(in the original language / dans la langue d'origine / en el idioma original)

Annex 1

Responses to Notification to the Parties

No. 2018/033

Contents

Notification 2018/033: Australian response

Request for information on the implementation of Resolution Conf. 11.20 (Rev. CoP17) on *Definition of the term 'appropriate and acceptable destinations'* and Article III, paragraphs 3 (b) and 5 (b), of the Convention

Resolution Conf. 11.20 (Rev CoP17) *Definition of the term 'appropriate and acceptable destinations'* notes that 'appropriate and acceptable destinations' for live animals should be those that ensure that the animals are humanely treated; and defines appropriate an acceptable destinations as those where

a) the Scientific Authority of the State of import is satisfied that the proposed recipient of a living specimen is suitably equipped to house and care for it; and
b) the Scientific Authorities of the State of import and the State of export are satisfied that the trade would promote in situ conservation;

The standard animal welfare assessment process outlined below would be used to make a case-by-case determination as to whether a destination facility meets subparagraph (a) above.

The requirement for a determination of 'appropriate and acceptable destinations' currently only applies to trade in southern white rhinoceros *Ceratotherium simum simum* from South Africa and Swaziland; and to export of live African elephants *Loxodonta africana* from a limited number of African countries (via annotations on those listings). In the past, Australia has only had cause to make 'appropriate and acceptable destinations' determinations for the import of live southern white rhinoceros imported into licensed Australian zoos from South Africa. The last import of live southern white rhinoceros to Australia directly from South Africa was in 2002. Australian laws do not currently permit the import of live African elephants; in any case, Australia treats African elephants as Appendix I specimens under a stricter domestic measure that has been in place since 2002. We can therefore offer only limited information on the application of the Resolution in Australia's experience.

We note that subparagraph (b) above was added at CoP17, and Australia has not had cause to make a determination of an 'appropriate and acceptable destination' since this amendment to the Resolution came into force. We would be interested to hear other Parties' experiences and processes for making such a determination.

We have likewise not had cause to implement Resolution Conf. 11.20 (Rev CoP17) new paragraph 2 which encourages that 'any permit authorizing trade of live rhinoceroses or elephants under an 'appropriate and acceptable destinations' annotation contain a condition stating that the rhinoceros horn or elephant ivory from those animals and from their progeny may not enter commercial trade and be sport hunted outside of their historic range'. However, we expect that this would be straightforward: existing Australian law does not permit the use of rhinoceros horn from imported animals or their progeny for commercial purposes, nor does it permit imported rhinoceros to be used in sport hunting.

Australian regulation of trade in CITES Appendix I species

Australia strictly regulates trade in live specimens of species listed on CITES Appendix I. Under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), live CITES Appendix I animals may only be imported or exported for the following non-commercial purposes:

- Conservation breeding, where the animal will be used in a cooperative conservation program approved by the CITES Scientific Authority of Australia;

    - A cooperative conservation program is a breeding and/or management program that aims to conserve a species (in the wild or in captivity, or both) and applies best practice to the management of husbandry, genetics, biology and behavioural needs of the species. The program's objectives must be based on the conservation status and needs of the species, and the program must not be detrimental to the survival of the species in the wild.
    - A list of currently approved cooperative conservation programs is available at http://www.environment.gov.au/biodiversity/wildlife-trade/trading/non-commercial/register-approved-cooperative-conservation-programs
- Scientific research, where the object of the research is to better understand or increase knowledge of the taxon, conserve biodiversity, or maintain and/or improve human health. The research must be conducted by a person or institution with sufficient resources or qualities and they must publish or make available for inspection the results of the research; or
- Education or training by a private or public institution that has a primary function of educating or training enrolled or registered participants (such as a school or university).

In each case, the animal (or any part thereof) may not be used for commercial purposes after it is no longer needed by the conservation breeding program, research or education program.

Animal welfare assessment process

Australia has strict animal welfare requirements under the EPBC Act. For all imports and exports of live mammals, birds, reptiles and amphibians (regardless of which Appendix they are listed on), Australia requires that:

i. The animal is prepared and transported in a way that is known to result in minimal stress, risk of injury and adverse effect on the health of the animal; and
ii. The person receiving the animal is suitably equipped to manage, confine and care for the animal, including meeting the behavioural and biological needs of the animal.

For subparagraph (i) directly above, the CITES Management Authority of Australia places a condition on the import/export permit that requires that the animal be transported in accordance with the Live Animal Regulations of the International Air Transport Association (IATA), in line with Resolution Conf. 10.21 (Rev CoP16).

For subparagraph (ii) above, the CITES Scientific Authority of Australia conducts a case-by-case assessment of the recipient facility. The facility is required to respond to a series of questions (**Annex 1** to this document and http://www.environment.gov.au/biodiversity/wildlife-trade/trading/non-commercial/facility-assessment) about the security and physical features of the proposed animal enclosure, as well as information about staff expertise, diet, behavioural enrichment and animal management. These responses are assessed against best practice standards such as Australian State or Territory exhibited animal standards, husbandry manuals produced by peak zoological bodies, scientific literature, and expert advice. Only facilities that are assessed as meeting the behavioural and biological needs would be granted a permit.

This process is not generally problematic for Australia; imports of live CITES Appendix I animals are strictly limited, which largely restricts import applications to licensed, accredited zoos with high existing animal welfare standards.

ANNEX 1

Animal Welfare Assessment Questions

1. Structures/Infrastructure
    a. A diagram/map and images of the **facility**, including the dedicated enclosure where the animal will be kept; the enclosure(s) relative to other enclosures within the facility; overall dimensions of the enclosure; the location/positioning of other features within the facility; and fence lines. Measurements must be in metric units (metres, cm etc).
    b. A description of the barrier arrangements for the enclosure including the type of barrier (for example, fencing, moat etc), material used in the construction of the barrier, the dimensions in metric units - height, depth and any variations. Please provide detail of the arrangements to protect the animal(s) from unauthorised people and other animals. Measurements must be in metric units (metres, cm etc).
    c. Diagrams, descriptions and images of the completed **enclosure** showing all aspects and features, including:
        i. Outdoors: Dimensions (in metric), construction materials, ventilation and design of any outdoor shelters. Include a description of the flooring/surfaces of the shelters (for example, beaten earth, grass, concrete etc) and drainage.
        ii. Indoors: Dimensions (metric), construction materials, ventilation and design of indoor shelters/night quarters/dens. Include a description of the flooring/surfaces of the enclosure and shelters (for example, beaten earth, concrete etc) and drainage.
    d. Describe what will be provided for the behavioural needs of the animal including but not limited to: physical provisions (for example, climbing, perching, swimming etc); and behavioural enrichment (for example, variation in routine, feeding, interaction with others of its species etc).
    e. A description of any vegetation (for example, trees) provided in the enclosure.
    f. A description of the weather conditions of the area the facility is located (for example, average and extreme temperatures, humidity etc), and a description of any heating/cooling that will be provided for the welfare of the animal(s) within the enclosure.
    g. A description of the number of individual animals that will be housed in each enclosure and how this will be managed to avoid or promote breeding.
    h. Please detail the arrangements for separating and removing individuals from the enclosure and when this might be required.
    i. A description of any other species that will be housed in the enclosure (and expected impact if any), the type of species and the number of each species.
2. Food and water
    a. A description of the food that will be provided to the animal(s), quantities, and frequency of feeding.
    b. A description of the methods for ensuring a supply of fresh water for the animal(s).

3. Management
    a. A description of the arrangements in place for cleaning and removing waste (e.g., frequency, protocols).
    b. A description of how animal records (including health records) will be maintained.
4. Staffing
    a. A summary of relevant handling experience of the staff members who will have responsibility for the animal(s).
    b. A description of any relevant handling training that will be provided to staff members who will have responsibility for the animal(s).
    c. A summary of veterinary expertise of staff members who will have responsibility for the animal(s).
5. Security

    Provide details regarding the organisation's/zoo's/facilities' security provisions in regard to:
    a. the possibility of escape of animals from the enclosure and how this risk will be mitigated;
    b. protecting the animal(s) from unauthorised people; and
    c. protecting animal(s) from other animals.
6. Welfare

    Please provide information on any applicable Australian, or overseas, animal welfare requirements that the facility is subject to for the purposes of holding animals for exhibition (for example, standards set by zoological associations, or government regulators).

7. Declaration

    Please include a signed declaration from a relevant expert (for example, veterinarian, keeper or curator etc) with experience in the housing and care of the animal(s), and who will have responsibility for the housing and care of the transferred animal(s), as follows:

    *"I [*insert name*] of [*name of organization, and position*] am satisfied/ not satisfied that [*recipient individual/organisation*] is suitably equipped to manage, confine and care for [*proposed number*] of [*species name*], including meeting the behavioural and biological needs of the animal(s)."*

Response for Notification No. 2018/033

Request for information on the implementation of Resolution Conf 11.20 (Rev. CoP17) on *Definition of the term 'appropriate and acceptable destinations'* and Article III, paragraphs 3 (b) and 5 (b) of the Convention

Here are the questions posed in the Notification, along with answers from Canada.

a) Explanations of how Resolution Conf. 11.20 (Rev. CoP17) is currently being implemented by the CITES authorities in the State of import. For example:

i. how do CITES authorities determine what can be considered an "appropriate and acceptable destination"?

As a potential State of import under this Resolution, Canada's Scientific Authority has never been engaged to undertake an assessment under Resolution 11.20 (Rev CoP17) 1 a). Therefore Canada has no practical experience in this matter.

ii. whether this is determined on a case-by-case basis, or if CITES authorities have developed or used general guidelines?

Nothing has been formalized at this time, since there has been no need. At this point, Canada would approach the problem on a case-by-case basis.

iii. what sort of guidance would, in your view, be most useful?

General guidelines would be helpful on the characteristics that a facility should demonstrate in order to be considered an "appropriate and acceptable destination". For example: summer/winter housing, daily care (physical, mental), veterinary care, experience of staff, etc. Access to best practices developed by Parties or accredited associations could also be useful. Since there are only 2 species in question it should be fairly simple to consolidate this type of documentation. The experience and lessons learned from other Parties in this matter would greatly help other Parties with less exposure. Accredited zoo associations would be excellent sources of expertise. The accreditation process for zoos, may provide some useful guidance on criteria for determining "appropriate and acceptable destination".

b) Descriptions of any instances where the provisions of the Resolution have been successfully implemented.

Not applicable

c) Descriptions of any cases where the provisions of the Resolution have been found inadequate or abused.

Not applicable

d) Descriptions of problems encountered in implementing the Resolution prior to, or after, its revisions at CoP17.

Not applicable

e) Assessments of any impact (positive or negative) that the amendments to the Resolution, as agreed at CoP17, may have had.

Any conditions as described in Resolution 11.20 (Rev. CoP17) which would be set on a foreign CITES export permit would not be enforceable in Canada, under our domestic legislation. It becomes even less enforceable when the foreign permit expires (6-months after the date of issuance) and could not apply to offspring, which are not the specimens specified on the permit itself.

However there is no possibility of sport-hunting of the 2 species in question in Canada, therefore the condition on sport hunting would be of no consequence or concern.

f) An explanation of how Article III paragraphs 3 (b) and 5 (b), of the Convention, are applied by the State of import. For example:

i. what procedures and/or guidance are used to assess whether recipients of living specimens of CITES Appendix-I species are “suitably equipped to house and care for them”?
Generally there are three categories of live animals that are assessed under Article III paragraph 3 (b) in Canada – (i) imports by zoos or breeders; (ii) imports by commercial distributors and (iii) household moves of personal pets. We have never received an import application for consideration under Article III paragraph 5 (b). In our import application we ask for information on housing and care, and experience with housing and/or breeding of the species or similar species. We use this information to evaluate the application, requesting more information if required. All applications are assessed on a case-by-case basis, considering the category of import, experience of importer and available facilities. In general, importing a live Appendix I animal to Canada represents a considerable expense that is usually not undertaken unless the importer has the facilities and experience to protect their investment.

ii. is this determined on a case-by-case basis, or have the CITES authorities developed or used general guidelines?
Generally Canada’s Accredited Zoos and Aquariums (CAZA) and Canadian CITES registered breeders are deemed to meet the requirements of “suitably equipped to house and care for them”, due to their nature and inherent processes. As well, government agencies participating in such activities as reintroduction programs are also deemed to meet the requirements. All other scenarios are assessed on a case-by-case basis. Once a facility has been assessed, it is recorded, so that a repeat assessment is not necessary.

iii. circumstances or examples where the implementation of the provisions in Article III paragraphs 3 (b) and 5 (b) were problematic, and information on how difficulties were overcome.
There are challenges in this type of assessment for personal pets which will be housed in private homes or facilities. It is difficult to assess someone’s capabilities, especially for long term care which would be the case for parrots which are long-lived or for arowana which can become quite large.

iv. the sort of guidance that, in your view, would be most useful.
Similar guidelines as mentioned in previous section for Resolution Conf 11.20 (Rev. CoP17) would be useful here. We could also count on expertise from accredited zoo associations. An electronic repository of best practices per species may be useful, especially when a Party is faced with the import of a species with which they have no experience.

The CITES Scientific Authority of China, Endangered Species Scientific Commission, People's Republic of China conducted the assessment of Appropriate and Acceptable Destination for the introduction of live animals of African elephant and white rhinoceros listed in appendix Ⅱ which is required by CITES. We do this on a case-by-case basis and conduct field survey in most cases.

As a case study, In 2001, the Longyu Company introduced two dozens of white rhinoceros from South Africa for conservation breed, exhibition and education. From December 2006 to April 2011, a total of 69 headsets were introduced to Hainan Province for Ex Situ conservation, later most of the introduced rhinoceros were moved to Yunnan Province. The introduction turns out to be a great success. Until now, 49 rhinoceros were bred in the breeding center of this company. During the breeding process, the technicians and veterinarians of the breeding center intervened the estrus with human assistance for those individuals who did not have estrus or were infertility for a long time. Human assistance achieved good results. The population size of the introduced rhinoceros is gradually expanding, with annual growth rate of 10%. Most of the rhinoceros of Long Yu Company live in Yunnan Province, while seven kept in Zhejiang Province and Hainan Province, respectively. According the breeding practice, Yunnan is a more appropriate and acceptable destination for the introduced white rhinoceros.

The biggest problem we face now is that it is difficult to determine whether this trade would promote in situ conservation. We have asked the imported institution or company to promise this trade will benefit in situ conservation, however, it is difficult to verify.

Respuesta a la Notificación a las Partes 2018/033.
Solicitud de información acerca de la aplicación de la Resolución Conf. 11.20 (Rev. CoP17) sobre la Definición de la expresión "destinatarios apropiados y aceptables" y de los apartados 3 b) y 5 b) del Artículo lll de la Convención
Autoridad Científica de México, CONABIO 30 abril, 2018

Solamente se responde el Inciso 3f de la Notificación que corresponde a la experiencia de la Autoridad Científica respecto a la implementación del apartado 5b del Artículo III de la Convención.

f) Una explicación de la manera en que el Estado importador ha aplicado los apartados 3 b) y 5 b) del Artículo III de la Convención. Por ejemplo:

i) ¿Qué procedimientos u orientación se utilizan para evaluar si los destinatarios que reciben especímenes vivos de especies incluidas en el Apéndice I de la CITES los podrán "albergar y cuidar adecuadamente"?

Se evalúan detalles del traslado, de las instalaciones de la institución receptora y del plan de manejo al que serán expuestos los ejemplares importados, por lo que dicha información es solicitada al destinatario. Asimismo, esta información se compara con literatura disponible sobre planes de manejo y bienestar animal en cautiverio de la especie –o grupo al que pertenece- en cuestión, para así poder asegurar que las instalaciones y los cuidados a seguir serán los adecuados para albergar a los especímenes.

La información requerida se desglosa principalmente en los siguientes puntos:

- Información general:

- Plan de manejo para la especie y objetivo de incluir en la colección dicha especie: reproducción, exhibición, etc.

- Edad estimada y sexo del o los ejemplares.

- Historial de importaciones (si el ejemplar es el primero que se importa de la especie, o si se reforzará alguna población existente).

- Planes respecto a futuras importaciones de ejemplares de la especie.

- Condiciones e infraestructura para albergar al espécimen:

- Descripción detallada de las áreas donde será albergado el ejemplar: albergue diurno, nocturno, cuarentena, áreas de cuidados veterinarios, etc. (Se solicita incluir fotografías digitales de los albergues).

- Tamaños y disposición de comederos, medidas para mitigar condiciones climáticas adversas para el ejemplar, etc.

    - Cuidados específicos de la especie:

- Descripción de dieta particular (si cambia la dieta por temporada, especificarlo y describir las dietas).

- Descripción de las medidas de limpieza en albergues, comederos, bebederos, etc., así como de la higiene en agua y alimentos.

- Técnicas de entrenamiento que se utilizarán para el manejo de los ejemplares

- Cuidados veterinarios

- Atención de medidas emergentes: en caso de eventos como fuga del albergue, atención y prevención de enfermedades emergentes e infecciosas transmisibles a otros ejemplares, etc.

ii) ¿Se determina caso por caso o las autoridades CITES han elaborado o seguido directrices generales?

Se sigue una línea base conforme al apartado 3 b) del Artículo III en el Texto de la Convención, partiendo de éste, se determina caso por caso ya que los cuidados tanto físicos como de conservación, y características tanto del traslado como del ejemplar en cuestión, son diferentes para cada especie.

iii) Circunstancias o ejemplos en que la aplicación de las disposiciones de los apartados 3 b) y 5 b) del Artículo III resultó problemática, e información sobre la manera en que se superaron las dificultades.

NO aplica

iv) El tipo de orientación que, en su opinión, resultaría más útil.

Al utilizarse de manera frecuente los Manuales de Cuidado Animal expedidos por la Asociación de Zoológicos y Acuarios (AZA) como fuentes importantes de información, consideramos que sería de gran utilidad que CITES trabaje en conjunto con la AZA para ampliar la información sobre cuidados y gestión ambiental de especies para las que aún no existen manuales, y que esta información se encuentre disponible en el sitio web de la Secretaría de la CITES.

Madame, Monsieur,

Faisant suite à la Notification n° 2018/033 concernant la Résolution Conf. 11.20 (Rev. CoP17), voici les observations pour Monaco.

L'importation d'animaux vivants est peu fréquente à Monaco. Les cas concernent principalement le Jardin animalier, le Festival International du Cirque, les animaux de compagnie.

Le Jardin animalier dispose de personnels ayant suivi les formations adéquates pour accueillir et prendre soin des animaux vivants.

La Résolution Conf. 11.20 (Rev. CoP17) vise les éléphants et les rhinocéros : les seules importations à Monaco de ces espèces sont pour le Festival International du Cirque ou pour des manifestations ponctuelles très rares.

S'agissant d'animaux vivants, il est signifié la prescription de posséder les installations adéquates pour maintenir l'animal dans les conditions qui ne nuisent pas à sa santé ou à son bien être.

Les demandes sont traitées au cas par cas.

Cependant, il est très difficile d'effectuer les contrôles et d'apprécier les conditions d'accueil d'un animal vivant.

Ceci pour plusieurs raisons :

- l'absence de définition de "destinataire approprié et acceptable" et de définition des installations adéquates ;

- l'absence de référentiel, normes ou guides pour avoir un schéma de ce qui serait indispensable ou acceptable pour chaque animal selon son espèce ;

- l'absence de formation des agents chargés du contrôle.

Par ailleurs, la Résolution Conf. 11.20 (Rev. CoP17) semble poser 2 conditions cumulatives pour qualifier les destinataires appropriés et acceptables :

a) l'autorité scientifique de l'État d'importation estime qu'ils disposent des installations adéquates pour conserver et traiter avec soin des spécimens vivants; et

b) les autorités scientifiques de l'État d'importation et de l'État d'exportation estiment que le commerce favoriserait la conservation in situ;

Or ce dernier point b) ne peut pas se vérifier dans tous les cas, notamment pour les animaux qui sont dans des expositions itinérantes.

Cela soulève ainsi la question des dérogations de l'article VII de la Convention.

En effet, sauf erreur d'interprétation, cette Résolution ne concernerait pas les spécimens qui entrent dans le cadre de ces dérogation de l'article VII,

Cela pose question pour les spécimens pré-convention qui seraient donc exclus du respect de cette Résolution (article VII paragraphe 2).

Il semblerait utile de clarifier ces points pour éviter toute erreur d'application ou d'interprétation.

Notamment, il pourrait être édité un guide ou des lignes directrices générales et particulières en fonction des spécificités de chaque espèce.

Cela permettrait de mieux définir également ce qui pourrait être considéré comme un "destinataire approprié et acceptable" et des installations adéquates.

Les réglementations nationales pourraient ainsi renvoyer à ce guide. Une précision pour l'application des dérogations de l'article VII pourraient aussi être envisagées.

Des formations pourraient ensuite être données pour les contrôles à effectuer sur cette base.

Restant à votre disposition,

Meilleures salutations

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MAY 0 2 2018

CITES Secretariat
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Dear Sir/Madam:

This has reference to CITES Notification to the Parties No. 2018/033 dated 29 March 2018 requesting information on the implementation of Resolution Conf. 11.20 (Rev. CoP17) on definition of the term "appropriate and acceptable destinations"; and, Article III paragraphs 3(b) and 5(b) of the Convention regarding findings that recipients of living specimens of CITES Appendix-I species are suitably equipped to house and care for them.

Please be informed that above-said CITES resolution and Article are being implemented in the country in accordance with our national law (Republic Act 9147[1]). As stipulated in the said law, recipient of any wildlife species in the country should have technical and financial capability to maintain such wildlife species (Section 11). In order for us to determine such requirement, the recipient is required to submit the following documents for evaluation: proof/s of technical capability (list and qualifications of manpower), design and photos of existing facility/enclosures for the animals, and financial plan showing financial capability to maintain or go into breeding of wildlife, among others. In addition, the Scientific Authority provides an advice to the CITES Management Authority on the suitability of the recipient to house and care for the CITES- Appendix I species being applied for importation (Rule 19.3.d of the Joint DENR-DA-PCSD Administrative Order No. 01 [2]Series of 2004). The Scientific Authority conducts actual site visit and facility assessment/evaluation to ensure the welfare of the wild animals to be imported.

Thank you.

Very truly yours,

ARMIDA P. ANDRES
OIC Assistant Director
In-Charge, Office of the Director

[1] R.A. 9147 refers to the Philippines' "Wildlife Resources Conservation and Protection Act" of 2001
[2] Joint DENR-DA-PCSD Administrative Order No. 01 – Joint Implementing Rules and Regulations Pursuant to RA 9147

United Nations Decade on Biodiversity

On behalf of CITES MA Slovakia, I am replying the questions in the Notification No 2018/033:

Regarding implementation of the Resolution Conf. 11.20 (Rev. CoP17), we do not have any practical experience with such cases, but our legislation enables adopting measures lied down in the mentioned Resolution in the procedure of deciding on issuing/refusing the import permit.

f) An explanation of how Article III paragraphs 3 (b) and 5 (b), of the Convention, are applied by the State of import. For example:

i) what procedures and/or guidance are used to assess whether recipients of living specimens of CITES Appendix-I species are "suitably equipped to house and care for them"?

Procedure/rules defined in the EU wildlife trade legislation, Council Regulation (EC) No 338/97, Art. 4 (1c) - The import permit may be issued only in accordance with the restrictions established pursuant to paragraph 6 and when the following conditions have been met:
c) the competent scientific authority (SA) is satisfied that the intended accommodation for a live specimen at the place of destination is adequately equipped to conserve and care for it properly;

For more detail please see EU Reference Guide on Wildlife Trade Regulations
http://ec.europa.eu/environment/cites/pdf/referenceguide_en.pdf , section 3.3.3, page 33, and Duties of the CITES SA and SRG under regulations (EC) No 338/97 and (EC) No 865/2006
http://ec.europa.eu/environment/cites/pdf/srg/guidelines.pdf , Attachment C, page 13.

For this purpose, in accordance with our national (Slovak) legislation, the applicant is obliged to submit with the application also detailed description (supported by photos) of the facility where the imported specimen is to be located. The facility is than examined by the SA. Our SA uses also EAZA best practice guidelines, consults with other EU MA Scientific authorities and cooperates also with our veterinary state administration. In case of dangerous animals, national veterinarian decree with defined minimal requirements for keeping specified species/genus is of help.

ii) is this determined on a case-by-case basis, or have the CITES authorities developed or used general guidelines?

See answer above

iii) circumstances or examples where the implementation of the provisions in Article III paragraphs 3 (b) and 5 (b) were problematic, and information on how difficulties were overcome.

Slovakia does not have much experiences with such import applications. We were dealing with several applications for intra EU movement of selected live specimens, in accordance with Art. 9 of the Council Regulation (EC) No 338/97, for more detail on procedure please see chapter 5, page 115 – 117 of the above mentioned EU Reference Guide on Wildlife Trade Regulations.

iii) the sort of guidance that, in your view, would be most useful

In our view, helpful would be to sum up sources (documents, links) of minimal requirements for various groups of animals.

MINISTRY
OF ENVIRONMENT
OF THE SLOVAK REPUBLIC

No. 0902.3/ ๒๐๘๒

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๒๗ April B.E. 2561 (2018)

Dear CITES Secretariat,

Subject : Request for information on the implementation of Resolution Conf. 11.20 (Rev. CoP17) on Definition of the term 'appropriate and acceptable destinations' and Article III, paragraphs 3 (b) and 5 (b), of the Convention

Reference is made to Notification to the Parties no. 2018/033 dated 29 March 2018. Please find the attachment for the information for you consideration.

Your continued assistance is, as always, highly appreciated.

Yours sincerely,

(Mr. Somkiat Soontornpitakkool)
Director of CITES MA of Thailand
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Information on the implementation of Resolution Conf. 11.20 (Rev. CoP17) on Definition of the term 'appropriate and acceptable destinations' and Article III, paragraphs 3 (b) and 5 (b), of the Convention

Pursuant to the production of the report, the Secretariat hereby invites Parties to submit any relevant information to on the implementation of Resolution Conf. 11.20 (Rev. CoP17) and Article III, paragraphs 3 (b) and 5 (b) of the Convention. Information of relevance could include the following:

a) Explanations of how Resolution Conf. 11.20 (Rev. CoP17) is currently being implemented by the CITES authorities in the State of import. For example:

i) how do CITES authorities determine what can be considered an "appropriate and acceptable destination"?

-The Department of Fisheries (DoF) has the Institutional Wildlife Preservation and Protection Committee to consider prior to the importation of the species listed in the CITES The consideration is based on species and number that are available in the country to prevent excessive breeding, reproductive tract, native aquatic species safety and potential dangers, including the survival of animals or the impact on the sustainable of the ecological system.

- There is the national law (the Wild Animal Reservation and Protection Act. 1992) which is the law that implemented to CITES and mechanism to regulate import, export, protected species movement, possession and breeding.

ii) whether this is determined on a case-by-case basis, or if CITES authorities have developed or used general guidelines?

DoF also has the Institutional Biosafety Committee (IBC) to consider prior to the importation of alien species which may determine the conditions for the grant of importation on a case-by-case basis.

iii) what sort of guidance would, in your view, be most useful?

Handbooks or guidelines for the CITES MA, which does not conflict with the terms and conditions of the CITES regulations.

b) Descriptions of any instances where the provisions of the Resolution have been successfully implemented.

Domestic law has imposed penalties for violators, included regulating all activities related to protected species that be reserved for sustainability.

c) Descriptions of any cases where the provisions of the Resolution have been found inadequate or abused.

There are some endemic species that successfully breed and species breed development. As well as developing into hybrids which may not be possible to determine the species of broodstock. These are not stated in the provisions.

d) Descriptions of problems encountered in implementing the Resolution prior to, or after, its revisions at CoP17.

There is any problems were found.

e) Assessments of any impact (positive or negative) that the amendments to the Resolution, as agreed at CoP17, may have had.

The Resolution amendments gave the positive results, due to the explaination and clarity of the provisions.

f) An explanation of how Article III paragraphs 3 (b) and 5 (b), of the Convention, are applied by the State of import. For example

i) what procedures...

i) what procedures and/or guidance are used to assess whether recipients of living specimens of CITES Appendix-I species are "suitably equipped to house and care for them"?

There are requirements or provisions for importation and verification suitably equipped to house and care prior issuance the permit and importation.

ii) is this determined on a case-by-case basis, or have the CITES authorities developed or used general guidelines?

Consideration of importation is on a case-by-case basis and recommendations of the scientific authorities.

iii) circumstances or examples where the implementation of the provisions in Article III paragraphs 3 (b) and 5 (b) were problematic, and information on how difficulties were overcome.

There are some imported aquatic animals which are exotic species and lack of research information. Including, the lack of experts in exotic species breeding and caring.

Notification N° 2018/033 du 29 mars 2018

**Définition de l'expression " destinataires appropriées et acceptables "
et des alinéas 3b) et 5b) de l'Article III de la Convention**

Partie

Tunisie

Organe de gestion contribuant à ce questionnaire

Direction Générale des Forêts,

Coordonnées

30 Alain Savary, rue de Belvédère 1002 Tunis

Personne-contact

Tahri Jamel, tahri_jamel@yahoo.fr, Ingénieur en chef, Chef de service de la chasse des parcs nationaux et des réserves naturelles.

Concernant la mise en œuvre de la résolution Conf. 11.20 (Rev.CoP17) et sur le respect des alinéas 3b) et 5b) de l'Article III de la Convention, l'autorité CITES de la Tunisie exige que l'importateur des animaux vivants signe et approuve un cahier des charges relatif à la création de centres d'élevage des animaux sauvages locaux ou étrangers.

Ce cahier des charges exige que le propriétaire (l'importateur) doit fournir de bonnes conditions de santé, une alimentation équilibrée, de l'eau potable propre et fraîche. Aussi, les installations, les magasins d'alimentation et la nourriture doivent être propres.

Cela nous permettrait d'avoir des garantis que les destinataires des spécimens vivants (entre autre les espèces inscrites à l'annexe I de la CITES) disposent d'installations adéquates pour les conserver et les traiter avec soin.

Response to Notification 2018/033 by UK CITES Scientific Authority (fauna) - Joint Nature Conservation Committee (JNCC)

Under EU stricter measures we are required to make an assessment of whether the intended recipient is suitably equipped to conserve and care for a specimen (Article III paragraph 3(b)) for both Appendix I and Appendix II species (Annex A and Annex B under EU Regulations).

a) Explanations of how Resolution Conf. 11.20 (Rev. CoP17) is currently being implemented by the CITES authorities in the State of import: For example:

i) how do CITES authorities determine what can be considered an "appropriate and acceptable destination"?

The UK Scientific Authority has primary responsibility for determining the suitability of the intended accommodation for specimens being imported, making their assessment on a case-by-case basis, taking into account any regulatory requirements and published guidelines on husbandry & welfare. Importers are required to submit supporting details (a standard form is provided) with their licence application to assist the SA in determining suitability, including details on the intended enclosure (materials, measurements, heating, light, indoor/outdoor space, etc), intended social grouping for the species, environmental stimuli, dietary needs, veterinary access, expertise of keepers/staff. Where necessary we may consult species & veterinary experts or have the premises inspected prior to the import permit being granted.

In terms of determining that the import *would promote in situ conservation* the SA would consider the purpose of the introduction into the EU to ensure that they are either one of those specified in Regulation 339/97 (i.e. breeding, education or research aimed at the conservation of the species) or another which is not detrimental to the survival of the species concerned and consistent with Res Conf. 11.20 and/or annotation. The following factors (agreed by the EU CITES Scientific Review Group) are generally considered: • The conservation need for a captive breeding/research/education project, taking account of similar activities elsewhere in the world and in situ conservation efforts or lack thereof • The existence of captive specimens elsewhere in the world which could be used in place of wild-taken ones. • The views of the exporting countries' Scientific Authority. • The views of the relevant international and national studbook where such exists. • The views of the relevant IUCN Species Survival Specialists Group or other experts where such exist. • The presentation of the case in terms of identification of objectives, planning and research prior to importation. • The output of the project in terms of co-operation with others in the field and published material on propagation, breeding, husbandry and biology. • The applicant's track record of captive breeding generally and with the species in question in particular and the long-term viability of the project. Official/institutional support for the project. • Applicant's track record of research or education generally and with the species in question in particular and the long-term viability of the project.• Photographic evidence of the breeding facility, where possible, to back up essential written information. • Existence of any spin-off benefits from removal of specimens from the wild in the range States

ii) whether this is determined on a case-by-case basis, or if CITES authorities have developed or used general guidelines?

Assessments are made on a case by case basis – see above.

iii) what sort of guidance would, in your view, be most useful?

A checklist could be drawn up that indicates all the factors that a Scientific Authority may wish to take into account as part of their assessment. Noting that Conf Res 11.20 refers to elephant and rhino then the following may be a useful start, for example:

- Physical housing (Size, construction, availability of indoor/outdoor housing, shelter from sun/rain, substrate, topographical variety)
- Husbandry (Provision of heat, light, appropriate diet and delivery of that diet (for example the ability to suspend browse from a high location or offer an electronically designed feeder system; the provision or promotion of exercise)
- Management (Appropriate social groupings for the species, methods of integration, ability to separate the group where needed, free or protected contact management, anticipated time spent indoors/outdoors, which may depend on the weather conditions at the place of destination)
- Species specific enclosure furnishings (provision of an enriched environment that offers choices and opportunities, provisions of pools, mud wallows, browse or other enrichment)
- Adequate provisions of suitable veterinary care
- Experience of the person or facility in maintaining this species previously
- The use of the specimen within a formal breeding programme or educational display, or research aimed at the conservation of the species. Are there any *in situ* conservation benefits to be derived from the intended use of the animal?
- Ensure that the trade and intended purpose at place of destination should not undermine the conservation of the species within its range and efforts to combat trafficking;

  In addition:
- Conf Res 11.20 (2) states that Rhino horn and elephant ivory from these animals and their progeny should not be allowed to enter trade. Applicants should be asked to indicate how they will meet this requirement

b) **Descriptions of any instances where the provisions of the Resolution have been successfully implemented.**

Elephants (*L. africana*): 2 import applications from Namibia received & refused because they weren't for *in situ* conservation programmes.

Rhinos (*C. simum)*: 2 females from ZA approved 2009 – move recommended by European Endangered species breeding programme co-ordinator and Taxon Advisory Group Chair.

c) Descriptions of any cases where the provisions of the Resolution have been found inadequate or abused.

As there is no formal agreed definition of what constitutes an "Appropriate and acceptable destination" then this is left to individual Parties to interpret.

d) Descriptions of problems encountered in implementing the Resolution prior to, or after, its revisions at CoP17. No application received following CoP17. No problems encountered with interpretation prior to that.

e) Assessments of any impact (positive or negative) that the amendments to the Resolution, as agreed at CoP17, may have had. N/A

f) An explanation of how Article III paragraphs 3 (b) and 5 (b), of the Convention, are applied by the State of import. For example:

i) what procedures and/or guidance are used to assess whether recipients of living specimens of CITES Appendix-I species are "suitably equipped to house and care for them"?

The UK has developed two standardised forms for the assessment of the housing and care available for live specimens of Appendix I (and Appendix II) in line with EU CITES Regulation 338/97) species. The forms cover aquatic and terrestrial species. The UK makes a full assessment of the information provided in the form bearing in mind published information on specific husbandry requirements where necessary. We ensure that the intended enclosure is constructed correctly, that the accommodation offers appropriate space, heat, light; that it will be held in an appropriate social grouping for the species, that it will have a sufficiently stimulating environment, and that the appropriate diet will be offered. Where necessary, we may also consider the whether the persons or organisation responsible for its care have the necessary skills and experience to care the specimen.

However, should further information be required then this can be requested. In addition, in some cases we may recommend an inspection of the premises before the import permit is granted.

ii) is this determined on a case-by-case basis, or have the CITES authorities developed or used general guidelines?

Assessments are made on a case by case basis by the SA, although taxon specific guidelines (where available) assist with the assessments.

iii) circumstances or examples where the implementation of the provisions in Article III paragraphs 3 (b) and 5 (b) were problematic, and information on how difficulties were overcome.

Species that have specialist husbandry requirements by virtue of their size, diet, high rates of mortality, etc require particularly careful assessment. Species not often found in captivity (for example shoebill storks (*Balaeniceps rex*) and Fanaloca (*Fossa fossana*) pose more difficulty due to the lack of published information on their husbandry requirements. Seeking an expert's opinion may also be restricted where we have to maintain applicant confidentiality.

iii) the sort of guidance that, in your view, would be most useful.

'Standard accommodation & care' forms for applicants importing live specimens to fill in and/or a checklist of factors that SAs may wish to take into account as part of their assessment, of determining whether the destination is suitably equipped to conserve and case for the specimen, for example:

- Physical housing (Size, construction, availability of indoor/outdoor housing, shelter from sun/rain, provisions to expand as the animal grows)
- Husbandry (Provision of heat, light, appropriate diet, water quality parameters for aquatic species)
- Management (Appropriate social groupings for the species, methods of integration, ability to separate the group where needed)
- Species specific enclosure furnishings (for example provisions of pools, climbing equipment, hides, nest boxes, plants and hiding places)
- Adequate provisions of suitable veterinary care

[Extending this to considerations about the purpose for which specimens are being traded where Res Conf 11.20 or stricter measures apply]

UNITED STATES
OF AMERICA

Enclosure

U.S. response to Notification to the Parties No. 2018/033 concerning Request for information on the implementation of Resolution Conf. 11.20 (Rev. CoP17) on *Definition of the term 'appropriate and acceptable destinations'* and Article III, paragraphs 3 (b) and 5 (b), of the Convention

a) Explanations of how Resolution Conf. 11.20 (Rev. CoP17) is currently being implemented by the CITES authorities in the State of import. For example:

i) How do CITES authorities determine what can be considered an "appropriate and acceptable destination"?

In our CITES implementing regulations at 50 C.F.R. §23.65, we outline what factors are considered in making a determination of whether an applicant is suitably equipped to house and care for a live specimen. Generally speaking, we consider any factors that would help us determine whether an applicant would be able to provide proper housing to maintain the specimens for the intended purpose and the expertise to provide proper care and husbandry or horticultural practices. Facilities must have adequate enclosures to prevent escape and appropriate security to prevent the theft of specimens. Other factors we evaluate include:

- the maintenance and construction of enclosures to ensure that they provide sufficient space to allow each animal to make normal postural and social adjustments with adequate freedom of movement;
- whether appropriate environmental enrichment is provided;
- if the wildlife is on public display, an off-exhibit area, consisting of indoor and outdoor accommodations, as appropriate, that can house the wildlife on a long-term basis if necessary;
- provision for water and nutritious food, as appropriate;
- staff who are trained and experienced in providing daily care and maintenance; and
- readily available access to experienced veterinary care.

Although not included in our current regulations, in considering any application we receive for the import of species for which live specimens may only be traded to appropriate and acceptable destinations, we will follow the guidance included in Resolution Conf. 11.20 (Rev. CoP17) on *Definition of the term 'appropriate and acceptable destinations'* (i.e., we will engage in consultation with the State of export to ensure that the trade would promote *in situ* conservation).

ii) Whether this is determined on a case-by-case basis, or if CITES authorities have developed or used general guidelines?

In the United States, we evaluate facilities wishing to import live specimens on a case-by-case basis.

iii) What sort of guidance would, in your view, be most useful?

We would support the development of non-binding guidance to the Parties that included questions to assist in evaluating whether a facility meets the minimum requirements to care for live specimens of species subject to this annotation. We believe that such guidance should address veterinary care, housing, space, feeding, husbandry, social behavior, and other factors related to the care and well-being of the species. Parties should also consult species experts, as appropriate.

b) Descriptions of any instances where the provisions of the Resolution have been successfully implemented.

Although we are currently in the process of reviewing an application for import of specimens subject to this annotation, we have not yet completed an evaluation of a facility since the revisions to Resolution Conf. 11.20 (Rev. CoP17). See the enclosed finding for an example of our implementation of the provisions of the Resolution prior to its revision, for the import of southern white rhinoceroses (*Ceratotherium simum simum*) from South Africa.

c) Descriptions of any cases where the provisions of the Resolution have been found inadequate or abused.

In the absence of guidelines to Parties in making a determination of whether a destination is "appropriate and acceptable," it is likely that Parties would use different methodologies and criteria. However, we believe that our evaluation of U.S. facilities has followed the spirit of both the Convention and the relevant Resolutions.

d) Descriptions of problems encountered in implementing the Resolution prior to, or after, its revisions at CoP17.

We believe that the addition of the element requiring consultation between the Scientific Authorities of the State of import and the State of export concerning the promotion of *in-situ* conservation would benefit from further elaboration.

e) Assessments of any impact (positive or negative) that the amendments to the Resolution, as agreed at CoP17, may have had.

For the United States, it is too early to assess the impact of the amendments to the Resolution since we have not completed findings for any U.S. facilities since CoP17.

f) An explanation of how Article III paragraphs 3 (b) and 5 (b), of the Convention, are applied by the State of import. For example:

   i) What procedures and/or guidance are used to assess whether recipients of living specimens of CITES Appendix-I species are "suitably equipped to house and care for them"?

See our response under Question a. iii) above.

ii) Is this determined on a case-by-case basis, or have the CITES authorities developed or used general guidelines?

See our response under Question a. ii) above.

iii) Circumstances or examples where the implementation of the provisions in Article III paragraphs 3 (b) and 5 (b) were problematic, and information on how difficulties were overcome.

N/A

iii) The sort of guidance that, in your view, would be most useful.

See our response under Question a. iii) above.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Washington, D.C. 20240

APR 21 2016

MEMORANDUM

To: Chief, Division of Management Authority

From: Chief, Division of Scientific Authority

Re: Determination concerning White Oak Conservation Holdings, LLC, as an appropriate and acceptable destination for 1.10 southern white rhinos (*Ceratotherium simum simum*) from South Africa (PRT-87015B)

The purpose of this memorandum is to notify you that, based on an application dated January 26, 2016, we have evaluated the suitability of White Oak Conservation Holdings, LLC, aka/formerly White Oak Conservation Center, Yulee, Florida, to house and care for 1.10 southern white rhinos (*Ceratotherium simum simum*), which are to be imported from South Africa. The current import request is in addition to earlier requests in 2014 for 2.4 southern white rhinos (PRT-66547B; August 11, 2014) and 1.1 southern black rhinos (*Diceros bicornis minor*; PRT-36263B; September 24, 2014). Based on new information provided by Mr. Steve Shurter, Director, White Oak Conservation Center, as well as material that was compiled in 2014 for the previous applications and in consultation with Dr. Barbara Kohn (USDA APHIS; U.S. Department of Agriculture, Animal and Plant Health Inspection Service, Animal Care), we are satisfied that White Oak Conservation Holdings is an appropriate and acceptable destination, as provided in CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora) Resolution Conf. 11.20, for 1.10 additional southern white rhinos from South Africa, provided that the following Condition is listed on the U.S. permit:

> We request that the CITES export permit issued by South Africa for these specimens include a special condition that the horns may not be used for commercial purposes.

We also request that your Division include a statement on the U.S. permit, as follows:

> The U.S. Scientific Authority has found that the destination is appropriate and acceptable, as provided in CITES Resolution Conf. 11.20.

Basis for Finding

According to the information submitted with the current application, as well as the previously cited information:

Established in 1982, White Oak Conservation Holdings is an accredited member of the AZA (Association of Zoos and Aquariums) and participates with AZA rhinoceros conservation programs, including the White Rhino Species Survival Plan and the Greater One-horned Rhino Species Survival Plan. The intent of the current importation is to augment the captive breeding program for this species. Given the ongoing poaching of rhinos in the wild, the applicant also seeks to create an important reservoir in the event that these rhino population numbers decline significantly.

According to the applicant, White Oak Conservation Holdings has the largest group of southern white rhinos within the AZA (10.17 rhinos). Another facility has more rhinos, but that is a private collection and those rhinos are not managed within the AZA breeding program.

The 1.10 rhinos have been tagged with microchips in the torso, as well as in the horn. The numbers and specific locations of these microchips were provided in the application.

The 1.10 rhinos are currently housed at a location in South Africa. The male and two females were born at Zana African Safari. Six other females were born at Ezulo Game Reserve, while another two females were born at Malanseuns. Breeder's statements and ISIS Taxon Reports for these individuals were submitted along with the application.

The 1.10 rhinos will be under the direct care of the following individuals (résumés were submitted along with the application):

- Steve Shurter: CEO/Executive Director (rhino experience since 1979; keeper, program supervisor and conservation coordinator, refuge director, and center director)
- Scott Citino, DVM: Staff Veterinarian (veterinary and zoological medicine experience since 1983)
- Scotty Wade: Animal Collections Manager (25 years of experience managing exotic animal collections *in situ* and *ex situ*)
- Vickie Steele: Lead Keeper and Senior Specialist Rhinos (rhino and large mammal experience since 1984; care, exhibition administration and management)

Overall, White Oak Conservation Holdings cares for 37 rhinos comprising three species, including 3.1 black rhinos and 2.4 Indian rhinos (*Rhinoceros unicornis*). They have cared for southern white rhinos since 2001. During the past 5 years, there have been 7.6 successful southern white rhino births and 2 deaths.

