# RESEARCH POLICY

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## INTRODUCTION TO RESEARCH AT FRESNO CHAFFEE ZOO

The mission of Fresno Chaffee Zoo (FCZ) is to inspire people to care for animals, create connections, build community, and save wildlife. Fresno's Chaffee Zoo Corporation ("ZooCorp"), the entity that operates FCZ, recognizes the importance of, and is committed to supporting,

facilitating, and conducting scientific research in pursuit of advancing our knowledge of our natural world and to promote advancements in conservation. FCZ supports critical research projects through collaborative data sharing, financial contributions, and hands-on field work.

FCZ supports projects that protect and preserve wildlife and wild places around the world, as well as those serving to improve the husbandry, management, health and wellness of animals maintained in human care. FCZ encourages, supports, and collaborates with researchers to make optimal use of the Zoo's varied resources. However, FCZ does not typically permit major disruptions of animal management routines solely for research purposes without a direct, measurable benefit to the animal or collection.

FCZ defines research as the systematic collection of data for the purpose of testing specific hypotheses to contribute to the advancement of knowledge. We consider any data collection with the intent of communicating results outside FCZ via presentation or publication to be "research". Data collected purely for internal use or reporting is not considered research. All activities that meet the above definition of research require review by FCZ's Research Ethics Committee before they begin, whereas those activities that do not meet this definition do not require Research Ethics Committee approval, but may require alternate approvals.

Biomaterial requests for non-research uses (e.g., educational purposes) are not reviewed by the Research Ethics Committee. Instead, approval for non-research use must be received from FCZ's Director of Learning and adhere to FCZ's Educational Biofact Policy.

The FCZ Research Review procedure is modelled on an Institutional Animal Care and Use Committee (IACUC) following the best practices set forth by the National Institutes of Health (NIH) Office of Laboratory Animal Welfare (OLAW). However, our committee is not an official IACUC and our review may be insufficient for some purposes.

## FCZ RESEARCH ETHICS COMMITTEE

The Research Ethics Committee ("Committee" hereafter) ensures that all research at FCZ, using the FCZ collection, or carried out by FCZ staff is performed consistent with the highest standards of humane animal care and wellbeing consistent with those provided in The Guide for the Care and Use of Laboratory Animals (i.e. The Guide) and The Guide for the Care and Use of Agricultural Animals in Research and Teaching (i.e. The Ag Guide). The Committee must also ensure that all research maintains the safety of staff/guests and collaborating researchers. The Committee reviews, approves, and oversees the use of collection specimens and data in research projects.

# COMMITTEE COMPOSITION

The Research Ethics Committee Coordinator ("Coordinator" hereafter) oversees the operation of the Committee, maintains the required membership of the Committee, and is the primary point of contact between FCZ and the Principal Investigator (PI). The Committee is composed of at least 6 members. At least one member must represent each of the following roles: 1) an FCZ Curator, 2) a member of the FCZ Veterinary team designated by the Senior Veterinarian, 3) a member of the Conservation Science team designated by the Director of Conservation Science, 4) a person with animal research experience, 5) a person with minimal science background (e.g. no graduate degree in the sciences nor a record of scientific publication). One member can fulfill more than one role on the Committee. Additional zoo team members or outside consultants may be utilized as *ad hoc* members or consulted as deemed appropriate for the project.

For the Committee to complete business, a quorum of at least 2/3 of members must be present. A simple majority (i.e. 50%+1) vote of present members is required for protocols to be approved or policy changes adopted during Committee Meetings.

### COMMITTEE MEETING FREQUENCY

The Committee meets on an *ad hoc* basis to review protocols as they are submitted with a goal responding to PIs within 2-6 weeks of submission of a complete proposal. At minimum, the committee meets twice per year to review research and program policies. Meetings may be in-person or virtual. The Coordinator will send protocols for review to Committee members at least 1wk prior to meetings and members are expected to familiarize themselves with the protocol in preparation.

# PROTOCOL PREPARATION, SUBMISSION AND REVIEW

### PROTOCOL PREPARATION

All research protocols must be prepared using the AZA Standardized Research Proposal Form. If a section in the form is not relevant to the proposed project, it may be omitted. Documents necessary for complete proposals are listed below.

