

Vertebrate Animal Project Rules

CSEF strongly encourages Student Researchers to use alternatives to animal research if possible. If the use of vertebrate animals is absolutely necessary, the Student Researcher must follow **federal guidelines** to protect the welfare of both the animal subjects and the student(s). When students conduct research with animal subjects, health and well-being are of high priority.

Vertebrate animals are defined as:

- Live, nonhuman vertebrate mammalian embryos or fetuses;
- Tadpoles;
- Cephalopods;
- Bird and reptile eggs within three days (72 hours) prior to hatching; and
- All other nonhuman vertebrates (including fish) at hatching or birth.
- One exception to these guidelines are zebrafish. Because of their delayed cognitive neural development, zebrafish embryos are not considered vertebrate animals until 7 days (168 hours) post-fertilization.

Note: A project is considered a tissue study and NOT a vertebrate animal study if the tissue is obtained from an animal that was euthanized for a purpose OTHER THAN the Student Researcher's project. In these cases, Student Researchers may observe the vertebrate animal study, but may not have any direct involvement with the vertebrate animal experimental procedures. See the guidelines regarding Tissue studies on page 40.

ALL vertebrate animal studies must be reviewed and approved before experimentation begins by the appropriate review board: IACUC (Institutional Animal Care & Use Committee for studies done at a research institution) or SRC (Scientific Review Committee for studies done in a school, home or field setting). The ONLY exception to this is as follows in regards to behavioral observations.

Studies involving behavioral observations of animals are exempt from prior SRC review as long as ALL of the following apply:

- There is NO INTERACTION with the animals being observed;
- There is NO MANIPULATION of the animal's environment in any way; AND
- The study meets all federal and state agriculture, fish, game and wildlife laws and regulations.

ALL Vertebrate Animal Study Guidelines

The following are various guidelines that may or may not apply to a student's project.

- **Research Proposal Requirements:** Student Researcher(s) must include ALL parts (a-e) of the Vertebrate Animals Research Proposal requirements found on page 11.
- **Supervision:** ALL vertebrate animal studies require the DIRECT supervision of a Qualified Scientist/Mentor or Designated Supervisor.

- **Prior Review Requirements:** Student research involving vertebrate animals must be reviewed and approved by the appropriate review board BEFORE any experimentation with the animals may begin. It is the responsibility of the review board (not just the student) to evaluate potential physical and/or psychological risks of the project and decide whether the project is appropriate for student research and safe for both the student researcher and the animals.
 - Projects that are conducted at school, at home or in the field and not affiliated with a Regulated Research Institution (RRI) must be reviewed and approved by the school or regional SRC before the student may begin recruiting and/or interacting with the human participants. Documentation of review and approval is done on Form 5A for these projects.
 - Projects that are conducted at a Regulated Research Institute must be reviewed and approved by THAT INSTITUTION'S IACUC – NOT the school or regional SRC. A copy of the IACUC approval for the entire project is required. A letter from the Qualified Scientist/Mentor is NOT ACCEPTABLE. Documentation of review and approval is done on Form 5B for these projects.
- **Animal Use Justification:** Justification is required for any experiment design that involves food or fluid restrictions and must be appropriate to the species. These studies MUST be conducted at a regulated research institution and reviewed and approved by their IACUC.
- **Laws:** Student Researchers performing vertebrate animal research must follow US federal laws as well as local and state laws and regulations of the jurisdiction in which the research is performed.
- **Wild Animals:** Animals may not be captured from or released into the wild without documented approval of authorized wildlife officials. All appropriate methods and precautions must be used to decrease stress to the animal.
- **Fish:** Fish may be obtained from the wild only if the Student Researcher releases the fish unharmed, has the proper license and adheres to state, local and national fishing laws, and regulations. Students are prohibited from performing electrofishing.
- **Animal Monitoring:** All animals must be monitored for signs of distress. Because significant weight loss is one sign of stress, weight MUST be recorded at least weekly, with 15% being the maximum allowed weight loss or growth retardation as compared to the control of any animal (experimental or control). If weighing of animals cannot be done in a manner that is safe for both the researcher and the animal, then an explanation and approval by an SRC or IACUC needs to be included in the research proposal along with an alternative method to address signs of distress. Additionally, body conditioning scoring (BCS) system should be included in the design of any study utilizing live vertebrate animals and the results regularly recorded.

