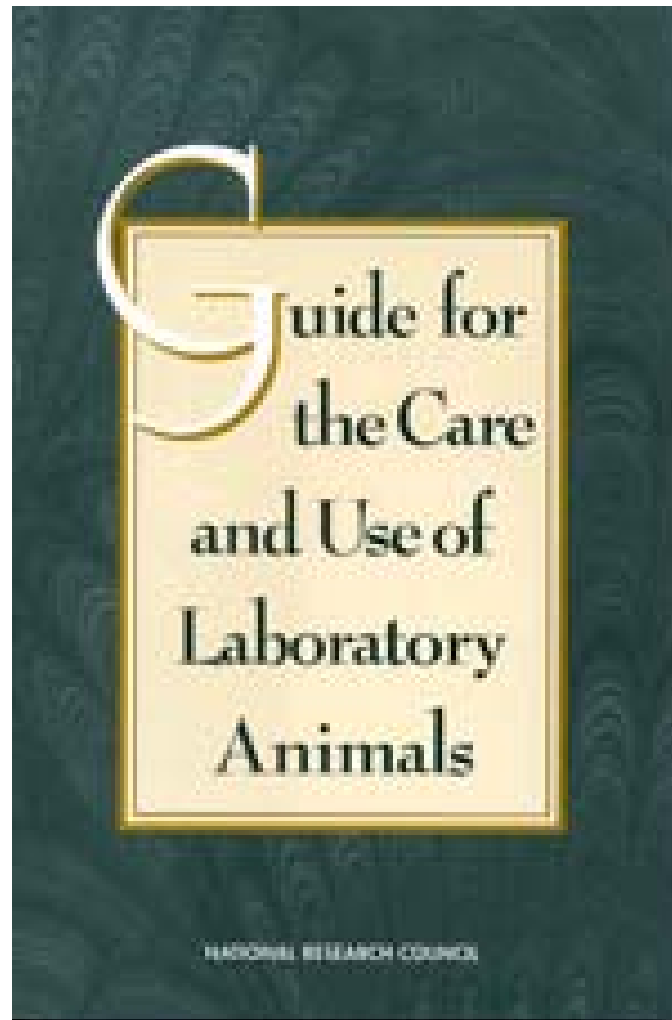


Animal Care and Use

Animal Welfare Act

- 1966
- USDA enforces
- Sets standards for humane treatment of animals used in research, exhibition, teaching, sold as pets or transported in commerce.
- Also applies to dead animals
- Exclusions: ectotherms, birds, rats and mice bred for research, livestock (mostly) & poultry
- At UAF, all studies of vertebrates require an IACUC review

IACUC Bible



Institutional Animal Care and Use Committee (IACUC)

- Requirement of AWA
- 3 members, minimum
 - veterinarian and external member required
- Approval of proposals and oversight of projects
- ensures compliance with AWA and institutional guidelines
- Laboratory and (most) field studies
 - At UAF, all field studies

The 3 Rs

- Replacement: can the study be done without animals?
- Reduction: sample size should be limited to the minimum number to achieve the objectives
- Refinement: most humane techniques must be used to minimize pain and distress

Replacement

- Can modeling be used?
- Can laboratory animals be used?

Reduction

- Conduct statistical evaluation of sample size
- Design studies so that specimens can be used for multiple purposes or combined with those of previous seasons
- Use species-specific experimental designs to minimize non-target captures
- Share data and resources—publish

Refinement

- Assess potential sources of harm and minimize them
- Consult literature to learn from others experience
- Use non-invasive sampling where possible
- Minimize disturbance to animals normal routine
- Minimize handling time and use least amount of restraint
- Describe your results—publish

7 conditions for all research studies

- commitment to improving knowledge
- procedures should avoid or minimize stress to extent possible
- procedures that cause more than momentary stress should be accompanied by sedation
- Animals that experience severe or chronic distress that cannot be relieved will be euthanized
- methods of euthanasia should be consistent with AVMA guidelines
- appropriate living conditions—hygiene, nutrition, group size, refuge, protection from weather
- post-release monitoring

Field studies

Canadian Council on Animal Care

- Welfare implications of field studies are not well studied
- Welfare indicators poorly understood
- Human handling can cause high degrees of stress or injury
- Sample collection and tagging are invasive
- Improper use of analgesics can lead to discomfort/pain
- Veterinary assistance often not available
- Chance of death

Restraint

- Physical
 - depends on species
 - safer than using toxic drugs
 - chance of injury
- Chemical
 - effective for large, dangerous animals or for long-term immobilization
 - dangerous to handle drugs
 - hypothermia/hyperthermia
 - aspiration of stomach contents
 - capture myopathy
 - need to monitor vital signs

Marking

- Is it required?
- minimal effect on anatomy and physiology
- should not influence behavior
- should not make the subject more conspicuous
- retention time should be considered
- unambiguous marks should be applied quickly
- comply with regulations

Observing only

- even observation can have impact
 - Abandonment of young, displacement from preferred habitat, less time spent feeding—more time vigilant
 - Can impact non-target species as well
- Remote methods of data collection are encouraged, if feasible
 - Camera traps

Disposition of animals

- Release back into wild?
 - At original capture site
 - When the animal can be expected to function normally
 - When local conditions are conducive to survival
 - When the ability to survive has not been impaired
 - When release is not likely to spread pathogens

Disposition of animals

- Euthansia
 - “the humane destruction of an animal accomplished by a method that produces rapid unconsciousness and subsequent death without evidence of pain or distress, or a method that utilizes anesthesia produced by an agent that causes painless loss of consciousness and subsequent death.”
 - Method appropriate to the species

Methods of euthanasia

- Sodium pentobarbital
 - Barbiturate overdose
 - Suitable for most small species
 - Safe for biologist
 - Requires DEA permit and veterinary oversight
- Carbon dioxide
 - Requires special canister
- Gunshot