Required documents for all research protocols:

1) Protocol prepared using the AZA Standardized Research Proposal Form.
2) CVs for the Principal Investigator (PI) and key research-team members.

Optional documents to include when available:

3) Letters of support from associated TAG, host institution, etc, if available.
4) Documentation of prior/concurrent IACUC or IRB review, if available.
5) Documentation of any necessary permits.

## PROTOCOL SUBMISSION

Completed Research Protocols and associated documents should be submitted to the Coordinator via online submission platform or email. The Coordinator will perform an initial review of the protocol for completeness. If incomplete, the Coordinator will contact the PI with instructions for how to complete the protocol. If complete, the Coordinator will determine the level of review required using the Research Decision Tree (see end of this document) and internally route the protocol for review.

## PROTOCOL REVIEW

The level of review that research protocols require for approval will vary based on the potential risk to animals, staff, guests, and FCZ. For categorizing risk to animals, we use the standard USDA Pain Categories. Please note that protocols exposing animals to Pain Class E will only be approved in extreme circumstances where the potential benefits for species conservation are deemed very high. Generally, if a protocol has already been approved by an IACUC or AZA Taxon Advisory Group (or similar) the level of internal review will be reduced. The Coordinator will use the Decision Trees included at the end of this document to assign protocols for review. Assigned reviewers can request the protocol be reviewed at a higher level at any time.

REVIEW LEVELS

Curator: The area curator reviews and can approve the protocol. This is reserved for only the lowest-risk protocols that are non-manipulative and behind-the-scenes, or have already been approved by a relevant IACUC or AZA Taxon Advisory Group and the USDA pain class is B or C. Area curators must also approve protocols reviewed at higher levels.

Curator and Veterinarian: Veterinarian approval is required in similar situations to when curator-only approval is required but tissue samples or veterinary records are also requested. Any manipulative protocols that have previously been approved by an IACUC or AZA Taxon Advisory Group will also require veterinarian approval.

Committee: Full committee review is required for any manipulative experiments, non-routine biomaterial collection, or research involving wild animals on FCZ grounds.

Committee and FCZ Executive Team: For projects deemed highest risk, the FCZ Executive Leadership Team will be notified following protocol approval by the Committee and may elect to secondarily review the protocol. The FCZ Executive Team will be notified when researcher activities or experimental manipulations are visible to Zoo guests, video or photographs of behind-the-scenes areas will be shared outside FCZ, protocols involve USDA Pain Category E, or euthanasia is a target endpoint.

Following review, the Coordinator will notify the PI of the results of the review. If modifications are required, such modifications will be described in the notification and must be addressed by the PI in a revised protocol for reconsideration. Revised Proposals only needing minor revisions

will be assessed by the Coordinator. Proposals requiring major revisions will be reviewed at the same level as the original protocol proposal. Whether requested revisions are deemed "minor" or "major" will be decided by the original reviewers and communicated to the PI with the decision letter.

If a protocol is rejected, the PI may submit a revised protocol for reconsideration; resubmitted proposals will go through the full review process.

At the time of protocol approval, the Coordinator will identify an FCZ staff member to be the point-of-contact for the research project. This staff contact is identified to the PI in the written approval. Letters of approval will also specify any time- or resource-constraints of which the PI needs to be aware.

FCZ and the Committee reserve the right to suspend or terminate protocol approval at any time. Generally, this will only happen if ongoing activities appear to compromise animal welfare, compromise human or animal safety, fail to comply with zoo policies, fail to follow approved research procedures, or if circumstances arise that fundamentally change a project's original conditions (animal death, transfer, illness, birth, or other life-changing events, behavioral or environmental conditions, etc).

Please note that FCZ is not currently equipped to review human-subjects research. Therefore, all research with human subjects at or by FCZ must be approved by an external Internal Review Board (IRB) prior to the Research Ethics Committee.

Protocol approvals are valid for one year, with the opportunity to renew for up to three years. If the study will continue past three years, the researchers must submit a new protocol for review.

