



STATE SECRETARIAT FOR INFRASTRUCTURE AND ENVIRONMENT

ANNEX VIII – METHOD FOR ASSESSING ANIMAL BEHAVIOR

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This ANNEX describes Ethogram method proceedings, which are to be used in qualitative and quantitative assessments of the behavioral repertoire of individuals or groups of individuals of a same species comprising the CONCESSION's Breeding Stock, with the aim of distinguishing changes in behaviors of captive breeding animals, such as stereotypical behavior, and which are to be followed up on throughout the entire contract's management.

The CONCESSIONAIRE is to apply the Ethogram method specifically to each specie, including the following stages:

1. **Stage 1:** Define a comprehensive list for each specie's expected behavioral repertoire. This list shall be devised based on a qualitative and descriptive assessment of each specie's behaviors, in accordance with corresponding scientific literature as well as the breeding stock's past data;
2. **Stage 2:** Distinguish each individual's stereotypes by comparing observed and expected behaviors, in accordance with the data collection procedure carried out in Stage 1. This stage is to be devised using a scan sampling or an animal focal method after watching auditable video records on exhibited behaviors.

Due to its nature of collecting data concerning all behavioral repertoires, Stage 1 is a continuous data collection method dubbed *Ad Libitum* ("as one wishes"). Each behavior is to be awarded a name, followed by its description, and clustered into different classes. The behavioral repertoire of numerous species is already discussed in landmark research papers. These works may be used as a cornerstone to help devise the ethogram and be complemented with the Breeding Stock's empirical data collection, while taking into account the fact that the repertoire is subject to considerable changes from one place to the next.

For Stage 1, reference literature on animal behavior shall apply, with at least the following works to be considered:

- I. ZOOKEEPING - AN INTRODUCTION TO THE SCIENCE AND TECHNOLOGY. Edited by Mark D. Irwin, John B. Stoner, and Aaron M. Cobaugh the university of Chicago press/Chicago and London.
- II. STEREOTYPIC ANIMAL BEHAVIOUR Fundamentals and APPLICATIONS TO WELFARE, Second Edition./edited by Georgia Mason and Jeffrey Rushen. --2nd ed. p. cm. Includes bibliographical references. ISBN-13: 978-0-85199-004-0 (alk. paper) ISBN-10: 0-85199-004-5 (alk. paper) 1. Animal behavior. 2. Animal welfare. 3. Stereotyped behavior (Psychiatry) I. Mason, Georgia. II. Rushen, Jeffrey. III. Title.
- III. THE SOCIAL BEHAVIOR OF OLD ANIMALS, Anne Innis Dagg. The Johns Hopkins University Press Baltimor. © 2009 The Johns Hopkins University Press All rights reserved. Published 2009 Printed in the United States of America on acid-free paper 98765432.
- IV. ANIMAL BEHAVIOR: AN EVOLUTIONARY APPROACH, Seventh Edition. © Copyright 2001 by Sinauer Associates, Inc. P.O. Box 407, Sunderland, Massachusetts, 01375-0407, USA.
- V. COMPORTAMENTO ANIMAL - UMA INTRODUÇÃO À ECOLOGIA COMPORTAMENTAL, Del-Claro, Kleber Distribuidora / Editora - Livraria Conceito - Jundiaí - SP 2004. ISBN: 85-89874-02-8.

At the end of Stage 1, the CONCESSIONAIRE shall have records of the full behavioral repertoire expected for each species comprising the fauna's BIOLOGICAL ASSET inventory, to be undertaken by the

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CONCESSIONAIRE. This information will be used as a cornerstone for purposes of assessing animal behavior and appraising incidences of stereotypical behavior

In Stage 2, the CONCESSIONAIRE shall assess behaviors of Breeding Stock individuals to determine whether there is in fact stereotypical behavior. The assessment shall compare behaviors witnessed for each Breeding Stock individual to behaviors expected for each species, as specified in Stage 1.

Stage 2 proceeds to quantifying each behavioral group. It is carried out using a more systematic approach, in previously defined intervals, and may be undertaken using either the scan sampling or the Focal method. Scan sampling is the behavioral record of every enclosure individuals at a set time, in other words, in regular intervals, aimed at keeping a record of data collected. Focal, in turn, is the behavioral record of only one individual, also in regular intervals, so as to keep a record of data collected. Determining time intervals shall be conditional upon the species at hand and logistics at the sampling time. Sample distribution is also required, which is to encompass different times of the day and, if possible, night times for species that have nocturnal habits.

Assessments are to be carried out based on electronic video records and, in certain cases, may be carried out in-person, provided video and photographic records are kept. The minimum recorded time for each specie needed to assess behaviors should be 60 hours, spread over 10 days, also known as Minimum Recorded Time. Records shall be made without interfering in the specie's behavior that is the object of the assessment. Should records be made at a subsequent stage, they are to be made after the observer is familiarized with the animal, and after the animal is familiarized with the observer.

The Report is to be signed by the Technician in Charge (TC) of the Veterinary Care department and by the Technician in Charge (TC) of the Biology department, as required under specification 2.1.3.

The CONCESSIONAIRE shall carry out regular appraisals as to whether there were stereotypical behaviors and submit them to the GRANTING AUTHORITY throughout the CONCESSION TERM, pursuant to a frequency to be agreed upon by the CONCESSIONAIRE and the GRANTING AUTHORITY, in compliance with technical guidelines.

Stages 1 and 2 shall be recorded and remain at the GRANTING AUTHORITY's and the FPZSP's disposal for access and checking, whereas the CONCESSIONAIRE shall be solely responsible for applying the methodology and its results.

Introducing new and increasingly efficient and accurate technologies is desirable insofar as they are developed. Introducing new techniques shall be conditional upon the GRANTING AUTHORITY's acquiescence and approval by means of ordinary CONTRACT reviews.