Within a large complex that encompasses about 10,000 acres, the 1.10 rhinos will be housed in a new holding enclosure that measures 340 x 240 feet. Photos of the facility (buildings, holding areas, and 25-acre pastures) were submitted along with the application. The construction appears to be sturdy and secure. These pastures allow a great deal of movement by the rhinos and are largely hidden from view by people. Although primarily grasslands, these pastures also contain numerous patches of woodlands. While the mild climate of south Florida does not necessitate the use of

enclosed barns, one or two metal-roofed, steel-supported holding structures, including capture chutes, are located in each pasture. Each yard contains catch and isolation pens. All rhino pens are enclosed by a system of steel guard rails. Rhinos can be transferred as needed from one pen to another via gates and chutes.

According to the applicant, the 1.10 rhinos will be shipped in IATA-compliant crates. A veterinarian and an animal keeper will accompany the group of rhinos on the non-stop flight from Johannesburg to Miami. The shipper, Mike Bester, has previous experience with international shipments of rhinos from South Africa to the United States (Florida). During transport, food and water will be provided to the rhinos as necessary.

White Oak Conservation Holdings is licensed by the USDA as a Class C Exhibitor under the Animal Welfare Act (Certificate No. 58-C-1087). The facility was recently inspected by USDA Animal Care Inspectors on October 24, 2013, and September 9, 2014, and no non-compliant items were identified. In response to our notice about this proposed importation by the applicant, Dr. Kohn did not cite any animal care concerns (e-mail dated April 15, 2015).

For these reasons, we conclude that White Oak Conservation Holdings, LLC, is an appropriate and acceptable destination, as provided in CITES Resolution Conf. 11.20, for an additional 1.10 southern white rhinos to be imported from South Africa.

ASSOCIATION OF ZOOS & AQUARIUMS

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The Association of Zoos and Aquariums submits the following information pursuant to Notification No. 2018/033.

We have taken this information from the Accreditation Standards of the Association of Zoos and Aquariums and believe that these categories are applicable to the determination of what is an 'appropriate and acceptable destination'.

An appropriate and acceptable destination for animals collected from the wild, or otherwise removed from a free ranging population, should consider a destination in which the following category criteria are met: demonstrated ability to comply with all relevant **wildlife laws, facility** quality and security, **management** staff structure and training, and **animal welfare**

Wildlife Laws

- The institution or facility must comply with all relevant local, state/provincial, and federal wildlife laws and/or regulations and possess all appropriate permits and licenses for the species involved.[1]

- Animal transportation must be conducted in a manner that is safe, well planned and coordinated, and minimizes risk to the animal(s), employees, and general public. All applicable laws and/or regulations must be followed.[2]

- For wild-born animals, a demonstrable good faith effort must be made to acquire them in a sustainable manner and institutions or facilities dealing with commercial collectors and/or brokers must determine that the collectors or brokers are properly permitted to conduct legal collections of animals from the wild.[3]

Facilities

- Based on scientific knowledge to date, all animals must be housed in enclosures which safely and securely contain them, meeting their physical and psychological needs. This includes climate considerations and provision of protection from detrimental weather conditions, as well as access to shade and sunlight as appropriate for the species.[4]

- The institution should have holding facilities or procedures for the quarantine of newly arrived animals and isolation facilities or procedures for the treatment of sick/injured animals.[5]

- Consistent quality of care for all animals must be the acknowledged responsibility of the institution or facility, regardless of ownership or contractual arrangements.[6]

Management

- The institution or facility must maintain up-to-date animal and veterinary medical records that allow for animal identification, transfers, location, status, medical treatments and conditions.[7]

- All animals must have access to adequate medical care by a licensed veterinarian under a written program that emphasizes disease prevention. Deceased animals should be necropsied by a veterinarian to determine the cause of death and to strengthen the program of veterinary care.[8]

- Animal care staff must have knowledge of diets, husbandry and restraint procedures required for the animals under their care. Staff should also be trained to assess welfare and recognize abnormal behavior and clinical signs of illness.[9]

Animal Welfare

- All animals must be kept in biologically appropriate groupings which meet their social and welfare needs.[10]

- All animals should be provided the opportunity to choose among a variety of conditions within their environment.[11]

- Animal diets must be of a quality and quantity suitable for each animal's nutritional and psychological needs.[12]

Endnote references are Association of Zoos and Aquariums Accreditation Standards, 2018 Edition: [1]1.1.1; [2]1.5.11; [3]1.7.1, 1.7.2; [4]1.5.2, 1.5.7, 1.5.16; [5]2.7.1; [6]1.5.10; [7]1.4.n; [8]2.0.2, 2.0.3, 2.5.1; [9]2.4.2; [10]1.5.2.1; [11]1.5.2.2; [12]2.6.1, 2.6.2.

With superscripted endnote identification (e.g. [1]1.1.1), the relevant standards appear below in their original format.

1. ANIMAL WELFARE, CARE, & MANAGEMENT

1.1. Local, State and Federal Laws

[1]1.1.1. The institution must comply with all relevant local, state/provincial, and federal laws and/or regulations, including those specific to wildlife. It is understood that, in some cases, AZA accreditation standards are more stringent than existing laws and/or regulations. In these cases the AZA standard must be met.

1.4. Records

[7]1.4.0. The institution must show evidence of having a zoological records management system for managing animal records, veterinary records, and other relevant information.

[7]1.4.1. An animal inventory must be compiled at least once a year and include data regarding acquisition, transfer, euthanasia, release, and reintroduction.

[7]1.4.2. All species owned by the institution must be listed on the inventory, including those animals on loan to and from the institution.

[7]1.4.3. Animals must be identifiable, whenever practical, and have corresponding ID numbers. For animals maintained in colonies/groups or other animals not considered readily identifiable, the institution must provide a statement explaining how record keeping is maintained.

[7]1.4.4. Animal records and veterinary records, whether in electronic or paper form, must be duplicated and stored in a separate location. Animal records are defined as data, regardless of physical form or medium, providing information about individual animals, or samples or parts thereof, or groups of animals. Electronic systems are preferable.

> Explanation: The institution must prevent animal and veterinary records from being lost or destroyed in a catastrophe. A complete and up-to-date set of these records must be duplicated and stored in separate locations (e.g., not in the same building, if kept on site). Consideration should be given to physical distance and natural hazards when selecting the separate location.

[7]1.4.5. At least one set of the institution's historical animal and veterinary records must be stored and protected. Those records should include permits, titles, declaration forms, and other pertinent information.

[7]1.4.6. A paid staff member must be designated as being responsible for the institution's animal record-keeping system. That person must be charged with establishing and maintaining the institution's animal records, as well as with keeping all paid and unpaid animal care staff members apprised of relevant laws and regulations regarding the institution's animals.

[7]1.4.7. Animal records must be kept current.

> Explanation: For keepers and other paid line staff, event, identification, and husbandry information should be recorded in keeper reports or other written forms on the same day whenever possible, but no later than the day following. Acquisition, transfer, euthanasia, and reintroduction data should be entered into the institutional records database within two weeks. Records must be kept for at least five years. The institution should develop a records retention schedule and policy for its animal records in order to assure they are created, managed, and appropriately preserved or otherwise disposed of according to minimum legal, administrative, and historical values.

[7]1.4.8. The institution must have a record-keeping system that provides sufficient detail to enhance husbandry, welfare, breeding, conservation, and medical health advancements to move forward the critical knowledge of the species through permanent and retrievable documentation.

[7]1.4.9. At least one member of an institution's paid staff responsible for animal record-keeping should have the proper training.

Explanation: AZA's Institutional Records-Keeping course is one option to obtain appropriate training.

1.5. Animal Welfare, Care, and Well-Being

[4]1.5.2. All animals must be housed in enclosures which are safe for the animals and meet their physical and psychological needs.

[10]1.5.2.1. All animals must be kept in appropriate groupings which meet their social and welfare needs.

[11]1.5.2.2. All animals should be provided the opportunity to choose among a variety of conditions within their environment.

[6]1.5.10. Temporary, seasonal and traveling live animal exhibits, programs, or presentations (regardless of ownership or contractual arrangements) must be maintained at the same level of care as the institution's permanent resident animals, with foremost attention to animal welfare considerations, both onsite and at the location where the animals are permanently housed.

Explanation: Institutions must perform due diligence demonstrating that the contracted vendor has the expertise, resources, and facilities to provide for the animals' physical, psychological, and social needs. Contracted vendors should be monitored periodically to assure that proper care of the animals is being maintained.

[2]1.5.11. Animal transportation must be conducted in a manner that is safe, well-planned and coordinated, and minimizes risk to the animal(s), employees, and general public. All applicable laws and/or regulations must be adhered to.

Explanation: Planning and coordination for animal transport requires good communication among all involved parties, plans for a variety of emergencies and contingencies that may arise, and timely execution of the transport. Safe animal transport requires the use of appropriate conveyance and equipment that is in good working order. The equipment must provide for the adequate containment, life support, comfort, temperature control, food/water, and safety of the animal(s). Safe transport also requires the assignment of an adequate number of appropriately trained personnel (by institution or contractor) who are equipped and prepared to handle contingencies and/or emergencies that may occur in the course of transport. At no time should the animal(s) or people be subjected to unnecessary risk or danger.

[4]1.5.7. The animals must be protected or provided accommodation from weather or other conditions clearly known to be detrimental to their health or welfare.

Explanation: Animals must be provided with an environment in which they can acclimate sufficiently to remain healthy and support their well-being. For example, animals not normally exposed to cold weather in their natural habitats should be provided heated enclosures. Likewise, protection from excessive heat should be provided to animals normally living in cold climates. Protection from predation by wild or feral animals should also be considered as well as other non-environmental factors.

[4]1.5.16. When sunlight is likely to cause overheating of or discomfort to the animals, sufficient shade (in addition to shelter structures) must be provided by natural or

artificial means to allow all animals kept outdoors to protect themselves from direct sunlight.

1.7. Commercial Collectors

[3]1.7.1. Institutions that acquire aquatic animals from the wild must make a good faith effort to determine that collecting procedures are done in a sustainable manner.

[3]1.7.2. Institutions dealing with commercial collectors must determine that the collectors are properly permitted to conduct legal collections of animals (including aquatic animals) from the wild.

Explanation: The institution must be proactive in ensuring that any commercial collectors utilized are properly permitted to conduct legal collections of animals from the wild.

2. VETERINARY CARE

2.0. Veterinary Care Program

[8]2.0.2. The veterinary care program must emphasize disease prevention.

Explanation: Preventative medicine programs (vaccinations, TB testing, parasite exams, etc.) must be in force for all of the institution's animals and must be under the direction of a qualified veterinarian.

[8]2.0.3. Institutions should be aware of, and prepared for periodic disease outbreaks in wild or other domestic or exotic animal populations that might affect the institution's animals (ex – Avian Influenza, Eastern Equine Encephalitis Virus, etc.). Plans should be developed that outline steps to be taken to protect the institution's animals in these situations.

2.4. Preventative Medicine

[9]2.4.2. Paid and unpaid animal care staff should be trained to assess welfare and recognize abnormal behavior and clinical signs of illness and have knowledge of the diets, husbandry (including enrichment items and strategies), and restraint procedures required for the animals under their care. However, animal care staff (paid and unpaid) must not diagnose illnesses nor prescribe treatment.

2.5. Necropsy

[8]2.5.1. Deceased animals should be necropsied to determine the cause of death for tracking morbidity and mortality trends to strengthen the program of veterinary care and meet SSP-related requests.

Explanation: Necropsies provide information as to the cause of death as well as underlying pathology that may be related to nutritional status, other aspects of husbandry, or preventive medicine. Necropsy data, should be reviewed on a regular basis to identify any group health implications or necessary changes in animal management. Trained staff under the direction of a veterinarian may perform necropsies. All deceased animals (or a sampling from a mass mortality) should be evaluated by gross necropsy supported by histopathology under veterinary discretion. SSP necropsy protocols should be followed.

While a good faith effort should be made to perform a gross necropsy on all deceased animals (or an appropriate sampling from a mass mortality), there

are cases, such as advanced decomposition of fish or invertebrates, in which post mortem examination is neither possible nor practical. Resources, either internal or external for histopathology and other ancillary diagnostic testing should be available and utilized at the discretion of the veterinarian.

2.6. Nutrition

[12]2.6.1. Animal food preparation and storage must meet all applicable laws and/or regulations.

[12]2.6.2. The institution must follow a written nutrition program that meets the behavioral and nutritional needs of all species, individuals, and colonies/groups in the institution. Animal diets must be of a quality and quantity suitable for each animal's nutritional and psychological needs.

Explanation: Nutrition programs should be developed using the recommendations of appropriate AZA TAGs or SAGs, and the AZA Nutrition Advisory Group http://nagonline.net/guidelines-aza-institutions/feeding-guidelines/. Diet formulation criteria should include each animal's individual history and natural history, feeding ecology and behavioral needs. Meat processed on site must be processed following all USDA (or federal) standards.

2.7. Quarantine

[5]2.7.1. The institution must have holding facilities or procedures for the quarantine of newly arrived animals and isolation facilities or procedures for the treatment of sick/injured animals.

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CITES Secretariat
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26th April 2018

Dear CITES Secretariat,

Please find below a submission from the Born Free Foundation in response to Notification 2018/033, requesting information on the implementation of Resolution Conf. 11.20 (Rev. CoP17) on Definition of the term 'appropriate and acceptable destinations' and Article III, paragraphs 3 (b) and 5 (b), of the Convention.

This submission has also been copied to the Chair of the Standing Committee Working Group on Appropriate and Acceptable Destinations established at the 69th Standing Committee Meeting, for information.

We trust this submission is helpful. Please do not hesitate to contact me for further information.

Sincerely,

Mark Jones, veterinarian
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CITES Notification 2018/033 – Request for information on the implementation of Resolution Conf. 11.20 (Rev. CoP17) on Definition of the term 'appropriate and acceptable destinations' and Article III, paragraphs 3(b) and 5(b), of the Convention

Submission by the Born Free Foundation – April 2018

Background

Trade in live specimens of species listed in Appendix I of CITES is governed by the terms of Article III of the Convention, which requires (among other things) that an import permit should only be issued if "a Scientific Authority of the State of import is satisfied that the proposed recipient of a living specimen is suitably equipped to house and care for it" (para. 3b), or in the case of a living specimen introduced from the sea, if "a Management Authority of the State of introduction is satisfied that the proposed recipient of a living specimen is suitably equipped to house and care for it" (para. 5b).

In addition, Resolution Conf. 11.20 (Rev. CoP17) states that "where the term 'appropriate and acceptable destinations' appears in an annotation to the listing of a species in Appendix II of the Convention with reference to the export of or international trade in live animals, this term shall be defined to mean destinations where (a) the Scientific Authority of the State of import is satisfied that the proposed recipient of a living specimen is suitably equipped to house and care for it and (b) the Scientific Authorities of the State of import and the State of export are satisfied that the trade would promote in situ conservation".

However, there is currently no guidance to assist Parties in interpreting "suitably equipped", or how a determination of whether a destination should be deemed to be "suitably equipped" should be made. It is therefore unclear whether this is determined on a case-by-case basis by CITES authorities, or which criteria are commonly used to assess suitability of recipient facilities. As a result, it is highly likely that different Scientific Authorities may be applying very different criteria. In addition, there is no direct connection between the obligation on the importing Party to determine the suitability of a destination facility, and the obligation of the exporting party to be satisfied that living specimens "will be so prepared and shipped as to minimize the risk of injury, damage to health or cruel treatment" (Article III para. 2c), when both are clearly essential in order to ensure that the export will not be detrimental to the individual or the species concerned. In his welcoming remarks at the 28th Meeting of the CITES Animals Committee, the Secretary General of the Convention described the Convention as "the first, and possibly… the only, global legal instrument to directly address animal welfare", and asked whether there is "scope to offer some further guidance to Parties on certain animal welfare issues, such as conditions in which animals are handled prior to, or following, international trade transactions".

If recipients of live animals on the Convention's Appendices do not meet their physical, psychological, environmental and social needs the welfare of these animals may be compromised. As well as the negative impacts this may have at an individual level, compromised welfare may lead to increased morbidity and mortality, and reduced reproductive success, which may in turn result in increased demand for animals from wild populations with consequences for their conservation. It should be noted that the IUCN Species Survival Commission Guidelines on the Use of Ex situ Management for Species Conservation recommend that *ex situ* conservation programmes should

adhere to internationally accepted standards for welfare, and efforts should be made to reduce stress or suffering[1].

As detailed below, there is significant international trade in live animals from a wide range of Appendix I-listed species, and AppendixII populations of species subject to Resolution conf. 11.20 (Rev. CoP17). These animals will have vastly different housing and care requirements. There is therefore a clear case for the development of generic guidance on the interpretation of the term "suitably equipped", and for specific guidance with respect to the determination of species-specific needs.

This case was recognised at the 17th Conference of the Parties to CITES (Johannesburg, South Africa 2017), at which Parties adopted Decisions 17.178-17.180, addressed to the Secretariat, Animals Committee and Standing Committee respectively. Decision 17.178 directs the Secretariat, *inter alia*, to report to the 29th meeting of the Animals Committee and the 69th meeting of the Standing Committee on the history and implementation of Article III, paragraphs 3(b) and 5(b), regarding findings that recipients of living specimens of CITES Appendix-I species are suitably equipped to house and care for them; Decisions 17.179 and 17.180 respectively direct the Animals and Standing Committees, at their 29th and 69th meetings, to consider the report of the Secretariat and make recommendations and prepare guidance, as appropriate, for consideration of the Standing Committee and the 18th meeting of the Conference of the Parties.

Due to a delay in the implementation of Decision 17.178, the report from the Secretariat is now anticipated for consideration at the 30th Animals Committee meeting. A working group was established at the 69th Standing Committee meeting to consider the report and any outcomes from the Animals Committee, and to report and make recommendations to the 70th Standing Committee meeting.

This submission on behalf of the Born Free Foundation is in response to the Secretariat's notification 2018/033 in relation to its report under Decision 17.178.

Scale of trade

More than 1,200 species of animals and plants are currently listed on Appendix I of CITES, of which over 500 are animal species representing all major taxa. The housing and care requirements will inevitably vary greatly from species to species. Many will have very exacting requirements if housing, nutrition, health, behavioural and social well-being are to be adequately provided for.

An analysis of the WCMC-CITES Trade Database was carried out in May 2017, covering the period 2007-2016 inclusive, and based on a search for the trade term 'live'. Data on plants was removed for the purpose of the analysis.

The analysis revealed the following:

[1] IUCN/SSC (2014). Guidelines on the Use of Ex Situ Management for Species Conservation. Version 2.0. Gland, Switzerland: IUCN Species Survival Commission

CITES APPENDIX I LISTED LIVE ANIMALS IN TRADE

- Annex A lists the number of live Appendix I-listed birds, mammals and reptiles declared by importing Parties for the period 2007-2016, broken down by species
- 122 CITES Parties reported imports of a total of 6,533 live Appendix I listed animals, belonging to 133 different species, for the period 2007-2016.
- 133 CITES Parties reported exports of 5,865 live Appendix I listed animals over the same period.
- The highest number of imported live animals belonging to Appendix I-listed species by taxon were birds, (4,665), followed by mammals (758), reptiles (660) and fish (450)
- The majority of reported imports (65%) of live Appendix I-listed animals were declared to have been wild-sourced (source code 'W'), with the remainder 'unknown' (source code 'U') or unclassified
- Imports of live specimens of Appendix 1-listed animals were associated with the purpose codes detailed in Table 1 below:

Table 1: Appendix I live imports by purpose 2007-2016	
	Imports
No purpose code recorded	1731 (26.5%)
N (Reintroduction/introduction)	1339 (20.5%)
T (Commercial)	889 (13.6%)
B (Breeding in captivity)	772 (11.8%)
P (Personal)	658 (10.1%)
S (Scientific)	532 (8.1%)
Z (zoo)	418 (6.4%)
Q (Circus/travelling exhibition)	139 (2.1%)
E (Educational)	35 (0.5%)
L (Law enforcement/judicial/forensic)	10 (0.2%)
H (Hunting trophy)	8 (0.1%)
M (medical)	2 (0.0%)

- In addition, between 2010-2014 a total of 737 live southern white rhinoceros and 18 live African elephants were reported to have been exported from populations listed in Appendix II and subject to an annotation requiring that destinations be deemed 'appropriate and acceptable'.

Discussion

The trade data reveals a large number of live animals in trade belonging to a large number and variety of species, for which Scientific Authorities are required to determine the suitability of destinations to house and care for them before any import permits are issued.

A total of 122 Parties declared imports of live animals of Appendix I-listed species over the decade investigated, indicating that the requirement for Scientific Authorities to determine the suitability of destinations is one that applies to a majority of CITES Parties. The trade database does not seek or provide an opportunity for Parties to record whether and how this requirement has been satisfied.

The responses of different species to captive environments will clearly vary considerably, with significant implications for animal welfare[2]. Even closely related species may have significantly differing physical, physiological, nutritional and social requirements, necessitating any credible assessment to be specifically tailored to the needs of the species in question[3,4]. The data also reveals a significant number (889) of Appendix I live animals declared to have been imported for 'commercial' purposes (Purpose code 'T'). Since primarily commercial trade in Appendix I-listed species is generally prohibited, this finding is of significant concern, and may either represent a misunderstanding of how transactions should be recorded, or, more worryingly, a breach of CITES regulations.

Elephants

According to the database, African elephants were the most commonly and Asian elephants the third most commonly imported live Appendix I mammal species. The welfare of elephants in captivity has been highlighted as a particular challenge[5,6], with a wide range of captivity-related problems reported including unnatural behaviour, heightened aggression, physical problems, increased susceptibility to diseases such as tuberculosis and Elephant Endotheliotropic Herpesviruses, significantly reduced longevity, low breeding rates and high infant mortality[7,8,9]. It is notable that the IUCN SSC African Elephant Specialist Group issued a statement opposing the removal of African elephants from the wild for any captive use[10], and a comprehensive report issued submitted to the 69th Standing Committee meeting as information document 36[11] concluded that there is no captive facility suitably equipped to house and care for live, wild-caught African elephants forcefully removed from their family groups.

Recommendations

CITES Scientific Authorities cannot be expected to possess the detailed knowledge, experience or resources required to assess whether destination facilities are "suitably equipped to house and care for" the potential range of live animals in trade to which the requirement relates.

In order to help ensure the requirement for CITES Scientific Authorities to determine that destinations for live specimens of Appendix I-listed species are 'suitably equipped to house and care for' them, Born Free recommends the development of both generic and species-specific guidance, based on a thorough investigation of the biological, behavioural and social requirements of the

[2] http://www.sciencedirect.com/science/article/pii/S0168159106001997
[3] https://www.ncbi.nlm.nih.gov/pubmed/27862531
[4] https://atrium.lib.uoguelph.ca/xmlui/bitstream/handle/10214/9247/McDonald%20Kinkaid_Heather_201509_PhD.pdf?sequence=1
[5] http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0158124
[6] https://www.sciencedaily.com/releases/2013/09/130910205244.htm
[7] Live hard, die young, how elephants suffer in zoos. RSPCA 2002 http://www.rspca.org.uk/ImageLocator/LocateAsset?asset=document&assetId=1232714741738&mode=prd
[8] Clubb et al. 2009. Fecundity and population viability in female zoo elephants: problems and possible solutions. Animal Welfare, 18:237-247
[9] Clubb et al. 2008. Compromised survivorship in zoo elephants. Science 322: 1649
[10] https://www.iucn.org/ssc-groups/mammals/african-elephant-specialist-group/afesg-statements/removal-african-elephants-captive-use
[11] https://cites.org/sites/default/files/eng/com/sc/69/inf/E-SC69-Inf-36.pdf

species in question, the relevant scientific literature and current practice, and with reference to existing standards and expertise relating to the appropriate care of wild animals.

The guidance could be presented in the form of an annex to a Resolution, with the operative section of the Resolution urging Parties to consider and follow the guidance, and to provide in writing the basis for any decision on whether a destination for live animals can be designated as 'suitably equipped', including details of third party consultations, to accompany the import permit, export permit (for living specimens of species on Appendix II restricted by annotation to transfer to "appropriate and acceptable destinations") or certificate of introduction from the sea.

Parties should be urged to adopt a precautionary approach to the designation of proposed recipients as suitably equipped to house and care for living specimens included in Appendix I of the Convention (or for living specimens of species on Appendix II restricted by annotation to transfer to "appropriate and acceptable destinations"), and only designate proposed recipients as 'suitably equipped' on the basis of a thorough consideration of the biological, behavioural and social requirements of the species concerned, a comprehensive site inspection, and species-specific advice from suitably qualified independent experts.

Born Free has extensive experience in the challenges associated with the captive management of wild animals and the impacts that captivity has on the welfare of those animals, and stands ready to assist CITES Parties in the development of associated guidance. A suggested framework for generic guidance has been included in Annex B.

Annex A: Live Appendix I-listed birds, mammals and reptiles declared by importing Parties for the period 2007-2016, by species

Birds		Mammals		Reptiles	
MacQueen's bustard	2146	African elephant	116	Radiated tortoise	410
scarlet macaw	881	Southern white rhinoceros	104	Meadow viper	75
Peregrine falcon	382	Asian elephant	73	Green sea turtle	69
houbara bustard	301	Tiger	71	Ploughshare tortoise	33
Gyrfalcon	231	Black rhinoceros	67	Spider Tortoise	28
White-tailed eagle	167	Arabian oryx	50	Nile crocodile	8
Falcon	150	Cheetah	35	black pond turtle	8
yellow-headed amazon	129	Leopard	32	rhinoceros iguana	5
Yellow-naped amazon	86	Chimpanzee	30	Kleinmann's tortoise	4
Ostrich	68	Przewalski's horse	29	Kemp's ridley sea turtle	3
hyacinth macaw	29	Addax	20	Orinoco crocodile	2
Salmon-crested Cockatoo	13	Jaguar	15	Spectacled cayman	2
yellow-crested cockatoo	12	Asian black bear	12	Cuban crocodile	2
Palm cockatoo	8	Grevy's zebra	12	Cuban rock iguana	2
Tanimbar corella	7	ring-tailed lemur	9	Dumeril's boa	2
Saint Lucia amazon	7	Siberian tiger	9	loggerhead sea turtle	1
Andean condor	6	West Indian manatee	6	dwarf crocodile	1
Military macaw	6	bald uakari	6	Jamaican boa	1
White-winged cotinga	6	gray mouse lemur	6	saltwater crocodile	1
Barbary falcon	4	Chinese white dolphin	5	Siamese crocodile	1
eastern imperial eagle	3	Silvery gibbon	5	false gharial	1
Great hornbill	3	Sun bear	4		
Hybrid macaw	3	Sunda slow loris	4		
Indigo macaw	3	Pygmy loris	3		
Parrot	2	African manatee	3		
Red-fronted macaw	2	Asian golden cat	3		
Spix's macaw	2	Ocelot	3		
red-crowned crane	2	Lar gibbon	2		
Cuban amazon	1	Agile gibbon	2		
Harpy eagle	1	brown mouse lemur	2		
Blue-throated macaw	1	Geoffroy's cat	2		
Jabiru stork	1	Jaguarundi	2		
Lilac-crowned Parrot	1	Jungle cat	2		
Siberial crane	1	Brown Bear	1		
		pileated gibbon	1		
		Bear	1		
		black lemur	1		
		Giant river otter	1		
		greater bamboo lemur	1		

		Sloth bear	1		
		Dolphin	1		
		mongoose lemur	1		
		northern white-cheeked gibbon	1		

Annex B: Suggestions for generic CITES guidelines for the determination of 'suitably equipped to house and care for'

Statement of need

When live animals in Appendix I, or those in Appendix II subject to annotations requiring that destinations be deemed 'appropriate and acceptable', are traded under CITES permits, the Scientific Authority of the State of Import, or, in the case of introduction from the sea, the Management Authority of the State of Introduction, is required to be 'satisfied that the proposed recipient of a living specimen is suitably equipped to house and care for it'.

Given the increasing number and variety of animal species listed on the CITES Appendices, and the wide range of recipient facilities for which they may be destined, it is highly likely that Scientific and Management Authorities do not possess the necessary expertise or internal resources in order to be able to make complex judgements about the suitability of recipients of live specimens. Guidance is therefore essential in order to help Scientific Authorities to identify the necessary expertise, and to make informed designations.

Guidance

Note: for the purposes of this guidance, 'live/living specimen(s)' shall be taken to mean live animal(s), their eggs or offspring, belonging to species listed in Appendix I of CITES, or to those in Appendix II subject to annotations requiring that destinations be deemed 'appropriate and acceptable'.

For the purposes of this guidance, 'Authority' shall be taken to mean the Scientific Authority of a State of import or (in the case of an introduction from the sea) the Management Authority of the State of introduction.

1. Proposed recipient:
    a. An Authority should establish, as far as is possible, that any proposed recipient of a living specimen is not in contravention of any relevant national, regional or international legislation or regulations, including (but not limited to) those concerning conservation, animal protection, animal welfare, animal health, or trade in wildlife, or that if it was in contravention of such regulations in the past any defects involved have been corrected.
    b. In order for a determination of 'suitably equipped' to be applied to a proposed recipient of a live specimen, an Authority should establish that the recipient has the necessary facilities to house the live specimen(s) so as to satisfy the health and welfare needs of the animals concerned, or, if such facilities are under construction, they will be completed in time to house the live specimens.
    c. An Authority should seek evidence that the recipient has, or will have at the time of import, appropriate animal management policies and systems, and financial resources in place to ensure it is capable of providing appropriate care for the remainder of the animals' natural lifespan (or in the case of animals that will be moved on or released, for the expected period of captivity). This should include:

i. Evidence that the recipient has sufficient staff with experience in managing live animals and any offspring of the species concerned (or at least of species with similar requirements), and has an established record of maintaining such animals in good physical and mental health for their natural expected lifespan;
ii. Evidence that the facility operates a recognised animal records system (eg SPECIES360) to mitigate over-breeding, and to enable the tracing of individual animals if they are subsequently moved on from the initial importing facility;
iii. Evidence that the facility has access to round-the-clock high-quality veterinary care with expertise appropriate to the species concerned;
iv. Evidence that the facility will provide a sufficiently large and diverse space, with appropriate substrates for a normal range of activities of the species, gender and age group concerned at all times; will provide clean and hygienic conditions with frequent and documented cleaning schedules; will maintain animals in appropriate social groupings with compatible individuals so as to encourage normal social behaviour while minimising aggression or competition; will provide suitable environmental conditions for the species; will provide sufficient refuges to enable animals to escape from aversive stimuli; will keep handling to a minimum and restrict animal handling to competent staff; and will engage in a programme of species-appropriate environmental enrichment;
v. Evidence of a euthanasia policy that only permits euthanasia when it is in the interest of the welfare of the animal concerned and where alternative solutions have been exhausted, and is only carried out by a suitably qualified veterinarian using humane and internationally accepted methods appropriate to the species;
vi. Evidence of emergency planning to protect animals in case of fire/breakdown of essential life-support systems (e.g. filtration, heating, aeration);
vii. Evidence that the facility does not intend to force or train the animals to engage in unnatural behaviours, for example through inappropriate public performances, and that any training will be based on principles of positive reinforcement and not involve aversive methods including physical punishment;
viii. Evidence that the facility has appropriate security systems to prevent animal escape and protect the health and safety of both animals and operatives;
ix. Evidence of any particular concerns about the health, age, gender or other requirements of the specific specimen(s) being traded that should be taken into consideration when assessing the evidence gathered under sub-paragraphs (i)-(iv) above.

2. Independent expertise:
In its deliberations relating to the requirements outlined in paragraph 1 above, an Authority should seek credible, independent expert advice on the health and welfare needs of the

species concerned and the ability of the proposed facilities to meet these needs, preferably from a number of experts, and act on and document that advice.

3. Existing standards:
    a. An Authority may wish to consult existing standards for the welfare of wild animals, relating to the keeping of various species, including (but not limited to):
        i. Zoo standards (eg European Association of Zoos and Aquaria);
        ii. Sanctuary standards (eg Global Federation of Animal Sanctuaries)

    As such standards vary and may not reflect current knowledge, they should be considered as baseline information rather than definitive standards with regard to live specimens in trade. Melfi et al. (2007) noted: "It is a concern that H&H [housing and husbandry] practices, which have not been monitored systematically for their impact on zoo animal welfare, are perpetuated within the zoo community. But, because they have been implemented for some years and adopted by several zoos, it becomes generally accepted that they are ''tried and tested'' methods and become part of zoo tradition."
    b. Extreme caution should be exercised when extrapolating welfare requirements or standards from one species to another, since animals' requirements vary considerably, even between quite closely related species. There may also be differences in the requirements of individuals of the same species depending on gender, age or life stage. Facilities receiving young or larval specimens should be able to respond to any changes in these requirements as the specimens grow and age.

4. An authority should seek evidence and reassurance from the CITES authorities of the exporting Party that live specimens will be so prepared and shipped as to minimize the risk of injury, damage to health or cruel treatment, prior to designating the proposed recipient facility as 'suitably equipped' and prior to issuing an import permit.

5. An authority should seek assurance that the animals will be maintained in the facility for the remainder of their natural lives, or if they are to be moved to an alternative facility that it will, as a minimum, meet the same standards.

6. In order to reduce the likelihood that the import of a living specimen may pose risks to human health or safety or contribute to the spread of zoonoses or other diseases to humans or to other animals, an Authority may wish to confirm that the recipient has in place isolation and quarantine facilities and safety measures appropriate to minimizing such risks.

7. Reference materials

    The following reference materials may prove useful to Authorities in implementing this guidance:

    Animal Welfare Standards developed by the Organisation International Epizoologie (OIE) http://www.oie.int/animal-welfare/animal-welfare-key-themes/.

CITES/OIE cooperation agreement
https://cites.org/sites/default/files/eng/disc/sec/Cooperation_Agreement_CITES_and_OIE_dec_15.pdf

European Union Zoos Directive Good Practices Document
http://ec.europa.eu/environment/nature/pdf/EU_Zoos_Directive_Good_Practices.pdf

IUCN/SSC (2013). Guidelines for Reintroductions and Other Conservation Translocations. Version 1.0. Gland, Switzerland: IUCN Species Survival Commission.

IUCN/SSC (2014). Guidelines on the Use of Ex Situ Management for Species Conservation. Version 2.0. Gland, Switzerland: IUCN Species Survival Commission.

Mellor, D.J. & Reid, C.S.W. 1994. Concepts of animal well-being and predicting the impact of procedures on experimental animals. In: Baker, R.M., Jenkins, & G., Mellor, D.J. , editors. Improving the Well-Being of Animals in the Research Environment. Australian and New Zealand Council for the Care of Animals in Research and Teaching. p. 3-18.

Mellor, D.J. & Beausoleil, N.J. 2015. Extending the 'Five Domains' model for animal welfare assessment to incorporate positive welfare states. Animal Welfare 24 (3), 241-253.

Wild welfare. http://wildwelfare.org/

RESPONSE TO NOTIFICATION 2018/033 – APPROPRIATE AND ACCEPTABLE DESTINATIONS

Question a) iii) – What sort of guidance would, in your view, be most useful?

Guidance should define aspects of facilities/establishments that are and are not considered appropriate. For example:

a. Facility should be participating in an international or regional studbook program for the animal being imported, that manages the genetic diversity of the captive population in the region and is building towards a self-sustaining captive population.

b. Facility must be an approved organisation that is a member of the World Zoos and Aquarium Association (WAZA), or equivalent regional association such as the European Association of Zoos and Aquarium ('EAZA'). Regional associations that do not have an accreditation process, such as South East Asian Zoo Association (SEAZA) should not be considered equivalent to WAZA.

c. Facility does not utilise animals in entertainment shows akin to circus performances or where members of the public can "ride" the animals.

d. Include clauses to ensure animal welfare is a predominant consideration for all animals within their collections, not just the high profile animals, such as those in the WAZA Code of Ethics and Animal Welfare:

    a. Ensure that all animals in their care are treated with the utmost care and their welfare should be paramount all times.

    b. At all times, any legislated codes for animal welfare should be regarded as minimum standards.

    c. Appropriate animal husbandry practices must be in place and sound veterinary care available. When an animal has no reasonable quality of life, it should be euthanized quickly and without suffering.

    d. Where Appendix I animals are used in presentations within the facility, these presentations must:-

        i. deliver a sound conservation message, or be of other educational value,

        ii. focus on natural behaviour,

        iii. not demean or trivialise the animal in any way.

    e. When not being used for presentations, the "off-limit" areas must allow the animal sufficient space to express natural behaviour and should contain adequate items for behavioural enrichment

    f. All exhibits and/or enclosures must be of such size and volume as to allow the animal to express its natural behaviours. Enclosures must contain sufficient material to allow behavioural enrichment and allow the animal to express natural behaviours. The animals should have areas to which they may retreat and separate facilities should be available to allow separation of animals where necessary, e.g., cubbing dens.

    g. At all times animals should be protected from conditions detrimental to their well-being and the appropriate husbandry standards adhered to.

e. Facility can demonstrate active participation in conservation projects that benefit animals within their collection, and/or their habitats

f. The facility is not a private residence.

Question c) Descriptions of any cases where the provisions of the Resolution have been found inadequate or abused.

We have documented a number of facilities within Asia in particular, that have received Appendix I animals under Z-Z transfer provisions of CITES, where neither facility is in fact a legitimate zoo.

In 2015, Vườn Xoài - Mango Garden Resort, an amusement park in Vietnam received 8 tigers from South Africa – where the information within the Customs data states ""for purpose exchange between the zoo, not for the purpose of commerce". It is very easy to determine through online investigation into the receiving establishment that they are not a zoo, but rather an amusement park – where the sole purpose of importing the Appendix I listed species is for commercial purposes. This company does not provide any conservation benefit for the species, and would not be considered suitable under any accrediting zoo and aquarium association.

The following video shows the establishment and the use of animals in entertainment displays - http://www.vuonxoai.vn/en/diem-hen-du-lich-kdl-sinh-thai-vuon-xoai.html. For further detail on this establishment and the list of CITES listed species they have, please refer to Case Study 1 attached.

Cheetahs traded to private collectors

Global Eye has done extensive work investigating the issue surrounding laundering of wild caught cheetahs into the legal captive breeding system in South Africa. As such, we conducted an analysis of the CITES Trade Data against the Cheetah International Studbook managed by Cheetah conservation fund. We found widespread transactions occurring within the Cheetah studbook that were not reflected in the CITES Trade Database, as well as many receiving facilities or private collectors that would be unlikely to meet the requirements of CITES to be an appropriate and acceptable destination that can suitably house and care for the animal. Table 1 shows the full analysis conducted, however, the main findings of this analysis were:

- 271 cheetahs are recorded in CITES Trade Database as being exported from 2011-2015 (taking into consideration both importer reported and exporter reported transactions)[1]
- Only 55 (20.3%) correspond to cheetahs traded from facilities participating in the International Studbook.
- Therefore, **almost 80% of transactions in CITES Trade Database do not appear to be contributing to the conservation of cheetahs** through coordinated effort to manage genetic stock of the captive population.
- **Only 24 out of these 55 cheetah transfers represent exact matches for the data presented in the International Studbook.** The most common difference was an incorrect source code utilised, where the animal being exported is claimed to be C, where in fact the studbook records indicate the animal's parents were wild born, or have UNK parents which indicates the animal likely originated from the wild prior to being either surrendered or seized..
- There are 21 animals traded under the purpose code T for commercial or P personal use. Of these 21 animals traded, only 2 could be matched to a relatively high degree of certainty in the International Studbook. All others do not appear to reflect any transactions in the studbook. This is an indication that they are unlikely to be going to establishments that could be considered appropriate or acceptable.

[1] Where importer reported and exporter reported numbers and similar codes matched, transactions were considered as one, however, where only the importer or exporter reported – these were counted as separate transactions. Where only importer reported transactions occurred, it is possible the transaction never occurred, as import permits are required to be issued prior to export permits and some countries report permits issued instead of actual permits fulfilled. It is likely that most exporter reported only transactions did occur, and that the importer has not provided details in their annual report. It is possible however that these also did not occur – it is impossible to know if they are unable to be matched with a transfer in the international studbook.

Table 1 - CITES Trade Database vs International Studbook Analysis for Cheetahs

Exports from South Africa to the World		2011								2012						2013						2014				2015		Total
		B	E	M	N	P	T	Z	Tot	B	E	P	T	Z	Tot	B	E	P	T	Z	Tot	B	T	Z	Tot	Z	Tot	
Captive Bred (C)		23	6	1		4	3	27	64	21		2	2	31	56	4	1	2	1	35	43	3	3	33	39			202
	AE	5		1		4		2	12	2		2			4			2			2							18
	AR													3	3													3
	AU																			2	2			2	2			4
	BE						2	2	4													1			1			5
	CA																			9	9			2	2			11
	CN											10		6	16					6	6			6	6			28
	CZ						1	2	3			3		2	2	7									2		2		12
	EG													2	2			1		2	3							5
	ES													2	2					2	2							4
	FR							2																				2

LEGEND - - Not in accordance with CITES regulations or principles for trading in Appendix I species.
- Records in CITES database match the International Studbook
- CITES database transaction not reflected in International Studbook
- CITES Database numbers match, but incorrect source code utilised.
- CITES Database numbers do not match, either more or less cheetahs have been transferred between countries
Text – International Studbook transfers not recorded in CITES Trade database – Record added to spreadsheet

Notes

2013 - **M8780& F8786** were transferred from CHTAH EXP to UNKNOWN (i.e. PRIVATE) on 30 September 2013, while **F8795** was transferred on 25 August 2013. RHINOLION also transferred **F8854** to UNK on 16 Sept 2013. Two of these cheetahs are likely to be represented by the 2 listed for UAE in 2013 under P here.

2012 - **M8396 & M8397** exported from RHINOLION to ALBUSTAN (UAE) on 6 June 2012. This Cheetah is claimed to be captive bred in 2011, however, the parents are UNK.

- **M8707 & M8708 exported** from LION PARK to PRIVATE (country unknown) but these are the only PRIVATE in the CITES database for 2012. These two cheetahs are claimed to be captive bred, however, they are listed with UNK parents with an approximate birth date of 2006 which is indicative of cubs taken from the wild, either by BESTER or they ended up at that facility via seizures or surrender. Either way, these cubs do not appear to have any proof that they were captive bred. BESTER is NOT a registered breeder of Cheetahs in South Africa. He is meant to only be a wildlife broker and transporter.

2011 - No record of transfers to UAE. The 5 exported for Breeding Purposes and 1 for Medical purposes were reported by both the importer and exporter indicating that these transactions are likely to have occurred. Another 5 were reportedly exported by South Africa for breeding or zoo purposes but these were not reported by AE.

2012 - No record of transfer. Only reported by the importer in CITES database, so export may never have occurred.

2014 - **M8855 & M8856** exported from STELLENBO to Canberra National Zoo, however, they originated from PRET DW and should be using the D source code - not C.

2013 - **F8496 & F8499** exported from PRET DW to YARRALUML (National Zoo and Aquarium). Should be under source code D.

2014 - No record of transfer in SB. This transaction was reported by both importer and exporter for commercial purposes which is illegal.

2011 - No record of transfer to Belgium. These transactions were reported by both the importer and exporter, and are therefore considered to have occurred. South Africa reported that all 4 were exported for zoological purposes – however Belgium reported that 2 were to be used for commercial purposes and should therefore not have been authorised for export by South Africa. Either way, no record is in the studbook to indicate it was a legitimate zoo receiving these animals.

2014 - No record of transfer. This was only reported by south Africa, not the importer, which has to do an import permit before an export can be issued.

2013 - **F8390, F8452, M8438, M8440, M8441, M8445, M8450** exported from HOEDSPRUIT on 3 April 2013 to HEMMINGFD Safari Park in Quebec, Canada. Incorrect source code used - should be a D since this specimen originated from CITES Approved Captive Breeding Centre.

- **F8492 & M8525** exported from PRET DW on 28 March 2013 to SEAGRAVE Canada

2014 - **M8776, F8777 & M8809** exported from CHEETAH EXPERIENCE to SHANGHAI zoo in China on 29 September 2014. These cheetahs have UNK parents listed in the international studbook, and they came from unknown source indicating they are unlikely to be Captive Bred as claimed. They are likely to have come from the wild via direct capture, seizure or forfeiture/surrender. The importer reported 6 imported while ZA reported 16 were exported. This is a large discrepancy, and only 3 are recorded in the studbook.

2013 - No record of transfers. ZA reported 16 were exported, while China only reports 6 were imported. At least 6 have been exported for zoological exchange – however this is not reflected in the studbook.

2012 - No record of transfers. ZA reports 10 exported for breeding purposes and 6 exported for zoological purposes, however, China reports 10 were imported for zoological purposes. At least 10 cheetahs are considered likely to have been exported from ZA to CN.