## PROTOCOL AMENDMENT AND RENEWAL

Any substantive changes to an approved protocol require approval before they may be implemented. Amendments will be considered minor when they only affect personnel, procedure dates, or reductions in the number of animals measured. In such cases, the amendment can be approved by the Coordinator with input from the relevant Curator and Veterinarian where appropriate. All other changes are considered "major" and will require submission of a revised protocol for review. The protocol will be reviewed following the same procedures as a new protocol.

Protocols may be renewed annually upon completion of an annual report. If a report is not submitted when due, protocol approval will automatically expire, and associated work must stop. All protocols expire after three years and must be resubmitted for review and approval following the same procedures as for a new protocol. Any protocol requiring a Major Amendment can only be renewed with submission of a revised protocol.

### REPORTING REQUIREMENTS

Research approvals are valid for one year, with the opportunity to extend up to three years. After 3 years, the proposals must be resubmitted.

PIs are expected to submit a yearly report on the progress of their approved study. Annual reports must be submitted by January 1st each year and should include the study's status, a one-paragraph description of the previous year's activities, types of samples or number of animals used, the number of species involved, any unexpected changes or developments in the study, and type of support requested (tissues, records, etc.)

Proposals approved for the first time in quarters 1, 2, or 3 are only valid until December 31st of that year but can be extended upon submission of the annual report.

## RESEARCH WITH HUMAN SUBJECTS POLICY

Investigators performing research with human subjects at or by FCZ must seek approval from an Institutional Review Board (IRB) in addition to FCZ Research Ethics Committee approval. The Research Ethics Committee will typically only review human-subjects protocols that have already received IRB approval, although exceptions may be made on a case-by-case basis when IRB approval is pending. FCZ considers research to be with "human subjects" when the humans or their opinions are being directly studied, such as when these are the dependent variable for hypothesis tests. FCZ does not consider surveys where humans are asked to provide information about the animals under their care or protocols followed when caring for animals to be "human subjects research" so long as surveys only ask for participants to report objective observations about animals or care regimes, and do not ask about the opinions or backgrounds of the respondent. By contrast, questionnaires requesting information on staff opinions or perceptions of husbandry practices or other topics is considered human-subjects research.

The Zoo's Executive Leadership Team will be notified of any protocols engaging Zoo guests as research subjects and may review such protocols similar to high-risk animal subjects research. FCZ may accommodate surveys or observational studies of FCZ guests that make a significant contribution to scientific knowledge of guest responses toward or knowledge of animals, zoos, or wildlife conservation. FCZ typically will not approve human-subject proposals that involve deception of Zoo guests or collection of personally identifiable information from guests. Guests must give informed consent for their participation and be given debriefing information when necessary. Contact information for the principal investigator should be provided to guests upon request. Projects involving audio or videotaping subjects are strongly discouraged, will be highly scrutinized during review, and will require written consent from subjects.

FCZ does not maintain an IRB committee and IRB approval must be sought elsewhere, when necessary, such as the PI's home institution. If the PI does not have access to an IRB, they should contact the Coordinator to discuss options. Approvals from both an IRB and the FCZ Research Ethics Committee are required before research activities with human subjects may begin. Non-research activities, such as FCZ staff surveys intended to inform FCZ operational policies do not require research approvals. See the INTRODUCTION TO RESEARCH AT FRESNO CHAFFEE ZOO section for a full definition of "research" for review purposes.

## COSTS / EXPENSES

All costs and expenses incurred in the implementation of the research shall be borne by the researcher, unless otherwise agreed upon in advance. Said costs and expenses include, but are not limited to: permits, shipping and handling, supplies required to collect Biomaterials, equipment necessary to store or package samples, testing, etc.

