

STANDARD OPERATING PROCEDURE
ENVIRONMENTAL ENRICHMENT FOR WATERFOWL
USED IN RESEARCH AND TEACHING

1.0 PURPOSE:

- 1.1 This standard operating procedure (SOP) describes the methods for environmental enrichment of waterfowl (*Anseriformes*), most commonly ducks, geese and swans, used for research and teaching purposes.
- 1.2 These methods are intended to improve the well-being of these animals by increasing species-specific behaviors and reducing maladaptive behaviors.
- 1.3 This SOP is part of the UGA Environmental Enrichment Program that fully complies with the requirements of the National Research Council, *Guide for the Care and Use of Laboratory Animal*, ed8 available at <http://grants.nih.gov/grants/olaw/Guide-for-the-Care-and-Use-of-Laboratory-Animals.pdf> and the Animal Welfare Act and Regulations: Public Law 99-198 – The Improved Standards for Laboratory Animal Act available at <http://www.nal.usda.gov/awic/legislat/awa.htm> .

2.0 STANDARDS:

2.1 Natural Behavior:

There are three specific types of *Anseriforms* found within the laboratory environment, ducks, geese and swans. All belong to the family *Anatidae*, which are commonly referred to as waterfowl. All have similar enrichment needs and so are grouped together. Waterfowl occur on all of the continents of the world with the exception of Antarctica. They have evolved as excellent swimmers, floating on the water's surface and diving to eat vegetation. Most require regular water baths to keep feathers in optimal condition. Ducks, geese and swans are generally herbivorous and are monogamous breeders. Some species undertake annual migrations and are excellent fliers.

2.2 Environmental enrichment must be evaluated by taking into account the following:

- 2.2.1 The Natural Behavior and needs of waterfowl (see above)
- 2.2.2 Social Enrichment – Housing of compatible co specific offers a high level of enrichment. Every effort will be made socially house social species. If social housing is not possible, animals should be housed in a manner that allows for as much tactile, auditory, visual or olfactory contact as possible. Social housing is a recognized and important part of the Environment Enrichment Program but should not be viewed as the sole means of meeting the enrichment needs of animals.
- 2.2.3 Physical Enrichment (devices, toys, etc) – Physical enrichment can be an important part of the Environmental Enrichment Program. However the selection of physical enrichment should take into account the safety of the device, its ability to stimulate and maintain the animal's interest and its impact on the research being conducted. Physical enrichment should be carefully monitored to assess its impact of the goals of increasing natural behaviors.
- 2.2.4 Activity/Food Enrichment – Activity/food enrichment can be an important part of the Environmental Enrichment Program. However, the selection of activity/food enrichment should take into account the health of the animal, the limitations of its confines and its impact on the research being conducted. Any activity/food

enrichment should be planned in consultation with the Attending Veterinarian (AV) and the Principal Investigator (PI).

- 2.3 The enrichment program is carried out by University Research Animal Resources (URAR). Specific needs and requirements should be communicated to the Assistant Director of the Animal Resources (AR) Unit.
- 2.4 Unless specifically justified by the PI in the Animal Use Proposal (AUP), all animals will receive enrichment. It is recognized that animal enrichment can be a research variable. In caring for the psychological well-being of animals, it is important to recognize limitations and use a balanced approach in providing the best possible care and allowing for the expression of species-typical behavior within a functioning research environment.

2.5 Abnormal Behaviors:

The Environmental Enrichment Program is a dynamic process. Ongoing evaluation is a necessary component to meeting the goal of more species-specific natural behaviors. University Research Animal Resources (URAR) will regularly monitor all enrichment, in part, by looking for stereotypical behaviors that might indicate animal stress or maladaptation to the laboratory environment.

Abnormal behaviors in waterfowl include:

- Feather pecking
- Cannibalism
- Lack of grooming or preening shown by dull, unkempt feathers

When these behaviors are observed, URAR will evaluate the need for additional environmental enrichment. All changes to enrichment will be approved by the AV and the PI. Enrichment changes will be made for all animals on study, in order to minimize research variability, even if all of the animals are not showing the stereotypical behavior.

3.0 PROCEDURES:

- 3.1 Social Enrichment – Waterfowl will be group housed whenever possible. **Waterfowl often will not thrive in isolation, even with superior environmental enrichment.** If group housing is not possible, animals will be housed in a manner that allows for as much tactile, auditory, visual or olfactory contact as possible.
- 3.2 Physical Enrichment - in order of preference
- 3.2.1 Access to a water resource (preferable deep enough for swimming but at least deep enough to immerse head) *Note: Depth will be monitored for duckling that can drown; water changed weekly
- 3.2.2 Access to a dry area to preen after water bathing
- 3.2.3 Nestboxes
- 3.3 Activity/Food Enrichment - in order of preference
- 3.3.1 Foraging devices (preferable in plant material scattered in the water resource)
- 3.3.2 Plant material scattered in a cage to encourage foraging

4.0 RECORDS:

The Animal Care Staff will log provision of enrichment daily according to their facility specific documentation records.

5.0 DEFINITIONS AND REFERENCES:

5.1 Definitions:

- 5.1.1 Animal Use Proposal (AUP): a detailed written description of the procedures involving the use of animals in a research or instructional project.
- 5.1.2 Attending Veterinarian (AV): the veterinarian responsible for the health and well-being of all laboratory animals used at the institution
- 5.1.3 Enrichment: a method of providing animals with the opportunity to behave as they do in the wild, playing, foraging, grooming, and interacting in other ways with one another.
- 5.1.4 Principal Investigator (PI): the scientist who plans and coordinates all phases of the research or instructional work and the protocol.
- 5.1.5 Standard Operating Procedure (SOP): a set of standardized instructions for dealing with routine laboratory procedures

5.2 References:

- Animal Welfare Act and Regulations: Public Law 99-198 – The Improved Standards for Laboratory Animal Act (<http://www.nal.usda.gov/awic/legislat/awa.htm>)
- Federation of Animal Science Societies, Guide for the Care and Use of Agricultural Animals in Research and Teaching, 3rd ed. available at www.fass.org/docs/agguide3rd/Ag_Guide_3rd_ed.pdf
- Jones, T.A. et al (2009) *Water off a duck's back: showers and troughs match ponds for improving duck welfare*. Applied Animal Behaviour
- Knierium et al (2004) *Water provision for domestic ducks kept indoors – a review on the basis of the literature and our own experiences*. article in German
- National Research Council, *Guide for the Care and Use of Laboratory Animals*, ed 8 available at <http://grants.nih.gov/grants/olaw/Guide-for-the-Care-and-Use-of-Laboratory-Animals.pdf>
- O'Driscoll, K.K. and Broom, D.M. (2011) *Does access to open water affect the health of Pekin ducks (Anas platyrhynchos)*. Poultry Science