2014 - No record of transfer in SB. This transaction was reported by both the importer and exporter, therefore considered to have occurred – and it is illegal IAW CITES regulations.

2012 – No record of transfer in SB. This was a conservative estimate based on source and purpose codes used. ZA reported export of 7 cheetahs in total, 3 for breeding, 2 for commercial and 2 for zoological purposes. CZ reported 5 imported for commercial purposes. Considered likely 5 were definitely exported, under different purpose codes because T is illegal. At least 2 are confirmed to have been sent for commercial purposes.

2011 - No record of transfer. The 2 exported for zoological purposes were reported by both importer and exporter and are therefore confirmed to have occurred. The 1 for commercial purposes was only reported by the exporter.

2013 - No record of transfer in SB – The commercial purpose transaction was Importer reported only, which may not have occurred. However, zoological purposes transaction was exporter reported only

2012 – No record of transfer in SB – Exporter reported only

2013 - No record of transfer in SB – Exporter reported only

2012 – No record of transfer in SB – Exporter reported only

2011 - **M7008 & F7010** exported from PARYS to SIGEAN on 7 October 2011. Father was born in captivity, but mother is born to UNK parents with an approximate birth date of 2002 suggesting she was from the wild and seized or surrendered. F code is most appropriate.

Exports from South Africa to the World	2011								2012						2013						2014				2015		Total	LEGEND - Not in accordance with CITES regulations or principles for trading in Appendix I species. - Records in CITES database match the International Studbook - CITES database transaction not reflected in International Studbook - CITES Database numbers match, but incorrect source code utilised. - CITES Database numbers do not match, either more or less cheetahs have been transferred between countries Text – International Studbook transfers not recorded in CITES Trade database – Record added to spreadsheet
	B	E	M	N	P	T	Z	Tot	B	E	P	T	Z	Tot	B	E	P	T	Z	Tot	B	T	Z	Tot	Z	Tot		
GA	3							3	2				3	5					3	3	3		1	4			15	2014/2013 - No record of transfer in SB – these transactions were reported by both importer and exporter, however, Gabon reported that they were sourced from Ranching – which is not possible. South Africa reported C. 2011 - No records of transfer – Exporter reported only
GB							6	6					2	2													8	2012 - **M8640 and M8641** - transferred to LONGLEAT on12 and 15 Jan 2012 from UNKNOWN location. Listed as unknown birth type in SB - with guestimated birth dates. Unlikely they were captive born. 2011 - No record of transfer in SB – Importer reported only – May not have occurred
ID							4	4																			4	2011 - No record of transfer in SB – Exporter reported only
IN	4							4																			4	2011 - No record of transfer in SB – Exporter reported only
JP																							3	3			3	2014 - Incorrect source code used - originated from PRET DW - should be D source codes - correct details added below in D.
KR																							4	4			4	2014 - **M9257 & F9258** Transferred from S.AFRICA to SEOUL on 26 November 2014 (2 years old). These cheetahs are listed as UNK parent and birth type therefore they should not be exported as Captive Bred - as it is likely they came from the wild. They also do not appear to have been exported from an actual breeding facility either, so do not appear to have been surrendered. Source of cheetahs is of questionable legality. There is no records of the other two cheetahs transferred in the International Studbook, however, this transaction was both importer and exporter reported – so highly likely to have occurred.
MU							1	1															2	2			3	2014 - No record of transfer in SB – Importer and Exporter reported therefore this transaction occurred 2011 - No record of transfer – Exporter reported only
MX							4	4					4	4													8	2012 - No record of transfer – Exporter reported only 2011 - No record of transfer – Importer and Exporter reported therefore this transaction occurred
MY													4	4					4	4							8	2013 - No record of transfer – Exporter reported only 2012 - No record of transfer – Exporter reported only
NZ													2	2					2								2	2013 - **F7027 & F8008** exported from OUDTSHORN on 5 April 2013 to ORANA Wildlife Park in New Zealand
RU	2							2	2					2	4					4							8	2012 - No record of transfer - however the permits may have been issued in 2012, but the transport didn't occur until 2013. 2013 - No record of transfer – Importer reported 6 cheetahs were imported, while exporter reported 4. The conservative value of 4 confirmed exports has been utilised. 2012 - No record of transfer – Importer reported 2 cheetahs were imported, while exporter reported 4. Over 2012 and 2013 the total number of 8 cheetahs were reported by both importer and exporter. Likely that there was a cross over in permits. However, the conservative value of 2 was utilised. 2011 - No record of transfer – Importer reported 13 cheetahs were imported, while exporter reported 2. The conservative value of 2 confirmed exports has been utilised.
SG																							4	4			4	2014 - No record of transfer in SB – Exporter and importer reported therefore confirmed export transactions
SH																							6	6			6	2014 - No record of transfer in SB – Exporter and importer reported therefore confirmed export transactions
TN							2	2																			2	2011 - No record of transfer – Exporter reported only
TZ													1	1					1	1							2	2013 - No record of transfer – Exporter reported only 2012 - No record of transfer – Importer reported 3 cheetahs while exporter reported 1, confirmed 1 has been transferred.
US	7	6					4	17							1				6	7			3	3			27	2014 - F8858, M8866 exported from STELLENBO (originated from PRET DW) - should be source code D - not C. Details added below to D. 2013 - No corresponding records in SB; there were 2 exported from HOEDSPRUIT (recorded below) 2011 - There were 7 cheetahs exported from PRET DW which this 7 may correspond too, but the incorrect source code was utilised. Source code D should be used for exports from this facility. Details listed below. - No record of the other 10 cheetahs transferred. Importer reported 4 cheetahs for zoological purposes, while exporter reported 6 for educational purposes. It is possible that these transactions coincide with the importer and exporter using different purpose codes, however, this is not able to be confirmed.
ZM	2							2	2					2													4	2012 – No record of transfer. Exporter reported only. 2011 - No record of transfer. Importer and Exporter reported, therefore transaction confirmed.
CITES Approved Captive Bred (D)	**1**						**4**	**5**					**14**	**14**					**4**	**4**							**23**	
AE	1							1																	3		1	2015 - **M8819** sent from HOEDSPRUIT on 21 April 2015 to ALMAYYA sanctuary in United Arab Emirates - **F9021, F9024** transferred from PRET DW on 23 November 2015 to AL AIN zoo in UAE via BESTER
AT													2	2					2								2	2011 - No record of transfer – exporter reported only 2013 - **F8480 & M8504** exported from PRET DW on 27 May 2013 to VIENNA 2012 - No record of transfer – exporter reported only
AU							2	2					2	2													4	2012 - **M8294, M8300** exported from PRET DW on 8 Feb Australia Zoo (BEERWAH). (records match) 2011 - No record of transfer – exporter reported only
BW																									2		2	2015 - **F9027, F9046** transferred PRET DW on 20 August to GABARONE - Mokolodi Nature Reserve

Exports from South Africa to the World		2011								2012						2013						2014				2015		Total	
		B	E	M	N	P	T	Z	Tot	B	E	P	T	Z	Tot	B	E	P	T	Z	Tot	B	T	Z	Tot	Z	Tot		
	JP													3	3					1	1			3				4	2014 - **M8515, F8520 & F8521** sent from PRET DW on 19 November 2014 to ZOORASIA in Japan 2013 - **M8298** exported from PRET DW on 28 June 2013 to HIROSHIMA in Japan (records match) 2012 - **F7209 & M7830** exported from PRET DW on 15 Nov 2012 to MITO CHO - **F7216** exported from PRETORIA on 15 Nov 2012 (originated at PRET DW) to MITO CHO (records match)
	SG																									4	4	2015 - **M8518, M8867, F8860 & F8861** transferred from PRET DW on 14 January 2015 to SINGAPORE zoo
	TH																									3	3	2015 - **F8430, M8902, F8908** transferred from HOEDSPRUIT on March 29 to CHIANGMAI in Thailand
	US							2	2					7	7	2				3	3			2			12	2014 - **F8858, M8866** exported from STELLENBO (originated from PRET DW) - incorrect source code used - reported under C above. 2013 - (**F8502, M8517) & F8507** exported on 6 June 2013 from PRET DW & STELLENBO (originated from PRET DW) respectively to CSWILDLIF in Florida. Records match. - **M6936 & F7202** exported from HOEDSPRUIT to LIONSHARE on 6 November 2013. Could be recorded under C above, but numbers do not appear to match 2012 - **F8270, F8296, F8297, F8305, F8307** exported from PRET DW to METRORICH on 10 May 2012 - **M8482 & M8483** exported from PRET DW to METROZOO on 29 November 2012 2011 - **F7108, F7109, F7110, F7111, F7112, F7113, F7114** exported from PRET DW to BUSCH TAM on 27 Jan 2011. Sire 7807 of F7108 and F7114 was wild born. CITES only records 2 animals being transferred
Bred in Captivity (F)		3	1					11	2 17	10	2			6	18					5	5						40	
	BW		1						1																		1	2011 - No record of transfer – exporter reported only
	CA																			1	1						1	2013 - No record of transfer – importer reported only
	CN									10					10												10	2012 - No record of transfer – exporter reported only
	DK													3	3												3	2012 - No record of transfer – exporter reported only
	KR							3	3					3	3												6	2012 - No record of transfer – importer and exporter reported, using different purposes codes B and Z 2011 - No record of transfer – importer reported only
	KZ							2	2																		2	2011 - No record of transfer – exporter reported only
	RU	3						6	9																		9	2011 - No record of transfer – exporter reported only
	UA							1																			1	2011 - **M6782** exported from OUDTSHORN to JALTA on 24 November 2011. The parents M6516 & F6775 were wild born.
	US								2 2		2				2					4	4						8	2013 - **M8762, F8764, M8765 & F8767** exported from RHINOLION to PITTSBURG (USA) on 5 December 2013. All these cheetahs were born to parents from "UNKNOWN" parents and UNKNOWN facility - indicating they were likely wild born. 2012 - **F7285 & M7287** exported from OUDTSHORN on 22nd and 20th of December to DUNLAP. Correct source code was used.
Ranched (R)				4					4																		4	
	MZ			4					4																		4	No record of transfers – importer and exporter reported. Reintroduction.
Wild (W)																				2	2						2	
	AU																									2	2	2015 - **M9259 & M9260** exported from STELLENBO on 6 August 2015 to BILLABONG. These cheetahs originated from Van Zyl K facility, apparently to UNKNOWN parents indicating that they were likely from the wild, either seized, surrendered or captured.
	NZ																			2	2						2	2013 - No record of transfer. Importer reported this transaction under source code C, while exporter reported under Wild
Grand Total		27	7	1	4	4	3	42	2 90	31	2	2	2	51	88	4	1	2	1	46	54	3	3	33	39		271	

LEGEND - - Not in accordance with CITES regulations or principles for trading in Appendix I species.
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Text – International Studbook transfers not recorded in CITES Trade database – Record added to spreadsheet

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GREAT APE FIELD TRIPS

Global Eye undertook field trips to Philippines and Thailand in 2017 following analysis of the CITES Trade Database and International Studbook analysis that indicated a large number of captive bred orangutans were being exported from Philippines despite no legal importations in recent years, and no registered facilities.

The purpose of this field trip was three fold, however, the relevant one for this Notification and working group was the following:

1. Whether the establishments that held orangutans and other apes could be considered as a "Appropriate and Acceptable Destination", such that they were considered to meet the following criteria:
    a. The animals were not being utilised for primarily commercial purposes
    b. The animals were not utilised in performance, or for paid photo opportunities for tourists
    c. The animals were provided with adequate enclosures that allowed them to exhibit normal behaviours and enrichment that "promote[s] psychological wellbeing of primates"2 (i.e. not simply a cage/concrete enclosure or other barren enclosure)
    d. The animals were provided with clean enclosures with access to clean water and adequate food, and there were limited or no welfare concerns

The assessments made here are the subjective opinion of GE staff, based on experience conducting facility assessments in their former role for CITES Authorities in Australia.

MAIN FINDINGS

1. Out of the 12 establishments visited, only 1 was considered to be an appropriate and acceptable destination that was not operating as a commercial enterprise. It was also the only WAZA approved establishment but is set to close in the next few months.
2. There is a clear difference between a legitimate zoo, working for education and conservation of species and a "pseudo zoo" – only trading in animals for profit and entertainment.
3. Pseudo zoos are characterised by:
    a. Animals being utilised for performances and photo opportunities
    b. Large entrance fees and fees for food to feed the animals
    c. Little or no educational material about animals available
    d. Small cramped cages, concrete cells that are akin to prison cells, no enrichment
    e. Animals displaying behaviour due to stress, malnourishment or boredom
4. Legitimate zoos are characterised by:
    a. Large, open displays that mimic the animals natural environment
    b. Detailed and large educational displays about animals, behaviours and conservation threats
    c. No animal performances, photo opportunities, paying to feed the animals etc.
    d. Animals appear content, well-nourished and playful

[2] US Animal Welfare Act – Title 7: Agriculture, Chapter 54: Transportation, Sale and Handling of Certain Animals (https://www.animallaw.info/statute/us-awa-animal-welfare-act, Accessed on 4 July 2017)

FACILITY ASSESSMENTS

Table 2 – Summary Facility Assessment of Establishments that hold or have historically held Apes.

Philippines		Thailand	
Establishment	**Assessment**	**Establishment**	**Assessment**
Birds International	Commercial, unable to determine if apes present on premises. High level of operational security at breeding facility.	**Safari World**	Commercial venture, operates like a theme park. Multiple animal performances including orangutan boxing. Large numbers of orangutans behind scenes, as well as a chimpanzee off exhibit which was not mentioned on any maps.
Ark Avilon Zoo	Commercial. Pseudo zoo. One young orangutan available for photos, in small class/wire cage. Originated from Avilon Zoo. One lonely gibbon on display. Not an appropriate or acceptable destination.	**Dusit Zoo**	Legitimate zoo. WAZA accredited. Good enclosures, with clear information available about species, behaviour patterns, conservation status and threats. 4 species of gibbon on display – very vocal, and one large mature male orangutan on display.
Malabon Zoo	Pseudo zoo. Not appropriate or acceptable destination. One 13 year old over weight female orangutan available for photos, as well as tigers. All cages cramped and just concrete and wire. No enrichment.	**Pata Zoo**	Pseudo zoo. Commercial purpose. Definitely not an appropriate or acceptable destination. Animals appeared to be starving. 3 orangutans, including a baby, several chimps, gibbons and a gorilla, many other CITES listed primates too.
Manila Zoo	Attempting to be legitimate zoo. No apes on display. Photos available with birds and snakes. Educational material on most displays. Some welfare issues to be rectified. But good compared to most Asian facilities.	**Samutprakan Crocodile Farm**	Pseudo zoo. Operating as an entertainment facility. Large numbers of older chimps on display, at least 4 baby chimps in cages behind scenes and off limits. 2 adult, female and male orangutans on display and several gibbons. Large apparent breeding facility behind scenes with jaguars and other CITES listed species. Could not ascertain whether there were any more apes back there. Baby chimps, orangutans and tigers available for photos.
Nino Aquino Wildlife Centre	Operated as a rescue centre. One gibbon on display in small wire cage. Not an appropriate or acceptable destination for international trade.	**Sriracha Tiger Zoo**	Commercial. Animal performances including tiger shows and photos with infant and juvenile tiger cubs, crocodile shows, elephant rides and shows, games to "feed" tigers. Unable to determine if apes in facility. Excessive numbers of tigers within facility.
Avilon Zoo	Pseudo zoo & seemingly commercial breeding centre. Facility has excessive amounts of orangutans in "off limits" areas in tiny metal cages, a separate "breeding facility" with several baby orangutans out of public view. Regular orangutan shows with "Trixie" dressed in clothes.	**Khao Kheow Open Zoo**	Commercial. There are large open enclosures for the orangutans, chimps and gibbons, however, the orangutans are available for photos[3]. And several large males could be seen in cramped cells off display. There was little to no available information on the species. Could easily be made into an appropriate and acceptable destination by implementing some changes.

[3] Although there were none available the day we visited, presumed to be due to rain, however, traveller photos from trip advisor clearly indicate this is available.

DIFFERENCE BETWEEN LEGITIMATE ZOOS AND PSEUDO ZOOS

CASE STUDY ONE – WAZA APPROVED DUSIT ZOO - THAILAND

Dusit zoo has been open to the public since March 18th 1983, after being initially set up as a botanical garden by the royals in the 19th century. Dusit Zoo is a member of the South East Asian Zoos Association, which therefore means it is an associate member of WAZA. While this zoo is far from perfect, there was instantly a clear difference between this zoo and the other zoos visited in the two countries. These were as follows:

1. The zoo was maintained to a higher standard than the majority of other zoos.
2. The grounds were clean, large and open
3. The majority of animal exhibits had sufficient room for the species being displayed, with fit out that allowed the animals to display their normal behaviour (Figure 1 and Figure 3)
4. The vast majority of exhibits mimicked the natural environment the animals would be found – rather than being a simple cage or concrete block (Figure 1)
5. There was ample species information available on each species, even including brail for blind visitors. (Figure 2)
6. Majority of animals appeared to be well cared for and free from signs of stress or boredom (Figure 3)
7. No animal shows were advertised during our visit.[4]

Figure 1 – Typical Large Enclosure; This on is for an Asiatic Sun Bear

Figure 2 - Typical Species Information Signage, including brail for some enclosures (right)

[4] Online reviews of this zoo state that animal shows can be observed, however, these were not observed during our visit, nor was there any promotional material or signage observed to promote such animals shows.

Figure 3 - Ape Enclosures at Dusit Zoo (Top Left) Chimpanzee (Pan troglodytes) (Top Right) Orangutan (Bottom Left) Northern White Cheeked Gibbons (Nomascus leucogenys) (Bottom Right) White Handed Gibbon (Hylobates lar)

The signage for the majority of apes and other monkeys within the zoo was very good, however, we did not observe any current signage for the solo orangutan. Online photos posted to www.zoochat.com from 2009/2010 indicate that there was previously signage available for this species (refer to Figure 3)

Gibbons appeared happy in their enclosures, characterised by high activity levels and vocal while we were there. They did not appear to be listless and depressed like many other animals at other zoos.

https://app.box.com/s/7esiy6p0q2jnn82fx0e8kp0en8j3cg4f

Figure 4 - Previous Signage for Orangutan (circa 2009/2010)

CASE STUDY 2 – AVILON ZOO, PHILIPPINES AND SAMUTPRAKAN CROCODILE FARM, THAILAND

The facilities of these two zoos were quite disparate, with Avilon Zoo in the Philippines presenting on the surface as a legitimate zoo. The grounds of Avilon Zoo were very well maintained, rivalling the WAZA accredited facility in Thailand, with relatively good "on display" exhibits. However, these displays were offset by the numerous "off limit" areas where large numbers of apes, including large male orangutans, lots of baby orangutans and numerous adult gibbons were kept in tiny metal cages, as shown in Figure 5.

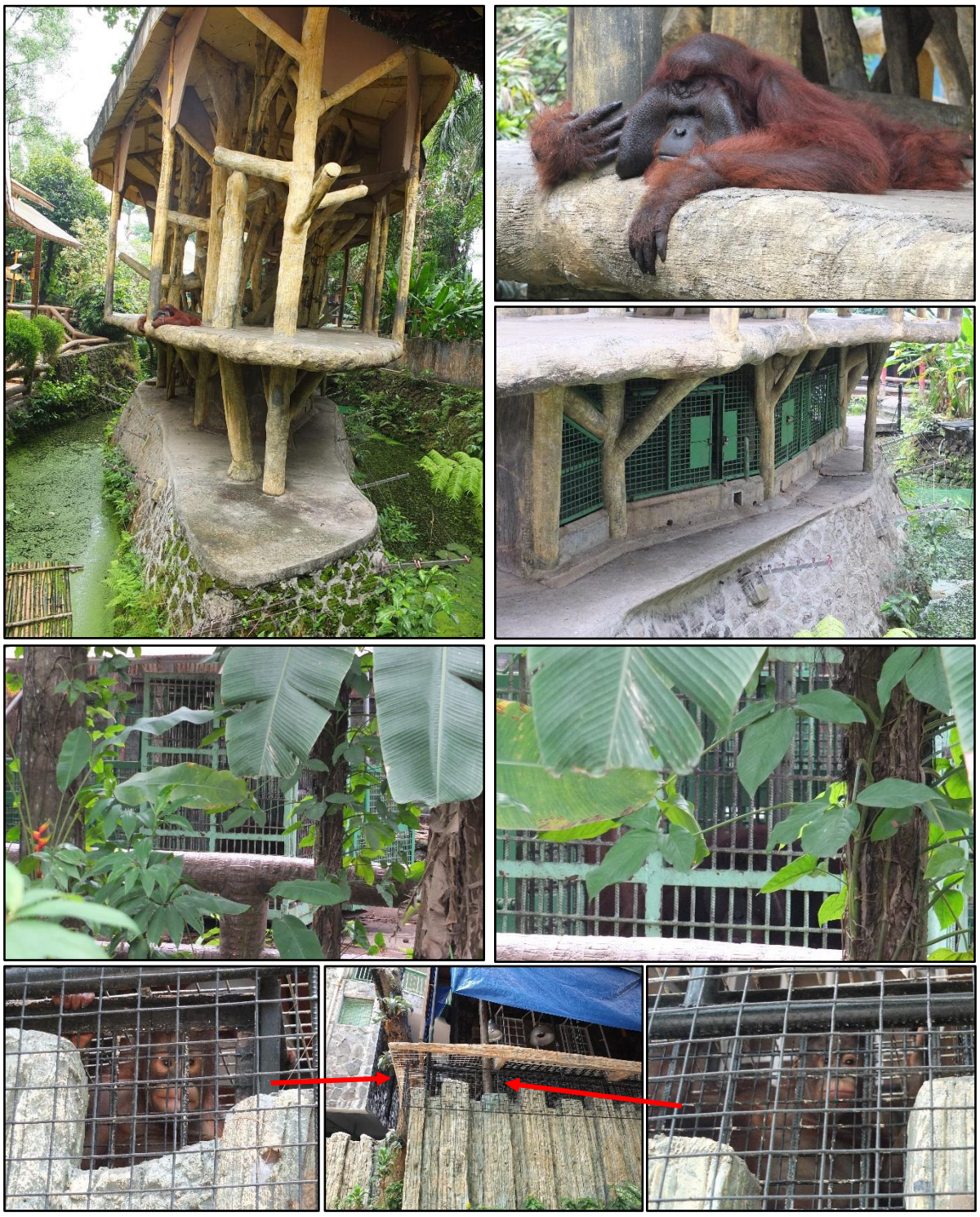

Figure 5 - Orangutans held at Avilon Zoo. *(Top Row) On display exhibit, male on display, multiple off display holding pens underneath on display exhibit (Middle Row) Small cages in "off limits area", approximately 10 cages observed, with 4 adults able to be seen, including 2 very large mature males. (Bottom Row) Multiple baby orangutans in off limits "breeding centre" – at least 6 baby orangutans observed inside, however at least 12 similar cages in this area observed.*

Additionally, this Avilon Zoo had numerous animal shows, including “Trixie” who is a performing orangutan available for photos for a price. She is dressed up in human clothes with shoes and a dummy. We missed her show, but observed her moving back to another “off limits area” separate from the off limit areas for orangutans shown in Figure 5 above.

Figure 6 - Animal Shows at Avilon Zoo and Trixie their performing orangutan

This establishment was also mentioned as the facility where Ark Avilon Zoo received their baby orangutan from.

While the standards of this zoo for on exhibit animals appears to be very good, the living conditions of apes being held in the numerous off limits and breeding areas is unlikely to be to the same standard. Those observed by GE staff were cramped and devoid of any stimulation.

Figure 7 - The Largest of the Breeding Centres at Avilon Zoo

While Avilon Zoo is attempting to appear as a legitimate zoo, this was not the most common operating model for the majority of establishments visited. Most were set up like Samutprakan Crocodile Farm in Thailand, purely for entertainment of tourists and commercial gain. These types of establishments were characterised by the following:

1. High cost of entrance relative to conservation zoos
2. Animal encounters including holding and getting photos with juvenile orangutans, chimps or extremely young tigers (shown in Figure 8)
3. Extremely small cages for "interactive" animals to live in permanently (shown in Figure 8)
4. Large off limits areas with excessive numbers of apes or other CITES listed species (shown in Figure 9)
5. Extremely small and inappropriate cages for animals, with too many of each species within the small area (shown in Figure 10)
6. Distressed and/or bored animals in poor health, with limited food or water (shown in Figure 10)

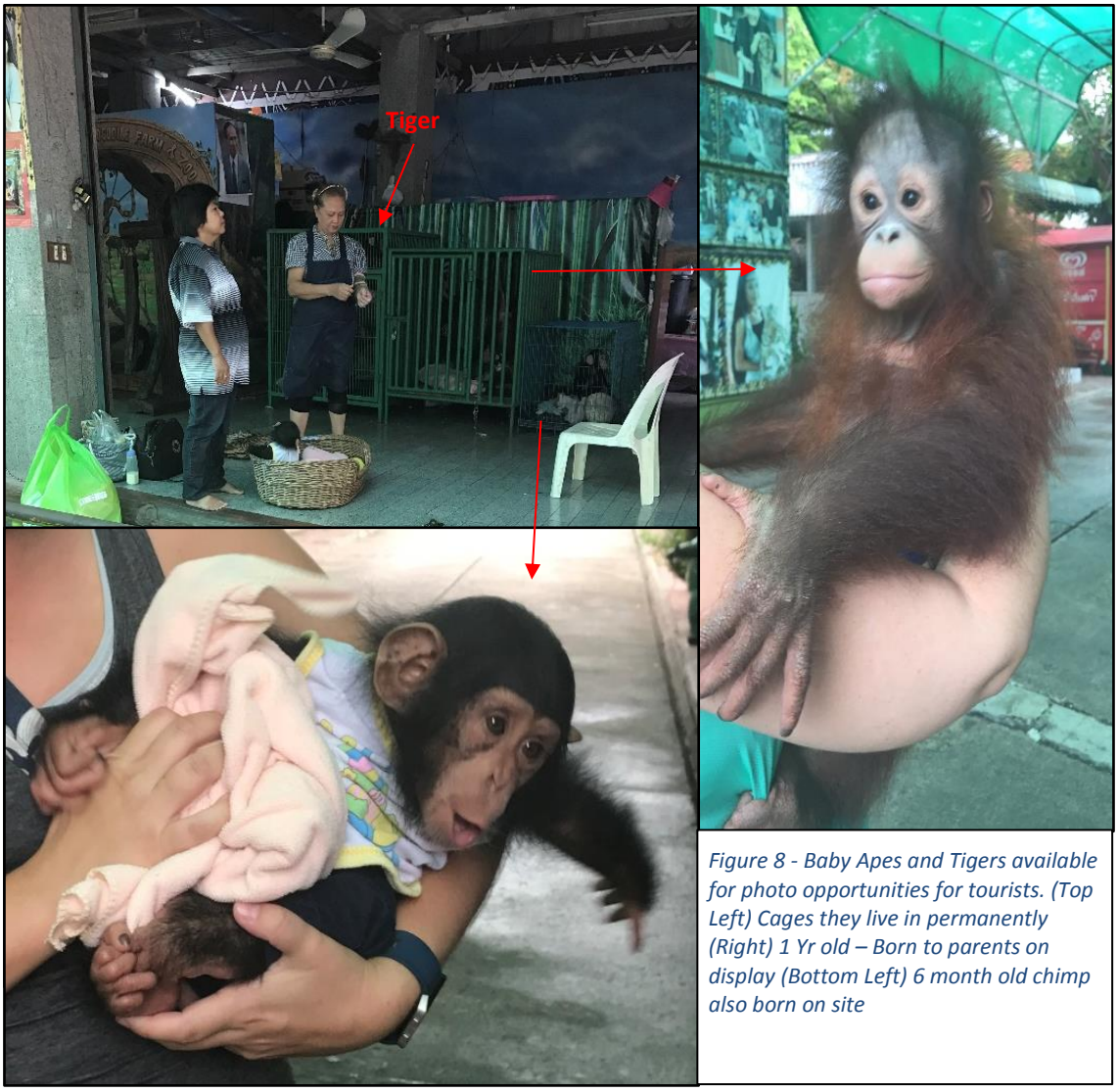

Figure 8 - Baby Apes and Tigers available for photo opportunities for tourists. (Top Left) Cages they live in permanently (Right) 1 Yr old – Born to parents on display (Bottom Left) 6 month old chimp also born on site

Figure 9 - Off Limits Areas in Samutprakan Crocodile Farm (Top) Baby chimpanzees behind adult chimp exhibit (at least 4 observed) (Bottom) Wildlife breeding centre areas, including leopards, tigers and bears

Figure 10 - Ape exhibits (Top Left) Adult chimps (Top Right) Adult orangutans - parents of 1 year old at photo area (Bottom) Orangutan cage

These types of pseudo zoos are the most prolific type of establishment throughout Thailand and the Philippines. These establishments are not breeding apes for the purposes of conservation, but purely for a commercial purpose.

Yet, these types of establishments are allowed to import and export animals under the CITES Purpose Code for zoo to zoo transfer, which is fuelling the ongoing illegal trade in apes and other Appendix I CITES species.

HSI
(HUMANE SOCIETY
INTERNATIONAL)

24th April 2018

CITES Secretariat

11 Chemin des Anémones
CH-1219 Châtelaine, Geneva
Switzerland

To whom it may concern:

Thank you for issuing Notification No.2018/033 which requests for information on the implementation of Resolution Conf.11.20 (Rev.CoP17) on *Definition of the term "appropriate and acceptable destinations"* and Article III, of the Convention.

Decision 17.178 directed to Secretariat to "*subject to available resources, reports to the 29th meeting of the Animals Committee and the 69th meeting of the Standing Committee on the history and implementation of Resolution Conf.11.20 (Rev.CoP17) on Definition of the term 'appropriate and acceptable destinations' and Article III, paragraphs 3(b) and 5(b), regarding findings that recipients of living specimens CITES Appendix-I species are suitably equipped to house and care for them.*"

While Notification No.2018/033 lists information that the Secretariat seeks from the Parties, bullet point 4 in the notification suggests that "In addition to the Parties, organizations and other relevant stakeholders……are also invited to submit any relevant information, including documents they may have developed…."

During the 69th meeting of the Standing Committee, Burkina Faso and Niger submitted Information Document 36[1] in relation to agenda item 39 on "*Definition of the term 'appropriate and acceptable destinations'*." The document, entitled "Challenges to CITES Regulation of the International Trade in Live, Wild-caught African Elephants", presents a summary and analysis of information on the legal implications, biological impacts and welfare effects of the trade in live African elephants, including case studies. It is intended to inform the discussion on CITES regulation and guidance on "Definition of the term 'appropriate and acceptable destinations'."

[1] https://cites.org/sites/default/files/eng/com/sc/69/inf/E-SC69-Inf-36.pdf

Please find attached Information Document 36. We hope this document can help provide pertinent information on the implementation of Resolution Conf.11.20 (Rev.CoP17) as you endeavor to prepare a report for the 30th meeting of the Animals Committee.

As co-authors of the document, we are available to answer any questions that you may have on any of the points it raises or evidence it presents.

Yours sincerely,

Iris Ho, Humane Society International, iho@hsi.org

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

Sixty-ninth meeting of the Standing Committee
Geneva (Switzerland), 27 November -1 December 2017

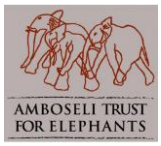
Species Trade and Conservation

CHALLENGES TO CITES REGULATION OF THE INTERNATIONAL TRADE IN LIVE, WILD-CAUGHT AFRICAN ELEPHANTS

1. This document has been submitted by Burkina Faso and Niger, on behalf of the following NGOs: Amboseli Trust for Elephants, Animals Asia Foundation, Animal Welfare Institute, Born Free Foundation, David Shepherd Wildlife Foundation, Fondation Franz Weber, Future for Elephants, GSM (Society for the Conservation of Marine Mammals, Denmark), Humane Society International, National Council of SPCAs (South Africa), Pro Wildlife, Performing Animal Welfare Society, and Species Survival Network. It relates to agenda item 39 on *Definition of the term 'appropriate and acceptable destinations"* and provides Version 1 of a background paper on the definition of the term "appropriate and acceptable destinations" as it relates to the international trade in live African elephants.*

2. The document presents a summary and analysis of information on the legal implications, biological impacts and welfare effects of the trade in live African elephants, including case studies. It is intended to inform the discussion on CITES regulation and guidance of this trade.

* *The geographical designations employed in this document do not imply the expression of any opinion whatsoever on the part of the CITES Secretariat (or the United Nations Environment Programme) concerning the legal status of any country, territory, or area, or concerning the delimitation of its frontiers or boundaries. The responsibility for the contents of the document rests exclusively with its author.*



Challenges to CITES Regulation of the International Trade in Live, Wild-caught African Elephants

A background paper on *definition of the term "appropriate and acceptable destinations" as it relates to the trade in live African elephants*

Version 1 - 24 November 2017

This report has been prepared by:

Amboseli Trust for Elephants
Fondation Franz Weber
Humane Society International

The report is endorsed by:

Animals Asia
Animal Welfare Institute
Born Free Foundation
David Shepherd Wildlife Foundation
Future for Elephants
GSM (Society for the Conservation of Marine Mammals, Denmark)
National Council of SPCAs (South Africa)
Performing Animal Welfare Society
Pro Wildlife
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Executive Summary

CITES currently permits trade in live, wild-sourced African elephants. Appendix II elephants from Botswana and Zimbabwe can be traded to "appropriate and acceptable destinations", and from Namibia and South Africa to "*in situ* conservation programs" (Resolution Conf. 11.20 (Rev. CoP17)), while elephants from wild Appendix I populations can be traded for non-commercial purposes to destinations "suitably equipped to house and care for" them (CITES Article III par. 3(b)). Although such trade is legal under CITES, concern has been expressed over its impact on the animals involved and on those remaining in the wild. The African Elephant Specialist Group of the IUCN Species Survival Commission has stated that it "does not endorse the removal of African elephants from the wild for any captive use", believing there to be "no direct benefit for [their] *in situ* conservation".

At CITES CoP17 (2016), seven African elephant range States recommended that, except in emergencies, only "*in situ* conservation programmes or secure areas in the wild within the species' natural range" should be regarded as "appropriate and acceptable" or "suitably equipped" under the Convention. Their recommendation, along with a proposal submitted by the USA on live animal trade, resulted in the amendment of Resolution Conf. 11.20 to include a new requirement that, to be "appropriate and acceptable" trade in live animals must promote *in situ* conservation.

This paper provides information on the physical and behavioural characteristics of African elephants and the recent history of the live elephant trade. It further suggests that zoos, as they currently exist, are not suitably equipped to house and care for, and should not be considered appropriate and acceptable destinations for, live, wild-sourced African elephants.

Between 1990 and 2015, 1,774 live, wild-sourced African elephants were exported internationally, mostly to non-range States. Exports from all countries were mainly for circuses and traveling exhibitions (583), reintroduction into natural range (497), and zoos (331). From range States alone, 366 wild-caught elephants were reportedly exported to zoos and circuses. There were 116 live elephants listed as having been exported during this period with no listed purpose code. The top countries exporting from the wild were South Africa, Namibia, and Zimbabwe for zoos (63%), and South Africa, Namibia and Botswana for circuses (9%). Top importers were China (29%), the USA (29%) and Mexico (22 %) for zoos and Denmark, Germany, Sweden, Poland, Italy, Norway, and Monaco (55%) for circuses. Trade for circuses has declined markedly in recent years.

An estimated 533 wild-sourced African elephants are currently held in captivity, 465 in zoos and 68 in circuses. African elephants are found in zoos in Europe (121, particularly in Germany, Spain, United Kingdom and France) North America (142, with 139 in the US alone) and Asia (139, with 80 in China and 45 in Japan). Others are in Latin America (22 in Mexico), Maghreb countries and South Africa. Most African elephants in circuses are in Europe (48, 22 of which are in Germany). Only 16 wild-caught African elephants apparently remain in US circuses.

African elephants are wide-ranging, intelligent animals with complex social structures underpinned by strong family bonds. Social interactions are essential to well-being of both sexes, both during early life and as adults. Wild African elephants are constantly on the move, keeping their minds stimulated and their bodies physically fit. Failure to provide for their specific needs deprives captive elephants of crucial learning skills and affects their health.

Until the mid-1990s, most captures of young African elephants were the by-product of culling operations. More recently, captures have involved separating calves from their family groups. This causes significant physical, behavioural, and psychological trauma, and potentially results in

injuries or mortality of the calves or their family members. South Africa has now prohibited the capture of live, wild elephants for export under its National Norms and Standards for the Management of Elephants in South Africa (2008).

Captured calves transported to holding facilities suffer depression, lethargy, anxiety, increased stress, intra-specific aggression, and a diminished or non-existent appetite, sometimes resulting in death or contributing to premature mortality. Training in temporary facilities may include food and/or light deprivation, restriction of movement, forcing the animal into an uncomfortable position for extended periods of time, and regular beatings.

Median lifespan of zoo-born African elephants is 17 years, compared with 56 years in a well-studied wild population. Mortality in the first two years is over 30% for captive-born animals, compared to 4-25% in wild populations. An estimated 54% of captive-born African elephant calves in the US die while still juveniles.

For most zoo elephants, few social or kin companions are available for interaction. Only one of eight facilities in the UK has a typical age and kin structured group. In the US, reported mean group size for African elephants is some 4.5 animals. Some 61% of 33 accredited zoos in the US with African elephants have four or fewer animals, and most (16 of 20) hold three or fewer.

Only 26% of sexually mature female African elephants in the USA in 2012 had ever calved, and less than half were cycling normally. EU collections show high levels of stillbirth or obstructed birth and inadequate maternal care (34% of 67 births). Among US females, average age at first birth was over 21 years, compared to 9-11 years in the wild.

The average outdoor space experienced by individual elephants in North American zoos is under 4,000m^2; indoor areas average 129 m^2. Existing captive facilities cannot provide the space needed (estimated at ~2 km^2/individual) for wild-caught African elephants to exhibit natural behaviours or sustain physical fitness.

Inadequate space and enclosure diversity can result in foot and joint disease and psychological frustration. Obesity, foot health, arthritis, and tooth abnormalities are common health concerns for captive African elephants. Lack of movement, inappropriate substrates and limited opportunity for exercise result in weak, ill and unfit elephants with compromised welfare, poor reproductive ability, and reduced longevity among calves.

Few countries have guidelines for captive elephant welfare in zoos. Those that exist are generally non-binding except for accreditation by zoo organizations in some countries. Existing guidelines focus on health status, with space recommendations that fall short of what elephant biology requires. A recent review of UK guidelines called for urgent attention to space requirements, natural choice of companions, and a shift to a positive reward system. There are fewer mandated welfare requirements for non-zoo facilities, including circuses and elephant tourism camps.

Between 1990 and 2015 Zimbabwe exported 35 live, wild-sourced elephants to zoos in China according to the CITES trade database. Chinese language news articles suggest that since 2012, China has imported 63 elephants from Zimbabwe, including 30 in December 2016. Five of the eight calves imported in 2012 have since died, and the only survivor on display is reportedly being kept in improper housing and is in poor health. Of 27 live, wild-sourced elephants exported from Zimbabwe in 2015, apparently only 24 arrived. Thirty elephants imported in 2016 are on display in Shanghai, Beijing, and Hangzhou. A further 29 elephants imported from Zimbabwe on December

25, 2016, were intended for Beijing and Shanghai Wild Animal Parks; one animal died during transit from an overdose of tranquilizer.

In November 2016, a mission from Zimbabwe travelled to China to determine if facilities for elephants captured in Zimbabwe qualified as 'appropriate and acceptable destinations'. All inspected facilities were found to have serious shortcomings, but only a month later they were judged by permitting officials to be 'appropriate and acceptable' and 'suitably equipped to house and care for' the elephants they received. Captures of live, wild-sourced elephants in Zimbabwe for zoos in China continue, including at least fourteen in August 2017. Video footage suggests most of these elephants were aged between two and four; a number displayed stress-induced behaviours.

A total of 17 elephants were exported from Swaziland to three US zoos in March 2016. One juvenile died prior to transfer. The group included a pregnant female, a violation of IATA transport guidelines. A further juvenile male died under anesthesia in September 2017. A transfer of five elephant calves from Namibia to the United Arab Emirates has apparently been put on hold.

CITES has not established guidance or standards for determining whether a facility that is to receive live African elephants is suitably equipped to house and care for them. Our findings concur with the view of elephant biologists Joyce Poole and Petter Granli, who warned in 2009 that zoos and other captive facilities are "woefully inadequate" to house elephants; we consider that there is no captive facility suitably equipped to house and care for live, wild-caught African elephants forcefully removed from their family groups. In light of this, along with the African Elephant Specialist Group's statement and the views of many respected elephant biologists, we conclude that there should be no trade in live wild-caught African elephants for captive use.

1 Introduction

In 2003[1], the IUCN-SSC African Elephant Specialist Group (AfESG) issued a statement reading: "Believing there to be no direct benefit for *in situ* conservation of African elephants, the African Elephant Specialist Group of the IUCN Species Survival Commission does not endorse the removal of African elephants from the wild for any captive use."

The current CITES listing of African elephants (*Loxodonta africana*) nonetheless permits the capture and trade of live animals from wild populations in South Africa and Namibia for "*in situ* conservation programmes"; in Botswana and Zimbabwe for trade to "appropriate and acceptable destinations" as defined in Resolution Conf. 11.20 (Rev. CoP17); and from wild Appendix I populations for non-commercial purposes under the terms of Article III par. 3(b) of the Convention. As this paper documents, under these provisions substantial numbers of captured African elephants have been transported by road and air to captive facilities, such as zoos and circuses, in Europe, the Americas, the Middle East and Asia. Some 342 live, wild-sourced elephants were traded internationally for zoo purposes alone from 1990 through 2015. As recently as 2016, elephants were exported from Zimbabwe to zoos in China, under conditions that an inspection team from Zimbabwe itself was unable to approve.

Although such trade is legal under CITES, African elephant range States (including members of the African Elephant Coalition, see below), and over 75 elephant scientists and other experts from non-governmental conservation and animal welfare organizations (Elephant Voices 2015)) have expressed concern over its impact on the well-being of the animals involved and on those remaining in the wild in Africa. If the views of expert elephant biologists and national wildlife agencies in the AfESG had been followed, none of these transfers should have taken place.

Thirteen years after the AfESG issued its statement, seven African elephant range States (Burkina Faso, Central African Republic, Chad, Kenya, Mali, Niger and Senegal) recommended[2] to CITES CoP17 that, "in relation to trade in live elephants taken from the wild, the only recipients that should be regarded as "appropriate and acceptable" (as referred to in Resolution Conf. 11.20) and "suitably equipped to house and care for" those elephants in accordance with Article III, Para 3(b) of the Convention are *in situ* conservation programmes or secure areas in the wild within the species' natural range, except in the case of temporary transfers in emergency situations." The US, meanwhile, submitted a proposal[3] for trade in live animals to "support *in situ* conservation". The two proposals led to an important change to Resolution Conf. 11.20 that expanded the definition of "appropriate and acceptable", previously equated only with the "suitably equipped" language in the Convention, to include a requirement that "the Scientific Authorities of the State of import and the State of export are satisfied that the trade would promote *in situ* conservation".

Taking this new requirement together with the conclusion of the AfESG that there is no direct benefit to *in situ* conservation from the removal of African elephants from the wild, it is clear that no captive facility should be considered an "appropriate and acceptable" destination for wild-caught African elephants.

At CoP17, the CITES Standing and Animals Committees were directed to continue the process of re-examining the meaning and interpretation of "appropriate and acceptable" as defined in

[1] https://www.iucn.org/ssc-groups/mammals/african-elephant-specialist-group/afesg-statements/removal-african-elephants-captive-use
[2] CoP17 Doc. 57.4
[3] CoP17 Doc. 40

Resolution Conf. 11.20 (Rev. CoP17). This paper reviews the legal background to the current Resolution, and provides the Parties with information on both the physical and behavioural characteristics of African elephants and the recent history of the live elephant trade. The evidence it presents strongly suggests that zoos, as they currently exist, are not suitably equipped to house and care for, and should not be considered appropriate and acceptable destinations for, live African elephants – and in particular for young animals removed from the wild.

We believe, therefore, that the recommendation of Burkino Faso and its fellow range States, supported by the original statement from the AfESG, is legally justifiable and supported by scientific data on both conservation of the species and the welfare of individual elephants. It should form the basis for any discussions on the interpretation of "appropriate and acceptable" as it relates to the African elephant.

2 CITES and the live elephant trade

2.1 CITES' Treaty text and Resolutions on trade in live elephants

Most African elephant populations are listed in CITES Appendix I, except for the populations of Botswana, Namibia, South Africa, and Zimbabwe. The latter populations are listed in Appendix II subject to an annotation that states, in part, "for the exclusive purpose of allowing:" … "trade in live animals to appropriate and acceptable destinations, as defined in Resolution Conf. 11.20 (Rev. CoP17), for Botswana and Zimbabwe and for *in situ* conservation programmes for Namibia and South Africa."