## USE OF LOANED SPECIMENS IN RESEARCH

Many specimens currently on display at FCZ are on loan from other institutions. Therefore, the original owning institution will always be notified in the event of significant changes to the care and well-being of its specimen(s), such as a possible surgical procedures or death. FCZ must receive written permission from the owning institution before a specimen on loan is involved in a research project involving animal manipulation or a Biomaterials request. Principal investigators wishing to include loaned specimens in their research will be responsible for obtaining permission to do so from the specimens' owning institution and forwarding these documents to the Coordinator. At the time of death, the owning institution will have first priority in obtaining any Biomaterials from the deceased animal, and all materials not claimed by the owning institution will become the property of ZooCorp and will be processed in accordance with applicable regulations.

## DISSEMINATION OF RESEARCH PROJECT RESULTS

Any research presented or published using data or materials collected in collaboration with ZooCorp should, minimally, include an acknowledgement to Fresno Chaffee Zoo. Manuscripts should ideally be published within 2 years of study completion and submitted to reputable peer-reviewed journals. Presentation at conferences prior to publication is encouraged to aid in dissemination of results. A final report on project findings and copies of any resulting publications should be sent to the Coordinator.

### ACKNOWLEDGMENT

Any dissemination of results (written or otherwise) shall acknowledge FCZ as the source of the data. Any publication should acknowledge ZooCorp staff directly involved in the collection of the data where otherwise not included as co-authors.

## PROPRIETARY INFORMATION POLICY

Researchers at FCZ or whose research is supported by FCZ are expected to submit the results of their research for publication. Upon completion of data collection for any project, the researcher may be requested to provide raw data to the Research Ethics Committee.

Such raw data will be retained by FCZ and if no attempt is made to publish the results or provide FCZ with a comprehensive report within two years of data collection completion, ZooCorp will assume the right to use the results for analysis, presentation at professional meetings, and publication (with appropriate credit given to the researcher).

## CONFLICT OF INTEREST POLICY

No person may participate in review or approval of a proposal in which the member has a real or apparent conflicting interest except to provide information requested by the Committee. It is the responsibility of each Research Ethics Committee member to notify the Coordinator of any conflict of interest, whether real or apparent. The Coordinator may determine that a particular situation involves a conflict of interest and require that the member or consultant not participate in the review. The Coordinator may waive the conflict if it is determined that the interest is not substantial, and that no other practical means exist for securing the necessary expertise to provide a competent review. If the Coordinator has a conflict of interest, they are to report it directly to the Research Ethics Committee and recuse themselves from review. In the case that the Coordinator recuses themselves or is unavailable the most senior staff member of the Committee will act as Coordinator for the proposal in question. If any member of the Research Ethics Committee believes there is conflict of interest that has not been disclosed, they are to report it to the full Research Ethics Committee for consideration.

## DEFINITIONS

IACUC – Institutional Animal Care and Use Committee: An IACUC is responsible for oversight of the animal care and use program and its components as described in the Public Health Service (PHS) Policy on Humane Care and Use of Laboratory Animals (Policy) and the Guide for the Care and Use of Laboratory Animals (Guide).

IRB – Institutional Review Board: Institutional Review Boards are ethical review committees focused on review of studies with human subjects. In the United States, IRBs are governed by Title 45 Code of Federal Regulations Part 46.

ET – Executive Leadership Team: The Fresno Chaffee Zoo Executive Leadership Team is comprised of the CEO, COO, General Curator, Chief of Education and Engagement, Chief of Staff, CFO, and Chief Advancement Officer.

TAG – Taxon Advisory Group: Taxon Advisory Groups (TAG) are Association of Zoos and Aquariums (AZA) committees that are tasked with examining the sustainability and conservation needs of entire taxa, and to develop recommendations for population management and conservation based upon the needs of the species and AZA-accredited institutions. Each TAG coordinates, facilitates, and reviews progress toward goals for its cooperative animal management and conservation programs. TAGs are composed of expert advisors who help to identify, manage and support AZA's cooperative animal management programs. Because research proposals endorsed by the animal subject's AZA TAG have already received an ethical review from subject-matter experts, FCZ will expedite internal review focused on determining if the study is right for our facility and animals.

Manipulation: Manipulative studies involve changes to the animal or the animal's environment. This could include changing an animal's diet, introducing a new item to the habitat, etc.

Non-invasive: Non-invasive techniques have little-to-no impact on the animal. This includes collection of shed hair, fecal samples, etc.

