background information/references that support the proposed methods of handling and manipulating fishes.
- Investigators collecting fish in the field are encouraged to anesthetize fish with MS222 or other suitable anesthetics as in the guidelines prior to euthanasia. The committee recognizes that this may be unfeasible when working with larger specimens or in remote locales. For small fishes, immediate immersion in ice slurry may be substituted. For larger specimens, the investigator must provide scientific justification for not anesthetizing fish prior to euthanasia.
- Investigators are advised that fish anesthetized with MS222 cannot be released into natural waters for 21 days in accordance with EPA rules, in order to prevent human consumption of previously anesthetized fish.

- For euthanasia the investigator should consult the Report of the AVMA Panel of Euthanasia, which includes considerations and techniques for euthanasia of wildlife.

Laboratory studies involving fish

This policy ensures that IACUC and laboratory researchers utilize sound scientific and professional guidelines in evaluating and submitting animal use protocols for laboratory investigations involving fish and to ensure the humane euthanasia of fish.

The HPU IACUC supports the policies in Guidelines for the Use of Fishes in Research with regard to acclimation to laboratory conditions, physical facilities, density of animals, feeds and feeding, water quality assurance, restraint and anesthesia, and euthanasia.

HPU Policy:

- Protocols should adhere to the procedures outlined in the AFS guidelines to the extent possible within the constraints of the scientific investigation.
- In instances where the proposal would not adhere to AFS guidelines the protocol should provide scientific justification for variance from these guidelines.
- In instances where laboratory manipulations of fishes are not covered by policies in the AFS guideline, the investigator should provide background information/references that support the proposed manipulations of fishes.
- For fish euthanasia, MS222 should be utilized, unless another method can be justified for scientific reasons. If another form of chemical anesthesia will be proposed, suitable scientific background information should be provided in the protocol or consultation with the attending veterinarian should be described.
- For euthanasia the investigator should consult the Report of the AVMA Panel of Euthanasia, which includes considerations and techniques for euthanasia of wildlife.

<u>Aquatic Guidelines</u>

Investigators who will maintain aquatic species at Hawai‘i Pacific University for use in research, teaching or testing are required to establish written standard operating procedures (SOPs) which describe routine care and monitoring. SOPs along with records of routine monitoring must be readily available within the aquatic facility at all times (either posted or maintained in a notebook). The IACUC will assess the effectiveness of procedures during semiannual inspections.

An arrangement must be established to insure that all animals and their housing environment are assessed on a daily basis. Routine and emergency contact information must be clearly posted at the facility entrance.

<u>Standard Operating Procedures Content</u>

The scope and complexity of the SOPs may vary greatly depending on the species and type of housing. The list below provides <u>suggestions</u> for information to include. In some cases additional information may be necessary; in others only a few of the points below may need to be addressed.

Procedures for daily observations
Procedures for cleaning aquariums (or other housing unit)
Procedures for water conditioning
Diet and general feeding plan

Record keeping procedures

Frequency of:
- Cleaning
- Feeding
- Water quality monitoring
- Water change
- Room sanitation
- Lighting schedule
- Water temperature
- Procedures for monitoring water quality
- Parameters to monitor (temperature, pH, dissolved oxygen, ammonia, nitrites, nitrates, etc.)
- Monitoring frequency
- Procedures for room sanitation
- Filter maintenance procedures
- UV light change

Animal Use Protocol: Use of Birds in Research

This policy ensures that IACUC and laboratory researchers utilize sound scientific and professional guidelines in evaluating and submitting animal use protocols for laboratory investigations involving birds and to ensure the humane euthanasia of birds. The Guide for the Care and Use of Laboratory Animals (Guide) used by the PHS and American Association of Accreditation of Laboratory Animal Care does not specifically address the husbandry and care of birds. Areas of the Guide that address, in general, program and facility-wide issues were intended to be applied with professional judgment. In the case of birds, such judgment requires familiarity with the needs of the species in question.

Field Studies involving Birds

The HPU IACUC supports the policies in the Ornithological Council (OC), The Guidelines to the Use of Wild Birds in Research with regard to collecting methods, live capture techniques, field restraint (anesthesia and other chemical restraint), handling and transport, physical facilities for temporary holding and maintenance, field acclimation, collection of blood and other tissues, and marking and tagging and the Report of the AVMA Panel of Euthanasia with respect to field euthanasia.