As a result of differences in listing status among the various range States, the CITES requirements for trade in live African elephants also differ depending upon their country of export. In October 2017, the Secretariat, noting the "considerable interest from members of the public and non-government organizations" and that "international trade in live elephants, especially when it takes the animals out of their natural range, is a very sensitive issue that generates expressions of public concern," provided a 'quick guide' to CITES controls on international trade in live elephants, including Article III paragraph 3(b) of the Convention text and Resolution Conf. 11.20 (Rev. CoP17); see Table 1 below.

Table 1. CITES Secretariat's "quick guide to CITES controls on international trade in live elephants."[4]

Elephant exporting country and CITES Appendix listing status	Conditions required prior to issuance of a CITES export permit allowing international trade in live elephants. All authorities are appointed by the State Party
African elephants from Botswana and Zimbabwe (Appendix II)	• The exporting Scientific Authority must have advised that export will "not be detrimental to the survival of the species" • The exporting Management Authority must be satisfied that the animals were legally obtained • It is confirmed that the animals are to go to "appropriate and acceptable destinations" only • The animals will be transported in accordance with International Air Transport Association (IATA) Live animal regulations and CITES guidelines for the non-air transport of live wild animals and plants
African elephants from Namibia and South Africa (Appendix II)	• The exporting Scientific Authority must have advised that export will "not be detrimental to the survival of the species" • The exporting Management Authority must be satisfied that the animals were legally obtained • The animals are destined for *in situ* conservation programmes only • It is confirmed that the animals are to go to "appropriate and acceptable destinations" only • The animals will be transported in accordance with International Air Transport Association (IATA) Live animal regulations and CITES guidelines for the non-air transport of live wild animals and plants

African elephants from other African States and all Asian elephants (Appendix I)	• The exporting Scientific Authority must have advised that export will "not be detrimental to the survival of the species"
	• The exporting Management Authority must be satisfied that the animals were legally obtained
	• The animals will be transported in accordance with International Air Transport Association (IATA) Live animal regulations and CITES guidelines for the non-air transport of live wild animals and plants
	• The importing Management Authority has issued an import permit, having been satisfied that:
	  • the animal(s) will "not to be used for primarily commercial purposes"
	  • the Scientific Authority in the importing State is satisfied that the proposed recipient of a living specimen is "suitably equipped to house and care for it" and that the import will be "for purposes which are not detrimental to the survival of the species"

The Secretariat includes a *caveat*, however, when referencing the "appropriate and acceptable destinations", stating that "If this condition is not complied with, then the specimen is treated in the same way as 'African elephants from other African States and all Asian elephants (Appendix I)'". The Secretariat's *caveat* does not provide clarity on the CITES controls and could be interpreted to mean that the four countries whose populations are in Appendix II could have the option to trade under Appendix I. Indeed, as we will discuss in a later section, such mixed interpretation of the Appendix listings has been used by Namibia.

Additionally, Article III, paragraph 2 (c), Article IV, paragraph 2 (c) and Article V, paragraph 2(b) of the Convention require that, as a precondition for the grant of an export permit, "a Management Authority of the State of export is satisfied that any living specimen will be so prepared and shipped as to minimize the risk of injury, damage to health or cruel treatment". Article VIII, paragraph 3

[4] https://cites.org/eng/news/statement/international_trade_in_live_elephants (viewed 24 October 2017)

requires Parties to "ensure further that all living specimens, during any period of transit, holding or shipment, are properly cared for so as to minimize the risk of injury, damage to health or cruel treatment." Resolution Conf. 10.21 (Rev. CoP16) states that the Live Animals Regulations of the International Air Transport Association and the CITES guidelines for the non-air transport of live wild animals and plants, in their most recent edition, are deemed to meet CITES transport requirements. These guidelines note that "for reasons of animal welfare, animal transport should be quick, efficient and strive to avoid as much stress as possible to the animal." They also note that animals must "never be transported in a way likely to cause them unnecessary fear, injury, damage to health or undue suffering."[5]

The requirement in Article III, paragraph 3 (b) that the proposed recipient of a living specimen must be "suitably equipped to house and care for it" governed all international trade in live African elephants from 1990, when the transfer of all populations to Appendix I, decided at CoP8 in 1989, entered into force. It still governs trade in live elephants from most African elephant populations, which remain in Appendix I. A history of listings and controls under CITES governing live trade in African elephants is provided in Table 2 below.

Table 2. History of the listing of African elephants and controls governing the live trade.

CoP	Listings and Resolutions
CoP8 (1989)	All African elephant populations are transferred to Appendix I. Article III, paragraph 3(b) governs the trade in live animals in Appendix I.
CoP10 (1997)	The populations of Botswana, Namibia and Zimbabwe were transferred to Appendix II with an annotation to allow "export of live animals to appropriate and acceptable destinations (Namibia: for non-commercial purposes only).[6] The term "appropriate and acceptable" was not developed at the time.
CoP11 (2000)	The population of South Africa was transferred to Appendix II for the exclusive purpose of allowing…. "trade in live animals for re-introduction purposes into protected areas formally proclaimed in terms of legislation of the importing countries."[7] Adoption of Resolution Conf. 11.20 on *Definition of the term 'appropriate and acceptable destinations'* which stated, as originally adopted, that "where the term 'appropriate and acceptable destinations' appears in an annotation to the listing of a species in Appendix II of the Convention with reference to the export of or international trade in live animals, this term shall be defined to mean destinations where the Scientific Authority of the State of import is satisfied that the proposed recipient of a living specimen is suitably equipped to house and care for it."[8]
CoP12 (2002)	The annotation for the populations of Botswana and Namibia was changed to "For the exclusive purpose of allowing… trade in live animals for *in situ* conservation programmes".[9]
CoP13 (2004)	The CoP12 language above, allowing trade in live animal for *in situ* conservation programmes, was also applied to the population of South Africa.[10]
CoP14 (2007)	The annotation for all four Appendix II populations was changed to read "trade in live animals to appropriate and acceptable destinations, as defined in Resolution Conf. 11.20, for Zimbabwe and Botswana and for *in situ* conservation programmes for Namibia and South Africa".[11]

[5] CITES Guidelines for Transport. https://cites.org/eng/resources/transport/index.php
[6] https://cites.org/sites/default/files/eng/cop/10/E10-amendments.pdf, p. 151.
[7] https://cites.org/sites/default/files/eng/cop/11/other/E-Amendments_App.pdf , p. 4.
[8] https://cites.org/sites/default/files/eng/cop/11/other/Adopted_Res.pdf , p. 64.
[9] https://cites.org/sites/default/files/eng/cop/12/Adopted_Amendments.pdf , pp. 5, 6.
[10] https://cites.org/sites/default/files/eng/notif/2004/073.pdf , pp. 4, 5.
[11] https://cites.org/sites/default/files/eng/notif/2007/E022.pdf , p. 3.

Despite their use in the definition of "appropriate and acceptable" in Resolution Conf. 11.20 (now expanded, as noted above, in Resolution Conf. 11.20 (Rev. CoP17)), the words "suitably equipped to house and care for" have never been further defined. The CITES Parties have provided no guidance to Scientific Authorities responsible for making such a finding, either for Appendix I species and populations or for the Appendix II populations governed by the Resolution.

2.2 Recent CITES efforts to address the live elephant trade

Parties at CoP17 recognized that more guidance may be needed on the definition of "appropriate and acceptable destinations" and on findings that recipients of living specimens of CITES Appendix I species are "suitably equipped to house and care for them". Pursuant to the documents[12] submitted by Burkina Faso, Central African Republic, Chad, Kenya, Mali, Niger and Senegal, and the USA, the Parties addressed this problem by adopting Decisions 17.178, 17.179 and 17.180 on the implementation of both the "suitably equipped" language in the Convention text and the term "appropriate and acceptable destinations" in Resolution Conf. 11.20 (Rev. CoP17).

The Decisions instruct the CITES Secretariat, "subject to available resources," to report to the Animals Committee and Standing Committee at their meetings in 2017 on the history and implementation of these provisions, and mandate the Committees to consider the report and "make recommendations and develop guidance, as appropriate, for consideration at the 18th meeting of the Conference of the Parties," due to take place in 2019 in Sri Lanka.[13] As noted above, Parties also amended Resolution Conf. 11.20 (Rev. CoP17) so that "appropriate and acceptable destinations" are now defined as those where: a) the Scientific Authority of the State of import is satisfied that the proposed recipient of a living specimen is suitably equipped to house and care for it; and b) the Scientific Authorities of the State of import and the State of export are satisfied that the trade would promote *in situ* conservation.

Implementation of these Decisions will be discussed under Agenda item 39 at the 69th meeting of the CITES Standing Committee (SC69) in November 2017.

3 International trade in live, wild-sourced African elephants

3.1 Overview

According to information obtained from the CITES Trade Database,[14] between 1990[15] and 2015 (complete 2016 and 2017 data are not yet available), 365 individual live, wild-sourced African elephants were traded from range States to non-range States and between range States for all purposes other than reintroduction to the wild (purpose code N); this figure excludes re-exports from non-range States, as described under gross exports below. These transfers include 35 Appendix I elephants traded for commercial purposes (purpose code T) despite restriction of the listings and annotation on commercial trade.

The total gross exports of live, wild-sourced African elephants over 25 years between 1990 and 2015 were 1,774 transactions, with most exports going to non-range States. Exports were mainly for circuses and traveling exhibitions (583), reintroduction into the natural range of the species (497), and zoos (331). Fewer were traded for commercial (166), breeding (18), education (40), scientific

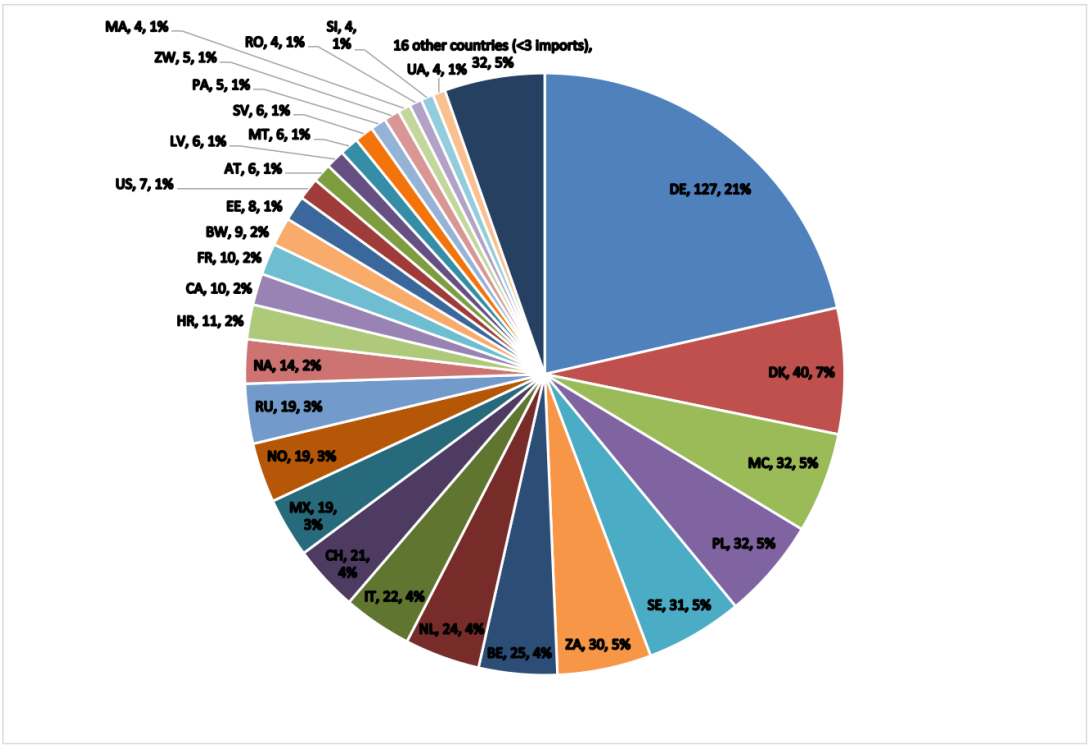
[12] CoP17 Doc. 57.4 and Cop17 Doc. 40; see Introduction above
[13] See CITES Decisions 17.178-17.180. Available at https://cites.org/eng/dec/index.php
[14] https://trade.cites.org/, data downloaded on 26 June 2017.
[15] The year 1990 was chosen as it is when the Appendix I listing of the African elephants took effect.

(18), hunting trophy (4), and personal (1) purposes. In addition, 116 live elephants are listed as having been exported during this period with no listed purpose code. It is impossible to tell from the trade data where exactly the 166 live, wild-caught elephants exported over this period for commercial purposes were destined to go, if not for circuses or zoos, but there are some elephant-based industries (such as those giving elephant rides) that could account for this figure. The figure of 366 wild-caught elephants was reported as exported from range States to zoos and circuses (see Annex 1).

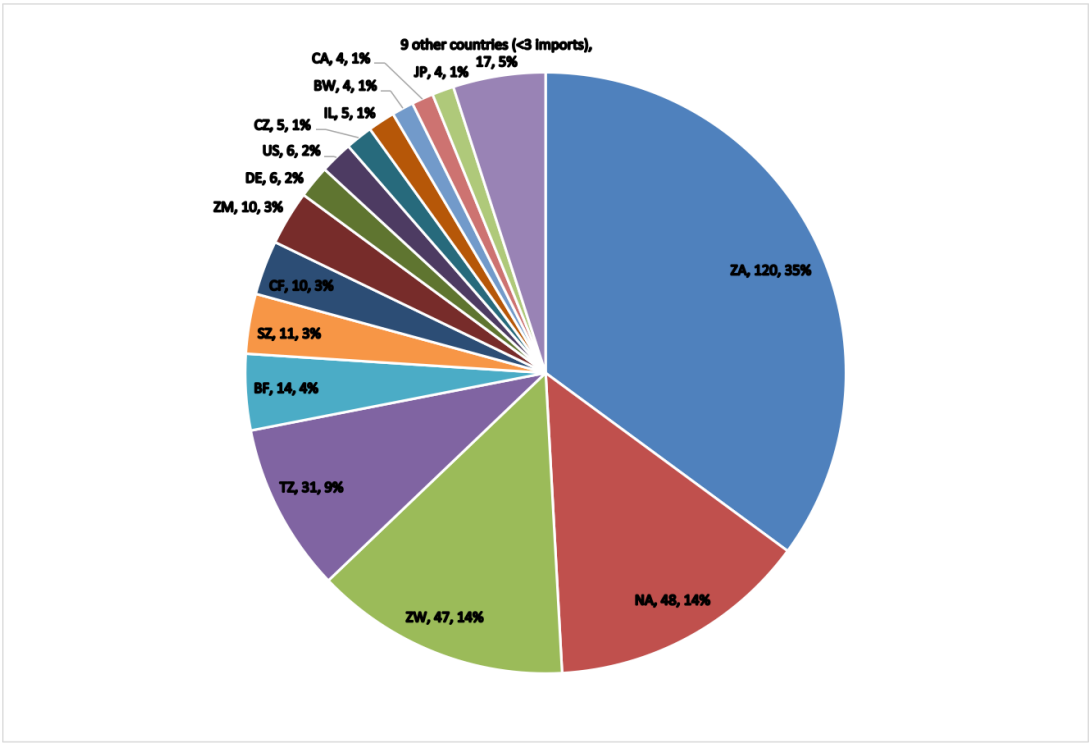
The high number for circuses probably reflects, in part, the same elephants repeatedly moving across international borders. Trade data show that exports of live African elephants for the purposes of circuses (Figure 1a) were dominated by European countries – see below – with African countries providing fewer wild-caught elephants directly to the circus environment (e.g. South Africa 5%, Namibia 2.4%, Botswana 1.5% of total exports for circus purposes).

3.2 Analysis of export data

Information from the CITES Trade Database indicates that South Africa, Namibia, and Zimbabwe have been the top three exporters of live, wild-sourced elephants for zoos, together comprising 72% of such exports from range States, or 215 elephants, during 1990-2015 (Figure 1b and Annex 1). The top three range States for exports directly to circuses were South Africa, Namibia and Botswana, with exports of 49 elephants equaling 71% of number from range States (69) but only 9% of the global total (592). By contrast, the top four world-wide exporters for circus purposes (with two countries tied in third place) were Germany, Denmark, Monaco and Poland, moving 231 elephants, or 39% of the global total (Figure 1a and Annex 1). It appears that most of the elephants traded for circus purposes were originally exported from Africa for zoo purposes and then re-exported between non-range States.



a)

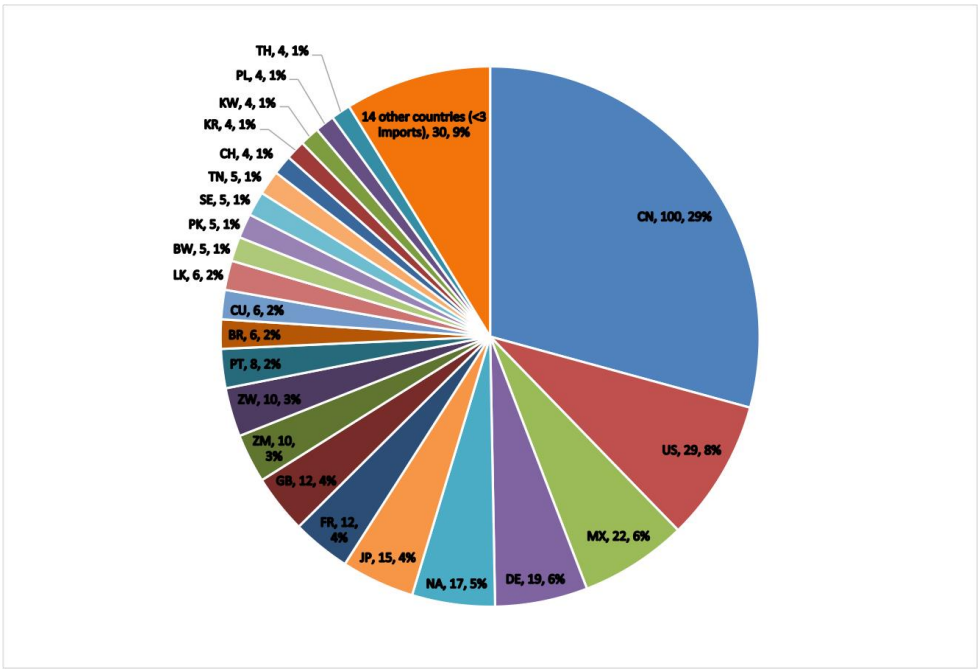


b)

Figure 1. Gross exports of live, wild-sourced African elephants, from 1990-2015, for the purposes of a) circuses and b) zoos.

3.3 Analysis of import data

The CITES Trade Database indicates that the top three importers for zoos between 1990 and 2015 were China, the USA and Mexico (Figure 2a and Annex 2). China imported 100 animals (29% of total imports), while the USA and Mexico imported comparatively fewer animals (29 and 22 elephants respectively) over the same period. Imports for circuses over the same time period were dominated by European countries, namely Denmark, Germany, Sweden, Poland, Italy, Norway, and Monaco which, added together, accounted for 55% of total imports (Figure 2b).



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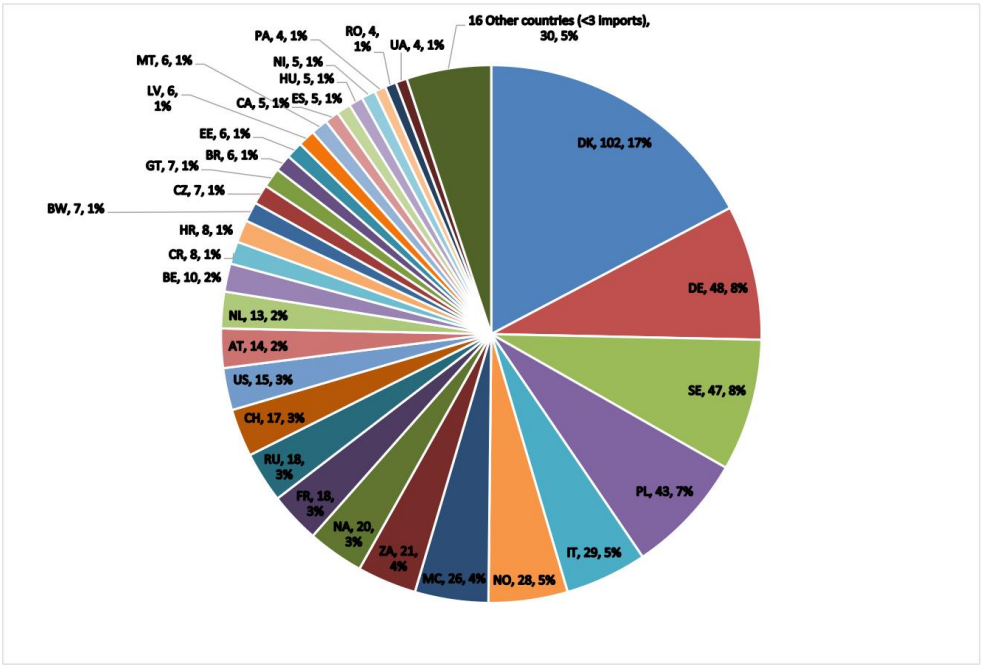

Figure 2. Gross imports of wild-sourced African elephants, from 1990-2015, for the purposes of a) zoos and b) circuses

Trade for zoos (Figure 3) has fluctuated over time, whereas trade for circuses, while relatively high up to the late 1990s, has declined markedly in recent years (see Annexes 3 and 4).

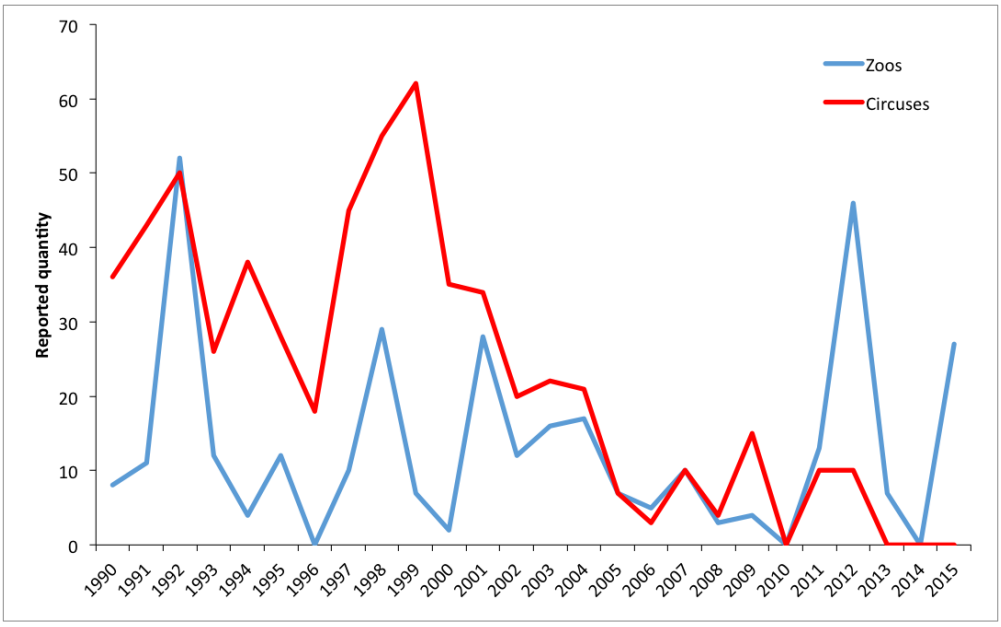

Figure 3. Trends in international trade of live, wild-sourced elephants for zoos and circuses, 1990-2015.

3.4 Live African elephants currently in captivity

The European Elephant Group[16] provides an estimate of the number of wild-sourced African elephants currently (2017) held in zoos (including safari parks) and circuses worldwide (Table 3). The figures for zoos include elephants that have been transferred from zoos or circuses to

[16] The European Elephant Group maintains a comprehensive collection of data on elephant husbandry in zoos and circuses (stock of elephants, births, deaths, accidents, husbandry facilities, etc.). For almost 20 years, the EEG has been publishing this data; so far it has produced six reports. http://www.european-elephant-group.com/english.htm

sanctuaries (USA is the only country with African elephants in sanctuaries) and the figures for circuses include other establishments using elephants for public entertainment.

Table 3. Wild-sourced African elephants held in captivity in zoos and circuses in 2017.

Country	Zoos and Safari parks		Circuses		Total
	No. of institutions	No. of elephants	No. of institutions	No. of elephants	
Austria	1	4 (1,3)	--	--	4 (1,3)
Belgium	3	7 (1,6)	--	--	7 (1,6)
Czech Republic	2	5 (0,5)	--	--	5 (0,5
Denmark	1	3 (0,3)	2	4 (0,4)	7 (0,7)
Estonia	1	3 (1,2)	--	--	3 (1,2)
France	5	10 (1,9)	4	5 (0,5)	15 (1,14)
Germany	10	25 (3,22)	9	29 (1,28)	54 (4,50)
Hungary	1	1 (0,1)	--	--	1 (0,1)
Israel *	1	2 (0,2)	--	--	2 (0,2)
Italy	3	4 (1,3)	3	3 (0,3)	7 (1,6)
Netherlands	2	8 (2,6)	--	--	8 (2,6)
Poland	3	7 (0,7)	--	--	7 (0,7)
Portugal	1	3 (0,3)	1	4 (0,4)	7 (0,7)
Slovakia	1	2 (0,2)	--	--	2 (0,2)
Spain	5	17 (1,16)	--	--	17 (1,16)
Sweden	1	3 (1,2)	--	--	3 (1,2)
Switzerland	1	5 (1,4)	--	--	5 (1,4)
United Kingdom	6	12 (1,11)	--	--	12 (1,11)
Totals Europe	48	121 (14,107)	19	45 (1, 44)	166 (15,151)
Canada	2	3 (1,2)	--	--	3 (1,2)
USA	42	139 (17,122)	11	16 (0,16)	155 (17,138)
Totals Canada-USA	44	142 (18,124)	11	16 (0,16)	158 (18,140)
Argentina	2	3 (0,3)	--	--	3 (0,3)
Brazil	3	5 (2,3)	--	--	5 (2,3)
Chile	1	2 (1,1)	--	--	1 (1,1)
Colombia	3	5 (2,3)	--	--	5 (2,3)
Cuba	1	6 (1,5?)	--	--	6 (1,5?)
Mexico	11	22 (7,15)	1	2 (0,2)	24 (7, 17)
Puerto Rico	1	1 (0,1)	--	--	1 (0,1)
Venezuela	3	4 (0,4)	--	--	4 (0,4)
Totals Latin America	25	48 (13,35)	1	2 (0,2)	50 (13,37)
Algeria	1	2 (0,2)	--	--	2 (0,2)
Egypt	1	1 (0,1)	--	--	1 (0,1)
Mali	1	1 (0,1?)	--	--	1 (0,1?)
Morocco	1	2 (0,2)	--	--	2 (0,2)
South Africa	2	4 (2,2)	1	5 (0,5)	9 (2,7)
Tunisia	1	3 (1,2)	--	--	3 (1,2)
Uganda	1	2 (1,1)	--	--	2 (1,1)
Totals Africa	9	15 (4,11)	1	5 (0,5)	20 (4,16)
Kuwait	1	2 (1,1)	--	--	2 (1,1)
India	1	1 (1,0)	--	--	1 (1,0)
Pakistan	2	4 (1,3)	--	--	4 (1,3)
Sri Lanka	1	1 (1,0)	--	--	1 (1,0)
China	14	80 (9,13,58)	-	--	80 (9,13,58)
Taiwan	2	4 (1,3)	--	--	4 (1,3)

Country	Zoos and Safari parks		Circuses		Total
	No. of institutions	No. of elephants	No. of institutions	No. of elephants	
Japan	22	45 (6,39)	--	--	45 (6,39)
Thailand	1	2 (1,1)	--	--	2 (1,1)
Totals Asia **	44	139 (21,60,58)	--	--	139 (21,60,58)
Totals worldwide	169	465 (70,337,58)	32	68 (1,67)	533 (71,404,58)

Notes: The numbers in brackets are (males, females, sex unknown)

* Data on Israel are included in Europe because Ramat Gan Safari takes part in the European Endangered Species Programme operated by European zoos.

** Data on Asia includes the Middle East, Southern Asia and South East Asia. These data are comparatively weak due to restrictive information access policies and/or political turmoil in some countries, and lack of data on recent elephant importations.

Of the worldwide estimate of 533 wild-sourced African elephants currently held in captivity, 465 are held in zoos and 68 in circuses; nearly seven times more wild-sourced African elephants are held in zoos than in circuses worldwide. The fact that relatively few wild-sourced African elephants are held in circuses lends further credibility to the theory that data for elephants traded internationally for circuses represents the same animals travelling back and forth across international borders.

The majority of African elephants in zoos are found in Europe (121), North America (142) and Asia (139). In Europe, the countries with most African elephants in zoos are Germany, Spain, United Kingdom and France; the United States holds the most of any single country (139); and in Asia, China and Japan predominate, with 80 and 45 African elephants respectively. Latin American countries have relatively few African elephants, with Mexico having the majority (22). There are few elephants in captivity in Africa; the majority of zoos with elephants are in the Maghreb countries north of the Sahara, or in South Africa.

Most African elephants currently in circuses are in Europe (48), with the largest number in Germany (22). The USA apparently has only 16 wild-caught African elephants still in circuses, after recent closures of the largest operation, Ringling Bros. There are few circuses with wild-caught African elephants in Latin America, only one in South Africa and none in Asia (noting that data for this region are likely incomplete).

4 Can captive destinations be “suitably equipped” or “appropriate and acceptable” for wild-caught African elephants?

Evidence presented in this section from elephant biology demonstrates that no captive facility is able to meet the social and behavioural needs of wild-caught elephants. In the context of CITES, this would mean that currently zoos cannot be considered ‘suitably equipped to house and care for’ African elephants.

The shortcomings of captive environments should mean, at the very least, that Parties should be exceptionally thorough in documenting exactly how they arrive at the conclusion that their zoos, circuses and other captive facilities meet the requirements of CITES. In fact, however, it is difficult to obtain information on how Parties are making the determination that facilities are ‘suitably equipped to house and care for’ live elephants or, indeed, who is making this determination and what are their qualifications to do so. For example, in response to requests for information by the

CITES Secretariat[17] in 2013 and 2014 following concerns expressed about the capture of young, wild African elephants for the zoo trade, mostly from Zimbabwe to China and the United Arab Emirates, the CITES Management Authorities of the United Arab Emirates and Zimbabwe advised only that they had authorized the export of seven elephants as a family group and that they conducted an inspection of the private park to which the animals will be sent, to ensure that it is an appropriate and acceptable destination.[18] In July 2015, after the CITES Secretariat corresponded with the CITES Management Authority of China with regard to an application to import 27 live elephants from Zimbabwe, the Management Authority confirmed that, after a field investigation, the CITES Scientific Authority of China had advised that the proposed recipient of the elephants was suitably equipped to house and care for them.[19] While copies of the inspection report and of the permits were provided to the CITES Secretariat, such information is not publicly available.

In this Section, we examine biological and other factors that should be taken into consideration when determining if a destination is, or can be, suitably equipped to house and care for live, wild-sourced African elephants. Fortunately African elephants are well-studied, and more is known about their needs than is the case for most species, thereby making it easier to determine what is likely to be 'suitable'.

4.1 Biological characteristics

African elephants are wide-ranging, intelligent animals with complex social structures underpinned by strong family bonds that can last a lifetime. They have rich emotional lives, with empathy, knowledge of others, and self-awareness, among other characteristics evocative of those of human beings. Elephants are extremely gregarious, and African savannah elephants congregate seasonally in their hundreds (Moss 1988, Poole & Moss 2008).

The social relationships of elephants are particularly multilayered. Social learning and behavioural innovation are essential to both individual development and to the very fabric of elephant society, tradition and culture (Lee & Moss 1999; Poole & Moss 2008). Individuals interact with many animals from different social units across a large population, and cooperative associates may not always be together in the same group. Much of a family's daily activity may be focused on approaching close associates or circumventing individuals they wish to avoid (Charif et al. 2005; Douglas-Hamilton et al. 2005). Elephants learn by observing, contacting or listening to other elephants (Lee & Moss 1999; Poole et al. 2005; Hart et al. 2001; Wemmer & Mishra 1982; Wemmer et al. 1985). Distinguishing between friends and foes, and learning where to go to find water during droughts and to find particular food items or minerals, are skills passed on from older females to their juvenile group members (McComb et al. 2001).

Although they are not as cohesive as female groups, bachelor groups of juvenile and even fully adult bull elephants often include stable companionships (Evans & Harris 2008; Lee et al. 2011). Interactions between elephants in the wild, and the stimulation that such interactions provide, are essential to well-being of both sexes, both during early life and throughout adulthood.

African elephants appear to show compassion and to grieve for lost companions (Poole 2000). They are exceptional communicators, both vocally and non-vocally. They have advanced senses of hearing and touch, excellent navigational skills, and a superb capacity to learn. They can even learn to imitate elephant calls and other sounds, a rare talent that may have evolved to facilitate social

[17] https://cites.org/eng/trade_in_live_elephants, https://cites.org/eng/eng/news/sundry/2013/20130111_ZW_CN_elephant.php, viewed 25 October 2017.
[18] https://cites.org/eng/zw_elephants, viewed 25 October 2017.
[19] https://cites.org/eng/zm_cn_ele_20150708, viewed 25 October 2017.

bonding and cohesion in elephant society (Poole et al. 2005). Even though social partners and potential mates may be separated by many kilometres, elephants keep in touch by producing and receiving very low-frequency acoustic and seismic signals that they can detect and home in on from a great distance (Heffner & Heffner 1982; O'Connell et al. 1997; O'Connell et al. 1998; Reuter et al. 1998).

African elephants in the wild are constantly on the move, behaviour that keeps their mind stimulated and their body vigorous and physically fit. Being able to roam and forage freely over a diverse and varied landscape is critical to an elephant's daily life (Poole & Granli 2009). Their long legs, cushioned foot soles and energy-conserving stride adapt African elephants for a life of continuous motion. Thanks to their highly developed sense of smell, they can detect far-off forage and water sources, including distant rainstorms, so that they can direct their travel to optimal feeding sites (Duffy 2011, Lindsay 2011). Elephants can spend up to 18 hours a day foraging, both by day and by night. They sleep for 4-5 hours or less per day, dozing while standing in midday and often lying down for a few hours during the middle of the night. Some populations travel great distances during migration in search of food and water. How much ground they cover can vary greatly between populations, or between seasons in the same population, depending on the availability of food and water. Natural home ranges for African elephants have been recorded to be as small as 30 km^2 and as large as over 10,000 km^2 (Sukumar 2003).

Given their unique biological and behavioural characteristics, African elephants have very specific needs that captive facilities must struggle to provide if they are to match what elephants can find in the wild. Failure to do so deprives the animals of crucial learning skills, and of experiences that they would have naturally acquired when living in the wild (Poole & Granli 2009).

4.2 Impacts of live capture

The CITES Secretariat has cautioned that "It should be noted that the way in which the animals are captured and kept prior to the export falls outside of the current scope of CITES and is regulated by the national laws of the countries supplying the elephants."[20] However, we believe that the psychological state of an elephant being transferred to a captive facility should have a direct effect on the ability of that facility to provide that individual animal with an "appropriate and acceptable" environment. A deeply traumatized animal requires a completely different level of care from an animal, even of the same species, that has not experienced a comparable trauma (Bradshaw et al. 2005). It is therefore useful to examine the effect that capture has on young, wild African elephants when considering whether any captive facility can meet their needs and the requirements of CITES.

The effect of removing wild elephants from their family group, either by culling, hunting, poaching or live capture, may also impact the survivability of the wild population and may therefore be relevant to the CITES non-detriment finding that is a requirement for export. It may cause harm not only to the animals captured or killed but also to their family members left behind. This impact is especially severe if the oldest female of a matriarch-led unit is removed. Removing a matriarch can fracture the social dynamics of the group. Without her, the surviving group members may suffer from chronic stress (Bradshaw et al. 2005); stress responses have been documented in African elephants affected by disturbance including confinement by fencing (Jachowski et al 2012), repeated hunting (Burke et al 2008) and culling (Slotow et al. 2001). Extensive or repeated removals of herd matriarchs from a population can lead to a generation of maladjusted or delinquent elephants who are likely to engage in "hyper-aggressive" behaviours (Bradshaw et al. 2005). While the impacts of removing a matriarch are extreme, an attempt to capture any wild elephant, whether

[20] https://cites.org/eng/news/statement/international_trade_in_live_elephants, viewed 25 October 2017.

adult, sub-adult, or calf, will also result in adverse consequences. For example, removing juvenile female caregivers from a family group may reduce the survival chances of remaining calves by depriving adult females of their "mother's helpers" (Lee 1987).

If the target elephant is a calf or juvenile – the animals most desired by the live elephant trade because they are easier to handle than larger, older animals – the capture techniques used can be particularly inhumane and damaging. Up until the mid-1990s, most young African elephants captured alive were the by-product of culling operations, when all adult members of a herd were killed (Balfour et al. 2007). Juvenile elephants remaining with their fallen mothers were easily rounded up, and often sold to captive facilities overseas. Calves captured in this way were scarred emotionally, quite likely for life, by the trauma of witnessing the killing of their mothers and other relatives (Slotow et al. 2001) and by their subsequent separation from their family group and removal from the wild (Moss 2000; Poole 2000; Slotow et al. 2000; Bradshaw et al. 2005; Lee & Moss 2011). Slotow et al. (2001) noted that orphans of culls "may not [have] adequate coping mechanisms to diffuse or ameliorate stress" and that "such unnatural trauma may have fundamental consequences".

Culling on a large scale as a management practice was finally stopped in the mid-1990s. In recent years, captures of juvenile elephants have involved separating them from their family groups with the use of helicopters and/or shotguns or other noisemaking devices, as referenced below. As this harassment continues, in some cases for hours, the youngest elephants become so fatigued that they are unable to keep up with the herd, making them easier to capture by ground crews or to tranquilize from the air followed by collection by ground personnel. While such captures are underway, the helicopter or ground crews continue to harass the adults to prevent them from returning to protect the calves. Elephants in the vicinity are seen in video footage to act in a frightened and traumatized manner (Cruise & Russo 2017).

This methodology was employed in the Tuli Block, Botswana, in 1998 (Pickover 2005), in Selati, South Africa, in 2006 (IFAW 2006), and most recently (2017) in Hwange, Zimbabwe, (Cruise & Russo 2017). It is grossly inhumane, causing significant physical, behavioural, and psychological trauma, and potentially resulting in injuries or mortality of the calves or their family members (Moss 1988; Poole 1996; Bradshaw et al. 2005; Poole & Moss 2008).

Once the calves are captured they are transported to holding facilities until shipment. Time spent in such facilities is traumatic, due not only to separation from their mothers and family groups but also to aggressive behaviours by unrelated captives, changes in diet, and the presence of humans. If the captive facilities are in the range of the original family groups, it is not uncommon for those groups to try to visit the confined calves, only adding to the short- and longer-term distress of the captive calves, their mothers and other family members. For some elephants, both captives and those who lost family members to capture, the trauma of the capture process and dissolution of family units has been likened to Post-Traumatic Stress Disorder (PTSD) (Bradshaw et al. 2005).

Symptoms of such trauma can include depression, lethargy, anxiety, increased stress, intra-specific aggression, a diminished or non-existent appetite, and other physical, behavioural, and psychological problems. These conditions can escalate into medical problems that can, in the short term, result in death or, in the longer term can contribute to premature mortality (Bradshaw et al. 2005).

Captive elephants are generally subjected to training while in temporary facilities. Training methods can be brutal and may include food and/or light deprivation, restriction of movement (using chains, ropes, or by hobbling), forcing the animal into an uncomfortable position for

extended periods of time, regular beatings (i.e. with heavy sticks, a bullhook which is also referred to as an ankus or, euphemistically, a "guide" (CAPS 2010). These abusive practices are intended to break the will of the animals so that they submit to human control and dominance.

In recognition of the unique biological characteristics of African elephants and the harm caused by live capture, South Africa has prohibited the capture of live, wild elephants for export under its National Norms and Standards for the Management of Elephants in South Africa (2008).[21] The purpose of the Norms and Standards is to ensure that elephants are managed in a way that is "ethical and humane" and which "recognises their sentient nature, highly organised social structure and ability to communicate" (Chapter 1, part 2). The Norms and Standards' guiding principles note that "elephants are intelligent, have strong family bonds and operate within highly socialised groups and unnecessary disruption of these groups by human intervention should be minimized;" "management interventions must, wherever practicable, be based on scientific knowledge or management experience regarding elephant populations and must - (i) take into account the social structure of elephants; (ii) be based on measures to avoid stress and disturbance to elephants;" and "every effort must be made to safeguard elephants from abuse and neglect" (Chapter 1, Part 3).

4.3 Concerns over welfare in captivity

4.3.1 Life quality measures in captivity and the wild

African elephants have been captured for captivity in small but consistent numbers since European colonisation of the African continent (late 1800s). With an estimated maximum longevity in the wild of 75 years (Lee et al. 2011), it would be expected that some elephants imported into captivity in the 1940s would still be alive today. However, from the available data this does not appear to be the case. Maximum captive lifespan, as estimated from evidence contained in the Elephant Encyclopedia database[22] appears to be 59 years for one African elephant female at Basel zoo, while several females in the USA have lived to over 50. Detailed survival analysis from reliable data in the studbooks for European zoos has shown that median lifespan of zoo-born African elephants is only 17 years (Clubb et al. 2008), compared with a figure from a well-studied wild population (in Amboseli, Kenya) of 56 years for natural mortality and 36 years if human-caused mortality was included. A study of African elephants in US zoos found an estimated average life expectancy of 33.0 years, compared to 44.8 years for Asian elephants (Weise & Willis 2004). However, this study looked only at elephants that survived past a young age and thus overestimated total average lifespan by ignoring juvenile mortality. The vast majority of captive elephants die at younger ages than their wild counterparts, while those born in captivity have an especially high probability of death at a young age.

In wild populations, African elephant mortality in the first two years of life can range from 4% to as much as 25% of births, depending on the harshness of the environment; in a typical savanna environment, the average is 12% (Lee et al. 2011). An analysis of the Elephant Encyclopedia database (P.C. Lee, unpublished data) indicates that captive-born African elephant calf mortality is over 30% in the first two years of life. For the US population, 54% of captive-born African elephant calves die while still juveniles (Prado-Oviedo et al. 2016).

Only a tiny proportion of captive facilities with African elephants have breeding groups of mother-daughter / sister (kin) females, as is normal in the wild. For example, in the UK, only one of the eight facilities holding African females has a typical age and kin structured group: Howletts Wild

[21] https://www.environment.gov.za/sites/default/files/gazetted_notices/nemba_elephantsinsa_g30833gon251.pdf
[22] www.elephant.se, searched 11 April 2017

Animal Park has 13 elephants, spanning 3 generations. In the USA, average herd size (for both African and Asian elephants) reported by Meehan et al. (2016) is 5.3. These figures suggest that even in facilities with a larger number of elephants (the USA maximum is approximately 13 elephants), few social or kin companions are available for interaction. Looking at African elephants alone, reported mean group size is some 4.5 animals (C. Doyle, unpublished data). The distribution is, however, skewed towards smaller sizes; 61% of the 33 zoos accredited by the USA-based Association of Zoos and Aquariums (AZA) holding African elephants have four or fewer animals, and most of these zoos (16 of 20, or 48% of the total) hold three or fewer.

Ex situ breeding is neither able to produce sufficient numbers of female calves to maintain the viability of captive collections, nor is it producing individuals who will live long and healthy lives. Female African elephants are in oestrus for a very short period of time, estimated to be between two to six days (Moss 1983), and access to males during this brief window is often limited in captivity. This is one reason why captive breeding attempts are often unsuccessful. In the USA, only 26% of African elephants over the minimum age for conception had ever calved (2012 data), and less than half the females were cycling normally (Brown et al. 2016). In EU collections, fewer females were acyclical (14.5%) but lack of social structures (kin support and other young caretakers) and inadequate access to males resulted in low breeding success, with high levels of stillbirth or obstructed birth and inadequate maternal care (34% of 67 births; Hartley & Stanley 2016). Among the US females, average age at first birth was over 21 years, while wild females typically experience their first conceptive cycle between 9-11 years (Lee et al. 2011). Reproductive failure and high levels of mortality generate a continuous and unacceptable demand by zoos for more wild elephants. Conservation organizations and elephant scientists do not consider that captive breeding of wild-caught African elephants makes a significant contribution to elephant conservation, due to the currently low breeding rates and high levels of mortality (Clubb et al. 2008).

4.3.2 Lack of adequate and diverse space

Health-associated issues facing captive elephants are of great concern. In addition, unless zoos are able to address the overall lack of opportunities for biologically relevant mental stimulation and physical activity they will never meet elephants' needs in captivity (Poole & Granli 2009).

