PROPOSED IUCN RE
SOLUTION STATEMENT ON
ANIMAL GENOME RESOURCE BANKING FOR SPECIES CONSERVATION

Conservation Breeding Specialist Group Annual Meeting
Sao Paulo, August 27, 1994

PROBLEM STATEMENT

The IUCN holds that the successful conservation of species requires integrated management efforts to sustain available genetic diversity. These efforts include programs to protect and manage animal populations within their natural, native habitat (*in situ* conservation) as well as supporting programs that manage populations, individuals, gametes and/or embryos outside of natural environments (*ex situ* conservation).

The IUCN recognizes that, although habitat protection is the most desirable, first approach for conserving biological diversity, supportive intensive management programs are essential in many cases. Such programs can deal effectively with short-term crises and with maintaining long-term potential for continuing evolution.

The IUCN further recognizes that the efficiency and efficacy of intensive conservation efforts can be increased many fold by applying recent advances in reproductive technology. These include assisted or 'artificial' breeding and the low temperature storage (banking) of viable animal germ plasm, namely spermatozoa, oocytes and embryos. Germ plasm banks (more broadly defined as genome resource banks): 1) offer a high degree of security against the loss of diversity and, therefore, entire species from unforeseen catastrophes; 2) minimize depression effects of genetic drift and inbreeding; and 3) provide a powerful method for managing the exchange of genetic diversity among populations. Ancillary conservation benefits include banks for basic and applied research including repositories of serum, DNA and cultured cell lines from germ plasm donors that permit studies on disease status, detection of microbial antibodies, pedigree determination, taxonomic status, geographical differentiation of populations and cellular physiology.

The IUCN also recognizes that the establishment of genome resource banks must be matched by developing strategies for use as a genuine and practical conservation asset for supporting natural breeding. Furthermore, genome resource banks should follow specific, scientifically-developed guidelines consistent with an international standard, thus ensuring their use as a meaningful, practical, ethical and cost-effective conservation tool.

The Conservation Breeding Specialist Group of the IUCN's Species Survival Commission is charged with exploring novel approaches to assisting in the conservation of biodiversity and genetic diversity. Since 1991, the Conservation Breeding Specialist Group has been developing and refining strategies for the practical implementation of genome resource banks. These activities have included: 1) publication of scientific manuscripts on the utility of this new conservation approach; 2) development of a comprehensive Action Planning process (with explicit guidelines) to ensure that all such repository programs have conservation

application; and 3) identification and coordination of a global network of people and resources dedicated to the systematic formation of genome resource banks.

RECOMMENDATIONS

The IUCN regards the development of genome resource banks as a valuable component of integrated conservation programs. Therefore, the IUCN recommends that the Conservation Breeding Specialist Group continue to pursue developing the framework for international coordination of this type of program based upon agreements to cooperatively manage species for demographic and genetic diversity.

To achieve this recommendation:

1. genome resource banking programs, where appropriate, should be incorporated directly into the framework of other conservation action strategies including conservation assessment and management plans (CAMP process), population and habitat viability assessments (PHVA process), global/regional collection planning and recovery plans for restoring species to natural situations.

2. genome resource banks should be developed only in the context of systematic, written and detailed Action Plans, thereby ensuring that there is a defined conservation goal associated with the collection, storage and use of animal biomaterials to support natural breeding. The development of an integrated plan with clear conservation goals is the single most important consideration prior to initiating banking activities.

3. the Conservation Breeding Specialist Group, when requested, should assist taxon Specialist Groups, propagation groups for species, regional conservation programs and others in developing genome resource banking strategies and specific Action Plans. The development of the Action Plan resides with those groups with specific responsibilities for *in situ* and *ex situ* conservation of specific taxa, species and populations. The CBSG will support these activities by interlinking global/regional groups interested in genome resource banking, providing specific information on banking strategies and by integrating information on: a) reproductive and genetic histories of *ex situ* and *in situ* populations; b) efficiency of reproductive/genetic technologies; c) approaches for achieving genetic management goals; d) types of biomaterials requiring storage; e) appropriate protocols for banking and using biomaterials; f) ethical issues related to biomaterials ownership/distribution; g) concerns about disease and regulation; and h) areas requiring further research.

4. a globally-standardized, record-keeping database should be developed for cataloging, pooling and managing data and transfers of banked materials. It is highly desirable that these biomaterials are linked to individually-identifiable source animals to ensure meeting the objective of assisting in managing genetic diversity.

Revision of 1991 statement.