

CONVENTION ON INTERNATIONAL TRADE IN ENDANGERED SPECIES
OF WILD FAUNA AND FLORA

Eighth Meeting of the Conference of the Parties

Kyoto (Japan), 2 to 13 March 1992

Interpretation and Implementation of the Convention

EXEMPTION FOR BLOOD, TISSUE SAMPLES AND PURIFIED DNA FOR
GENETIC STUDIES FROM THE CITES PERMIT REQUIREMENTS

This document has been prepared and is submitted by Denmark.

1. Introduction

- 1.1 DNA (the material carrying the genetic codes) analysis methods can be used to define natural populations and origin of individuals and to study genetic variability in wild and captive populations. Certain minisatellite genes are so polymorphic that they permit recognition of individual animals and paternity testing.

The DNA analysis methods are developing very rapidly at the moment. The study of Restriction Fragment Length Polymorphism (RFLP) has currently become rationalized, and the Polymerase Chain Reaction (PCR) with Taq permits millionfold amplification of DNA fragments in a few hours. The fragments are used for sequencing. This has had a profound impact on new approaches to genetics, forensic science, evolutionary and developmental biology. The possibility to identify species and populations and to study genetic variation on the level of individuals opens wide perspectives in conservation biology, both in the management of wild and captive populations, and for the enforcement of CITES.

Provided that some research institutions can do a proper processing, e.g. of primers for PCR of specific gene segments, techniques equivalent to the classical "genetic fingerprinting" will, in few years time, be done routinely in ordinary electrophoretic laboratories, without the need for an expensive setup for isolating and purifying DNA, or the need for personnel with full training in molecular biology.

- 1.2 A large-scale acquisition of samples is now possible because the samples can be taken conveniently and very cheaply from live specimens, e.g. by bleeding birds (Arctander, 1988), or by taking dermal samples (ear-clippings, hollow-tipped crossbow arrows for wild large mammals, including whales). Very small amounts of samples are needed, which means that the method can be used even on live hummingbirds. If PCR techniques are used, ultra-small samples are sufficient. Furthermore, the preservation does not require freezing facilities, as long-term storage is possible at room temperatures in a buffer (10% EDTA, 1% NaF + thymol trace).
- 1.3 Aliquots used in Copenhagen (2 ml plastic NUNC cryotubes) are robust, can be transported outside high pressure cabins in aeroplanes, or can easily be dispatched by letter.

Such techniques make it feasible to collect DNA in any study where animals are handled, e.g. in connection with individual marking. Owing to the minimal expenditure of taking samples, and the perspectives involved, there are great advantages in keeping the genetic code for every handled individual in extensively marked populations, and of rare or endangered species, in wild or captive populations. This permits later screening of the genetic make-up of the individual animal in the population, and can become important in the planning of breeding programmes, as well as for CITES identification purposes. However, an efficient use of these possibilities requires large reference collections and a swift system for ordering reference samples on short notice from elsewhere.

2. Reasons for Exempting Blood, Tissue Samples and Purified DNA for Genetic Studies from CITES Permit Requirements

An important condition for a swift and efficient use of DNA techniques as described under the previous paragraph, is that samples can be obtained on short notice. This efficiency can become jeopardized by having to obtain CITES export and import permits. The samples represent "derivatives" or "parts". They are not readily recognizable, and problems can arise.

Customs will normally be unable to identify these samples as covered by CITES. However, scientists would like to be able to properly label their samples, which makes them recognizable. Furthermore, Resolution Conf. 5.9 recommends to Parties that permits should be required for specimens where it appears from accompanying documents or labelling that they derived from CITES species.

As the collection of DNA samples is done from live animals and endangered species will not have to be killed, obtaining of permits serves no purpose in regard to protecting species.

At present DNA sampling is becoming an ordinary tool in breeding and farming programmes in order to control inbreeding and in keeping a studbook. Furthermore it provides CITES management authorities with an efficient tool when controlling such breeding centres. As it is more and more common to exchange DNA material between states, it is proposed that the exchange of such material be exempted from the CITES permit requirements.

3. Proposed Criteria for Exemptions

Unnecessary delay could be avoided by using the existing possibility of giving exceptions from the CITES regulations to key institutions (Article VII, paragraph 6). However, this solution excludes the possibility of "ordering", on short notice, comparative material from other institutions (zoos, breeding centres, keepers of pet animals), or from private persons with easy access to wild populations. The exception in Article VII, therefore, does not represent a fully flexible and swift solution.

The best solution is to exempt such samples from the CITES permit requirements. The main problem involved here is how to define the kinds of "derivatives" exempted from the permit requirements. In order to permit wide usage of DNA studies the definition should cover not only blood from birds and lower vertebrates (which have nucleated erythrocytes), but also epidermal tissue from mammals as well as adequate samples from other animals and from plants. The only generally applicable criterion seems to be that the samples should be so small that they can be taken from live individuals without causing serious stress or damage. Also the risk of illegal traffic of other kinds of "derivatives" should be minimized. Therefore, samples must be so small that they could not be used for laundering rhino horn, bear gall bladders, etc., declared as "tissue for DNA studies".

The acceptable maximum sample that can be taken from live organisms varies greatly between species. Nevertheless, samples that (together with the preservative liquid) can be contained in a 2 ml aliquot should not create problems, and are adequate for a large number of DNA analyses. Furthermore, this should exclude the possibility of illegal trade.

We therefore propose a general exemption from the CITES regulations for preserved blood samples or other tissues that can be contained in a 2 ml aliquot (see the draft resolution attached as Annex).

DRAFT RESOLUTION OF THE CONFERENCE OF THE PARTIES

Exemption for Blood, Tissue Samples and Purified DNA
for Genetic Studies from the CITES Permit Requirements

RECALLING that Article VII, paragraph 6, of the Convention exempts exchange between recognized scientific institutions from the usual CITES permit requirements;

RECALLING that according to Resolution Conf. 5.9 adopted at the fifth meeting of the Conference of the Parties (Buenos Aires, 1985), Parties are recommended to require permits for specimens, where it appears from accompanying documents, the packaging or a mark or label, or any other circumstances that they are parts or derivatives of species included in CITES appendices;

NOTING that genetic studies play a valuable role in the conservation of endangered species and in the enforcement of CITES;

NOTING that genetic studies can be carried out using blood and tissue samples so small that they can be taken from live animals without causing serious stress or damage;

NOTING, however, that Article VII, paragraph 6, does not exempt from CITES permit requirements samples sent by non-registered institutions, private persons or others;

NOTING that there is an increasing interest from zoos and other private breeding institutions to let their animals be registered by means of DNA sampling and thereby also avoid inbreeding;

NOTING the importance of prompt exchange of small blood, tissue samples and purified DNA for genetic studies without delay caused through requirement for obtaining CITES permits;

THE CONFERENCE OF THE PARTIES TO THE CONVENTION

RECOMMENDS that the exchange of 2 ml aliquot samples of blood, tissue and purified DNA of CITES species for genetic studies be exempt from the usual CITES permit requirements.