Information on the living conditions for captive elephants is not available for most countries. A recent study of North American zoos (Meehan et al. 2016) indicated that the average space experienced by individual elephants (a weighted measure of time spent divided by the number of elephants sharing the area) in outdoor enclosures was just under 4,000m^2, with a range from just 70m^2 to some 18,000 m^2; indoor areas average only 129 m^2 in size. Compared to even the smallest wild African elephant female home range sizes (tens of km^2 for forest elephants and hundreds of km^2 for savanna elephants), even the largest captive space is tiny. Existing zoos and other captive facilities are unable to provide the kind of space required to enable wild-caught African elephants to exhibit natural behaviours or sustain physical fitness. Poole & Granli (2009) concluded that "To accommodate a population of 25-35 or more individuals and allow natural foraging and socializing behaviour we believe 50-70 km^2 (~two km^2/individual) of varied terrain and habitat is an indication of the space required."

Some zoo professionals have argued that elephants in the wild walk long distances or have large home ranges only because they need to search for food and water, and when these resources are provided for them in captivity, habitat space and complexity are not required (Hutchins 2006). Elephant biologists, however, disagree. Poole & Granli (2009) noted, in response to Hutchins, that "no zoos come close to meeting the lower range of environmental or social parameters that exist in

nature. If the general state of elephants in captivity were one of thriving, this might be acceptable, but it is not." They point out that wild elephants have evolved a range of specialized physical and behavioural adaptations to allow them to traverse long distances on a daily and seasonal basis, so as to meet their ecological, reproductive, social and cognitive requirements. Failure to use these adaptations results in foot and joint disease and psychological frustration. To put it simply, wild elephants are adapted to walk long distances, to spend three-quarters of their time searching for forage and to navigate complex social relationships, and they need to do so daily to stay healthy in body and mind.

Obesity, foot problems, arthritis, and tooth abnormalities all remain common health concerns for captive African elephants. Lack of movement, inappropriate substrates for walking, sleeping or dusting, and limited opportunity for the exercise of complex muscle systems result in weak or unfit individuals, who may also be carrying considerable excess weight. Stress on feet and bones has mechanical consequences for health over the longer term, again resulting in ill and unfit elephants with compromised welfare. Obesity has also been implicated in poor reproduction among females and reduced longevity among calves (Clubb et al. 2009).

In addition, lack of diversity and heterogeneity in the captive environment leads to chronically low states of arousal and therefore potentially low resilience to any challenges they face from their interactions with keepers or other elephants. A second issue – beyond that of limited space and diversity of that space – is that decisions about how captive elephants use their space are almost always made for them by people. Night-time space use is more often determined by managers' priorities than by the elephants', and thus social companions can neither be chosen nor avoided over a 24-hour period. This lack of a sense of control, and profound social and cognitive limitation, affects all aspects of elephant reproduction, survival and wellbeing (Poole & Granli 2009).

4.3.3 Limitations of current guidelines

Guidelines for captive elephant welfare in zoos exist in a small number of countries. Zoo organizations for which published standards are readily available include the Zoo and Aquarium Association of Australasia (ZAA), formerly the Australasian Regional Association of Zoological Parks and Aquaria (ARAZPA, 2004); American Association of Zoos and Aquaria (AZA, 2012); British and Irish Association of Zoos and Aquaria (BIAZA, 2010); and the Central Zoo Authority of India (2012). Most of these national guidelines are binding only through accreditation processes among members, rather than having the weight of national legislation behind them. The United Kingdom is an exception, in that the Secretary of State's Standards of Modern Zoo Practice (Defra, 2012), based on the BIAZA guidelines, require compliance by zoos, subject to inspection by government officials.

In 2003, a meeting was held at Tufts University in the USA to attempt to bridge the gap between zoo associations and organizations concerned with elephant welfare and well-being. This meeting launched the Coalition for Captive Elephant Well-Being (CCEWB), which produced two key documents on best practice guidelines for elephant husbandry (Kane et al. 2005a, 2005b). The Global Federation of Animal Sanctuaries (GFAS 2015) has also provided guidelines for elephant enclosures, which appear to be modeled on the CCEWB standards.

A summary of standards for housing elephants according to these "best practice" guidelines is provided in Table 4.

Table 4. Minimum standards for zoo enclosures.

Standard	Sex	Area indoors	Area outdoors
ZAA (ARAZPA)	Female, with or without calves	Not specified	900m^2 for up to 2 adult elephants; 2000 m^2 for up to 8 elephants; 250m^2 for additional elephants >2 years' old
	Male	Not specified	500m^2 per elephant
AZA	Female	37m^2	500m^2 per elephant
	Female + calf	56m^2	500m^2 per elephant
	Male	56m^2	500m^2 per elephant
BIAZA	Female	200m^2 for 4 females; 80m^2 per additional female	2,000m^2 for 4 adult females; 200m^2 per additional female
	Male	80m^2	500m^2
Central Zoo Authority, India	Either	48m^2	5,000m^2
CCEWB	Female	60m^2 overnight; 185m^2 winter quarters	Sufficient to allow walking of 10km/day
	Male	110 m^2 overnight; 320m^2 winter quarters	Same as female
GFAS	Female	240m^2 for 4 females; 80 m^2 per additional female	Sufficient to allow walking of 10km/day
	Male	110m^2	Same as female

The guidelines generally have a focus on health status (feet, teeth) but no specific reference to muscle tone or physical fitness. Overall, they consist of small indoor and outdoor space recommendations, based on a compromise between what is really needed for elephant well-being and the likelihood of compliance by the majority of zoo association members. As noted above, they fall far short of what elephant biology requires. Only a few mother-daughter (family) units exist in captivity, and the setting of "minimum numbers" at four elephants as per current UK standards, whether or not they are compatible or incompatible individuals, has little relevance to genuinely enhancing elephant social wellbeing or social choices. A recent review of the UK guidelines (Asher et al. 2015) established at least three key elements, among many others, that need urgent attention: increasing available space well beyond the minimum indoor and outdoor requirements; providing animals with choice of space occupancy and social companions rather than having keepers "micro-manage" them; and moving from a system of negative reinforcement for controlling elephants to a positive reward system. However, these suggestions, while aiming to improve care for elephants already in captivity, do not in any way adequately address all the diverse and complex social, behavioural and biological needs of an elephant in the wild. They also do not address the long-lasting psychological trauma that a forceful wild capture, usually at a very early age, has already had on the animal.

In China, which has recently accounted for the majority of imports of wild-caught African elephant calves, zoos and safari parks are managed by two national governing authorities: the State Forestry Administration (SFA) and the Ministry of Housing and Urban-Rural Development (MHURD). There is also the China Association of Zoological Gardens (CAZG), a membership-based organization. SFA, MHURD and CAZG have policies, standards or guidance concerning the management of wild animals. The National Wildlife and Domestication Announcement in April 2015[23] by the SFA bans close contact between wild animals and visitors as well as the use of animals in abusive animal performances. The CAZG Code of Management in April 2014 recommends that exhibits be designed to imitate the natural habitat and include environment enrichment; it also cautions that animals who live in a group setting in the wild should not be

[23] http://www.thepaper.cn/newsDetail_forward_1319055 (Viewed 3 November 2017)

housed solitarily or it will cause the animal stress and possibly death. Section 2.4 of the MHURD "Guidance on Further Strengthening Zoo Regulations 2010" states that zoos should provide enclosures that meet the behavioural needs of the animals and must protect animals from disturbance or irritation, and prohibits the use of animals in abusive animal performances. While these guidelines appear encouraging in general terms, it is not clear to what extent they have resulted in satisfactory standards for elephant husbandry, or even if they are being followed, in practice.

While guidelines and standards, however inadequate, do exist for zoos, there are fewer controls on, or mandated welfare conditions for, non-zoo facilities. For circuses, wild elephants are typically "tamed" through torture and other inhumane tools and effectively beaten into submission. Elephants are forced to perform acts unnatural to their wild behaviours in exceptionally confined, noisy and artificial conditions. An abundance of evidence documents the inhumane treatment and unsuitable environments under which circuses (Nelson 2011), elephant tourism camps (Marshall 2017) and similar entertainment facilities worldwide keep elephants. "Elephant rides", often seen in Southeast Asia, are on the rise in Africa, where there are some 25 current facilities in the southern African countries of South Africa, Zambia and Zimbabwe using wild-caught African elephants (World Animal Protection 2015). Botswana has recently stopped such activities. While wider non-specific welfare regulations may apply in some countries, their very non-specificity makes them of limited value when it comes to animals such as elephants with uniquely complex social and physical requirements. Zoos and other facilities in North America also offer elephant rides (IDA 2016).

5 Case study: Zimbabwe's exports to China

During the last few years, several exports of wild-sourced elephants from Zimbabwe to zoos in China have received significant media and public attention. According to information in the CITES Trade Database, between 1990 and 2015 Zimbabwe exported 35 live, wild-sourced elephants to zoos in China, eight in 2012 and 27 in 2015 (the most recent year for which figures are available). In January 2017, CGTN Africa reported that since 2012 China has imported 63 elephants from Zimbabwe,[24] indicating that additional shipments occurred in 2016 and/or 2017; it has been confirmed that 30 elephants were imported to China from Zimbabwe in December 2016 (see below).

5.1 The 2012 export

Only four of the eight calves exported by Zimbabwe to China in 2012 have been seen on public display. Taiyuan Zoo and Xinjiang Safari Park each received two calves, but three of these calves have since died.[25] The two calves at Xinjiang Safari Park reportedly died during quarantine. The last survivor is currently at the Taiyuan Zoo. A February 2013 letter to The Honorable Zhang Yesui, Ambassador of the People's Republic of China to the United States, signed by close to three dozen elephant scientists and experts, expressed profound concern about the condition of the lone calf at Taiyuan Zoo. After reviewing videos and photographs of the calf, the scientists and experts warned that "this calf is being kept in improper housing, on hard unyielding flooring, and in a barren, severely restricted space, without companionship. The calf is likely being subjected to freezing temperatures to which he is not accustomed. The calf is in very thin body condition, possibly due to poor nutrition or intense parasites. His skin appears to be very dry and irritated, with multiple skin

[24] https://www.youtube.com/watch?v=oVqA4lyu4-c
[25] http://news.nationalgeographic.com/2016/01/160101-zimbabwe-elephants-china-export-zoos-conservation-jane-goodall/

sores that could be the result of injuries sustained during transport, parasites, chronic stress, improper nutrition, viral infection, and/or the inadequate conditions in which he is kept. There is a large swelling on his belly, which could represent an injury, systemic illness, an abscess, or a hernia…"[26]

Photos taken in March 2016 of the then six-year old calf (Figure 4) demonstrate that the improper housing identified in 2013, including the "hard unyielding flooring, and in a barren, severely restricted space, without companionship," remain unchanged.

Figure 4. Six-year-old African elephant calf at the Taiyuan Zoo.
Photo taken in March 2016.

On February 19, 2017, a news article in the Chinese media reported that the calf, then aged seven, received behaviour training so that the animal would know how to respond to the veterinarian's commands for medical treatment and examination. The article mentioned that an important function for such animal behaviour training is to mitigate the negative emotions from being solitary.[27]

5.2 The 2015 export

According to the CITES Trade Database, China imported 27 live, wild-sourced elephants from Zimbabwe in 2015 for the purpose of zoos. However, apparently only 24 elephants arrived. The disposition of the three missing elephants is unknown but, given the high mortality following the 2012 shipment, they may have died before reaching their destination.

According to a Chinese news report,[28] the 24 elephants arrived at the Qingyuan Rare Animals and Plants Centre in July 2015. A statement issued by the CITES Secretariat on July 8, 2015, noted that, according to the Management Authority of China, "the Chimelong Safari Park in Southern China's Guangdong Province is the destination for the 24 elephants; the elephants will be kept in a free range setting and none of the elephants will be used for performances in this safari park." A report by CGTN Africa [29] in September 2015 (Figure 5) reported that the 24 animals "will not be on show to visitors or for commercial use. Instead, a series of scientific studies will be conducted including their behaviour and artificial breeding[30] as part of a program for Sino-Africa cooperation." The report seems to suggest that the animals were traded specifically for breeding purposes, despite the

[26] Letter to The Honorable Zhang Yesui, Ambassador of the People's Republic of China to the United States (February 7, 2013)
[27] http://www.tynews.com.cn/tynews/news_center/content/2017-02/21/content_1632640.htm
[28] https://www.youtube.com/watch?v=xlCkB8Z86u4 (accessed on April 25, 2017)
[29] "China receives elephants from Zimbabwe", (accessed April 25, 2017) https://www.youtube.com/watch?v=kNdr3koers8
[30] Author's emphasis.

zoo purpose code recorded in the CITES trade database.

Figure 5. Screengrab from CGTN Africa news report on wild-sourced elephants imported from Zimbabwe at Chimelong Safari Park in China.

The Qingyuan Rare Animals and Plants Centre is owned by Chimelong Group, which owns and operates zoos, theme parks and other entertainment and business ventures. The intent may be to breed the elephants in order to supply zoos in China, but there is no further information about Chimelong's plans.

5.3 The 2016 and 2017 export

The CITES Trade Database does not yet contain information on trade from Zimbabwe to China for 2016 or 2017. However, according to Chinese language news articles and social media accounts of zoos, three zoos in China received elephants from Zimbabwe in December 2016: Shanghai Wild Animal Park (Figure 6), Beijing Wild Animal Park (Figure 7), and Hangzhou Wild Animal Park (Figure 8). A total of 30 African elephants are on display: 12 each in Shanghai, and Beijing, and six in Hangzhou. The age of the animals is said to be between 3 and 7 for those held at Beijing Wild Animal Park;[31] and 4 years old on average, indicating that some animals may be younger than 4 years old, at Shanghai Wild Animal Park.

[31] http://mp.weixin.qq.com/s/laX79WF7PAMtPoRqUoHEUA

Figure 6. Photos released by the Shanghai Wild Animal Park in April 2017.

Figure 7. Elephants kept in an enclosure with concrete floors as seen in photos released from the Beijing Animal Park's social media account.

Figure 8. Elephants kept in an enclosure with a concrete floor at Hangzhou Wild Animal Park as seen on the zoo's social media account.

In May 2017, the Shanghai Entry-Exit Inspection and Quarantine Bureau, in response to inquiry, released the inspection and quarantine records of 29 elephants imported from Zimbabwe on December 25, 2016. The records show that the animals were imported through Shanghai Pudong airport. Twelve elephants were intended for Beijing Wild Animal Park and seventeen for Shanghai Wild Animal Park (confirmed by an application from the Shanghai Wild Animal Park displayed on

the Shanghai Forestry Bureau's website).[32] However, the Quarantine Bureau noted in its records that one elephant intended for Shanghai Wild Animal Park died during transit. The report stated that when the officers boarded the plane after its arrival from Zimbabwe, one elephant was motionless; they transported the animal to the zoo and confirmed it was dead; after dissection, their diagnosis was death from an overdose of tranquilizer.

Only twelve of the sixteen remaining animals arrived at Shanghai Wild Animal Park, according to information on the Park's social media. It was reported in June 2017 that the other four animals were expected to arrive at Lehe Ledu zoo in the Chongqing area in Western China,[33] but in September 2017 Chinese press reported that only three had arrived.[34] It was also reported that the elephants traveled for more than 30 hours from Shanghai, where they were kept in quarantine for ten months. Elephant scientist Dr. Joyce Poole commenting in an article in The Guardian, published in October 2017, on the elephants at Lehe Ledu[35], noted that "one of the females looked pinched and stressed…. In the wild, you only see the pinched, sunken look in sick or orphaned elephants."[36] The disposition of the one missing elephant is unknown.

5.4 November 2016: Zimbabwe inspects Chinese zoos

In November 2016, the Zimbabwe Parks and Wildlife Management Authority (ZPWMA), which is the agency that houses the CITES Management and Scientific Authorities of Zimbabwe,[37] and the Zimbabwe National Society for the Prevention of Cruelty to Animals (ZNSPCA), travelled to China to assess facilities where elephants captured in Zimbabwe were destined to be sent. The Zimbabwe delegation consisted of the Head of Management Services of Zimparks, the Chief Inspector of the Zimbabwe National Society for the Prevention of Cruelty to Animals, and the Hwange National Park Ecologist. According to their report, entitled "Property, Protocol, and Environmental Assessment for Proposed Wildlife Translocations to Seven Safari Parks in China", the purpose of the visit was to "assess seven properties which are involved in tourism in six cities who have shown an interest in purchasing elephants from Zimbabwe."

The facilities were assessed for compliance with the requirement that they qualify as 'appropriate and acceptable destinations' for elephants in accordance with Resolution Conf. 11.20 (Rev. CoP17). The sites visited were: Shanghai Wild Animals Park, Hangzhou Safari Park, Beijing Safari Park, Paomaling Safari Park, Jinan Wild World, Chong Qing and Jing De Zhen Zhu Xian Dong Safari Park. Two of the parks, Shanghai Wild Animal Park and Hangzhou Safari Park, had been inspected by the same group in 2015 and, according to the November 2016 report, were "approved to receive elephants only if certain conditions were met to ensure the safe keeping and maintenance of their mental health. Thus this second visit was to ensure that the recommendations made had been adhered to."

The following concerns and recommendations are from the report's summary:

- "Although Shanghai, Beijing and Hangzhou were to receive elephants from Zimbabwe before the end of the year, their quarantine area and exhibition facilities have not been completed. It is recommended that the animals be kept in Zimbabwe until the holding facilities in China are completed and assessed for compliance by Zimbabwe as it is its

[32] Accessed on October 2016
[33] http://www.cq.xinhuanet.com/2017-06/01/c_1121067850.htm
[34] http://cd.qq.com/a/20170916/027733.htm; http://www.cq.xinhuanet.com/2017-09/18/c_1121680306.htm; http://www.cqwb.com.cn/mxw/2017-09/16/content_385372017214466.htm
[35] https://www.theguardian.com/environment/2017/oct/03/exclusive-footage-shows-young-elephants-being-captured-in-zimbabwe-for-chinese-zoos
[36] *Ibid.*
[37] https://cites.org/eng/cms/index.php/component/cp/country/ZW

obligation to do so."

- "Some of the safari parks such as Hangzhou and Jing De Zhen have shown signs of poor treatment of the animals. It is recommended that such places should not be given animals until they prove their ability to take care of them."
- "Recommendations of structures to be built were made to the five new facilities to ensure that the ecological and ethological needs of the elephants are met."
- "Where these safari parks had erred in building their structures, recommendations for changes were made, thus the need for another visit once these are completed to ensure the comfort of the animals."

The November 2016 inspection visited three of the four zoos that received elephants from the December 2016 shipment (see above) shortly thereafter. In each case (see the summaries below) the facilities were found to have serious shortcomings, and the fourth appears not to have been inspected at all. It is inexplicable that only a month later the facilities were judged by permitting officials to be 'appropriate and acceptable' and 'suitably equipped to house and care for' the elephants they received.

Shanghai Wild Animal Park:

- "The quarantine area has been built differently from the plan which was shown to the delegation which assessed the site in 2015."
- "An assessment of the site showed that the building was not up to standard (Figure 5) as the following flaws were noted;
  - The poles used are too small and need to be reinforced with bigger ones
  - The poles are badly corroded in some areas and need to be painted
  - The poles are far apart and pose a danger to the young elephants, thus they need to be reinforced with more.
  - The tops of the poles are bare and sharp, needing to be covered to prevent injuries to the animals
  - The bolts holding the poles are too sharp and to prevent injury to the animals, they need to be covered.
  - The concrete floor is too smooth and sand need to be poured over it
  - A water bath needs to be made in the outside area and a shade provided for periods of extreme heat
  - The elephants should not be forced into the winter enclosure but should be allowed access to it at their will
  - The compartments which have been made both inside and outside to separate the animals should be removed"
- "Some of the recommendations made in 2015 were followed while some were not"
- "The plan for the exhibition area was never availed to Zimbabwe for approval and provision of advice and it was a surprise to find that they were already building. The structure they are in the process of building is not ideal for elephants (Figure 6) and recommendation for change to adapt it to the needs of elephants were made."
- "In general the ecological and ethological needs of elephants were not being considered when the plans for these structures were drawn up."
- "Animals should only be translocated **once all the structures have been completed and**

inspected." (emphasis added)

Beijing Wild Animal Park:

- "The park has experience with elephants as it currently housing two Asian elephants *Elephas maximus* which they claim to have "borrowed" from another safari park as visitors love to see elephants and they do not have any of their own yet. The Asian elephants were kept in an enclosure with little ventilation in separate holding pens. The troughs did not have water (Figure 1) and when the keepers were asked why this was the case, they said they preferred to provide water to the animals through a hosepipe as putting water in the troughs resulted in the animals splashing the water all over the floor. When water was provided in the trough the animals were excited and started drinking and were evidently thirsty."
- "The elephants were displaying stereotypic behaviour, pacing around in circles in their pens. The animals had been confined for a long period and no enrichment was provided for them. Their behaviour was a clear indication of mental stress. The animals kept touching each other through the pens displaying the need for social interaction."
- "The elephants were not the only species whose ecological and ethological needs were not being met. Below is a list of conditions that were not ideal for the animals;
  - The grass in the park is kept short and manicured and to keep this up, most animals species are kept in a small enclosures with very limited space for movement
  - Most of the water troughs did not have water
  - The vultures were tethered onto their perches"
- "The area set aside for elephants is in-between the Bengal tiger and African lions' enclosures. This is not a good idea as these species are both predators."
- "The park does not have facilities for the African elephant yet and thus are not ready to receive the elephants. If the elephants are translocated before the site in completed, they will spend four months in the quarantine area."
- "The borrowing of animals between zoos is an issue of concern as these animals can be moved to zoos which have not been inspected for their capability to take care of the elephants."
- "The mental stress of the Asian elephants in the parks' care indicates that the personnel have not provided for the ecological and ethological needs of the elephant thus resulting in the animals suffering."
- "The individual holding pens for the elephants on the plan do not provide for the social needs of elephants as they are social animals."
- "The elephants should **only be transported from Zimbabwe once the exhibition area has been completed and assessed**." (emphasis added)

Hangzhou Wild Animal Park:

- "The construction has just begun as they are still working on the foundation of the indoor facility. According to the plan which was never availed to Zimparks for approval and advice, the structure will have individual compartments for the animals."
- "There are 4 Asian elephants that are already present at the park. In the last visit it was noted that their treatment did not meet the recommended best practices. In this visit it was saddening to note that not much had been done to improve their living conditions, with the bull tied down in an indoor enclosure because he was on musth with no access to fresh water. Another elephant was also locked up in an enclosure with a chain on its leg. This animal showed stereotypic behaviour as it kept moving in circles in the bare enclosure. The outdoor area had also not been improved."
- "The area that has been set for the African elephants is ideal in size although it needs to be

greatly improved to meet the needs of elephants."

- "It is worrying that they are still failing to take care of the Asian elephant whose treatment is considered as the treatment which will be awarded the African elephant. It is therefore recommended that other that the completion of the exhibition area and its inspection, they be encouraged to take better care of the Asian elephant **and only be given the African elephant when there is no doubt of how it will be treated**." (emphasis added)

Lehe Ledu Zoo in Chongqing / Chong Qing Safari Park:

- The inspectors did not visit Lehe Ledu Zoo in Chongqing, but they did visit the Chong Qing Safari Park, which is apparently a separate facility.
- The elephant enclosure had not been built at the time of the inspection.

5.5 The trade continues

Despite the inadequacies documented in the November 2016 report and the lack of evidence that these have been remedied, captures of live, wild-sourced elephants in Zimbabwe for zoos in China continue to this day.

The online version of the October 2017 article in The Guardian, mentioned in Section 4.3 above, contained exclusive footage[38] showing the August 2017 capture of young, wild elephants in Hwange National Park, Zimbabwe, in preparation for yet another export to Chinese zoos. The article reported, "In the most disturbing part of the footage, a small female elephant, likely around five years old, is seen standing in the trailer….the animal still groggy from the sedative, is unable to understand that the officials want her to back into the truck, so they smack her on her body, twist her trunk, pull her by her tail and repeatedly kick her in the head with their boots" (Figure 9). According to the report, fourteen elephants were captured during that operation and an estimated 30 - 40 elephants were to be captured in total.

[38] https://www.theguardian.com/environment/2017/oct/03/exclusive-footage-shows-young-elephants-being-captured-in-zimbabwe-for-chinese-zoos

Figure 9. Small female elephant captured in Zimbabwe in 2017. Source: The Guardian, 3 October 2017[39]

According to The Guardian, two elephant biologists who examined the photos and footage, Dr. Joyce Poole and Audrey Delsink, said the captured animals were frightened, apprehensive, and stressed. Dr. Poole said the elephants in the holding pens were "bunching" – huddling together because they are frightened. Ms. Delsink said she believed that most of the elephants were aged between two and four, having just been weaned or were a year or two into the weaning process. According to the article, "A number of the calves, she said, were displaying temporal streaming – a stress-induced activity. "Many of the gestures indicate apprehensive and displacement behaviour – trunk twisting, trunk curled under, face touching, foot swinging, head-shaking, ear-cocking, displacement feeding, amongst others.""

6 Other recent cases

6.1 Swaziland to USA

The most recent import of wild-caught African elephants to the USA occurred in March 2016, with the import of 17 elephants from Swaziland to three zoos: Dallas Zoo in Texas, Sedgwick County Zoo in Kansas, and Omaha's Henry Doorly Zoo in Nebraska (Salazar 2016). The group included 11 juvenile females, three juvenile males, and three adult females. Genetic relatedness among the group had not been determined through testing prior to the import (Peters 2017c). One juvenile intended for import died in December 2015 prior to the group's transfer to the USA, reportedly due to an untreatable gastrointestinal condition (Peters 2016). The group also included one pregnant female who gave birth at the Dallas Zoo just two months after arrival (Dallas Zoo 2016), a violation

[39] https://www.theguardian.com/environment/2017/oct/03/exclusive-footage-shows-young-elephants-being-captured-in-zimbabwe-for-chinese-zoos

of CITES transport (IATA) guidelines[40], which discourage transport of mammals in the last third of pregnancy unless for medical purposes.

In September 2017, Omaha's Henry Doorly Zoo reported that 8-9-year-old Warren, one of the imported juvenile male elephants, died while under anesthesia during a procedure to make a mold of a cracked tusk for the purpose of creating a protective cap (Peters 2017b; Henry Doorly Zoo 2017). The elephant's problem with tusk cracks reportedly dated back to at least May 2017. This elephant had arrived at the zoo with a broken ankle, which subsequently became infected (Peters 2017b). Warren was kept off-exhibit until July 2016 when the ankle injury was considered healed, although as of March 2017 he was reported to hold up the affected foot while standing still (Peters 2107a). The Omaha zoo had planned to breed Warren with elephants at the Omaha zoo, depending on the results of genetic testing, and possibly would have later transported him to other zoos for additional breeding (Peters 2017c).

6.2 Namibia to UAE

In May 2017, Namibia's authorities reportedly issued CITES permits for the sale of five wild-caught elephant calves to "Dubai Safari" in UAE.[41] The elephants, between four and eight years old were captured from the Eden Game Farm in the Grootfontein district, which offers trophy hunting opportunities for a variety of African species including elephants.[42] According to various news reports, it was intended that they would be removed from their mothers, isolated and "tamed" for translocation to a zoo in Dubai.[43] This case raised considerable controversy[44], not only because of the cruelty involved in separating calves from their mothers, but also because the African elephants in Namibia are listed in Appendix II of CITES with an annotation that specifically limits export of live elephants to "*in situ* conservation programmes" thereby restricting exports to such programmes in the species' natural habitat. The transfer of elephants to Dubai would not be in accordance with this restriction.

Possibly in response to this controversy, the Namibian government now appears to have halted the transfer. According to a 24 October 2017 report in the *Namibian Sun*[45], the Ministry of Environment and Tourism has sought a court order to force the return of three of the five elephants earmarked for export to the Eden Game Farm. According to the Ministry, the elephants were transported illegally and kept in containers for months. Criminal and civil cases have been opened against Johan Lombaard, co-owner of the capture company Golden Game CC, who is apparently not registered to capture elephants and whose holding facility had not been approved by the Ministry. The remaining two elephants have been released into a larger camp.

Namibian Environment Minister Pohamba Shifeta described the situation in which the animals had been kept at Lombaard's farm as "horrific", said that "at the most 1000 hectares must be available where such animals can be kept", and stated that "First you need to apply for a permit and stipulate where the animals will be kept and whether the animal will be able to survive. We don't encourage that animals should be in captivity and will make this a law… Animals have to be treated fairly. We have to look into the issues of how animals are being transported and treated in Namibia."

[40] https://www.cites.org/sites/default/files/eng/resources/transport/transport_guidelines_2013-english.pdf
[41] http://travel.iafrica.com/bulletinboard/1050116.html
[42] See http://www.eden-wildlife.com/index.html
[43] http://travel.iafrica.com/bulletinboard/1050116.html
[44] http://www.sabreakingnews.co.za/2017/06/12/world-outrage-at-planned-export-of-baby-elephants-from-namibia/
[45] https://www.namibiansun.com/news/court-order-sought-over-elephants/

Shifeta – who had, as recently as June 2017[46], insisted that the sale was not for commercial purposes but "purely for conservation as Namibia has seen an increase in its elephant population and in human-wildlife conflict" and that CITES requirements had been met – further said the ministry had not approved the export of the five elephants from Eden to Dubai: "We have not checked whether the conditions and environment in that country will be conducive for the elephants. Apart from permission that was given by CITES for the export, the ministry did not give approval. They cannot leave this territory without my signature and permission…. It is no joke keeping elephants. When we say they can't be exported to another country because they are kept in zoos and used in circuses, we cannot put Namibia's name to it."

Since 2007, when the current annotation took effect (see page 8, Table 2) for Appendix II populations, Namibia has exported 33 elephants. All the exports went to non-range States and were recorded under Appendix I. Namibia's varying use of Appendix I and Appendix II to record its trade over the years highlights a problematic aspect to the implementation of the listings and interpretation of the annotation.

7 Conclusions

The African elephant is a charismatic and iconic species with strong local and international support for its protection. Serious concern has been expressed by elephant scientists and experts, African elephant range States, the general public and others about the negative welfare impacts caused by capture of young elephants from wild herds for the purpose of export to zoos and circuses.

CITES has not established guidance or standards for determining whether a facility that is to receive live African elephants is suitably equipped to house and care for them. This means that Parties can and do make arbitrary decisions that are not science-based. As described in this document, even when experts have advised that facilities are not suitably equipped to house and care for African elephants, the elephants have, nonetheless, been captured and exported/imported to those facilities.

Bradshaw et al. (2005) summarized the problems facing any facility claiming to be an "appropriate and acceptable" destination for wild-caught young African elephants:

> "Current methods for conserving both wild and captive elephant populations fail to preserve elephant social systems. Even successful rehabilitation centres, such as The David Sheldrick Wildlife Trust, can only partially restore social processes because there are not enough older herd members. There is an added danger to social breakdown, namely that selection for asocial heritable traits in the absence of normal socialization may increase under adverse conditions. All these factors bring into question what kinds of behaviour are being promulgated in both *ex situ* and *in situ* conservation programmes, and compel new conservation strategies that promote normal social patterns."

Elephant biologists Joyce Poole and Petter Granli warned (Poole & Granli 2009) that "The stated aim of zoos is to meet the behavioural and biological needs of the species they hold captive. When it comes to elephants, however, zoos are woefully inadequate." The current paper argues, and we believe demonstrates, that there is no captive facility suitably equipped to house and care for live, wild-caught African elephant calves forcefully removed from their family groups. As a consequence, there should be no such trade. The new requirement in Resolution Conf. 11.20 (Rev. CoP17) that trade in live animals must promote *in situ* conservation also means that there should be

[46] http://www.sabreakingnews.co.za/2017/06/12/world-outrage-at-planned-export-of-baby-elephants-from-namibia/

no trade of wild-caught African elephants to captive facilities, in light of the IUCN African Elephant Specialist Group's clearly expressed view that it is of "no direct benefit for *in situ* conservation of African elephants".

As CITES Parties move this matter forward through the Animals and Standing Committees, we consider it imperative that they take into account the recommendation made by Burkina Faso, Central African Republic, Chad, Kenya, Mali, Niger and Senegal at CITES CoP17 (CoP17 Doc. 57.4) that, emergencies aside, the only recipients that should be regarded as "appropriate and acceptable" or "suitably equipped to house and care for" wild-caught African elephants are "*in situ* conservation programmes or secure areas in the wild within the species' natural range."

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Annexes

Annex 1. Gross exports of wild-sourced African Elephants for zoo and circus purposes, 1990-2015

Country	Zoos	Circuses	Zoos + Circuses
South Africa	120	30	150
Namibia	48	14	62
Zimbabwe	47	5	52
Tanzania	31	0	31
Burkina Faso	14	0	14
Botswana	4	9	13
Swaziland	11	0	11
Central African Republic	10	0	10
Zambia	10	0	10
Libya	0	6	6
Morocco	0	4	4
Sudan	1	0	1
Togo	0	1	1
Tunisia	1	0	1
Totals Africa	***297***	***69***	***366***
Germany	6	127	133
Denmark	0	40	40
Monaco	0	32	32
Poland	0	32	32
Sweden	0	31	31
Belgium	0	25	25
Netherlands	0	24	24
Switzerland	3	21	24
Italy	1	22	23
Norway	0	19	19
Russian Federation	0	19	19
France	2	10	12
Croatia	0	11	11
Czech Republic	5	3	8
Estonia	0	8	8
Austria	0	6	6
Malta	0	6	6
Israel	5	0	5
United Kingdom	2	3	5
Romania	0	4	4
Slovenia	0	4	4
Ukraine	0	4	4
Spain	0	3	3
Hungary	0	2	2
Former Soviet Union	0	2	2
Turkey	0	2	2
Finland	1	0	1
Slovakia	0	1	1
Totals Europe	***25***	***461***	***486***
Canada	4	10	14
USA	6	7	13
Totals Canada-USA	***10***	***17***	***27***
Mexico	0	19	19
El Salvador	0	6	6
Panama	0	5	5
Costa Rica	1	3	4

Country	Zoos	Circuses	Zoos + Circuses
Venezuela	0	3	3
Dominican Republic	0	2	2
Honduras	0	2	2
Nicaragua	0	2	2
Belize	0	1	1
Totals Latin America & Caribbean	***1***	***43***	***44***
Japan	4	1	5
Hong Kong	0	1	1
Sri Lanka	1	0	1
Totals Asia	***5***	***2***	***7***
Unknown	4	0	4
Totals worldwide (exc. Unknown)	**338**	**592**	**934**

Source: CITES Trade Database

Annex 2. Gross imports of wild-sourced African Elephants for zoo and circus purposes, 1990-2015

Country	Zoos	Circuses	Zoos + circuses
Namibia	17	20	37
South Africa	3	21	24
Botswana	5	7	12
Zambia	10	0	10
Zimbabwe	10	0	10
Tunisia	5	0	5
Egypt	3	0	3
Lesotho	0	2	2
Morocco	0	2	2
Algeria	1	0	1
Totals Africa	***54***	***52***	***106***
Denmark	0	102	102
Germany	19	48	67
Sweden	5	47	52
Poland	4	43	47
France	12	18	30
Italy	0	29	29
Norway	0	28	28
Monaco	0	26	26
Switzerland	4	17	21
Russian Federation	0	18	18
Austria	3	14	17
Netherlands	2	13	15
United Kingdom	12	1	13
Belgium	1	10	11
Czech Republic	3	7	10
Croatia	0	8	8
Portugal	8	0	8
Spain	2	5	7
Estonia	0	6	6
Latvia	0	6	6
Malta	0	6	6
Ukraine	2	4	6
Hungary	0	5	5
Romania	0	4	4
Slovenia	0	3	3
Turkey	0	3	3
Israel	2	0	2
Kazakhstan	0	1	1
Slovakia	0	1	1
Former Soviet Union	0	1	1
Totals Europe	***79***	***474***	***553***
USA	29	15	44
Canada	2	5	7
Totals Canada-USA	***31***	***20***	***51***
Mexico	22	1	23
Brazil	6	6	12
Costa Rica	0	8	8
Guatemala	0	7	7
Cuba	6	0	6
Nicaragua	0	5	5
Panama	0	4	4
Colombia	0	3	3
Argentina	2	0	2

Country	Zoos	Circuses	Zoos + circuses
Aruba	0	2	2
Chile	2	0	2
Dominican Republic	0	2	2
Totals Latin America & Caribbean	***38***	***38***	***76***
China	100	0	100
Japan	15	1	16
South Korea	4	2	6
Sri Lanka	6	0	6
Pakistan	5	0	5
Kuwait	4	0	4
Thailand	4	0	4
India	2	0	2
Singapore	0	2	2
Iran	0	1	1
Totals Asia	***140***	***6***	***146***
Unknown	0	2	2
Totals worldwide	**342**	**590**	**934**

Source: CITES Trade Database

Annex 3. Imports and exports of wild-source African elephants for zoo purposes, 1990-2015 (from Comparative tabulations with double-counts removed)

Year	Appendix	Importer	Exporter	Origin	Reported quantity
1990	I	Canada	United States	Unknown	1
	I	France	South Africa		3
	I	Japan	South Africa		2
	II	Sweden	Germany	Zimbabwe	2
1991	I	Austria	Germany	Unknown	1
	I	Chile	South Africa		2
	I	Spain	South Africa		1
	I	United Kingdom	South Africa		4
	I	Poland	Germany		1
	I	Portugal	South Africa		2
1992	I	Sri Lanka	Botswana		4
	I	Austria	Germany	Tanzania	1
	I	Austria	Germany	Zimbabwe	1
	I	France	Israel	Kenya	1
	I	Namibia	Japan		4
	I	Botswana	Sri Lanka	Unknown	1
	I	Germany	Namibia	South Africa	1
	I	Germany	Namibia		2
	I	United Kingdom	Namibia	South Africa	4
	I	Japan	Namibia	South Africa	10
	I	Mexico	United States	Zimbabwe	3
	I	Mexico	United States		1
	I	Botswana	South Africa		4
	I	Sri Lanka	South Africa		2
	I	Namibia	South Africa		13
1993	I	Argentina	Namibia	South Africa	2
	I	Portugal	South Africa		6
	I	United States	South Africa		2
	I	Sweden	South Africa		2
1994	I	Israel	United Kingdom	Tanzania	2
	I	Thailand	South Africa		2
1995	I	Brazil	South Africa		4
	I	Germany	South Africa		8
1997	I	China	Tanzania		10
1998	I	France	Czech Republic	Kenya	2
	I	Brazil	Namibia		2
	I	China	South Africa		15
	II	Germany	South Africa	Botswana	4
	II	India	Zimbabwe		2
	I	United Kingdom	South Africa		4
1999	II	Switzerland	South Africa	Botswana	3
	II	Germany	South Africa	Botswana	4
2000	I	France	Israel	Unknown	1
	I	Switzerland	Italy	Zimbabwe	1
2001	I	Japan	Burkina Faso		3
	I	China	Central African Republic		10
	I	Belgium	Czech Republic	South Africa	1
	I	France	Israel	Tanzania	2
	I	France	Israel	Unknown	1
	I	China	Tanzania		5

Year	Appendix	Importer	Exporter	Origin	Reported quantity
	I	Egypt	Tanzania		1
	I	Tunisia	Burkina Faso		5
2002	I	United States	Canada	Mozambique	1
	I	United States	Swaziland	South Africa	11
2003	I	Algeria	France		1
	I	Canada	United States	Mozambique	1
	I	United States	South Africa		11
	II	Czech Republic	South Africa		3
2004	I	Poland	South Africa		3
	II	United States	Canada	Zimbabwe	1
	II	Netherlands	Switzerland	Zimbabwe	2
	I	France	Czech Republic	South Africa	1
	II	South Africa	Namibia	South Africa	1
	II	South Africa	Namibia		2
	I	Spain	Tunisia	Unknown	1
	I	Egypt	Tanzania		2
	II	China	South Africa		2
	I	Ukraine	France	Namibia	1
	II	France	Czech Republic	South Africa	1
2005	I	Kuwait	Burkina Faso		4
	I	Thailand	Burkina Faso		2
	II	Ukraine	Finland		1
2006	I	Pakistan	Sudan		1
	II	China	South Africa		4
2007	II	United States	Canada	Unknown	2
	II	China	South Africa		8
2008	I	United States	Costa Rica		1
	II	South Korea	South Africa		2
2009	I	Pakistan	Tanzania		4
2011	I	China	Tanzania		7
	I	South Korea	Tanzania		2
	I	China	Unknown		4
2012	I	Mexico	Namibia		18
	I	Zimbabwe	Zambia		10
	II	China	Zimbabwe		8
	I	Zambia	Zimbabwe		10
2013	I	Sweden	Switzerland	Botswana	1
	I	Cuba	Namibia		6
2015	II	China	Zimbabwe		27

Source: CITES Trade Database

Annex 4. Imports and exports of wild-source African elephants for circus purposes, 1990-2015 (from Comparative tabulations with double-counts removed)

Year	Appendix	Importer	Exporter	Origin	Reported quantity
1990	I	Austria	Italy	Zimbabwe	3
	I	Germany	Denmark	Zimbabwe	8
	I	Denmark	Germany	Zimbabwe	10
	I	Denmark	Poland	Netherlands	1
	I	Spain	Poland	Netherlands	1
	I	France	Switzerland	Zimbabwe	1
	I	Italy	Austria	Zimbabwe	3
	I	Netherlands	Sweden	Zimbabwe	2
	I	Sweden	Denmark	Republic of Congo	2
	I	Sweden	Denmark	Zimbabwe	2
	I	Sweden	Poland	Netherlands	1
	II	Sweden	Denmark	Zimbabwe	2
1991	I	Austria	Germany	Kenya	1
	I	Austria	Germany	Unknown	4
	I	Austria	Germany		4
	I	Canada	USA	South Africa	2
	I	Denmark	Belgium	Zimbabwe	1
	I	Denmark	Germany	Zimbabwe	3
	I	Denmark	Netherlands	South Africa	3
	I	Denmark	Netherlands	Zimbabwe	3
	I	France	Poland	Democratic Republic of Congo	1
	I	Italy	Former Soviet Union		1
	I	Malta	Italy	South Africa	3
	I	Malta	Italy	Zimbabwe	3
	I	Norway	Poland	Unknown	1
	I	Norway	Sweden	Zimbabwe	2
	I	Sweden	Germany	Namibia	2
	I	Sweden	Germany	Zimbabwe	3
	I	Sweden	Netherlands	Zimbabwe	2
	I	Sweden	Norway		2
	I	Sweden	Poland	Unknown	1
	I	Former Soviet Union	Italy		1
1992	I	Austria	Poland	Netherlands	1
	I	Denmark	Belgium	Namibia	1
	I	Denmark	Belgium	Zimbabwe	2
	I	Denmark	Germany	Zimbabwe	7
	I	Guatemala	Mexico	Unknown	3
	I	Guatemala	Mexico	South Africa	3
	I	Italy	Malta	South Africa	3
	I	Italy	Malta	Zimbabwe	3
	I	Italy	Former Soviet Union	South Africa	1
	I	Norway	Germany	South Africa	2
	I	Norway	Germany	Zimbabwe	1
	I	Sweden	Germany	Zimbabwe	6
	I	Sweden	Denmark	Zimbabwe	2
	I	Singapore	Hong Kong	South Africa	1
	I	USA	Mexico		3
	I	Unknown	Russian Federation	South Africa	1
	I	South Africa	Botswana		10
1993	I	Aruba	Venezuela	Unknown	2
	I	Denmark	Germany	Namibia	1
	I	Denmark	Germany	Zimbabwe	2
	I	Denmark	Sweden	South Africa	1