- **Prohibited Types of Projects:** Student Researchers are PROHIBITED from designing or participating in any experiment associated with the following types of studies on vertebrate animals:
 - Those that cause more than momentary or slight pain or distress;
 - Those that are designed or anticipated to cause the death of the animal(s);
 - Those that induce toxicity with known toxic substances that could cause pain, distress or death; including, but not limited to alcohol, acid rain, pesticides or heavy metals;
 - Those using conditioning with aversive stimuli, mother/infant separation or induced helplessness;
 - Those that study pain; AND
 - Those involving predator/prey interactions.
- **Animal Illness:** Any illness or unexpected weight loss must be investigated, and a veterinarian consulted to receive required medical care. This investigation must be documented by the Qualified Scientist/Mentor or a veterinarian. **If the illness or distress is found to be caused by the study, the experiment must be terminated IMMEDIATELY.**
- **Animal Death:** No vertebrate animal deaths due to the experimental procedures are allowed.
 - Studies that are designed or anticipated to cause vertebrate animal death are PROHIBITED.
 - ANY death of a vertebrate animal subject that occurs must be investigated by a veterinarian or Qualified Scientist/Mentor to determine the cause of death. The project MUST BE SUSPENDED until the cause of death is determined and the results of the investigation must be in writing.
 - **If the cause of death was due to the experimental procedure, the study MUST BE TERMINATED IMMEDIATELY and the project will not qualify for ANY science fair competition.**
- **Changing Procedures:** Once a study has been approved, if the Student Researcher has any proposed changes to the methods and/or procedures, they must repeat the review process before continuing with data collection/experimentation.

Animal Care

Animals must be treated kindly and cared for properly. Documentation of the animal care procedures must be included in the Research Proposal, making sure to include the following items:

- **Environment:** Animals must be housed in a clean, ventilated, comfortable environment appropriate for the species.
- **Food & Water:** Animals must be given a continuous, clean water and food supply.
- **Housing:** Cages, pens and fish tanks must be cleaned frequently.
- **Care:** Proper care must be provided at all times, including weekends, holidays and vacation periods.
- **Observation:** Animals must be observed daily to assess their health and well-being.
- **Oversight:** A Designated Supervisor is required to oversee the daily husbandry of the animals.

Guidelines for Studies Conducted at a School, Home or Field Site

Vertebrate animal studies that may be conducted at a home, school, farm, ranch, field setting, etc. include:

- Studies of animals in their natural environment;
- Studies of animals in zoological parks;
- Studies of livestock that use standard agricultural practices; and
- Studies of fish that use standard aquaculture practices.

These projects must adhere to **BOTH** of the following:

- The research involves only agriculture, behavioral, observational or supplemental nutritional studies on animals.

AND

- The research involves only non-invasive and non-intrusive methods that do not negatively affect an animal's health or well-being.

Vertebrate animal studies that do not meet the above guidelines MUST be conducted at a Regulated Research Institution and reviewed and approved by their IACUC.

The local SRC must determine if a veterinarian's review and certification of the research proposal and animal husbandry is required prior to experimentation. A veterinarian must certify experiments that involve supplemental nutrition, administration of prescription drugs and/or activities that would not be ordinarily encountered in the animal's daily life.

Studies in which livestock or fish are being raised for food using standard agricultural practices are allowed. The livestock or fish raised may be euthanized by a qualified adult for carcass evaluation. Euthanasia (the act of intentionally ending an animal's life) for tissue removal and/or pathological analysis is not permitted for a project conducted in a school, home or field site setting.

Guidelines for Studies Conducted at a Regulated Research Institution Site

A Regulated Research Institution is defined as a professional research/teaching institution that is regularly inspected by the USDA and is licensed to use animals covered by the Animal Welfare Act and may also be subject to the US Public Health Service Policy. Also included are all federal laboratories such as National Institutes of Health, Veteran's Affairs Medical Centers and the Centers for Disease Control. In addition, pharmaceutical and biotechnology companies and research institutions that utilize research animals that are not covered by the Animal Care and Use Act but have an operational IACUC and are following US federal laws are included in this definition.

There are some protocols that may be permitted in a Regulated Research Institution, but are **not permitted by Student Researchers**. These include:

- Euthanasia at the end of experimentation for tissue removal and/or pathological analysis is permitted when done by a **QUALIFIED** adult. All methods of euthanasia must adhere to current American Veterinarian Medical Association Guidelines.
- Studies that cause more than momentary or slight pain or distress to vertebrate animals are prohibited unless approved anesthetics, analgesics and/or tranquilizers are used.
- Research in nutritional deficiency or research involving substances or drugs of unknown effect are permitted to the point that any clinical sign of distress is noted. If distress is observed, the project must be suspended and measures taken to correct the deficiency or drug effect. Only when the appropriate steps are taken to correct the causing factors may the project resume.