HPU Policy:

- Protocols should adhere to the procedures outlined in the OC guidelines to the extent possible within the constraints of the scientific investigation or field survey and protocols should state their adherence to these guidelines.
- In instances where the proposal would not adhere to OC guidelines the protocol should provide scientific justification for the proposed variance.
- In instances where field manipulations of birds are not covered by policies in the OC guideline, the investigator should provide background information/references that support the proposed methods of handling and manipulating birds.
- For bird euthanasia the investigator should consult the Report of the AVMA Panel of Euthanasia, which includes considerations and techniques for euthanasia of wildlife.

General Considerations

Many applications and proposals for research grants now require that each investigator provide written assurance that research with birds will meet the following requirements:

•Procedures with birds must avoid or minimize distress and pain to the birds, consistent with sound research design.

•Procedures that may cause more than momentary or slight pain or distress to the birds should be performed with appropriate sedation or analgesia except when justified for scientific reasons in writing by the investigator in advance. Due to masking, absence of pain or discomfort response is not a reliable indicator that there is no pain or discomfort.

•Birds that would otherwise experience severe or chronic pain that cannot be relieved will be euthanatized at the end procedure or, if appropriate, during the procedure.

•Methods of euthanasia will be consistent with recommendations of the American Veterinary Medical Association (AVMA) Panel on Euthanasia (Smith et al. 1986) unless deviation is justified for scientific reasons in writing by the investigator.

•The living conditions of birds held in captivity should be appropriate to satisfy the standards of hygiene, nutrition, group composition and numbers, refuge-provision, and protection from environmental stress necessary to maintain that species in a state of health and well-being.

•The housing, feeding, and non-veterinary care of the birds will be directed by a scientist (generally the investigator) trained and experienced in the proper care, handling, and use of the species being maintained or studied.

•Studies should use the fewest birds necessary to answer reliably the questions posed. Use of adequate samples at the outset will prevent unnecessary repetition, resulting in waste or increased distress.

•The omission from these guidelines of a specific research or husbandry technique (or their application to particular species) must not be interpreted as proscription of the technique.

Additional general considerations that should be incorporated into any research design using birds include the following:

•The Investigator must have knowledge of all regulations pertaining to the birds under study, and must obtain all permits necessary for carrying out proposed studies.

• Researchers working outside the United States should, in addition to following these guidelines, ensure that they comply with all regulations of the country in which the research is being performed. Work with many species is regulated by the provisions of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

• Regulations affecting a single species may vary with country. Local regulations may also apply. Individuals of endangered or threatened taxa should neither be removed from the wild (except in collaboration with conservation efforts), nor imported or exported (except in compliance with applicable regulations).

> •Before initiating research, investigators must be familiar with the study species and its response to disturbance, sensitivity to capture and restraint, and, if necessary, requirements for captive maintenance to the extent that these factors are known and applicable to a particular study.
>
> •Removal from the wild of potentially nest- or young-tending individuals should be avoided during the breeding season unless justified for scientific reasons.
>
> •Taxa chosen should be well-suited to answer the research questions posed.

Animal Use Protocol: Terrestrial vertebrate eggs in research

Projects utilizing unhatched terrestrial vertebrate embryos at or after 80% of mean incubation period require IACUC approval.

The NIH/OLAW has issued the following interpretation of PHS Policy for research involving avian embryos.

> The PHS Policy is applicable to proposed activities that involve live vertebrate animals. While embryonal stages of avian species develop vertebrae at a stage in their development prior to hatching, OLAW has interpreted live vertebrate animal to apply to avian (e.g., chick embryos) only after hatching.

In The IACUC Guidebook the authors add the following: however, the risk of eggs hatching and producing chicks (requiring food, water, proper housing, and veterinary care and placing them under the purview of PHS Policy) dictates that IACUCs consider developing policies for different aged avian embryos, newly hatched birds, and the point at which bird embryos are considered vertebrate animals. For chickens, the last 3 days of incubation (incubation days 18 to 21) represent the last stage of embryo development and coincide with the chick drawing the yolk sac into the body and having sufficient pulmonary maturation to handle oxygen and carbon dioxide exchange. During this period of time, some chicks may hatch normally and some prematurely hatched chicks could survive outside of the egg with little additional care.

HPU Policy:

- In consideration of the above, the IACUC requires submission of an animal use protocol for projects utilizing pre-hatched terrestrial vertebrates at or after 80% of mean incubation period has been reached.