Year	Appendix	Importer	Exporter	Origin	Reported quantity
	I	Denmark	Sweden	Zimbabwe	6
	I	Norway	United Kingdom	Zimbabwe	3
	I	Sweden	Denmark	Unknown	5
	I	Sweden	Denmark	Zimbabwe	4
	I	USA	Mexico	South Africa	2
1994	I	Austria	Germany	South Africa	1
	I	Belgium	Sweden	Zimbabwe	1
	I	Belgium	Sweden		1
	I	Brazil	Mexico	Zimbabwe	3
	I	Czech Republic	Poland	Unknown	2
	I	Germany	Austria	South Africa	1
	I	Germany	Austria	Zimbabwe	2
	I	Germany	Norway	ZM	2
	I	Germany	Sweden	Zimbabwe	2
	I	Denmark	Germany	Zimbabwe	2
	I	Denmark	Namibia		1
	I	Denmark	Sweden	Namibia	1
	I	Norway	Germany	Unknown	5
	I	Norway	Germany	Zimbabwe	2
	I	Poland	Czech Republic	Unknown	2
	I	Poland	Norway	Unknown	3
	I	Sweden	Belgium	Unknown	1
	I	Sweden	Belgium	Zimbabwe	1
	I	Sweden	Denmark	Namibia	1
	I	Sweden	Denmark	Zimbabwe	2
	I	Sweden	Russian Federation	Namibia	1
	I	USA	Russian Federation	Namibia	1
1995	I	Brazil	Mexico	Zimbabwe	3
	I	Botswana	South Africa		3
	I	Colombia	Dominican Republic	Unknown	2
	I	Germany	Monaco	Unknown	5
	I	Denmark	Germany	South Africa	1
	I	Monaco	Germany	Unknown	5
	I	Poland	Netherlands	South Africa	3
	I	Poland	Netherlands	Zimbabwe	3
	I	Poland	Norway	South Africa	2
	I	Poland	Norway	Zimbabwe	1
1996	I	Czech Republic	Slovakia	Unknown	1
	I	Denmark	Germany	South Africa	1
	I	Denmark	Germany	Zimbabwe	5
	I	United Kingdom	Spain	Unknown	1
	I	Croatia	Italy	Zimbabwe	2
	I	South Korea	USA	South Africa	1
	I	Mexico	Belize	Unknown	1
	I	Nicaragua	El Salvador	Unknown	3
	I	Poland	Germany	Zimbabwe	2
	I	Slovakia	Czech Republic	Unknown	1
1997	I	Denmark	Belgium	Namibia	1
	I	Denmark	Belgium	Zimbabwe	2
	I	Denmark	Switzerland	Zimbabwe	2
	I	Denmark	Germany	South Africa	3
	I	Denmark	Germany	Zimbabwe	4
	I	Estonia	Russian Federation	Namibia	1
	I	Spain	Morocco	Namibia	4
	I	Hungary	Germany	Zimbabwe	3
	I	South Korea	USA	South Africa	1
	I	Morocco	Spain	Namibia	2

Year	Appendix	Importer	Exporter	Origin	Reported quantity
	I	Netherlands	Russian Federation	Zimbabwe	2
	I	Norway	Germany	Zimbabwe	4
	I	Poland	Netherlands	South Africa	2
	II	Poland	Germany	Namibia	1
	II	Poland	Germany	Zimbabwe	4
	II	Poland	Netherlands	Zimbabwe	2
	I	Russian Federation	Denmark	Zimbabwe	2
	I	Russian Federation	Estonia	Namibia	1
	I	Uganda	Poland	South Africa	2
	I	Uganda	Poland	Zimbabwe	2
1998	I	Denmark	Germany	South Africa	2
	I	Denmark	Germany	Zimbabwe	3
	I	Hungary	Italy	Zimbabwe	2
	I	Italy	Hungary	Zimbabwe	2
	I	Italy	Poland	South Africa	2
	I	Italy	Poland	Zimbabwe	2
	I	Italy	Slovenia	South Africa	1
	I	Japan	Russian Federation	Namibia	1
	I	Namibia	South Africa		10
	I	Netherlands	Poland	South Africa	1
	I	Netherlands	Poland	Zimbabwe	3
	I	Norway	Germany	South Africa	1
	I	Norway	Russian Federation	Namibia	1
	I	Norway	Sweden	ZM	4
	I	Poland	Uganda	South Africa	2
	I	Poland	Uganda	Zimbabwe	2
	I	Sweden	Norway	Zimbabwe	4
	I	Singapore	Norway	Namibia	1
	I	Slovenia	Italy	South Africa	1
	I	South Africa	Namibia		10
1999	I	Switzerland	Germany	Zimbabwe	2
	II	Switzerland	France	Zimbabwe	4
	I	Costa Rica	El Salvador	Unknown	3
	I	Germany	Norway	Zimbabwe	4
	I	Germany	Poland	South Africa	2
	I	Germany	Poland	Zimbabwe	1
	I	Denmark	Belgium	Namibia	1
	I	Denmark	Belgium	Zimbabwe	3
	I	Denmark	Germany	South Africa	3
	I	Denmark	Germany	Zimbabwe	4
	I	France	Switzerland	Zimbabwe	2
	I	France	Monaco	Zimbabwe	2
	I	France	Russian Federation	Namibia	1
	II	France	Monaco	Zimbabwe	2
	II	France	Russian Federation	Namibia	1
	I	Guatemala	Mexico	Unknown	1
	II	Kazakhstan	Russian Federation	Namibia	1
	II	Namibia	South Africa		10
	I	Netherlands	Poland	South Africa	1
	I	Netherlands	Poland	Zimbabwe	3
	I	Norway	Germany	Zimbabwe	2
	I	Poland	Germany	South Africa	2
	I	Poland	Germany	Zimbabwe	1
	I	Poland	Netherlands	South Africa	1
	I	Poland	Netherlands	Zimbabwe	3
	I	Russian Federation	Japan	Namibia	1
	II	Russian Federation	France	Namibia	1

Year	Appendix	Importer	Exporter	Origin	Reported quantity
2000	I	Belgium	Russian Federation	Namibia	1
	I	Switzerland	Denmark	Zimbabwe	2
	I	Switzerland	France	Zimbabwe	1
	I	Costa Rica	Mexico		1
	I	Costa Rica	Nicaragua		1
	I	Costa Rica	Panama	Unknown	1
	I	Germany	Estonia	Zimbabwe	4
	I	Germany	Poland	South Africa	1
	I	Germany	Poland	Zimbabwe	3
	I	Denmark	Belgium	Namibia	1
	I	Denmark	Belgium	Zimbabwe	2
	I	Denmark	Germany	Zimbabwe	1
	I	Denmark	Sweden	Zimbabwe	2
	I	Dominican Republic	Panama	Unknown	1
	I	Estonia	Latvia	Zimbabwe	2
	I	France	Switzerland	Zimbabwe	2
	I	Latvia	Sweden	Zimbabwe	2
	I	Panama	Costa Rica		2
	I	Poland	Sweden	Unknown	3
	I	Poland	Sweden	Zimbabwe	1
	I	USA	Canada	Mozambique	1
2001	I	Canada	USA	Mozambique	1
	I	Costa Rica	Panama	Zimbabwe	1
	I	Germany	Monaco	Namibia	1
	I	Germany	Monaco	Zimbabwe	3
	I	Dominican Republic	Panama	Unknown	1
	II	Estonia	Sweden	Zimbabwe	3
	I	France	Russian Federation	Namibia	1
	II	France	Switzerland	Zimbabwe	2
	I	Italy	Croatia	Unknown	1
	I	Latvia	Russian Federation	Namibia	1
	II	Latvia	Estonia	Zimbabwe	3
	I	Monaco	Germany	Namibia	1
	I	Monaco	Germany	Zimbabwe	5
	I	Panama	Costa Rica	Zimbabwe	1
	I	Russian Federation	France	Namibia	1
	I	Russian Federation	Turkey	Namibia	1
	II	Russian Federation	Belgium	Namibia	1
	I	Sweden	Latvia	Zimbabwe	3
	I	Turkey	Russian Federation	Namibia	1
	I	USA	Canada	Mozambique	1
	I	Unknown	Canada	South Africa	1
2002	II	Botswana	South Africa		4
	I	Canada	USA	Mozambique	1
	II	Switzerland	France	Zimbabwe	2
	I	Germany	Monaco	Zimbabwe	2
	I	Croatia	Italy	South Africa	1
	I	Croatia	Italy	Zimbabwe	2
	I	Italy	Croatia	Unknown	4
	I	Italy	Croatia	Unknown	1
	II	Italy	Croatia	South Africa	1
	II	Italy	Croatia	Zimbabwe	1
	I	Russian Federation	Latvia	Namibia	1
2003	I	Canada	USA	Mozambique	1
	I	Colombia	Venezuela	Unknown	1
	I	Germany	Switzerland	Zimbabwe	2
	II	France	Switzerland	Zimbabwe	2

Year	Appendix	Importer	Exporter	Origin	Reported quantity
	I	Croatia	Italy	Zimbabwe	2
	II	Italy	Slovenia	Zimbabwe	2
	II	Monaco	Germany	Zimbabwe	4
	I	Poland	Germany	Zimbabwe	3
	II	Slovenia	Croatia	Zimbabwe	2
	I	USA	Canada	Mozambique	3
2004	I	Switzerland	Germany	Zimbabwe	4
	I	Costa Rica	Honduras	Zimbabwe	1
	I	Germany	Switzerland	Zimbabwe	3
	I	Croatia	Slovenia	South Africa	1
	I	Italy	Croatia	Italy	1
	I	Nicaragua	Honduras	Zimbabwe	1
	I	Nicaragua	Panama	Zimbabwe	1
	I	Panama	Nicaragua	Zimbabwe	1
	II	Romania	Belgium	Zimbabwe	4
	I	USA	Canada	Mozambique	1
	I	USA	Canada	Unknown	3
2005	II	Denmark	Romania	Namibia	1
	II	Denmark	Romania	Zimbabwe	3
	II	Monaco	Switzerland	Zimbabwe	2
	II	Netherlands	Switzerland	Zimbabwe	1
2006	I	Switzerland	Netherlands	Zimbabwe	2
	II	South Africa	Togo		1
2007	I	Belgium	Namibia		1
	I	Belgium	Zimbabwe		2
	I	Iran	Turkey		1
	I	Monaco	Belgium	Namibia	1
	I	Monaco	Belgium	Zimbabwe	3
	I	Turkey	Italy	Zimbabwe	1
	II	Turkey	Italy	Zimbabwe	1
2008	I	Belgium	Monaco	Namibia	1
	I	Belgium	Monaco	Zimbabwe	3
2009	I	Germany	Switzerland	Zimbabwe	2
	I	Denmark	Russian Federation	Namibia	1
	I	Denmark	Russian Federation	Zimbabwe	3
	I	Russian Federation	Denmark	Namibia	1
	I	Russian Federation	Denmark	Zimbabwe	3
	I	Russian Federation	Namibia		2
	I	Russian Federation	Zimbabwe		3
2011	I	Denmark	Monaco	Zimbabwe	4
	II	France	Monaco	South Africa	1
	I	Monaco	Denmark	Zimbabwe	4
	II	Monaco	France	South Africa	1
2012	I	Czech Republic	Monaco	Zimbabwe	4
	I	Denmark	Monaco	Zimbabwe	4
	II	Lesotho	South Africa		2

NATIONAL CAPTIVE WILD ANIMAL WELFARE STANDARD

Introduction

Zoos, safari parks and aquariums are public centres that should provide the highest possible standards of conservation, education, research and animal husbandry and welfare. The National Captive Wild Animal Welfare Standard defines, directs and supports the enforcement of such standards to support the operation of zoos, safari parks and aquariums.

This document details fundamental captive wild animal husbandry requirements that are essential for the protection of animal well-being and supports positive in- situ conservation efforts. The standard facilitates improved conditions for captive wild animals, by setting achievable husbandry standards for captive wild animal facilities and provides direction for authorities to both implement and enforce those standards.

While this standard contains some supplementary guidance through further codes of practice, it requires further guidelines and regulations for the provisions for specific species and management policies. It delegates authority to define specific standards of captive animal care and welfare, and can be used as guidance for addressing non- compliance with the standard content.

Contents

1 Scope

This standard lays down provisions for the management and operation of all zoos, safari parks and aquariums, including private facilities, animal rescue facilities or any other facility that holds wild animals under human care (referred to in this standard as "institutions". It includes provisions for management systems, the husbandry and welfare of animals, conservation and research practices, and educational and recreational aspects. This standard does not cover the management or operation of circuses and pet shops.

Alongside these standard guidelines, implicit in the principles and consequent practices of modern institutions are the following:

a) Provide a supportive environment for the animals, that must;
   1. Be based on knowledge of the animal's biology and behaviour in the wild.
   2. Appropriately address the cognitive abilities of the animals,
   3. Allow the animals to behave and exercise normally,
   4. Protect their health and safety, and
   5. Offer an interesting and stimulating environment.

b) Provide a supportive environment for the animals, personnel and the public;

c) Provide provisions of educational opportunities for learning about animals and their environments.

d) A facility should employ or be prepared to train staff to be suitably experienced in the care of the animals housed within the institution.

e) The number of animals kept at the zoo must not be greater than the capacity of the zoo to achieve and only animals that can be comfortably and suitably housed throughout their lifetime at the zoo should be brought into the collection.

The principles below provide a framework for animal welfare standards and are based on the five-domain animal welfare concept. The sections cover Nutrition, Environment, Health, Behaviour and Managing Positive Experiences for Animals. Each section has further Subsidiary Guidelines at the end of the document. The document also includes an Annex that covers specific policies and activities in more detail.

2 Normative reference

The following document, in whole or in part, are normatively referenced and is indispensable for its application. For undated references, the latest edition of the referenced document (including any amendments) applies.

WAZA Welfare Strategy 2015
WAZA Conservation Strategy
Wild Welfare Core Fundamentals 2015

3 Terms and Definitions

NOTE The meaning of definitions is determined by context, but in cases of dispute concerning meaning, the decision of the authority administering this standard is final.

acceptable
acceptable in terms of international norms
adequate
sufficient and suitable for the intended purpose
animal
any mammal, bird, reptile, amphibian, fish, invertebrate or other sentient organism that is not a plant or a fungus
barrier
structure built to contain or prevent passage

- **containment barrier**
  the primary barrier that in its effect confines the animal
- **safety barrier**
  the barrier designed to keep humans at a safe distance from the animal enclosure and to prevent human / animal conflict

behavioural enrichment
is a concept which describes how the behavioural repertoires of animals under human care can be managed and enhanced for their wellbeing
biosecurity
is a means of reducing the risk of disease occurring or being transmitted to other animals
captivity
state wherein animals are kept in confinement by human beings, whereby the animals' day-to-day needs, welfare and wellbeing are subject to the provision of human intervention and care
cognition
the mental process of acquiring knowledge through the senses, experience, understanding and thought and which involves reasoning, perception, awareness, intuition and judgement.
commercial breeding centre
a facility where live animals are bred, produced or cultured for purely commercial purposes
commercial exhibit facility
a legal facility where living animals are exhibited to the public for exclusively commercial purposes
pet shop
a mercantile facility for the retail sale of live animals and related goods or services
positive reinforcement
the addition of a reward following a desired behaviour.
competent
capable of executing one's duties effectively
conspecific
an animal belonging to the same species as another
domesticated animal
an animal that has been genetically modified through selective breeding over many generations in order to serve various human objectives
domesticated pet
is a domesticated animal kept by humans for household/personal companionship and pleasure
environmental enrichment
is a concept which describes how the environments of animals under human care can be managed for their wellbeing through the provision of a species appropriate stimulating environment.
epidemiology

the investigation of disease as it affects groups of animals

exotic pet

an animal kept by humans that is not fully domesticated and that belongs to a species not indigenous to the geographical area where it is kept, but which is kept by humans for household/personal companionship and pleasure

euthanasia

the humane, painless and distress-free termination of an animal's life where it is considered to be in the best interest of the individual animal concerned, using a method which produces concurrent loss of consciousness and central nervous system functioning

feral animal

a domestic animal that is living in a wild state which has poor habituation to, and fear of, humans. Placing such an animal into a typical household situation would as such, have detrimental effects on its wellbeing.

hybrid species

an offspring of two animals of different races, breeds, varieties, species, or genera

justifiable

supportable by argument

longevity

the length or duration of life

management authority

Senior Personnel within the facility responsible for day-to-day management and administration

negative reinforcement

the process of removing or withholding an aversive during training

normal behaviour

behaviour that occurs at a frequency, duration and intensity within the range expressed by free-living wild conspecifics

private collection

a collection of animals without visiting public access, for the exclusive benefit to a private individual or individuals

rehabilitation centre

a permanently-sited facility without visiting public access, exclusively administered for the short term, temporary care of indigenous wild animals with the primary aim of their return to the wild

sanctuary

a permanently-sited facility exclusively administered for on-site, long term or lifelong, individual animal care. A sanctuary is a facility that rescues and provides care for animals that are in need of appropriate care, or have suffered abuse, injury or have been abandoned.

sentience

is the capacity to have subjective experiences and feel and perceive emotions such as pain and pleasure. It implies a level of conscious awareness and the ability to suffer.

species

a kind of animal that does not normally interbreed with individuals of another kind and includes any sub-species, cultivar, variety, geographic race, strain, hybrid or geographically separate population

specimen

any living or dead animal, egg, gamete, or propagules or part of an animal, capable of propagation or reproduction or in any way transferring genetic traits; any derivative of any animal

suffering

an adverse mental state that negatively affects the welfare status of an animal and is associated with negative experiences such as pain, distress, extreme boredom, injury and disease.

suitable

appropriate for the intended purpose

stereotypy

repetitive behaviour with no obvious goal or function that can often indicate poor welfare in animals

technical

according to principle; formal rather than practical and relating to, or employing the methodology of science

veterinarian

any person legally registered as a veterinarian with the appropriate legislative body in the country within which the institution is located.

welfare

the welfare of an individual animal is "its state as regards its attempts to cope with its environment" (Broom 1986, cited in Broom 2007, p103); welfare concerns the state of the animal, not the husbandry practices used to manage the animal or the care it receives. The welfare status of an individual animal takes into account the different sensations or emotions experienced by the animal, whether they be positive or negative. Therefore, an animal's welfare state will be good when it experiences positive emotions that may result when the animal is in good health, can comfortably and safely rest, play and readily express a range of normal behaviours, and if it is not experiencing negative or unpleasant feelings such as fear, frustration, pain or distress. It involves a human responsibility to provide appropriate housing, veterinary treatment, behavioural management, nutrition, disease management, responsible care and use, humane handling and, when necessary, euthanasia/humane killing.

wellbeing

a state of harmony between the animal's physical and psychological functioning

wild animal

a species of animal not domesticated in terms of this document and which retains its wild traits

zoo/aquarium

a permanently-sited facility primarily open to and administered for the visiting public, where living animals are maintained under predominantly ex situ circumstances.

- **bird park**
  a facility specialising in the public exhibition of live birds
- **reptile park**
  a facility specialising in the public exhibition of live reptiles

zoonosis

a disease that is communicable between vertebrate animals and man. (Zoonoses – plural).

4 Animal Welfare Concept

This standard specifies the primary welfare requirements for the maintenance of wild animals is dependent upon the provision of daily care by humans and adopts the concept of the 'Five Domains'. This acts as a foundation, defining and underpinning fundemental standards and considerations.

In the Five Domains model, the four functional domains (nutrition, environment, health and behaviour) are concerned with biological function, or physical well-being. The fifth domain considers the 'affective state' or psychological well-being, and represents the animal's overall feelings and experiences. Both the functional domains and the affective state must be provided for to provide the highest standards of care.

This standard supports the implemention of management techniques and standards that utilise the five domain model of animal welfare, and promotes positive physical and mental health for every species accommodated within institutions whilst also minimising unpleasant experiences for the animal.

5 Prohibited Practices

Prohibited practices are those that demonstrate unnecessary suffering, and prevent the application of the principles and practices the standard is promoting.

5.1. The feeding of live vertebrate animals to other vertebrates: The live feeding of vertebrate prey should be avoided save under exceptional circumstances, and only under veterinary advice. Where it has to be undertaken, a written justification and ethical review process must have been undertaken and agreed by senior staff weighing up the welfare of predator and prey; feeding must be observed and live prey not left in the enclosure. Such feeding should not take place in the presence of the public. (does not apply to embryos or fetuses)

5.2. Training techniques involving physical punishment, or training practices that compromise the animal's physical or behavioural health, development or psychological well-being.

5.3. Animal demonstrations and close contact encounters that are detrimental to the physical or psychological well-being of the animals. Photo opportunities and visitor handling with wild animals should be strictly prohibited.

5.4. Confinement in barren, un-stimulating enclosures that severely restrict physical movement and compromise psychological wellbeing (see Section 8.1/8.2)

5.5. Mutilation procedures for cosmetic purposes or to make an animal safe for handling: Mutilation is defined as an action that deliberately injures, disfigures, or physically changes an animal by removing or irreparably damaging parts of its body. Examples of mutilation include pinioning, de-clawing and teeth removal.

5.6. Unregulated feeding of the animals by visitors: Animal food should not be sold to visitors to discourage public feeding of the animals. Where feeding of specific animal species by visitors, for example some domestic farm species housed in touch paddocks within zoological institutions, has been approved by the Management Authority, only suitable food provided by the institution should be used and the feeding controlled to prevent over-feeding. Visitor feeding must be regularly reviewed by the institution's ethics and welfare committee and Management Authority.

5.7. The breeding of animals that results in overcrowding, disease, injury or isolation of animals within an institution.

5.8. The breeding of hybrid animals. Where a hybrid animal is bred by accident, if transferred to another collection, the recipient organisation must be informed that the animal is a hybrid. If practical, the animal should be permanently sterilised prior to transfer.

6 Husbandry and welfare of captive animals

Providing a high standard of care and positive animal welfare should be a priority for all institutions holding captive wild animals and included in the institutional mission statement. Institutions should ensure staff caring for the animals understands the natural biology of each animal species and their fundamental physiological requirements during all stages of their life, as well as their natural behaviours. It is recommended that at least one paid staff member, with experience in animal welfare concepts, should be employed by the insituation to help co-ordinate specific welfare management programmes.

7 Nutrition

7.1 Nutrition and Feeding

An institution should always ensure clean water and a nutritionally appropriate diet is provided. Food should be presented to animals in a way that satisfies the animal's natural feeding

behavioural requirements and motivations. Foraging/hunting or simply aquiring food can be a significant part of an animal's activity and food related enrichment strategies should form an important part of enrichment programs.

7.2 Food Hygiene

The preparation and storage of food for animals must be carried out in a dedicated area that is hygenic; where the food is protected from damp and contamination and perishable foods are kept refrigerated. Feeding and drinking receptacles in the enclosures should be cleaned daily and uneaten food removed regularly.

8 Environment

8.1 Environmental enclosure design & management

Animal enclosures should be designed to meet the physical, physiological and psychological requirements of the animal at all times and throughout its entire lifetime.

Enclosure size, shape and layout must be designed to provide opportunities for the animal to perform natural and normal behaviours at all times and have places for refuge from the viewing public. Institutions should only keep animals that can be provided with the appropriate physiological environmental requirements.

Enclosure design must be of a sufficient space, shape and layout that allows for social species to be kept in compatible, non-aggressive groups, but overcrowding must be avoided at all times. All off show and quarantine facilities should be of a similar high standard to on show facilities and provide species suitable accommodation.

Enclsoure design should allow for appropriate human intervention that minimises stress to the animals, including capture, handling, cleaning and maintenance, and general husbandry and veterinary practices.

8.2 Structural Enclosure Design

An enclosure's structural design should protect animals from injury as well as aggression between co-specifics. It should be predator proof, well maintained and prevent the spread of parasites. Enclosure design should include appropropriate control over temperature, ventilation, lighting, humidity and noise control that meets the species physiological needs.

8.3 Servicing

The design of animal accommodation must primarily address the needs and requirements of the specific species to be accommodated but enclosures must also be designed for staff access so they can be regularly maintained and protect animals from injury. In addition to the safety of the animals, the safety of the staff and visitors is important in the overall design of animal enclosures. Veterinary consultation on enclosure design can help ensure that the enclosure structure and facilities will be conducive for carrying out any necessary veterinary and other management procedures safely and securely and stress free.

8.4 Transport and Movement of Animals

The transportation of captive wild animals can be an extremely stressful experience for the animals. The welfare of the animal should be considered at all times, including capture, handling and during transport, and carried out by experienced personnel only. The transportation and movement of animals should conform to all relevant legislation and standards and must adhere to an institutional transport plan that includes all necessary travel

permits, records, health checks and ensures that transport facilities are safe and suitable for the species to provide for adequate accommodation and standard of care while in transportation

8.5 Transactions & Acquisitions of Animals

Management must consider the necessity of all animal transactions. The movement of animals should only occur when it can be shown to be in the best interests of the species, individual animal or social group to which that animal belongs. An acquisition should only occur if the institution has the appropriate facilities and expertise to care for the species to a high standard, and there is a commitment to the welfare of the animal over the course of their lifetime; ensuring that the welfare is not compromised if it is deemed necessary to transfer the individual to another facility

All animal transactions and acquisitions must provide appropriate documentation to ensure recognised welfare standards are upheld, in addition to confirming adherence to all necessary (regional, national or international) legislation.

Animal acquisition from the wild is prohibited unless:

- It is done solely for the purpose of improving the welfare of an individual animal due to a high likelihood of experiencing irreversible suffering if left in the wild;
- An individual that have been confiscated as part of an illegal trade and cannot be returned to the wild;
- It involves an endangered species whose habitat is being destroyed and is unable to relocate to another suitable location. This species must be part of a strategic rehabilitation and re-release into the wild programme at a pre-planned date.

All such action must be linked to measurable and effective habitat conservation.

9 Health

9.1General Animal Health

A fundamental requirement for good welfare is the maintenance of good health, and instituations should have appropriate husbandry and management procedures in place to provide good health to all animals in their care. Good preventative medicine and veterinary records, alongside appropriate capture, diagnostic and treatment facilities are essential for any instituation holding wild aniamls.

All animals should be kept in good physical condition, demonstrate normal, expected and positive behaviours, growth, reproduction and life expectancy. An animal demonstrating disease, trauma, pain, abnormal behaviours and stress should be attended too immediately by an experienced veterinarian or personnel.

9.2 Veterinary Care

Good veterinary provisions should always be available. A comprehensive programme of care should be established at a level that is consistent with the overall welfare needs of all the animals, and maintained under the supervision of an experienced veterinarian. If specific veterinary care cannot be provided for a species, that species should not be held at the instituation.

9.3 Veterinary facilities

Instituations should have access to veterinary facilities that adaqeutly provides for both preventative and curative treatement to support a high standard of veterinary care. This

includes the quarantine and examination of new animal arrivals for transmissable diseases, the treatment of parasites, the care of nursing animals, post-mortem access and for the care of sick or injured animals.

9.4 Euthanasia

Euthanasia should be carried out where an animal's physiological or psychological welfare is severely compromised and cannot be adequately improved through veterinary care and management. Euthanasia must be undertaken in a stress free manner that involves a rapid and painless death and performed by personnel trained in the handling of species and the administration of euthanasia drugs. Internationally recognised drugs proven to ensure a pain free death must be used.

An ethical review should be undertaken for all euthansia procedures and also include animals that are killed to feed other animals at the zoo. All institutions should have a documented euthanasia protocol which is reviewed regularly. (See Annex (F))

9.5 Record Keeping

Records must be kept and maintained of all individually recognisable animals and groups of animals in the institution contributing to a long term archive system (see Annex (G)). Animal records must provide information that relates to the management, veterinary care, health and welfare of the animals. Where possible, all animals should be individually identified by a marking that causes the animal no long-term harm and does not affect their natural behaviour.

9.6 Escapes

All institutions should hold a written emergency protocol for managing animal escapes which must comply with all relevant local and national legislation. A record of all escapes must be kept and every attempt must be made to recover all escaped animals, live or dead.

10 Behaviour

10.1 Environmental Enrichment

Environmental enrichment should be part of the daily care routine and be equipped and designed to aid and encourage normal and positive behaviour patterns and minimise any abnormal behaviour.

Institutions should have a written environmental enrichment protocol for all species held. The protocol should be regularly reviewed by an expert committee and consider all aspects of an animal's environment to create a stimulating and appropriately complex environment. The protocol should include species appropriate; enclosure design, enclosure infrastructure, diet and feeding, social or compatable grouping, training, animal keeping and veterinary practices.

10.2 Animal Training

Training is required for the treatement, movement and care of animals to reduce stress and ensure their positive welfare. The training of animals for shows or entertainment is strongly discouraged. Training must not cause the animal any pain, injury or distress and all methods of training must use positive reinforcement techniques. The deliberate infliction of injury, pain or fear is unacceptable and should not be practised.

10.3 Animal Close Encounters

Animal close encounters can be described as visitor encounters with live animals. These include touch pools, walk-through exhibits, hands-on education, petting zoos, dive experiences and animal shows. In all situations where close contact with captive wild animals occurs, it

must focus on educating visitors about natural animal behaviours, animal biology and conservation issues. It must be strictly regulated and controlled to adequately protect the welfare of the animals, as well as the health and safety of members of the public.

All close encounter experiences should be subject to regular risk assessments and ethical review processes. Direct contact with animals is strongly discouraged. If it occurs, animals involved must have received appropriate training, be habituated to such interactions and must always be supervised and under the direct control of an experienced, competent animal keeper.

10.4 Welfare Assessments

A welfare assessment can be either a clinical assessment carried out by an experienced vet, or an observational assessement. (See Annex (D)) An observational welfare assessment should be recorded by personnel daily, except in situations such as when daily inspection may negatively affect the animal's welfare or disturbance my be detrimental to the animal's welfare. A observational welfare assessment should include both a physical and behavioural assessment.

Immediate appropriate action must be taken if an animal is injured or unwell, or if the animals are showing behaviours that may suggest poor welfare such as abnormal behaviours. Any signs of injury, poor health or abnormal behaviour shall be immediately reported and a veterinarian and/or a behaviourist promptly consulted as necessary.

10.5 Animal Breeding

Over breeding of animals which results in overcrowding, disease, stress and poor welfare is prohibited. The breeding of an animal should only be undertaken if it is part of a recognised and cooperative breeding programme and the institution has the veterinary and husbandry expertise and resources to effectively care for every individual within the population.

All breeding animals should be provided with appropriate nesting and nursing facilities as well as refuge from the public and aggression from co-specifics with off show facilities made available if needed. New born animals must receive expert veterinary care required and be appropriately integrated into social or compatable groups if relevant.

11 Managing Positive Experiences for Animals

Negative experiences and environments that cause individual animals fear and distress or prevent positive experiences such as contentment, play and rest, must be avoided. These include unneccesary handling or direct physical contact, inappropriate environmental design, fear through aggression or lack of refuge and isolation for social animals. Management and husbandry practices must consider the specific species reqirements to promote positive experiences throughout the lifetime of all animals within their care.

12 Subsidiary Guidelines

a) Nutrition and Feeding

- Fresh, clean drinking water of sufficient quantity and quality must always be accessible by the animals.
- A nutritionally balanced diet must be provided to keep the animal in good health. The diet should be suitable for the animal's species, age, size, body condition, activity level, and reproductive and health status.
- Food and drinking water must be provided in a way that is appropriate for the species and encourages natural feeding behaviours, while also preventing contamination, dominance or competition from other animals in the social group.

- All diets must be documented. Feeding records should provide information on the diet, feeding frequency and food intake of individual animals
- Feeding methods must be safe for animals and personnel.

b) Food Hygiene

- The preparation and storage of food must be carried out hygienically in a specific separate area that is protected from damp and contamination.
- No toxic substances should not be kept in the food storage or food preparation areas.
- Food and drink receptacles should be placed in positions within the enclosure that minimize the risks of contamination.

c) Environmental enclosure design & management

- Animal enclosures should include:

  1. Sufficient space (vertical as well as horizontal) to give opportunity for the animal to perform normal ranges and patterns of behaviours and exercise
  2. Sufficient protection and shelter from weather extremes, compatible to the species' requirements.
  3. Appropriate substrate, and vertical and horizontal infrastructure for the species
  4. Refuges that allow animals to rest away from the public view or group mates
  5. Appropriate environmental choices, stimulation and variability
  6. The enabling of effective cleaning, maintenance and animal management and veterinary intervention.

- The temperature, ventilation, lighting, humidity and noise levels of enclosures should be suitable for the comfort and wellbeing of all animals, considering factors such as their age and health status.
- Different species or incompatible individuals must not be housed together or within such a distance that it will cause distress.
- Social species shall be kept in compatible social groups and never housed in isolation. The group must consist of an appropriate number, age and sex ratio of animals. Social animals should not be housed in isolation except where it is necessary for veterinary purposes.

d) Structural Enclosure Design

- An enclosure and barrier design, construction and maintenance must fully ensure the safety of the animals, personnel and visitors.
- Water-filled and dry moats must provide a means of escape back into the enclosure should animals fall into them.
- Enclosure design should prevent provoking or exceessive stress of animals by visiting public.
- Inter-species interaction should be monitored, recorded and reviewed in mixed species environments; where detrimental conflict arises, species should be separated.
- Enclsoure design should allow for appropriate human intervention that minimises stress to the animals, including capture, handling, cleaning and maintenance, and general husbandry practices.

e) Servicing

- Enclosure accommodation and fittings should be well maintained and inspected regularly

- Enclosures should be designed to allow for suitable access by staff and conducive to necessary and safe veterinary or management interventions
- If maintenance is required it must be promptly and suitably repaired or replaced, or the animal must be relocated to other suitable accommodation.

f) Transport and Movement of Animals

- Emergency protocols and contingency plans to safeguard animal welfare during transportation should also be produced.
- Handling techniques should be appropriate to the species and safe for both the animal and handler.
- The time animals are confined to their transport containers should be kept to a minimum.
- Transport accommodation must be of a sufficient size to accommodate socially compatible groups of individuals. Animals of very different ages, weights or sizes shall not be mixed together for transport.

g) Transactions & Acquisitions of Animals

- An institution's primary scope of business must not be the trade in animals.
- An ethical review for all transitions or acquisitions should be carried out to adequately protect animal welfare, as well as the sustainability of wild animal populations.
- The veterinarian of the institution acquiring an animal must undertake a disease risk analysis.
- The institution must ensure that the animals leaving the collection are only passed to institutions with the appropriate facilities, resources and expertise to achieve high welfare standards.
- Breeding programmes should be managed to prevent overpopulation and to ensure that each animal or group of animals can be maintained in compliance with this standard.
- Only institution personnel competent at reintroducing or rehabilitating animals into the wild should do so. The release of animals into the wild should be undertaken in conjunction with recognized national and international guidelines, standards and legislation.

h) General Animal Health

- All personnel caring for animals should be competent in recognizing and assessing common indicators of good health and welfare (see Annex (D)).
- Records should be kept by the personnel in direct charge of the animals, indicating changes to the prescribed diet, health checks, any unusual behaviour or activity or other problems and remedial action taken.
- Any animal that requires specific veterinary expertise and cannot be cared for by current veterinary programmes should not be held at the institution until such expertise is sought.

I) Veterinary Care

- Enclosures where infectious animals have been accommodated must be appropriately cleaned and disinfected before re-use
- A preventative routine veterinary medicine programme should be documented, which should include regular monitoring and assessment and appropriate records kept.
- Veterinary care must include routine clinical examinations, health and behavioural monitoring, post-mortem examinations, appropriate and supervised quarantine facilities and dietary management.

j) Veterinary facilities

- All pharmaceuticals and other veterinary products shall be kept appropriately secure and disposed of safely in accordance with current legislation.
- Appropriate care should be taken to avoid contamination and transmission of diseases and include the control or deterrence of pests.
- Personnel should be instructed to report, in confidence, any medical condition or disability which might affect his/her capacity to manage the animals in a safe and competent manner.
- All personnel that work with animals, and especially those working with primates, should be tested annually for tuberculosis.

k) Euthanasia

- A standard euthanasia protocol must be documented and include:

    1. A suitably experienced senior member of personnel is available to take decisions regarding the euthanasia of animals
    2. Euthanasia should be undertaken under veterinary supervision or by competent personnel with appropriate training and experience.
    3. For all of the species kept at the institution, there are suitable facilities and equipment available for euthanasia, including for the emergency euthanasia of casualties.

- Where the humane killing of animals (eg. mice, rats, rabbits and birds) is carried out to feed zoo animals, it must be carried out ethically and according to acceptable and recognised welfare standards.

l) Record Keeping

- Animal records must provide:

    1. An auditable record, kept by the animal care staff responsible for the animals, indicating changes to the diet, daily health checks, breeding behaviours, any unusual behaviour or activity, or other problems and the action taken;
    2. accurate veterinary records documenting clinical observations, laboratory procedures undertaken, the results of post-mortem examinations, details and dates of any treatment given.

m) Escapes

- An escape emergency protocol should include the possible humane destruction of escapee's by experienced personal, and emergency protocols covering natural disasters and other catastrophes.
- The protocol should be available to all members of personnel.

n) Environmental Enrichment

- An animal's environment should include:
    1. Infrastructure that allows for the expression of normal and positive behaviours;
    2. Environmental protection and comfort;

3. Provide species appropriate challenges and stimulation;
4. Protection from distress, injury and continual fear
5. Effective management including hygiene, veterinary and health matters.

- The requirements of the species should direct the design and management of the enclosure environment and must take into account the natural habitat of the species.
- Environmental Enrichment should:
    1. Be regular and part of the daily routine.
    2. Provide environmental choices, encourage decision making and allow animals to choose their preferred environmental conditions
    3. Provide social species, socially compatible social groups
    4. Be equipped in accordance with the needs of the animals with bedding material, branch work, burrows, nesting boxes, pools, substrates and vegetation and other enrichment materials designed to aid and encourage normal behaviour patterns and minimise any abnormal behaviour.
    5. Take into account growth of animals and must be capable of satisfactorily providing for their needs at all stages of their growth and development.

o) Animal Training

- All methods of training must use positive reinforcement techniques. Negative reinforcement and punishment techniques must never form the basis of training and must be avoided.
- The deliberate infliction of injury or pain is unacceptable and should not be practised. All training should:

    1. Be appropriate for the species and the individual animal's capabilities.
    2. Include training sessions tailored to the individual animal's responses and condition. The animal must not be over-worked.
    3. Involve personal that are experienced and competent in carrying out acceptable animal training techniques.
    4. Training techniques should be appropriately documented, recorded and assessed.
    5. An appropriate ethical review process shall be established and used to examine animal training and display practices.

p) Animal Close Encounters

- Animals destined for rehabilitation should not be used for public-animal close encounters.
- Young animals should not be removed from their mothers to be used for public-animal encounters and no abnormal demands should be made on animals.
- Animal encounters where possible, should be within an animal's natural environment and no animal should be purposely removed from their enclosures for visitor encounters.
- Encounter experiences must not be distressing for the animals and suitable measures must be in place to prevent animals from being provoked by visitors.
- Animal/public interactions must always be strictly controlled and supervised by experienced and authorised personnel
- The mutilation of any animal to make it safe is unacceptable and must not be carried out.
- Visitors must not feed the animals unless they have been permitted by the institution to do so. Unauthorised food must never be given to the animals.

q)Managing Positive Experiences for Animals

- For every animal, specific requirements should be considered and encouraged in relation to any possible:

a) Species-specific physiological needs;
b) Particular social requirements;
c) Behavioural developments over an animal's life span and the impact and demand these would have on the animal's environment.

r) Conservation

- All institutions should participate in a demonstrable and measurable manner in a conservation-related practice. Involvement in conservation related activities should be measurable, recognized and endorsed by the relevant authorities or regional zoo association or chapter thereof.
- All institutions should promote public education and awareness in relation to the conservation of biodiversity, by at least providing information about the species exhibited and their natural habitats.
- All institutions should strive to develop an integrated approach to conservation, and include sustainable operating, habitat design, exhibit theming, education and marketing.

s) Education

- Institutional staff, volunteers and tenants should understand the role they play in educating the public and they should actively participate.
- Education staff members should be involved in exhibit design, graphics, interpretation and all structured programmes for visitors.
- An institution should have a dedicated resource or education centre on site
- All education programmes should be evaluated regularly.
- Any education programme involving a live animal should include relevant risk assessments and ethical reviews. No education programme should have a negative effect on animal's welfare.
- An education programme should provide the public with information on both individual animals and populations with regards to their natural history, natural behaviours, cognitive abilities, emotional capacities, welfare & conservation

Annex

(A) Conservation

The main objectives for holding animals in an institution should be for demonstrable conservation, educational or research pursuits. This recognition should be evident by means of an operational declaration made by the highest governing authority of the institution to this effect. All conservation programmes should consider the welfare of animals involved and no conservation activity should be to the detriment of an animal's welfare. This includes in-situ breeding programmes, release programmes and education and conservation messaging.

(B) Education

Education should be in the mission statement of all institutions and hold a written education plan that delivers both a conservation and welfare message, that is easy for all ages to understand and interpret and demonstrable to all visitors. Any education programme involving a live animal should include relevant risk assessments and ethical reviews. No education programme should have a negative effect on animal's welfare.

(C)Research

All institutions should encourage conservation and welfare research. This research should

comply with relevant legislation and be subject to regularly ethical review. No research should be carried out that could injure, harm or negatively effect an animal's welfare.

Institutions should ensure that they collect and keep all relevant data from the animals and use this information in a scientific manner so as to benefit the animals concerned. Where the institution is not able to become involved in research, it should be open to research being undertaken within its facility by accredited research personnel.

(D) Natural Behaviours

Most natural behaviours shall be encouraged to promote positive welfare and conservation. Important natural behavioural considerations for each species include:

- Feeding behaviour;
- Excretory and elimination behaviour;
- Agonistic and aggression behaviour;
- Sexual and reproductive behaviour;
- Relaxation behaviour;
- Comfort-seeking behaviour;
- Investigatory or exploratory behaviour;
- Mimicry and group behaviour;
- Care-seeking behaviour;
- Care-giving behaviour; and
- Play behaviour

Overuse of any natural behaviour can be negative for an animal and careful observation should record the level and intensity of all behaviours to ensure they are promoting positive welfare. Simple daily observations can assist with the monitoring of behavioural activities and support comprehensive welfare programmes.

(E) Welfare Assessment Process

(1) Instituational Assessments: Animal based measures can include a number of different assessment techniques. The best welfare assessments are a combination of techniques. Animal care and keeping staff should carry out and record health and behaviour assessments on a regular basis. A regular review of animal care staff's ability to observe abnormalities in health or behaviour should be undertaken and suitable opportunities provided for staff for training to further develop their abilities and skills.

If feasible and can be achieved through minimal stress to the animal, regular weighing of animals within the collection should be considered to assist in the early identification of any arising health issues and hence enable their prompt treatment, as appropriate. Methods of inspecting animals with minimal disturbance should be considered, such as closed circuit television (CCTV) where daily physical inspection of a species is difficult.

An ethogram is a useful tool to record behavioural observations in animals. An ethogram is a list of species-specific behaviours describing the elements and function of each behaviour. It will allow you to record how often certain behaviours are being observed and to what intensity, helping to identify possible abnormal behaviours. An ethogram can be created that suites your specific institution, but it is important to also include details such as observer details, time of day and function.

Alongside an ethogram, institutional assessments can also be observed and recorded by keepers and should include:

Daily Observation Assessment	Behavioural observations (can be included in an ethogram)	• level of expression of normal/natural behaviours and positive interactions with the environment (see Annex (D) • the duration of the expressed natural behaviours • observation of abnormal behaviours that include stereotypies, avoidance, over-grooming, self-harming, excessively low levels of activity, poor maternal care, or hyper-aggression. • level of expression of abnormal behaviours
Daily Observation Assessment	Health observations:	• the good physical condition of an animal; • absence of disease, trauma, pain and distress; • normal levels of growth, development, reproduction and life expectancy; • a bright, alert animal that reacts appropriately to new or unexpected stimuli.
Regular	Veterinary checks	Veterinary personal should carry out and record regular clinical and diagnistic assessments to ensure the animal is in good health. Clinical assessment includes cortisol levels, disease prevelance and reproductive status indicators (see below for further information on assessment indicators).
Regular	Population data analysis	population data analysis from records can be used when assessing the welfare of big groups of animals where it may be difficult to determine the identification of individuals.

(2) Independent Assessments: All instituations should be subject to assessments carried out by assessors/inspectors independent of the facility and who are trained in the measurement of welfare outcomes for captive wild animals. These assessments should be part of the authorities monitoring prodecures and co-ordinated between the chosen regulatory body and legislative authority.

These Welfare assessments should;

- be independently assessed
- be carried out on specific enclosures (chosen at random)
- include assessment of instituational record keeping and current monitoring of welfare
- incorporate an assessment of
    - the nutritional value of the diet (assessed against recognised species specific standards where possible)

- the suitability of the social & physical environment to meet the needs of the individual animals (assessed against this standard and other recognised species specific standards where possible)
- behavioural, physiological and clinical indicators (see below)

Assessment Indicators

Behavioural indicators	• level of expression of normal/natural behaviours and positive interactions with the environment (see Annex (D) • the duration of the expressed natural behaviours • observation of abnormal behaviours that include stereotypies, avoidance, over-grooming, self-harming, excessively low levels of activity, poor maternal care, or hyper-aggression. • level of expression of abnormal behaviours (see below) • Assessment of approach/avoidance behaviour; Approach and avoidance behaviours generally indicate stimuli that cause positive or negative emotional states, respectively. If observations of an animal reveal that it persistently avoids certain parts or features of its environment then it is possible that this aversion is associated with unpleasant feelings. • Assessment of incidence and intensity of stereotypies; Careful observations should be made to determine if an animal is showing stereotypic behaviours and, if so, to determine when, under what circumstances, how often and for how long. • Assessment of the occurrence of over grooming and other self- harming behaviours. • Behavioural apathy (low levels of activity, excessive sleeping/resting) can be caused by chronic stress, depression and anhedonia (impaired abilities to feel pleasure) • Poor maternal care/infanticide • Hyper aggression; aggressive interactions that result in injury. A high level of non-injurious aggression also has the potential of reducing welfare and the threat of aggression can have harmful psychological effects on potential recipients and reduce access to resources such as food or resting areas.
Physiological indicators	• the good physical condition of an animal; • absence of disease, trauma, pain and distress; • normal levels of growth, development, reproduction and life expectancy; • a bright, alert animal that reacts appropriately to new or unexpected stimuli. • Cortisol levels; Cortisol can be measured in blood plasma, saliva, faeces and urine. However, the changes in glucocorticoid levels are not always linked to a decrease in welfare. Changes in cortisol concentrations signal responses to events that the animal may perceive as either pleasant or unpleasant, therefore again, this should not be used as the sole assessment parameter. • Immune measures; the relative concentrations of neutrophils and lymphocytes in the blood may be affected by hormonal responses to stress. Measuring neutrophil/lymphocyte ratio may provide an index of adrenal cortex activity associated with the impact of potential stressors.