Routine: Routine techniques impact the animal but are planned and would occur as part of regular husbandry regardless of the research request. Examples include previously scheduled blood draws or health exams.

Non-routine: Non-routine techniques have an impact on an animal outside of routine care. Examples include collection of non-standard tissue or collection of standard tissues/substances (like blood) specifically scheduled for the research project.

USDA Pain Categories: USDA-defined categories describing the level of pain or distress experienced by a research animal.

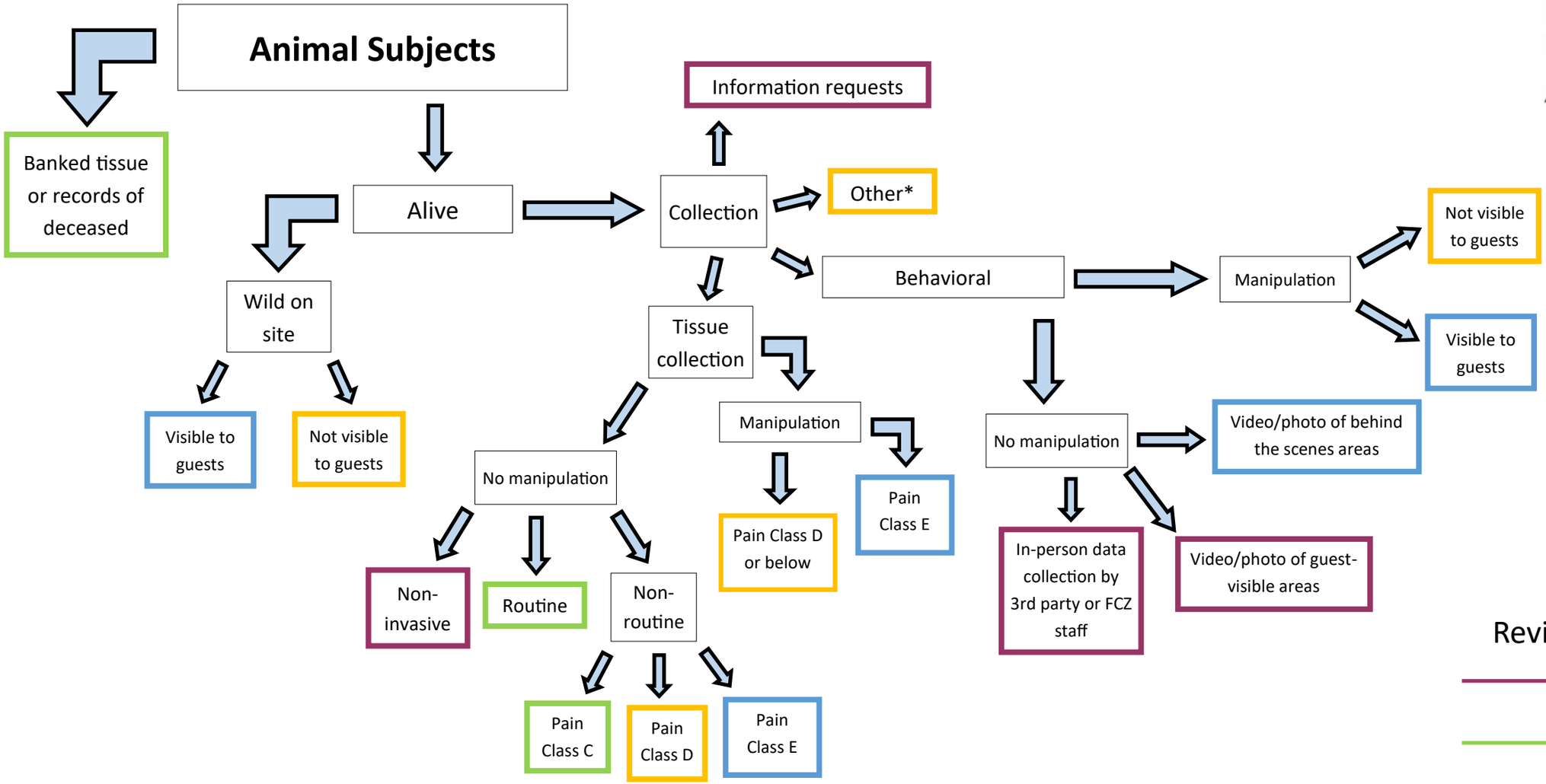
> *Pain Class B* indicates animals are only exposed to routine husbandry protocols for holding or breeding.
>
> *Pain Class C* causes no more than momentary or slight pain or distress and no use of pain-relieving drugs, or no pain or distress. Examples are observation under normal conditions, positive reward projects, routine procedures, injections, and blood sampling.