	• Weight changes; Weight changes can occur as a result of a wide variety of normal or pathological factors. There may be normal diurnal or seasonal weight changes, or changes due to age or reproductive status. Interpreting weight changes therefore depends upon knowledge of normal patterns of variation. Animals must be trained to stand on a weighing device to prevent animals being stressed.
Clinical and pathological indicators	• Visual inspection to identify a large number of parameters for example a change in response to humans or conspecifics, lethargy, failure to feed, distress vocalizations, wounds (other injuries), obvious infection/discomfort, abnormal texture and colour of faeces etc. • Health and Husbandry Records; assessment of demographic data (birth rates, mortality rates, longevity) and health data (disease categories/types and incidence)

(F) Ethical review processes

All Institutions should have a form of ethical review process that ensures that any use of animals does not conflict with the best welfare interests of the animal(s). Examples of ethical issues are:

- sources and methods of acquisition of institution animals;
- disposal, transfer, loan practices and the sale of institution animals;
- euthanasia practices and policies;
- surgical mutilations;
- human-animal interaction;
- the design and appropriateness of enclosures for animals;
- research projects;
- education and conservation functions; and
- welfare and husbandry practices relating to the promotion of good welfare standards and the recognition of sub-standard welfare conditions.

An institution should appoint its own ethics committee and an institution operator should access ethics advice from other committees, individuals or advisors. An institution's ethical review system should be effective and transparent and provide mechanisms that can regularly review husbandry practices and acceptable standards, and provide guidance on procedures for effective management.

(G) Animal Records Template

Animal Records are essential for the professional management of animals in captivity and contribute to maintaining high standards of care and provision of good welfare. Records should include:

- identification to specific level and scientific name;
- whether captive-born or wild born. Identification of parents, where known, and previous locations the animal has been kept at, if any, must also be recorded;
- dates and details of entry into the collection and source, and disposal from the collection and if applicable, to whom;

- date, or estimated date of birth or hatching;
- sex (where known);
- any distinctive markings, including tattoos, freeze-brands, tags, rings or microchips;
- health records and clinical data, including details and dates of any treatment given and whether an individual or the whole group was medicated;
- behavioural and life history data;
- breeding records of each animal and of the group;
- date of death and results of any post-mortem examination and laboratory investigations;
- food, daily food intake and diets;
- details of any escapes, including damage or injury caused to the animal, or to persons or property, reason for escape and action taken to prevent reoccurrence of such an event; and
- additional species-specific information may need to be kept in accordance with local legislation guidance

(H) Transportation Facility Requirements

The transportation and movement of animals should conform to all applicable regional, national and international legislation, norms, standards and guidelines. All necessary travel documentation, health certificates and permits must be complete and readily available for inspection, as appropriate, to avoid any delays in the transportation. The transportation and transport management should be designed in such a manner that it minimises the stress of the animal and protects it from any injuries and poor health which may occur as a result of being in transit.

A transport plan must be in place which should include:

- Contingency plans to counter the effects of unplanned delays in transport, especially where such delays might subject the animals to excessive heat, cold, thirst or hunger.
- Emergency protocols to safeguard animal welfare during transportation
- Appropriate veterinarian inspection prior to transportation to ensure that all animals are fit to travel. Species appropriate restraints and handling techniques that are safe for both the animal and the handler.
- Appropriate number of required competent and experienced personnel involved at every stage of animal transportation to ensure the security, health and welfare of the animals during transport.
- Transport accommodation and facilities that are to:

    a) be free of projections, fittings or structures that might injure the animal
    b) be secure and appropriate in design and structure for the species of animal, age and number of animals being transported
    c) have suitable ventilation of appropriate airflow
    d) provide species appropriate environmental conditions
    e) provide flooring and bedding that, where appropriate, gives secure footing for the animals
    f) provide an adequete supply of water for long journeys
    g) provide appropriate equipment, drugs, tools and supplies to deal with possible eventualities and accidents that could reasonably occur during all phases of the transportation process.

- Guidelines on the transportation of naturally social animals. The group must be of compatible individuals and the transport accommodation must be of sufficient size. Animals of very different ages, weights or sizes shall not be mixed together for transport.

- Guidelines on journey times to ensure they are kept to a minimum. Where it is avoidable, long distance transport of captive wild animals should not occur and provisions should be made for minimising or avoiding delays during transportation.
- Guidelines on animal confinement. Animals shall only be kept confined in their transport containers whilst they are in transit or during the preparation period immediately prior to transit; time from boxing to arrival at the destination must be kept to a minimum.
- Animal records that accompany all animal transfers. As a minimum requirement, the records shall provide the recipient with sufficient information to adequately accommodate, feed and treat (if applicable) any animal being transferred.

(I)*Infectious disease policy*

All institutions should hold an appropriate infectious disease policy and protocols to mitigate the risk of disease spreading. When disease occurs in multiple individuals in a group of animals, particularly if it occurs over a prolonged time frame, consideration must be given to the husbandry system and standards as well as the nature of the disease, whether it be infectious or non-infectious, and its epidemiology.

An infectious disease protocols should cover all aspects of potential disease transmission that will prevent the accumulation and spread of infectious agents and parasites.It should include:

- An appropriate biosecurity protocol that must be immediately implemented if an infectious disease is identified in any animal
- Guidelines on the appropriate storage and handling of carcasses of animals and any tissue samples taken for laboratory examination to minimise the risk of exposure of other animals in the zoological collection to any potential infectious diseases and the potential risk of the transmission of zoonoses to staff.
- Guidelines on the safe, hygienic and appropriate disposal of the bodies of all dead animals to reduce the risk of disease transmission
- Guidelines on the risk of introducing novel infectious diseases to free-living wild animals during rehabilitation and release of captive animals.
- Appropriate guidelines on the clearning and disinfection of enclosures where infectious animals have been accommodated
  Guidelines on appropriate food storage and sourcing to prevent the spread of infectious disease agents or other chemicals or impurities that may adversely affect the animal.

(J) Euthansia Policy and Review

Good animal welfare relies on a commitment to promoting the physical and psychological well-being of animals. Animal welfare may be assessed on a spectrum ranging from poor to neutral to good. Every effort should be made to prevent animals from having poor welfare, and euthanasia should be considered if the animal cannot be removed from a poor welfare state.

There must be a written institution policy and standard procedure for the euthanasia of animals, which is regularly reviewed. These must show that:

- Veterinary advice and guidance regarding euthanasia and acceptable emergency methods of euthanasia has been obtained
- For all of the species kept at the institution, there are suitable facilities and equipment available for euthanasia, including for the emergency euthanasia of casualties. Such facilities and equipment must be securely kept and well maintained.
- A competent, suitably trained senior staff member, who has access to the necessary facilities and equipment, is contactable and available at all times.

All staff involved with the euthanasia of animals must be fully aware of acceptable euthanasia methods and must be appropriately trained and experienced in those methods.

The decision to euthanise should be made by an ethics and welfare committee. An ethical review or decision matrix should be carried out to determine the best course of action for the individual animal concerned and the welfare of that individual should remain the priority. Once the decision to euthanize has been made it is pertinent that euthanasia is carried out by appropriately qualified, trained and skilled personnel, and In all situations, the welfare of an animal and its quality of life should be the prime consideration.

Euthanasia Protocol Considerations:

a) Euthanasia must be carried out following appropriate, approved operating standards, and according to local legislation.
b) To ensure minimal pain, discomfort and stress for the animal, the euthanasia of an animal should be undertaken under veterinary supervision or by competent personnel with appropriate training and experience in the technique to be used
c) Where possible the procedure should be carried out in a calm, quiet environment away from co-specifics and other species. Minimising animal stimulation by either sight, sound or touch can help to reduce stress and anxiety in animals. Distressed animals may vocalise which can cause agitation in other animals, hence other animals should not be present when an individual animal is to be euthanized
d) The animal should not remain in isolation for any longer period of time than is absolutely necessary to carry out the procedure effectively.
e) The handling and management of the animal should be carried out by competent, personnel trained in humane animal handling of that particular species.
f) Careful consideration must be given in each individual case to the manner and type of animal restraint required, in addition to the method of euthanasia.
g) Euthanasia should be performed only by personnel trained in the administration of euthanasia drugs or the euthanasia procedure required for that species.
h) At all times, at least two experienced personal should carry out the procedure.
i) Following euthanasia, it is important that the death of the animal is confirmed, taking into account the species of animal and the method of euthanasia, prior to the appropriate disposal of the animal
j) A post-mortem should be carried out on all euthanized animals.
k) All euthanasia procedures should be appropriately recorded.

(K) Staff Development & Training Policies

Staff development should be adequately addressed and continually assessed within an institution. All staff should be qualified in their relevant job roles and if specific expertise is required then appropriate training must be sought. Institutional training policies that promote continued development are encouraged. All institutions should ensure they have a sufficient

number of staff adequately trained in the management of specific species to meet their continued physical, psychological and behavioural needs.

(L) Species Specific Guidelines

Species specific 'animal management' manuals should be collated by species specific experts which incorporate the principles of the 'five welfare domains' and should be sourced by all instituations. Regional zoological associations should help develop and maintain species guidelines and where necessary international guidance should be used.

(M) International Conventions

Adherence to the following international conventions and frameworks should be made;

a. Convention on the International Trade in Endangered Species of Wild Fauna and Flora (CITES): to regulate the trade in wildlife for conservation;
b. Convention on Biological Diversity (CBD 1992): promoting sustainable development;
c. International Union for Conservation of Nature and Natural Resources: Guidelines on wildlife conservation and sustainable use of natural resources: Guidelines on the reintroduction of wild animals and plants;
d. World Organisation for Animal Health (OIE): guidelines for government veterinary agencies with regards the prevention and management of animal disease outbreaks; terrestrial codes stipulating animal welfare standards during transport.
e. International Air Transport Association (IATA) Live Animal Regulations (LARs) for the transport of animals by air.

CITES Notification 2018/033 – Request for information on the implementation of Resolution Conf. 11.20 (Rev. CoP17) on Definition of the term 'appropriate and acceptable destinations' and Article III, paragraphs 3(b) and 5(b), of the Convention

Submission by Wild Welfare (www.wildwelfare.org)

This submission is on behalf of Wild Welfare and is in response to the Secretariat's notification 2018/033 in relation to its report under Decision 17.178, requesting information on the implementation of Resolution Conf. 11.20 (Rev. CoP17) on Definition of the term 'appropriate and acceptable destinations' and Article III, paragraphs 3 (b) and 5 (b), of the Convention.

Wild Welfare works with captive wild animal facilities and the accredited zoo community around the world, improving animal welfare. Wild Welfare recognises the potential benefits of co-operation and communication in the implementation of respective missions. We are an internationally recognised hub of expertise in zoo animal welfare reform, forming effective collaborative relationships with a number of zoos, regional zoo associations, animal welfare NGOs, reputable universities and professional bodies. We facilitate positive dialogue and lend weight to solving challenging issues; creating a positive international captive animal welfare movement through an informed expert approach, knowledge-based decisions and establishment of strong partnerships, strengthening links between key stakeholders, nationally and globally.

Here in, Wild Welfare provides advice to support the requirement for the Secretariat to report on the definition of the term 'appropriate and acceptable destinations', with specific reference to Article III, paragraphs 3(b) and 5(b.

At present there is no measurable criteria or guidance to determine whether a destination is "suitably equipped". As such, it can be assumed that there is some inconsistency in the approach used to determine what "suitable equipped" means by the different importing or Management Authorities It is paramount that, to determine whether a destination is "suitably equipped to house and care for (live specimens)" and to achieve a consistent and high standard of animal care, appropriate and sufficient standards should to be used for guidance by the Authorities.

Wild Welfare recommends the development of generic and species-specific guidance, utilising most up to date captive and scientific knowledge from existing standards in animal care and management. In particular, consideration should also be given to animal care concerns pertaining to practices that are involved in the acquisition, transport, quarantine, integration and monitoring of the on-going behavioural and physical health of the animals. Relating to these activities and to support the development of measurable guidance, we have provided two documents. These documents are used by Wild Welfare around the world to provide a measure, monitor and evaluate animal welfare standards in captive wild animal facilities.

1) **"Fundamentals in Animal Care"** This "Fundamentals" Document is derived from over 100 published articles, papers and books on Zoo Animal Welfare. It is from both this source that reliable, informative and simple management practices can be adopted that improve and provide positive animal welfare. This document specifies the primary welfare requirements for the maintenance of wild animals' dependent upon the provision of daily care by humans and the format adopted relates to the concept of the 'Five Domains'. (*Mellor, D.J. and Beausoleil, N.J. (2015). Extending the 'Five Domains' model for animal welfare assessment to incorporate positive welfare states. Animal Welfare 24: 239-251. Mellor, D.J., 2016. Updating animal welfare thinking: moving beyond the five freedoms towards a life worth living. Animals 6, 21.*) Further references can be found in the document.

Listed statements are divided into "Requirements" and "Recommendations". Requirements are regarded as being mandatory and fundamental to animal wellbeing and clarify how something should be undertaken or provided. The recommendations build upon the requirements and provide additional information relevant to the requirements. Further supporting information describing the

necessity for the listed requirements is provided. This document aims to encourage the implementation of good standards of husbandry and management in order to safeguard the welfare of captive wild animals under human care. Specific requirements for certain taxonomic families are needed to complement these fundamental husbandry requirements, along with associated supporting information.

This document is used as our standard measure (norm or model) during our collection welfare assessment. This assessment is a systematic, Independent and documented process to obtain information about the whole of an animal collection, providing an objective evaluation to determine the extent to which the assessment standard criteria are fulfilled.

1) **"National Welfare Standard"** This document is a compressed version of the Fundamentals in Animal Care and details fundamental captive wild animal husbandry requirements that are essential for the protection of animal well-being and supports positive in- situ conservation efforts. The standard facilitates improved conditions for captive wild animals, by setting achievable husbandry standards for captive wild animal facilities and provides direction for authorities to both implement and enforce those standards. While this standard contains some supplementary guidance through further codes of practice, it requires further guidelines and regulations for the provisions for specific species and management policies. It delegates authority to define specific standards of captive animal care and welfare, and can be used as guidance for addressing non- compliance with the standard content.

Finally, Wild Welfare recommends that, where appropriate, independent expert advice and inspection is sought to determine whether destinations are "suitable equipped" These inspections should consider the whole of the collection management practices. All "appropriate and acceptable designations" should be considered under the evaluation of suitable, up to date guidelines, to ensure thorough and appropriate consideration has been given to animal care and management.

Fundamental Welfare Requirements

for Wild Animals under Human Care

Doc: WW/FWR/14

Scope

Cognition is the mental process of perception, processing information and learning (Lee et al, 2008; Proctor, 2012) and is linked, but not inseparably, to sentience capacity which is the ability to feel and experience emotions, both positive and negative (Boyle, 2009; Proctor 2012). Therefore, it has been suggested that cognitive ability should not be the sole determinant of the degree of welfare protection an animal is afforded (Proctor, 2012). Yet, understanding an individual's cognitive capacities, along with knowledge of the animal's different emotional states, can help assess its welfare (Lee et al, 2008) and increasing our knowledge of sentience in the different species is critical for improving general attitudes towards animal welfare and how animals are treated and looked after (Proctor, 2012). Improved awareness to and appreciation of the range of emotions the different species of animals may experience and their sentience is important to drive advances in husbandry and animal management techniques in order to ensure good animal welfare.

Vertebrate species are generally accepted as sentient beings (Boyle, 2009; Proctor 2012) and this is reflected in the level of welfare protection afforded to them through current legislation, although specific invertebrate species have also be given legal protection in some countries. For example, cephalopods have been afforded legal welfare protection in certain countries, largely as a result of their advanced cognitive abilities (Horvath et al, 2013). Recent research that examined similarities in the behaviours between invertebrates and vertebrates suggests that some invertebrates have the capacity for nociception, and also may be able to experience the emotion of pain, as well as stress, and if an animal can experience pain and stress, which are negative experiences, then it may too have the ability to suffer (Horvath et al, 2013). Some invertebrates, such as bees and octopuses, may also display a level of cognitive ability (Horvath et al, 2013). Therefore, increasing the knowledge and understanding of pain perception, sentience and cognition in the many different species of invertebrates, as well as vertebrates, is important to further reinforce the need to ensure that husbandry provisions are made for all captive animals that provide for appropriate biological and physical function and also sufficiently promote positive experiences and minimise negative states, which will ultimately improve and support their good welfare.

The Five Freedoms (FAWC 1979) are internationally well-known. They act as a foundation, defining and underpinning fundamental animal welfare standards and considerations and were originally produced by the UK Farm Animal Welfare Council following the 1965 UK Report of the Technical Committee to enquire into the welfare of animals kept under intensive livestock husbandry systems, to assess welfare in farming situations. However, they can be applied to animals in other circumstances and are a useful method of evaluating animal welfare. The Five Freedoms are:

- Freedom from hunger and thirst
- Freedom from discomfort
- Freedom from pain, injury or disease
- Freedom to express normal behaviour
- Freedom from fear and distress

Yet, whilst past focuses may have been on negative experiences and minimising distress, the advancement of recent scientific concepts has led to the consideration of positive factors and the development of various positive welfare measures, encouraging the management of animals to promote positive experiences and mental states, whilst also ensuring the provision of their basic husbandry needs, in order to provide for good welfare (Green and Mellor, 2011; Maple and Perdue, 2013; Mellor, 2013). The model of the Five Domains of Potential Welfare Compromise (the 'Five Domains'), which has evolved since its original development (Mellor and Reid 1994, cited in Mellor, 2013, p5), illustrates how compromises in an animal's *nutrition*, *environment*, *health* and *behaviour* can all impact upon its *mental state* and hence how each of these *five domains* may overlap and have combined effects on the overall welfare status of an individual animal (Mellor, 2013). The 'Five Domains' concept thus serves to offer a fresh, useful framework for the broad assessment of animal welfare, addressing the need to consider physiological and behavioural indicators of animal well-being, in association with the type of mental experiences an animal may have (Mellor, 2013; Portas, 2013).

In the Five Domains model, the four physical or functional domains (nutrition, environment, health and behaviour) are concerned with biological function, or physical well-being, whereas the fifth domain, the mental state, considers the 'affective state' or psychological well-being, and represents the animal's overall subjective feelings and experiences and hence this fifth domain is a key element of animal welfare. An animal may experience positive or negative emotional states and it is the balance between these subjective experiences that can influence an individual animal's 'quality of life' (Green and Mellor, 2011; Mellor 2013), with the phrase 'quality of life' generally being considered synonymously with 'animal welfare status' (Mellor and Stafford, 2008). A positive affective state arising from the presence of positive experiences and sensations, with the avoidance of, or minimal, negative experiences, is therefore important to ensure good animal welfare and this can be achieved when the physical (nutritional, environmental, health and behavioural) as well as psychological needs are addressed (Green and Mellor, 2011; Mellor, 2011; Mellor 2013; Portas 2013). However, an individual's mental state and hence its welfare can vary from one point in time to the next, aligned with the different sensations it may experience during its lifetime, which may be positive or negative, can change (Mellor 2013; Portas 2013). Thus, it is the complex interactions between each of the five domains that, in combination, may determine an animal's overall welfare status, as illustrated by the 'Five Domains' model (Figure 1).

With this in mind, implementing management techniques and standards that promote positive physical and mental health for every species accommodated within zoological institutions, whilst also minimising unpleasant experiences for the animal, is fundamental to the care of wild animals in captivity. This can be accomplished by, for example, providing appropriate nutrition to meet the animal's biological needs which is presented in a manner to satisfy its feeding behavioural requirements, the provision of environmental choices, access to conspecifics (as appropriate) and access to a complex, variable and stimulating environment, in addition to the continued provision of high standards of both husbandry and veterinary care. In some countries animal welfare legislation is developing and evolving to address the concept of a 'duty of care' to animals, ensuring people who are responsible for animals take appropriate steps to meet the animals' needs and requirements and promote good welfare through positive animal management.

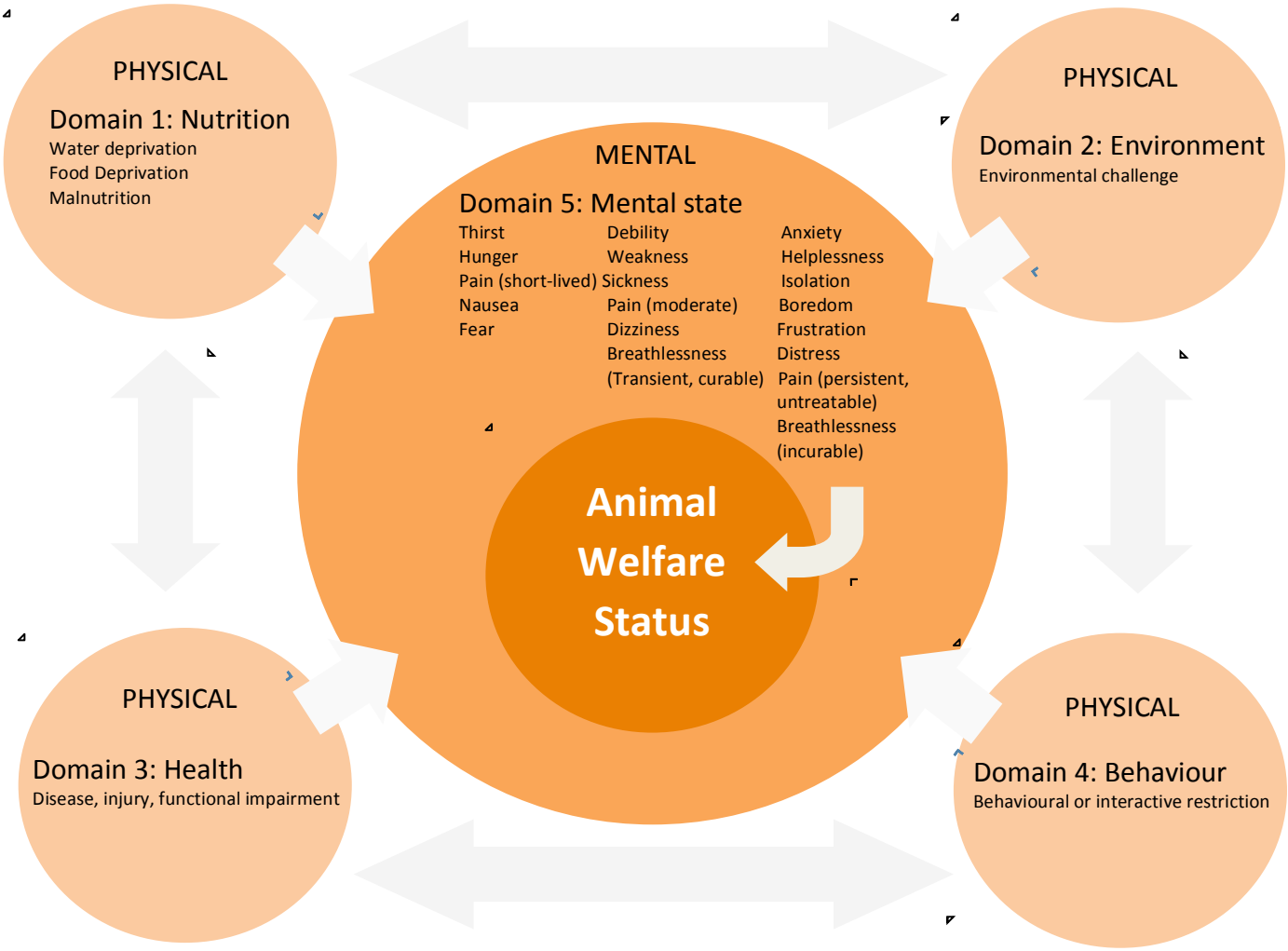

Figure 1: The Five Domains of potential welfare compromise which illustrate that the overall welfare status of an animal arises as a result of combined interactions between the animal's environment, its nutrition, its health status and its behavioural and mental status. (Interpreted and adapted from Mellor et al 2009 and Mellor, 2013).

This document specifies the primary welfare requirements for the maintenance of wild animals dependent upon the provision of daily care by humans and the format adopted relates to the concept of the 'Five Domains'. Listed statements are divided into "Requirements" and "Recommendations". Requirements are regarded as being mandatory and fundamental to animal wellbeing and clarify how something should be undertaken or provided. The recommendations build upon the requirements and provide additional information relevant to the requirements. Further supporting information describing the necessity for the listed requirements is provided.

This document aims to encourage the implementation of good standards of husbandry and management in order to safeguard the welfare of captive wild animals under human care. Specific requirements for certain taxonomic families will complement these fundamental husbandry requirements, along with associated supporting information.

Definitions and abbreviations

NOTE: The meaning of definitions is determined by context

acceptable
acceptable in terms of international norms

adequate
sufficient and suitable for the intended purpose

animal
any mammal, bird, reptile, amphibian, fish, invertebrate or other sentient organism that is not a plant or a fungus

aquaculture
the managed production either through intervention in the breeding process, or through stocking, feeding or predator control programmes, of aquatic animals

barrier
structure built to contain or prevent passage

- **containment barrier**
  the primary barrier that in its effect confines the animal
- **safety barrier**
  the barrier designed to keep humans at a safe distance from the animal enclosure and to prevent human / animal conflict

behavioural enrichment
is a concept which describes how the behavioural repertoires of animals under human care can be managed and enhanced for their wellbeing

biosecurity
is a means of reducing the risk of disease occurring or being transmitted to other animals

captivity
state wherein animals are kept in confinement by human beings, whereby the animals' day-to-day needs, welfare and wellbeing are subject to the provision of human intervention and care

cognition
the mental process of acquiring knowledge through the senses, experience, understanding and thought and which involves reasoning, perception, awareness, intuition and judgement.

commercial breeding centre
a facility where live animals are bred, produced or cultured for purely commercial purposes

commercial exhibit facility
a legal facility where living animals are exhibited to the public for exclusively commercial purposes

- **pet shop**
  a mercantile facility for the retail sale of live animals and related goods or services

competent
capable of executing one's duties effectively

conspecific
an animal belonging to the same species as another

domesticated animal
an animal that has been genetically modified through selective breeding over many generations in order to serve various human objectives

domesticated pet
is a domesticated animal kept by humans for household/personal companionship and pleasure

environmental enrichment
is a concept which describes how the environments of animals under human care can be managed for their wellbeing

epidemiology
the investigation of disease as it affects groups of animals

exotic pet
an animal kept by humans that is not fully domesticated and that belongs to a species not indigenous to the geographical area where it is kept, but which is kept by humans for household/personal companionship and pleasure

euthanasia
the humane, painless and distress-free termination of an animal's life where it is considered to be in the best interest of the individual animal concerned, using a method which produces concurrent loss of consciousness and central nervous system functioning

feral animal
a domestic animal that is living in a wild state which has poor habituation to, and fear of, humans. Placing such an animal into a typical household situation would as such, have detrimental effects on its wellbeing.

justifiable
supportable by argument

longevity
the length or duration of life

management authority
Senior Personnel within the facility responsible for day-to-day management and administration

normal behaviour
behaviour that occurs at a frequency, duration and intensity within the range expressed by free-living wild conspecifics

private collection
a collection of animals without visiting public access, for the exclusive benefit to a private individual or individuals

rehabilitation centre
a permanently-sited facility without visiting public access, exclusively administered for the short term, temporary care of indigenous wild animals with the primary aim of their return to the wild

sanctuary
a permanently-sited facility exclusively administered for on-site, long term or lifelong, individual animal care. A sanctuary is a facility that rescues and provides care for animals that are in need of appropriate care, or have suffered abuse, injury or have been abandoned.

sentience
is the capacity to have subjective experiences and feel and perceive emotions such as pain and pleasure. It implies a level of conscious awareness and the ability to suffer.

species
a kind of animal that does not normally interbreed with individuals of another kind and includes any sub-species, cultivar, variety, geographic race, strain, hybrid or geographically separate population

specimen
any living or dead animal, egg, gamete, or propagules or part of an animal, capable of propagation or reproduction or in any way transferring genetic traits; any derivative of any animal

suffering
an adverse mental state that negatively affects the welfare status of an animal and is associated with negative experiences such as pain, distress, extreme boredom, injury and disease.

suitable
appropriate for the intended purpose

taming
this is a process which involves changing a wild animal's behaviour, but not its genetic characteristics. Taming is different from domestication, which is a process that changes the genetics of the animal over a long period of time by selective breeding. Tamed wild animals do not lose their innate wild characteristics.

technical
according to principle; formal rather than practical and relating to, or employing the methodology of science

veterinarian
any person legally registered as a veterinarian with the appropriate legislative body in the country within which the institution is located.

welfare
the welfare of an individual animal is "its state as regards its attempts to cope with its environment" (Broom 1986, cited in Broom 2007, p103); welfare concerns the state of the animal, not the husbandry practices used to manage the animal or the care it receives. The welfare status of an individual animal takes into account the different sensations or emotions experienced by the animal, whether they be positive or negative. Therefore, an animal's welfare state will be good when it experiences positive emotions that may result when the animal is in good health, can comfortably and safely rest, play and readily express a range of normal behaviours, and if it is not experiencing negative or unpleasant feelings such as fear, frustration, pain or distress. It involves a human responsibility to provide appropriate housing, veterinary treatment, behavioural management, nutrition, disease management, responsible care and use, humane handling and, when necessary, euthanasia/humane killing.

wellbeing
a state of harmony between the animal's physical and psychological functioning

wild animal
a species of animal not domesticated in terms of this document and which retains its wild traits

zoo/aquarium
a permanently-sited facility primarily open to and administered for the visiting public, where living animals are maintained under predominantly ex situ circumstances.

- **bird park**
  a facility specialising in the public exhibition of live birds
- **reptile park**
  a facility specialising in the public exhibition of live reptiles

zoonosis
a disease that is communicable between vertebrate animals and man. (Zoonoses – plural).

HUSBANDRY AND WELFARE

A positive mental state can occur when the animal's physical needs including nutritional, behavioural, health and environmental needs (i.e. the four physical domains) are met, resulting in a positive state of animal welfare. Therefore, safeguarding the welfare of animals is dependent upon adequately providing for an animal's essential needs, including the appropriate provision of food and water, the provision of an appropriate environment with suitable shelter and accommodation, the prevention or rapid diagnosis and treatment of injury or ill health, the ability to display normal patterns of behaviour and movement, and the minimisation of negative experiences, as depicted by the Five Domains of Potential Welfare Compromise (Mellor, 2013), throughout the animal's lifetime. Furthermore, good animal husbandry depends upon reliable information and knowledge about animal needs, physiological, behavioural and psychological, which will vary between different species, in order to maintain good animal health and welfare; there is a critical need to know and understand the natural biology of each animal species and their fundamental physiological requirements during all stages of their life, growth and development, as well as their natural behaviours, so as to prevent the occurrence of conditions that may be detrimental to animal welfare.

Prior to the acquisition of new species, a management review must be undertaken to thoroughly assess the suitably of the institution's accommodation for each species and to consider the institution's ability to provide the fundamental and appropriate environments necessary to meet all of the specific species' physiological, behavioural and psychological needs.

Requirements

Considering the zoo's resources, only animals that can be comfortably and suitably housed throughout their lifetime at the zoo should be brought into the collection.

Animal overcrowding can cause stress. The number of animals kept at the zoo must not be greater than the capacity of the zoo.

Suitable housing for all animals must:

1. appropriately address the cognitive abilities of the animals,
2. allow the animals to behave and exercise normally,
3. protect their health and safety, and
4. offer an interesting and stimulating environment.

The animal housing provided and husbandry practices must be based on knowledge of the animal's biology and behaviour in the wild.

The requirements for each species must be considered separately and each animal should be considered individually as their individual needs may vary from others of its species.

Physical Components

The four physical domains emphasize how compromises in an animal's nutrition, environment, health and behaviour may impact upon an animal's biological function and hence physical wellbeing. However, it is important to highlight that a single domain should not be viewed independently of the other four domains, since each domain may impact upon one another and it is the combined effects of the four physical domains that influence the psychological wellbeing or mental state of the animal (fifth domain) which determine the overall welfare status.

When regarding the welfare of captive wild animals, it is important to address an animal's fundamental nutritional, environmental, health, behavioural and psychological requirements, thereby working to promote positive experiences, together with avoiding or minimising negative experiences (Green and Mellor, 2011; Mellor, 2011; Mellor, 2013); good welfare can be achieved by meeting the physical and psychological needs of an animal throughout its entire lifetime.

Domain 1: Nutrition

Feeding

A critical basic requirement of all animals to protect their health and welfare is the need for appropriate food and water. An appropriate, nutritionally balanced diet necessary to maintain good health and vitality and which meets their biological requirements must be provided daily, along with appropriate access to suitable water (CAWC, 2003). Insufficient or inappropriate food may lead to hunger and predispose to disease and ill health, compromising welfare. Thirst is a motivation that can occur for a variety of different reasons, including ill health (pathological thirst) or lack of access to water, and it can be a form of suffering (Gregory, 2004). Welfare compromise can result following water deprivation, food deprivation, or malnutrition. Food deprivation, or dehydration from fluid deprivation, can result in emotional states such as hunger, thirst, or exhaustion, thereby causing negative experiences and an adverse welfare state.

Yet, challenges in meeting the needs of specific captive wild animals can arise due to lack of detailed knowledge of their species-specific biology including information about their essential nutritional requirements (Portas, 2013). The nutritional requirements of animals may not only vary between different species, but also between individuals within a species, taking into account age, physical activity, sex, size and body condition, as well as physiological, reproductive and overall health status. All of these factors should be considered, but particularly the body condition of the animals, when determining the level of feeding; obesity can adversely affect an animal's health, hence overfeeding should be avoided. The social structures of individual groups of animals must also be considered in relation to the manner of food and drinking water presentation, ensuring that all individuals can sufficiently access food and water; various feeding sites may be necessary to avoid potential problems associated with competition from other individuals within the group (EAZA, 2008; Rees, 2011). To maintain good health and welfare, dietary supplementation must be carried out in circumstances where the environment or diet does not provide the required essential nutritional elements. Supplements must be stored and handled appropriately.

Encouraging the management of animals to promote positive psychological states, as well as good physical health, is fundamental since these components have interrelated effects on the overall welfare status of an individual animal (Mellor, 2013). Therefore, providing appropriate food to meet the biological needs of the animal, as well as presenting it in a way that satisfies the animal's species-specific natural feeding behavioural requirements and motivations, is also an important component of zoo animal nutrition management. Where possible, food and water shall be offered to each species in a way that stimulates their natural behaviour patterns, for instance arboreal (tree-living) species should be presented food off the ground.

Furthermore, food related enrichment strategies form an important part of enrichment programs. Many species in the wild may spend a large proportion of their daytime activity foraging and searching for food, with various species having evolved specific skills for this purpose. Also, young animals may learn foraging behaviour from the adults (Rees, 2011). Therefore, appropriate food must be presented in a manner to encourage natural feeding behaviours, as well as increased activity. For example, scatter feeds can encourage natural foraging activities in a number of different species. By encouraging increased activity, it may also help to reduce the risk of obesity amongst captive wild animal species.

The feeding of live vertebrate prey is considered inappropriate (NAWAC, 2005; Rees, 2011). Any existing local legislation regarding this matter must be strictly adhered to. On the contrary, the appropriate provision of live insects, such as crickets, as food items is important for encouraging natural feeding behaviours in some insectivorous species, for example lizards.

To protect animal health, unregulated feeding of the animals by visitors must not take place. Animal food should not be sold to visitors to discourage public feeding of the animals. Where feeding of specific animal species by visitors, for example some domestic farm species housed in touch paddocks within zoological institutions, has been approved by the Management Authority, only suitable food provided by the institution should be used and the feeding controlled to prevent over-feeding (NAWAC, 2005; EAZA, 2008; CAZA, 2008a; PAAZAB, 2010). Such permitted animal feeding must be strictly monitored and regulated, with the food supplied by the zoo for visitor feeding forming part of the individual animal's daily dietary allowance. Visitor feeding must be regularly reviewed by the institution's ethics and welfare committee and Management Authority.

Requirements
Fresh, clean drinking water of sufficient quantity shall be available to all animals at all times and in an appropriate manner, which also minimises the risk of contamination.
An appropriate good quality, nutritionally balanced diet, must be fed in sufficient quantities to keep the animal in good health. The diet should be suitable for the animal's species, age, size, body condition, activity level, and reproductive and health status.
Appropriate dietary supplements shall be used where the food or the environment does not provide the required essential nutritional elements.

Veterinary or other specialist advice in all aspects of animal nutrition shall be obtained and followed.
All individuals must have sufficient access to food and potable water. Food and drinking water must be provided in a way that is appropriate for the species and which prevents contamination, dominance or competition from other animals in the social group, and allows sufficient access to both for all of the animals.
All diets must be documented and where appropriate monitored. Feeding records must be daily maintained and shall provide information on the diet, feeding frequency and food intake of individual animals.
The rotation of feeding times, the frequency of daily feeds and the variety of food types fed must be appropriate for the species. Food and drinking water shall be presented in a way that meets the animals' specific natural feeding behaviours and motivations. Feeding methods must be balanced in relation to a routine feeding programme and as a method of environmental enrichment.
Food items must be sourced appropriately, be of adequate quality and must not be contaminated by herbicides, pesticides, lead shot, infectious disease agents or other chemicals or impurities that may adversely affect the animal.
The feeding of live vertebrate prey is considered inappropriate.
Feeding methods shall be safe for animals and personnel.
Unregulated feeding of the animals by visitors shall not occur.

Recommendations
Regular reviews of all diets should take place to ensure the nutritional requirements for every animal are being met. *Changes in the diet should only occur following veterinary or nutritionist advice and should be introduced gradually.*
Suitable feeding protocols should be in place in case hand-rearing becomes necessary.
In cold climates, fresh clean water should be provided in an appropriate way to prevent it from freezing.
In situations where the feeding of animals by visitors is considered appropriate by the Management Authority, only suitable and approved food should be used and the practice managed to prevent over-feeding.

Food Hygiene

Strict hygiene standards and practices must be observed when preparing and storing food items and rigorous personnel hygiene standards must be practiced when preparing food to avoid compromising the health of the animals as well as the staff. Food must also be stored appropriately and adequately protected from damp, deterioration and contamination by pests to help protect the physical health and hence welfare of the animals. Where commercial diets are used, the manufacturer's recommendations for shelf-life and storage conditions must be adhered to in order to ensure the quality and nutritional value of the diet (Flecknell, 2002).

Requirements
The preparation and storage of food must be carried out hygienically in a specific, separate area that is only used for this purpose. In the dedicated storage areas food must be protected from damp and contamination by pests (eg insects, birds, rodents). Perishable foods shall be kept refrigerated, unless they are brought fresh and given to the animals on the same day, and the manufacturer's recommendations for shelf-life and storage conditions of commercial diets must be followed. Food and drink containers must not be used for any other purpose.
Toxic substances shall not be kept in food storage or food preparation areas.
Personnel shall keep strict standards of personal hygiene and must follow good food hygiene practice.
Food and drink, and feeding and drinking receptacles, will be placed in positions that minimize the risks of contamination from soiling by the animals themselves, or by wild birds, rodents or other pests.
Food, water and drinking receptacles, where used, shall be regularly cleaned and appropriately disinfected and shall not contain any chemicals or impurities that may adversely affect the animal.
Self-feeders, and automated watering systems where used, shall be inspected at least once daily to ensure that they are working effectively and are not contaminated. Any faults or defects must be rectified immediately and an effective backup system must be in place.
Uneaten food shall be regularly removed, as appropriate, to maintain hygiene and shall be disposed of appropriately.

Recommendations
Drinking water should be replaced daily.

Domain 2: Environment

Confinement in a captive environment imposes a number of restrictions on the animals being accommodated, and if the captive environment is inappropriate for the species and does not provide for the individual animal's basic biological and psychological needs and requirements, poor welfare will result. For example, when cold temperatures are prolonged or severe, discomfort, debilitation and suffering can occur; in situations when the environmental temperature falls below a species' lower critical temperature, cold stress and hypothermia will result, the adverse effects of which can be compounded by starvation (Gregory, 2004). Hyperthermia and heat stress can also cause suffering, the negative effects of which can be exacerbated by pain or dehydration (Gregory, 2004). Thus, the provision of appropriate, species-specific environmental conditions and suitable husbandry and management practices is fundamental to ensure physical wellbeing, as well as a positive mental state and therefore psychological wellbeing, ultimately contributing to a positive welfare state.

Enclosure and Environmental Design

Husbandry systems must be designed to provide species-specific appropriate enclosures and environments with a sufficient amount and complexity of space, proper facilities, appropriate social interactions, and they must give the animals the opportunity to carry out their full range of normal behaviours and movements, especially those behaviours with a strong internal motivation and hence 'need' for expression (CAWC, 2003). For example, some birds require perches and sufficient suitable space to fly, whilst arboreal animals need accommodation to allow their fundamental desire to climb and move about high above the ground to be fulfilled. Therefore, a good knowledge and understanding of different species' biology, environmental requirements, natural habitats and normal behaviours is essential to adequately meet all of the physical, psychological and social needs and requirements of animals' throughout their lifetime, whilst they are in captivity, in order to promote good animal welfare. A barren, restricted environment imposes an unrewarding lifestyle and may cause abnormalities in an animal's physical health and development, and have detrimental behavioural and psychological effects (UFAW, 1988). Hence, the provision of appropriate environmental enrichment in captive animal husbandry and management to increase behavioural diversity and promote positive psychological experiences throughout the animal's life, also plays a very important role in ensuring high welfare standards and in protecting animal well-being. (SEE DOMAIN FOUR – BEHAVIOUR; ENVIRONMENTAL ENRICHMENT AND STIMULATION).

General design:

The design of animal accommodation must primarily address the needs and requirements of the specific species to be accommodated, which, along with high standards of husbandry and management, is critical to adequately safeguard animal welfare; a positive psychological state can occur when the animal's physical needs (i.e. the four physical domains) are met, resulting in a positive state of welfare. Enclosures must be designed for comfort and security and must be well maintained to protect animals from injury. Veterinary consultation on enclosure design may be helpful to ensure that materials safe for the animals are used and that the enclosure structure and facilities will not only provide an appropriate environment for the species to be accommodated, but that they will also be conducive for carrying out any necessary veterinary and other management procedures safely and securely (DEFRA, 2008). The shape and design of all aspects of an enclosure should also prevent subordinates from becoming trapped by more dominant individuals in corners, shelter areas or dead ends and should provide for a suitable refuge area where the animals can rest appropriately, away from public view and, if necessary, away from their group mates (WSPA, 2005; Rees, 2011). Circular enclosures can prevent vulnerable individuals from becoming trapped in corners (Rees, 2011). Where appropriate, enclosure design should also enable reasonable precautions and protection from the effects of natural disasters; areas of accessible high ground should be included in regions prone to flooding and, in regions where it is appropriate, adequate fire breaks should be maintained (DLGRD, 2003a).

Safety:

In addition to the safety of the animals, the safety of the staff and visitors is important in the overall design of animal enclosures. All barriers must be appropriate for the species accommodated within the enclosure, taking into consideration the natural physical capabilities and behaviours of the animal species, providing safety and security for the animals. For example, for enclosures containing animals that dig, fences should be buried an appropriate depth into the ground. Enclosure perimeters should be designed and built to be strong and secure, they should be free from damage or defects, and be maintained in good condition. Trees within or near animal enclosures must be regularly inspected and appropriate action taken, as necessary, to prevent and deter animals from escaping. Moats, both wet and dry, must be wide enough to prevent animals crossing them, but must also be designed to offer a quick and easy exit should any animal fall into them. Dry moats should contain a suitable soft substrate to prevent injury and harm to any animal that falls into them (WSPA, 2005). Glass and transparent barriers enable the visitors to view the animals, but can also have a negative effect on animal welfare by reducing the air flow and ventilation to the enclosure, resulting in poor thermal and humidity environmental control (WSPA, 2005). Enclosure doors and gates should be locked, have a double-door entry system and must open inwards to prevent an animal escape. Enclosures housing potentially dangerous captive wild animals must have an appropriate and secure containment area, with a sliding door that can be operated from outside of the enclosure, in which the animals can be safely kept during routine husbandry, maintenance or veterinary procedures. A perimeter fence surrounding the institution's enclosures and grounds will improve site security; a perimeter fence may not only help to prevent unauthorised personnel entry, it may help to discourage feral animals to enter thereby improving biosecurity, and in the event of an animal escape, a perimeter fence may help confine escaped animals within the institution's grounds.