*Pain Class D* causes pain or distress appropriately relieved with anesthetics, analgesics, and/or tranquilizer drugs or other methods for relieving pain or distress. Examples are treatment with pain relievers or surgery under anesthesia.

*Pain Class E* causes pain or distress that is not relieved with anesthetics, analgesics, and/or tranquilizer drugs or other methods for relieving pain or distress. Examples would be the use of paralyzing/immobilizing drugs for restraint on a conscious animal or surgery without anesthesia.

## RESEARCH REVIEW DECISION TREE

Following pages



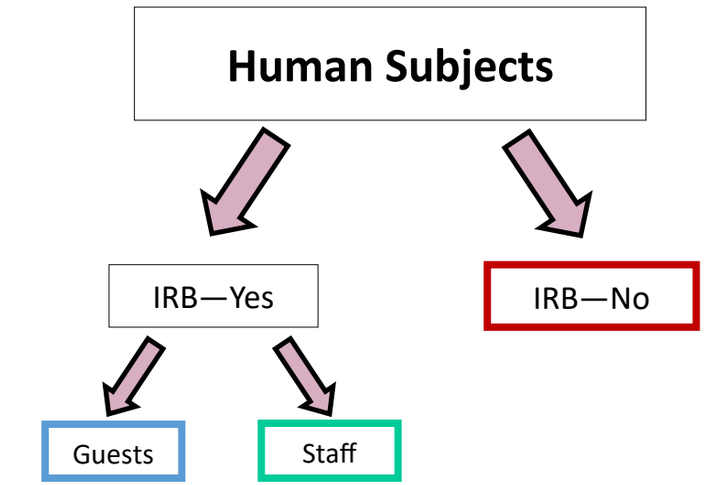

## Review level key

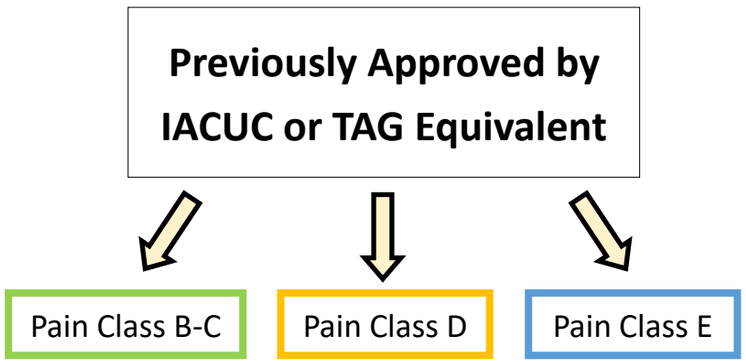
- Curator-only review
- Curator & veterinarian review
- Full committee review
- Full committee review & ET notification

For veterinary approvals, any FCZ Veterinarian can approve unless Senior Veterinarian directs otherwise.

Executive Team will be notified of any video footage or photographs collected in behind the scenes areas.

* ET notification if guest visible or deemed high risk




## Review Level Key

- Declined until IRB approved
- Curator-only review
- Approved at curator & participant discretion
- Curator & Veterinarian review
- Full committee review
- Full committee review & ET notified

For veterinary approvals, any FCZ Veterinarian can approve unless Senior Veterinarian directs otherwise.

Executive Team will be notified of any video footage or photographs collected in behind the scenes areas.

Note: IRB = Institutional Review Board, IACUC = Institutional Animal Care and Use Committee