Flooring:

The type of flooring and substrate provided in animal enclosures has an important impact upon animal welfare. Flooring surfaces inappropriate for the species can result in discomfort and physical harm. Hard surfaces such as concrete can be cold in cool weather and hot in warm weather and can cause difficulties in thermal regulation for those species housed on them (WSPA, 2005). Hard concrete surfaces also do not allow for the expression of natural behaviours such as foraging or digging. Wire floors can cause pain and discomfort to the feet of animals and make the provision of appropriate bedding and suitable regulation of the thermal environment difficult. The characteristics of the substrate used should be such that it helps improve the welfare state of an animal. For example, deep sand floors in elephant houses provide the elephants with opportunities to dust bathe indoors and forage, whilst also offering a comfortable surface for resting (Rees, 2011).

Size:

Adequate space (vertical as well as horizontal space) should be provided for all animals to allow for the performance of normal behaviours and movement, whilst providing the animals with a sense of security, thus promoting positive behavioural and psychological health. An enclosure of appropriate size for the number and type of animals to be accommodated is important when housing social groups of animals; enclosures must be of a suitable size and shape to allow for the escape of individuals from any conflict or aggression shown to them by conspecifics (Le Neindre et al, 2004). Different species have different behavioural tendencies, as well as different territory sizes (that can vary with food availability), and therefore they can have quite different space requirements. In some species of carnivore which have large home ranges, inappropriate enclosure sizes have had detrimental effects on animal welfare, including the development of stereotypies and high infant mortality rates (Clubb and Mason 2007). The territoriality of different species, in association with social behaviour, should be acknowledged in enclosure design, with suitable space and a suitable social structure being provided for highly territorial species to prevent competition (Rees, 2011). Enclosure size should be large and its area maximised through efficient and appropriate use of both horizontal and vertical space; climbing structures, raised platforms or perches, as appropriate for the species, can all be used to maximise available vertical space (NAWAC, 2005). It is the quality of the enclosure space, in conjunction with the availability of the species appropriate quantity of space that is very important in helping to ensure a positive state of animal welfare. (SEE DOMAIN FOUR - ENVIRONMENTAL ENRICHMENT AND STIMULATION).

Shelters and refuges:

The provision of appropriate shelter for different species is another fundamental aspect of captive wild animal husbandry. Consideration of the animal's biology and natural behaviours should be undertaken when determining the type of shelter that should be offered. For example, shelters should provide a comfortable resting place and may feature nest boxes, hollow trees, vegetation planting, underground dens or inside areas of enclosure accommodation, as appropriate for the species. Sufficient shelter areas that are appropriate for the species and the number of animals accommodated within the enclosure must be available at all times and must provide suitable protection from weather extremes. The provision of multiple shelters may be required. Nesting or denning areas should not only be protected from the weather and accessible at all times to the animals, but be away from public view and contain bedding that is appropriate for the species.

Privacy is important for some species that seem particularly disturbed by the presence of or exposure to visitors, resulting in increased levels of stress. Hence the appropriate provision of sufficient suitable areas for rest and seclusion from visitors, as well as visual barriers, can help to reduce any negative effects of visitor presence. Big enclosures that provide the animals with large distances between them and the members of the public may help reduce the visitor induced disturbance of some animals, such as rhinoceros (Forthman 1998, cited in Maple and Perdue, 2013, p155), and therefore can decrease any negative effects visitors may have on the well-being of the animals.

However, the ability for animals to move away from fellow group mates should also be provided for. The social dynamics of many groups of animals dictate that there are often dominant and subordinate individuals. It is important to provide subordinate animals with the opportunity to escape from potentially negative physical interactions with dominant individuals in the group and from visual contact with conspecifics (WSPA, 2005). Multiple shelters can help address the need to move away from the view of group mates, as can the provision of physical visual barriers, thereby reducing the possibility of stress and harm. The availability of suitable, sufficient vertical space can help arboreal primates escape aggressive conflicts with conspecifics, plus appropriately satisfy their vertical flight response and their need to climb when alarmed (Caws et al, 2008).

Environmental parameters:

Different animal species have evolved and adapted to live in particular climates, environments and species-specific thermal ranges and altitudes. Therefore, in addition to levels of humidity, light spectrums, levels of lighting and ventilation, as appropriate for their specific biological requirements, it is important that captive wild animals are provided with appropriate thermal environments according to their species-specific needs, at all times during their life, from newly born to elderly, in order to adequately safeguard their welfare. This reinforces the need to know and understand the natural biology of each species and their fundamental physiological requirements during all stages of their life, growth and development, as well as their natural behaviours, in order to avoid situations that may be detrimental to animal welfare.

Many species housed outside require the provision of some form of protection from the weather to minimise the risk of either cold stress or heat stress. High temperatures and humidity can be very difficult for captive wild mammals, in particular, to cope with so they must be given the opportunity to access shaded areas such as suitable shelters or burrows or areas where shade is provided by vegetation planting, or to wallows and pools, when the environmental heat load is very high (WSPA, 2005). The provision of a gradient of temperature across enclosures can assist captive animals with their thermoregulation.

Some species of animal, for example those whose natural habitats are humid tropical regions or dry deserts, will require high humidity and low humidity levels, respectively. Inappropriate humidity provision for species can lead to health issues, for example providing unsuitable environments of low humidity for reptiles originating from tropical climates can cause abnormal skin shedding (Rees, 2011). Therefore, the regular monitoring of both enclosure temperature and humidity is important to ensure that species-specific environmental requirements are met and hence animal health and welfare is protected.

Different species also may have different seasonal or photoperiod cycles. Equatorial regions often have no marked seasons and relatively constant hours of dark and light, but this situation changes in regions located at different latitudes, nearer the poles. This should be taken into account if animals from equatorial regions are moved to outdoor environments in institutions located in regions nearer the poles, as there may be welfare problems for young born in cold or wet seasons. For example, where animals whose natural habitats are tropical climates are kept in institutions in temperate climates, the provision of appropriate indoor housing for pregnant animals nearing the end of their gestation, or for housing neonates, may be necessary (Rees, 2011). Also, consideration should be given to animals whose behaviours are dependent on a photoperiod cycle if they are to be housed indoors, and appropriate provisions must be made. Photoperiod cycles can influence breeding behaviours and hibernation in specific species (Rees, 2011) and there will be behavioural restriction and hence poor welfare if appropriate photoperiods are not provided for these species.

The quality of light is also important for many species, such as reptiles. To ensure good health, reptiles need access to UV light and have a fundamental requirement for wavelengths of both UVA and UVB light, which are necessary for activity and vitamin D3 synthesis (Rees, 2011). Therefore, an appropriate gradient of UV light must be provided for captive reptiles, in addition to an appropriate temperature gradient and humidity.

Alongside the necessity to provide appropriate lighting for the different species, adequate and appropriate levels of lighting are necessary to enable regular, at least once a day, satisfactory observation and inspection of the animals, which is important for the prompt detection and appropriate reporting of any problems with the animals' physical or mental health and well-being. More frequent inspections of animals may be needed depending on the circumstances, for example if an animal is unwell, if there has been a change in the social group structure (such as the addition of a new individual) or if there has been a change in the animal's environment (NAWAC, 2005; CAZA, 2008a).

Appropriate ventilation is critically important in the husbandry of captive wild animals. Poor ventilation and hence poor air quality can result in thermal stress and ill health, seriously compromising animal welfare. Enclosure design, construction and maintenance must provide for sufficient, appropriate ventilation at all times.

Hygiene:

A high standard of hygiene is an important part of good animal husbandry, therefore the design and management of the accommodation and other husbandry practices such as food preparation should incorporate appropriate hygiene measures, whilst also ensuring that the environmental, physiological, behavioural and psychological needs of the animals are not compromised, taking into account different individual animal circumstances, such as health or reproductive status, as well as the fundamental enrichment of the environment. Contaminated bedding or stale food or water must not be allowed to build up and a safe, effective pest control programme must be implemented.

Social interactions:

Social animals should be kept in appropriate social groups, with group size, the social structure or composition of the group and stocking density being taken into account to safeguard welfare. Enclosures must provide opportunities for animals to escape any conspecific conflict situations in order to protect individuals from physical harm and safeguard their psychological well-being. Inappropriate over-crowding of an enclosure can lead to increased aggressive encounters between conspecifics, as well as competition for important resources such as food and water. Also, chronic social isolation in species that normally live in family groups, herds or flocks can lead to the development of pathological behaviours such as stereotypies (Gregory, 2004). Yet, the temporary separation of some animals from their conspecifics may be required in specific circumstances. For example, for females that are due to give birth, their separation from the group into individual appropriate accommodation may be necessary in order to reduce the risk of the newly born young being attacked by other members in the group (Rees, 2011).

When considering enclosure design and appropriate environmental provision, consideration must also be given to differing individual animal needs, as well as accommodating for the varying species-specific behavioural, biological and psychological needs. Within different species, individual differences in personalities and behaviours can occur, which can result in individual animals responding differently to varying aspects of their captive environment (Horvath et al, 2013). Therefore, attention must be paid to provide a species-specific, suitably safe, stimulating and variable environment in which the expression of inherent natural behaviours is encouraged, whilst also understanding that within a species, individuals will vary in their behaviours and responses.

Water environments:

The environment in an aquarium also requires careful management to safeguard the welfare of the animals within the aquarium. Water requirements will vary in accordance with the different species being accommodated. Features that need consideration include water temperature, water depth, the movement of water, light spectrum, volume of water in relation to the size and number of animals kept, and water chemistry (Rees, 2011). Water chemistry addresses aspects of the water such as pH, salinity, concentrations of oxygen, carbon dioxide and ammonia, nitrite and nitrate levels. It is important that all of these features should be maintained within the parameters appropriate for the species. Water quality should be frequently and regularly monitored so that if changes in the water quality occur, then they can be promptly rectified before they may have a negative effect on the health and welfare of the animals (NAWAC, 2005). Aquarium water must be free of harmful contaminants and must be filtered. Water can be filtered using a variety of different techniques, for example biological filtration, mechanical filtration, chemical filtration or ultraviolet light filtration (Rees, 2011). The design of aquarium enclosures must be appropriately strong and water-tight, be made of safe materials and be capable of being easily cleaned to maintain high standards of hygiene (NAWAC, 2005). In situations where water environments are provided outside, the water quality in pools must be protected from contamination from drainage water or excessive overflow from surrounding land or buildings (NAWAC, 2005). Aquaria must provide enclosures of suitable size, design, depth and volume for the species and number of individuals accommodated.

Appropriate social group composition is also fundamental for certain aquatic species, such as dolphins and whales (Marino and Frohoff, 2011). Animals, especially acoustic animals such as cetaceans, can be particularly disturbed by noise stimuli. Therefore careful consideration must be given to the noise level and other potentially inappropriate sensory stimulation within the captive environment (WDCS, 2011).

Requirements
The requirements of the species must dictate the design and management of the enclosures and the enclosures must provide resources consistent with the needs of the species'. Animal enclosures shall be designed to meet the fundamental requirements of the animal throughout its lifetime, and such provisions shall be made to: • Provide sufficient space (vertical as well as horizontal) to give opportunity for the animal to perform normal ranges and patterns of behaviours and exercise • Offer protection from weather extremes • Provide a comfortable area and suitable resting place • Offer appropriate environmental choices, stimulation and variability • Offer security and adequately protect against fear • Be safe and not cause the animal any harm • Enable effective cleaning, maintenance and animal management
Enclosure size, shape, layout and management must: • Protect individuals from persistent and unresolved disputes with other animals within the group, or between different species in mixed exhibits, which may result in harm. • Prevent individuals being overly dominated by other individuals within the group and provide enough opportunities for animals to avoid conflict or aggression from group mates. • Prevent the accumulation and spread of infectious agents and parasites. • Enable effective removal of waste and there must be good, safe drainage of waste water • Provide opportunity for safe appropriate enclosure maintenance by personnel and husbandry practice, such as appropriate hygiene practices and veterinary interventions.
Sufficient appropriate shelter and refuge areas must be provided for all animals within an enclosure, which are freely accessible at all times. Shelters must provide suitable protection against weather conditions. Refuges that allow animals to comfortably rest away from public view or group mates must be provided.
Different species or incompatible individuals must not be housed within such a distance that it will cause distress.
Social species shall be normally kept in compatible social groups. The group must consist of an appropriate number, age and sex ratio of animals. Overcrowding within enclosures must be avoided.

Individuals of such social groups must not be housed in isolation, except where it is necessary for veterinary purposes, or it is justified for other reasons (eg imminent birthing) and where such isolation will not jeopardise the individual's welfare. In situations where social animals are housed temporarily away from the group, it shall be in suitable accommodation and only for such a time that will allow their uncomplicated reintroduction back to their social group.

The temperature, ventilation, lighting (both lighting levels and spectral distribution), humidity and noise levels of enclosures shall always be suitable for the comfort and wellbeing of the species.
As appropriate, suitable equipment for measuring environmental variables such as humidity and temperature shall be available and must be used correctly.

Where life support systems and environmental quality are dependent on external utilities (for example, water or electricity), adequate provisions must exist for their constant function, with adequate backup facilities in case of failure.
All external services and the backup system must be inspected daily and they must be suitably serviced and maintained.

Proper standards of hygiene in enclosures, facilities and treatment rooms shall be maintained. In particular,

a) Consideration must be given to the management, monitoring and appropriate cleaning of enclosures and the equipment within them, to reduce the risk of potential harm and/or disease,
b) suitable cleaning agents must be readily available, and the appropriate and safe means to apply them,
c) personnel must be appropriately trained in the correct usage of suitable cleaning agents and disinfection protocols,
d) personnel must use protective clothing and equipment as appropriate and in accordance with the institution's hygiene procedures,
e) advice from a veterinarian or other competent person must be obtained and followed regarding the routine cleaning requirements of enclosures or other areas,
f) if an infectious disease is identified in any animal, appropriate biosecurity protocols must be immediately implemented.

Enclosure and barrier design, construction and maintenance must be such to fully ensure the safety of the animals, personnel and visitors. In particular:

a) barriers must be positioned to allow a reasonable flight/safety distance between visitors and contact with the enclosure;
b) If a fault occurs in any part of a barrier or an enclosure that may result in harm, it must be promptly suitably repaired or replaced, or the animal must be relocated to other suitable accommodation.
C). enclosure accommodation and fittings should be well maintained and inspected regularly to avoid potential injury to the animals;
D) water-filled and dry moats used for the containment of animals must provide a means of escape back into the enclosure should animals fall into them;

E) all natural materials (for example, plants and their products, such as seeds or fruit) and non-natural materials (for example, paint, chemicals, rubber, plastics, treated substrates and treated water) used within the enclosures must be non-toxic to the species held;
F) The enclosure construction and design must be safe for the animal, predator proof and must consider the animals' natural behaviours so that animals cannot escape and so that animals are deterred from trying to escape;
G) the perimeter boundary, including all access points, must be designed, constructed and maintained to discourage unauthorised entry and act to assist with the effective confinement of all animals within the institution.

Where appropriate, enclosure design shall provide adequate protection from the effects of natural disasters, such as flooding or fire.
Disaster plans for implementation in the event of a natural disaster should be produced by the Management Authority.

Animals in water environments must be provided with:
a) Water of temperature, depth, light spectrum, and water chemistry (ie pH, salinity and oxygenation, concentrations of carbon dioxide and ammonia, nitrite and nitrate levels) that is appropriate for the species;
b) Water that contains no harmful contaminants; and
c) Enclosures of suitable design, depth and volume for the species and number of animals accommodated, which are constructed using materials safe for the animals, watertight, well maintained and which can be appropriately cleaned.

Water quality and temperature shall be maintained to meet the species requirements and must be regularly and frequently monitored and treated as appropriate.

As appropriate, suitable equipment for measuring water parameters and sufficient equipment to maintain the required water quality shall be available and must be used correctly by suitably trained personnel.

Institutions must employ trained staff who are suitably experienced and knowledgeable in the care of the species of animals housed within the institution.

Recommendations
Holding enclosures or pools that allow separation of groups of animals for treatments, feeding or the introduction of new animals should be provided and these should be designed to be of sufficient size to enable the animals to exercise appropriately without hindrance.
Enclosure design should incorporate species appropriate, living vegetation. *A compromise between environmental hygiene requirements and the biological requirements of the animal may be necessary.*
Trees overhanging a perimeter fence should also be regularly inspected and trimmed to prevent any damage occurring to the fence through which an animal may escape.

Transportation and Movement of Animals

To safeguard animal welfare and minimise the risks of injury, ill health and negative psychological states during transportation, a good methodology for the same is essential. Factors that may impact upon an animal's physical and psychological well-being include handling techniques, the method and duration of transport, the availability of food and water during transportation and social grouping. In addition, differences may exist between different countries regarding animal transport legislation, for example with the recommended space requirements for the transport of different animal species. Therefore, it is necessary to ensure that the movement and transportation of animals conforms to and preferably exceeds, the requirements of all relevant regional, national and international legislation.

The methods used for handling captive wild animals for transportation purposes, as well as handling for some specific husbandry management practices, should minimise, as much as possible, the stress experienced by the animals and the potential for trauma. Hence, an understanding of natural animal behaviours is important when handling or moving animals. The health and safety of the animals and of the attending personnel must also be taken into account. Appropriate risk assessments should be carried out prior to handling captive wild animals and appropriate equipment and facilities should be available. Positive reinforcement training, as appropriate for the animal species and individual animal concerned, can help improve the safety of handling animals, whilst also minimising the requirement for physical and chemical restraint (SEE DOMAIN FOUR - ANIMAL TRAINING SECTION).

The transportation of captive wild animals may occur for a variety of reasons, for example, animal transfers between institutions which could involve international transportation, or transportation within an institution for veterinary reasons. However, the whole process of transportation, including capture, handling, loading and unloading, can be a stressful experience, particularly for captive wild animals, and can negatively affect an animal's physical and mental well-being, causing fear, distress and in some instances high mortality (Mench, 2004; NAWAC, 2011). For some specific species, such as cetaceans, the stress experienced by the animal during the handling and confinement associated with transportation can result in an increased risk of death during and following transportation

(WDCS, 2011). Therefore it is essential that the transportation of captive wild animals involves high standards of animal management and care.

Wild caught animals in particular may experience extreme stress and compromised welfare during capture, handling and transportation with resultant high mortality rates (EFSA, 2004).

Trap capture prior to transportation may cause stress in a captive wild animal. Yet, the stress associated with this procedure may be reduced by attempting to habituate the animal to the trap prior to capture, by leaving the trap open with food inside it in the animal's enclosure. Habituation to other means of capture for transportation may also be possible, for example some animals may be trained using positive reinforcement over a sufficient period of time to enter a crate (Melino, 2010). This 'crate training' can reduce the risk of animal injury and the level of stress experienced by the animal during transportation (Linhart et al, 2008). Covers placed over crates and traps can also help decrease animal stress and reduce drafts, but care must be taken to ensure that the accommodation is always appropriately ventilated. Appropriate sufficient ventilation must be available at all times, when the transport vehicle is moving as well as when it is stationary, because heat stress can be a significant problem for animals during their transportation (ESFA, 2004). Excessive noise and vibration are further adverse sensations that an animal may experience during transportation contributing to the stress of the experience, but it may be possible to habituate the animal, prior to its transport, to some of the noises transportation may produce (Rees, 2011). Also, when transporting camels, for example, sand can be used to cover loading ramps to minimise the noise produced by the ramps and hence help to reduce the level of negative disturbance the camel may experience on loading (DLGRD, 2003b). Loading and unloading facilities including ramps should be appropriate for the species, in relation to design, dimensions, the non-slip floor surface and degree of slope, and must be well maintained so as not to cause injury to the animal (NAWAC, 2011).

All accommodation used for the transportation of animals must be secure to prevent an animal escape, whilst containers and crates must additionally be secured to prevent movement during transport and hence reduce the risk of the animal experiencing physical or psychological harm. Accommodation, facilities and equipment must be appropriate for the species and must be well maintained to reduce the risk of injury to the animal, reduce stress and ensure the safety of the animal (NAWAC, 2011). Animal transport accommodation must allow the animal, as appropriate for the species, to travel in a natural body posture when laying down, sitting or standing and enable the animal to maintain its body temperature within a normal range for that species (EFSA, 2004; NAWAC, 2011). Consideration must also be given to the internal design of the transport container, which should be appropriate for the species being transported, for example perches are needed for some birds (EFSA, 2004). Non slip accommodation flooring should be correct for the species and, as appropriate, suitable absorbent bedding should be provided on container floors. Appropriate bedding can absorb urine and faeces, whilst also providing comfort on hard floors and a means of protection from adverse weather (NAWAC, 2011). However, the provision of suitable bedding material must be in compliance with national legislation; some countries do not allow some specific materials, such as straw, to be imported (CITES, 2004).

If appropriate for the species concerned, animals may be transported in suitable compatible groups (for example animals reared together) in accommodation of appropriate size, taking into account the number of individuals involved. It is important to ensure that the individuals are familiar with one another before transport to help avoid potential problems with aggression during transport (EFSA, 2004). Behaviours may be heightened as a result of the stress of transportation and where

there is also possible close confinement with conspecifics. Animals of very different ages, weights or sizes should not be mixed together for transport (NAWAC, 2011) and, as appropriate, mature males and females should be separated from one another (AATA 2000, cited in EFSA, 2004). The specific needs and requirements of young animals of certain species must also be taken into account for their transportation (DEFRA, 2011).

To further reduce the risks of adversely effecting an animal's welfare during transportation, it is important to ensure that only animals in good health that are deemed by the institution's veterinarian as fit to travel are transported and, if appropriate, suitably competent and experienced personnel should accompany the animal during transportation to help monitor and observe the animal and ensure its welfare is protected. Stress associated with transportation can negatively affect an animal's physical and mental health status by compromising the animal's immune system, therefore increasing the individual animal's susceptibility to illness during and after transportation. Hence, methods, that are appropriate for the species being transported, of safely and securely monitoring or inspecting the animals for signs of distress, illness, injury or fatigue, that involve minimal disturbance to the animal should be available, along with suitable contingency plans to take any necessary appropriate action. Inadequate levels of dissolved oxygen in the water can be a major problem during the transport of fish (EFSA, 2004). Therefore, water quality in containers holding aquatic species must be monitored and the concentrations of oxygen, carbon dioxide and ammonia, as well as pH, temperature and salinity must be maintained within the parameters appropriate for the species (NAWAC, 2011).

All personnel handling and transporting captive wild animals must be competent in captive wild animal care and the measures necessary to safeguard the welfare and security of the animals being transported, and there must be a sufficient number of suitably experienced personnel involved at every stage of the transport (EFSA, 2004; NAWAC, 2011).

Long distance transport can negatively impact upon an animal's physical and psychological well-being (Appleby et al, 2008) and affect an animal's overall stress levels which may predispose it to illness during and after transportation. Long journey times will also increase the likelihood of fatigue occurring in the transported animals, predisposing them to injury and physical harm. Hence, to promote good animal welfare and where it is avoidable, long distance transport of captive wild animals should not occur and journey distances should be kept as short as possible. Animals must also only be kept confined in their appropriate transport containers whilst they are in transit, or during the preparation period immediately prior to transit (Ezemvelo KZN Wildlife, 2013). In situations where animals are being moved within the institution, for example from one enclosure to another, animals should be confined in their transport containers for the least period of time possible, to a maximum of one hour (Ezemvelo KZN Wildlife, 2013). Time from boxing into their appropriate transport containers to arrival at the destination must be minimised.

The transportation method as well as the duration of transport can additionally impact upon the welfare of the animal. For example, the transport vehicle used should be designed and maintained so that it is suitable for comfortably and safely transporting the appropriately contained animals over the anticipated terrain, (NAWAC, 2011) whether it be the road, air or sea; the vehicle should provide, as much as is reasonable, protection from excessive motion or vibrations throughout the duration of the journey, in addition to providing protection from weather extremes.

A transport or journey plan must be put in place, detailing water, feed, space, ventilation and suitable rest requirements, as appropriate for the species, thereby ensuring that the individual

needs of the animal can be addressed. Journey distances should be kept as short as possible, with appropriate rest periods for the animals, as necessary. Contingency plans to safeguard animal welfare and avoid suffering in the occurrence of unexpected circumstances including unplanned delays and adverse weather conditions must be made, with appropriate action being taken in the event of such an occurrence (NAWAC, 2011).

IATA (International Air Transport Association) publishes minimum requirements for the safe transportation of animals internationally and these guidelines and regulations should be followed, whilst also giving consideration to individual animal needs and species specific space requirements with regards transportation.

Requirements
The transportation and movement of animals should conform to all applicable regional, national and international legislation, norms, standards and guidelines.
The conditions and facilities as required by IATA for the transportation of animals internationally shall be used as minimum guidelines**.**
All necessary travel documentation, health certificates and permits must be complete and readily available for inspection, as appropriate, to avoid any delays in the transportation.
A transport plan must be in place. The transport plan must include documented contingency plans to counter the effects of unplanned delays in transport, especially where such delays might subject the animals to excessive heat, cold, thirst or hunger.
Emergency protocols to safeguard animal welfare during transportation should also be produced.
All animals must be appropriately inspected by a veterinarian prior to transportation to ensure that all animals are fit to travel. The restraint and handling techniques used must be appropriate for the species, and safe for both the animal and the handler.
A sufficient number of competent and experienced personnel shall be involved at every stage of animal transportation to ensure the security, health and welfare of the animals during transport.

Transport accommodation and facilities shall:

a) be free of projections, fittings or structures that might injure the animal
b) be secure and appropriate in design and structure for the species of animal, age and number of animals being transported
c) have suitable ventilation of appropriate airflow
d) provide species appropriate environmental conditions
e) provide flooring that, where appropriate, gives secure footing for the animals

As appropriate to the species and the circumstances, and in compliance with national and international legislation regarding imports, suitable bedding or absorbent material should be provided on transport cage floors.

Where groups of naturally social animals are transported, the group must be of compatible individuals and the transport accommodation must be of sufficient size. Animals of very different ages, weights or sizes shall not be mixed together for transport.

Journey times must be kept to a minimum. Where it is avoidable, long distance transport of captive wild animals should not occur.
Provisions should be made for minimising or avoiding delays during transportation.

Animals shall only be kept confined in their transport containers whilst they are in transit or during the preparation period immediately prior to transit; time from boxing to arrival at the destination must be kept to a minimum.

Animal records shall accompany all animal transfers. As a minimum requirement, the records shall provide the recipient with sufficient information to adequately accommodate, feed and treat (if applicable) any animal being transferred.

Recommendations
The transport of any animal has the potential to cause that animal stress. If the stress is severe, appropriate steps should be taken (such as the use of tranquillizers) to reduce the level of stress as much as possible.
The outside of each individual container accommodating animals should have appropriate information about the animals being transported, including the species, the number of individuals, any special handling requirements, whether the animal is categorised as dangerous, and appropriate feeding and watering information. Contact details for both the sending and the receiving institution should be available.

Animal Transactions

Monitoring and regulation in the capture, transport and trade of wild animals is necessary to safeguard the health and welfare of captive wild animals during this process, and also to reduce the possible threats to the viability of the wild populations of animals. Appropriate documentation detailing transactions helps to ensure auditable welfare standards are upheld, in addition to confirming adherence to all necessary legislation; all animal transactions must comply with all applicable regional, national and international legislation which is important to adequately protect animal welfare, as well as the sustainability of wild animal populations.

Furthermore, wild animals may undergo translocation nationally and internationally during transactions between institutions, therefore it is important to ensure that the environment and climate to which animals are being moved meets the animals' specific requirements (physiological and behavioural) and can satisfy the individual's psychological needs in order to avoid compromising their welfare; welfare will be poor if the animal is not acclimatised to the environment to which it is being moved and if the environment is unable to meet its species-specific needs. Animals should not be transferred between institutions if they are not in good health or not fit to travel. Equally, in order to protect the future welfare of the animals being transferred between institutions, it is important to ensure that animals are only passed to institutions that can appropriately manage and accommodate the species of animal they will be receiving, that the recipient institution has personnel suitably experienced in the husbandry and care of that animal, and that the recipient institution has an appropriate philosophy regarding the management and care of their animals and animal welfare (WAZA, 2003a; BIAZA, 2012b).

Attention must also be paid to minimise the risk of disease transfer between institutions during animal transactions. (SEE DOMAIN THREE - ANIMAL HEALTH AND VETERINARY CARE SECTION). The appropriate veterinary examination of animals to be transferred should be undertaken within a suitable time frame before transportation and again immediately prior to transportation to ensure that the animals are in good health. A quarantine period of a time frame appropriate for the species of newly acquired animal on arrival at an institution should be implemented, which, along with the maintenance of a high standard of biosecurity, is important to safeguard the health and welfare of the existing animals on site. Appropriate medical records for animal acquisitions should be given to

the receiving institution, along with any relevant history of disease in the animals accommodated at the sending institution.

Source of animals:

Animal acquisition from the wild is discouraged. Although an increasing number of wild animal species are being bred in captivity enabling the sourcing of wild animal acquisitions from those born in captivity, animals such as marine fish, birds and reptiles are still being captured and brought into captivity from the wild (CAWC, 2003). Animal acquisitions must comply with all relevant legislation and it is important that an ethical review process is in place. Animals should only be sourced from the wild if there are data to show that there would be no negative effects on the wild species population or its habitat (DEFRA, 2008) and principally, the welfare of the individual animal must be considered and be of primary concern; a thorough evaluation of the potential benefits and potential welfare costs to the individual animal should occur before any animal is taken from the wild, especially if its husbandry requirements are not fully understood (CAWC, 2003). Also, there is the risk of harm to the individual animal during wild capture and the following transportation of the animal, the risk of exposure to infection as a result of stress induced lowering of the immune system, as well as the potential of exposure to infectious agents that the animals have not previously encountered, thereby potentially seriously compromising the welfare of the individual animal (CAWC, 2003).

However, the continued survival of a wild species at imminent risk of extinction may justify wild capture for captive breeding programmes with the aim of future reintroduction back to the wild (CAWC, 2008b; DEFRA, 2008), but this must be subject to a thorough ethical review and must comply with all applicable legislation. The Marine Aquarium Council (MAC) has developed a MAC Certification scheme, with audited welfare and environmental standards, to help regulate the ornamental marine fish trade and quality assurance schemes such as this can help to promote positive animal welfare standards for wild caught animals, whilst also addressing conservation aims and promoting ecological sustainability. National certified programmes also exist for some freshwater fish and terrestrial invertebrates for acquisition from approved sustainable wild sources (BIAZA, 2012b).

Details regarding the source of an acquired animal must be provided, in addition to appropriate individual animal records of health, nutrition, reproductive status and behavioural characteristics (SEE MISCELLANEOUS - RECORD KEEPING SECTION).

Animal management:

The number of animals held within zoological institutions needs regulation, for example, in order to ensure that the animals are all appropriately accommodated and to avoid the problems associated with overcrowding, or to address captive wild animal conservation breeding programme requirements. This animal management can result in the transactions of animals between institutions. Additionally, in order to maintain a genetically diverse and healthy species population within an institution and minimise the risk of inbreeding, the control of breeding may be necessary which may be achieved in a number of ways including contraception, surgical sterilisation, keeping the two sexes separate, or the movement of individual animals to another institution (Rees, 2011). However, the affect that these various methods of breeding control may have on an animal's physical and psychological health and hence welfare, must be considered. For example, in certain

species, single sex groups do not represent a natural social grouping and hence adverse behaviours may result, such as increased aggression (Rees, 2011), and contraception may have side effects in addition to adverse effects on behaviour, whilst the ability to reproduce and raise young may be considered as a natural animal behaviour (BIAZA, 2012b). Yet, maintaining an optimum group size and sex ratio is important as it can have positive effects on mental health and animal well-being (Lewandowski, 2003).

Animal acquisition and animal transfer to different institutions can negatively affect animal welfare in variety of ways, for example, through the potential for social group disruption when individual social animals are separated from their social groups or introduced into new social groups; by separation from a familiar environment or established home range, with following introduction into a new enclosure environment; or by introduction to a variety of novel experiences and unfamiliar circumstances through the transportation procedures (NAWAC, 2005) (SEE ANIMAL TRANSPORTATION). Therefore, prior to any animal acquisitions or transactions, an assessment and ethical review by the management authority should be undertaken to ensure that animal welfare is the primary concern for the need for such movements, and that when such a transfer is undertaken, appropriate measures are put in place to ensure the welfare of the animal being transferred, for example highly social animals should be acquired or transferred in appropriate groups or pairs (NAWAC, 2005).

Requirements
Management must consider the necessity of all animal transactions. Where possible, alternative options should be studied if there is any possibility that animal welfare may be compromised. The movement of animals shall only occur when it can be shown to be in the best interests of the species, individual animal or social group to which that animal belongs.
Animal acquisition from the wild is discouraged.
A disease risk analysis must be undertaken by the veterinarian of the institution acquiring an animal.
Records must be retained of: a) animal origins, with dates and details of entry into the collection and the source b) disposal from the collection and, if applicable, to whom
The institution must ensure that the animals leaving the collection are only passed to institutions with the appropriate facilities, resources and expertise to achieve comparable welfare standards.

Recommendations
Animal acquisition from the wild should only be considered following appropriate ethical assessments in terms of conservation benefit, positive individual animal welfare outcomes and the undertaking of a thorough individual animal welfare benefit/cost analysis.
A regular review of all animal acquisitions to and transactions from the institution should be undertaken to assess and ensure appropriate welfare requirements compliance in all transactions.

Domain 3: Health

Animal Health and Veterinary Care

Prompt veterinary diagnosis and treatment are critical to minimise the impacts of pain, injury and disease. When disease occurs in multiple individuals in a group of animals, particularly if it occurs over a prolonged time frame, consideration must be given to the husbandry system and standards (DEFRA, 2008), as well as the nature of the disease, whether it be infectious or non-infectious, and its epidemiology.

Within institutions that do not have a resident veterinarian, it may be necessary for the visiting veterinarian to instruct a suitably competent member of personnel who has received appropriate training and experience, for example a veterinary nurse, to undertake the administration of certain treatments, (DEFRA, 2008). Effective and clear communication between the veterinarian and institution personnel is important and veterinary treatment must only be performed by appropriately trained personnel following specific veterinary instruction and under veterinary supervision; institutional personnel should not undertake the veterinary treatment of or medicate any animal within the institution without full veterinary consultation (DEFRA, 2008). The management, use and storage of all veterinary drugs must be in accordance with relevant local legislation.

In association with and complementing good veterinary provisions and husbandry techniques should be good stockmanship. Irrespective of the husbandry system in place, a competent, observant and knowledgeable stockman is crucial to protect and maintain the health and welfare of captive animals. A keeper knowledge of species' biology and hence basic physical and behavioural needs and requirements is necessary, alongside a knowledge of the normal range of displayed behaviours in different species and their preferences, as well as an understanding that different age groups of animals may react or show pain in different ways (Gregory, 2004). This level of knowledge and understanding is vital in underpinning the standard of husbandry offered to captive animals and in the recognition of behaviours that may indicate pain or suffering. Animals must therefore be frequently, regularly and routinely observed and inspected by personnel and abnormalities in health or behaviour promptly and appropriately reported to the relevant personnel. In situations where there are episodes of animal ill health or injury, if there has been recent mixing or the introduction of individual animals or groups of animals, if there has been a change in animal management

practice, or if there are adverse weather conditions, more frequent checks of the animals may be required, as appropriate for the circumstances.

The pinioning of birds is a permanent, non-reversible mutilation involving damage to the muscles, tendons and bone of the wing that is carried out for management purposes to prevent flight. However, preventing a bird from expressing its natural flight behaviour when flight is its primary method of locomotion will negatively affect the psychological health and welfare of this animal (Maple and Perdue, 2013), and the procedure itself will also negatively impact upon the welfare of the animal. Therefore, the pinioning of birds should only be performed in exceptional circumstances and as a last resort, where the health and safety of the bird may be compromised and when there is no alternative form of animal management available. Where it is still practiced, regular ethical review by the Management Authority of the use of pinioning within the institution should be undertaken.

Preventative veterinary medicine:

In addition to the provision of readily available emergency veterinary treatment, a preventative veterinary medicine programme must be documented and put in place following appropriate veterinary consultation, which should include the monitoring of all of the animals accommodated within the institution, on an individual basis, as well as considering social group health (Rees, 2011; Portas, 2013). Preventative medicine programmes are essential for safeguarding captive animal health. Such programmes should consider the diseases that commonly occur in the country (DLGRD, 2003a) and incorporate health screening protocols including, for example, regular blood, urine and faecal examinations, vaccinations as appropriate and parasite control (Kohn, 1994; NAWAC, 2005). Regular advisory visits are recommended in situations where the institution does not have a resident veterinarian, in order that records may be reviewed and the implementation of the preventive veterinary medicine programme ensured (DEFRA, 2008). In addition to the statutory maintenance of detailed and accurate clinical veterinary records, a record of each veterinary advisory visit and any ensuing recommendations should be kept. Veterinary records are important tools for assessing individual animal welfare in the immediate moment and notably over periods of time by enabling the observation and interpretation of any trends in injuries or disease (Algers, 2004). Regular reviews by the Management Authority should be undertaken of husbandry and preventative veterinary care practices and protocols, along with ensuring that adequate biosecurity arrangements are in place to minimise disease risks (CAWC, 2003).

As a result of increases in the knowledge of zoo animal nutrition, management and veterinary care, geriatric health is becoming an increasingly commonplace issue that zoological institutions must address (Rees, 2011; Loomis, 2012; Portas, 2013). Diseases such as chronic arthritis and heart failure may be encountered (Loomis, 2012) and the provision of appropriate species-specific long-term accommodation for aged animals must be considered (Rees, 2011). Therefore, the issues concerning aged animals must be addressed within a veterinary health programme and regularly reviewed by the Management Authority, with veterinary consultation on an individual, case by case basis. Conversely, reduced longevity of wild animals in captivity is a problem in some species, for example elephants, (Clubb and Mason, 2002; Rees, 2011) and cetaceans (Marino and Frohoff, 2011), which highlights the need for the implementation of regular species-specific health screening protocols.

The post mortem examination of animals plays an important role in a preventative medicine programme and the surveillance of the health status of animals accommodated within zoological institutions (NAWAC, 2005; DEFRA, 2008). Therefore, the post mortem examination of animals that die in the collection should be undertaken and appropriate measures must be taken to ensure that these examinations are carried out by experienced personnel, using suitable facilities and relatively promptly after the death of the animal. Records of post mortem examinations and the resultant findings should be kept and maintained. All carcasses of animals and any tissue samples taken for laboratory examination must be stored and handled appropriately to minimise the risk of exposure of other animals in the zoological collection to any potential infectious diseases and to minimise the potential risk of the transmission of zoonoses to staff. The safe, hygienic and appropriate disposal of the bodies of all dead animals must be undertaken.

Biosecurity:

Quarantine regulations regarding the import of animals into different countries vary between each country, but the quarantine of new animal acquisitions on arrival at an institution is critical to safeguard the health and welfare of the existing animals on site. Quarantine helps to prevent the introduction and spread of disease to other animals in the institution and enables the examination of the new arrivals (Rees, 2011). In addition to their application in the management of animal acquisitions, quarantine facilities are also important for the isolation of sick or injured animals, as appropriate. Animals in quarantine should be appropriately examined to assess their health status before introduction/reintroduction to the institution. It is important that quarantine facilities are designed and constructed to facilitate the safe observation, handling and examination of animals and enable the maintenance of a high standard of husbandry and hygiene, as well as biosecurity. Quarantine areas should also provide appropriate species-specific space to enable the animals to express their normal behaviours and allow for suitable exercise opportunities.

A safe and effective pest control programme must also be developed and implemented since many different species of pest (for example, free-living rodents and invertebrates) are capable of transmitting a variety of diseases to captive animals. The deterrence of predators, such as feral cats and other free-living carnivores, must also be considered to prevent predation and the risk of the spread of disease (PAZAAB, 2010; Rees, 2011). Care must be exercised regarding the method of pest control and predator deterrent employed to minimise the risk to the captive wild animals accommodated within the institution. The issues concerning predator deterrent and pest control are important considerations in the design and maintenance of the secure perimeter fencing and individual animal enclosures.

Requirements
The level of veterinary facilities and care must be consistent with the overall welfare needs of the animals in the collection.
The Institution shall have a working arrangement with a veterinarian with appropriate expertise in the veterinary care of all of the species held at the Institution.
Effective communication and allocation of responsibilities between the veterinarian and institution personnel is very importance and each party must understand its ethical and legal responsibilities.
Proactive veterinary care must be clearly evident, including: • routine clinical examinations of all the animals in the Zoo; • documented treatment and preventative medication protocols of the Zoo; • health monitoring of animals (eg disease screening, regular blood, urine or faecal examinations, endoparasite monitoring, etc), as indicated; • safe and proper collection, preparation, handling and appropriate forwarding of diagnostic and other samples; • training of zoo personnel in health and hygiene; • ensuring that post-mortem examinations and any necessary laboratory investigations are carried out, including the submission of suitable samples for pathological analysis, whenever possible; • supervision of quarantine premises and other tasks required by law, or as part of good zoo veterinary practice; • nutrition and the development of diets; • the establishment of written procedures to be followed in the event of the accidental use of dangerous drugs; and • secure management of all medications, including appropriate documentation, control, storage, issuing, and destruction and disposal of such veterinary drugs in accordance with manufacturer's guidance and recommendations, and relevant local legislation.
Institutions must confirm that they, and a local hospital or their veterinarian, have ready access to antidotes to any potentially toxic drugs and veterinary products used at the institution. Appropriate records must be kept. Where there are venomous animals kept at the Zoo, there must be a documented emergency protocol in place with appropriate access to anti-venom.

All animals must be inspected by personnel at least once daily, except in situations such as when:

a) daily inspection may negatively affect the animal's welfare; or
b) disturbance during the particular stage of the breeding cycle may be detrimental to animal welfare, (eg presence of new-born young or egg incubation); or
c) there has been a change in the environment, the introduction of new individuals or where there has been a change in social group structure, which may necessitate more frequent inspections.

Animal care staff must be appropriately trained and competent in observing signs of good animal health and welfare, which include:

- the good physical condition of an animal;
- absence of disease, trauma, pain and distress;
- the performance and development of normal behaviours;
- normal levels of growth, development, reproduction and life expectancy;
- active interaction with the environment and the expression of a normal range of behaviours, including behaviours such as rest and play; and
- a bright, alert animal that reacts appropriately to new or unexpected stimuli.

Immediate appropriate action must be taken if an animal is injured or unwell, or if the animals are showing behaviours that may suggest poor welfare. Any signs of injury, poor health or abnormal behaviour shall be immediately reported and a veterinarian promptly consulted as necessary.

A suitably experienced senior member of personnel must be available at all times to take decisions regarding the euthanasia of animals. There must be provision for an effective method of euthanasia and standard protocols must be documented (see EUTHANASIA).

Mutilation procedures on any animal for cosmetic or behavioural purposes or to change the appearance of the animal should not be undertaken.

Curative and preventive veterinary medicine must be provided and appropriately documented.
Animal records must provide:

a) an auditable record, kept by the animal care staff responsible for the animals, indicating changes to the diet, daily health checks, breeding behaviours, any unusual behaviour or activity, or other problems and the action taken;
b) accurate veterinary records documenting clinical observations, laboratory procedures undertaken, the results of post-mortem examinations, details and dates of any treatment given (dosages, route and frequency of all medications used) and whether an individual or the whole group was medicated.

There must be a regular review by the relevant veterinary and curatorial personnel, of clinical, behavioural and pathological records and mortality. Husbandry and preventive veterinary practices must be reviewed as necessary.

Clinical waste and refuse must be regularly removed and disposed of in a manner approved by the local public authority and, when the animals are in quarantine, the State Veterinarian.
All animal carcasses must be handled appropriately to minimise the risk of exposure of other animals at the institution to potentially infectious diseases.
A safe and effective pest control programme must be established and, where necessary, the deterrence of predators must be carried out.
Health risks posed by the use of power-hoses on animal waste must be minimized. Measures must be taken to prevent the risk of exposure to staff and animals of fine particle aerosols that may be created during hose usage.
Animal care personnel must immediately report to the Management Authority if they become ill with any infection that they believe could be transmitted to, and adversely affect the health of, any anima within the Institution. Management must seek appropriate veterinary advice and any remedial action should be taken as necessary.
Where casualty wild animals are rehabilitated, the risk of introducing novel infectious diseases to free-living wild animals and animals of other species following the recovered casualty's release must be minimised by appropriate veterinary checks prior to release.

Recommendations
If feasible and practical, regular weighing of animals within the collection should be considered to assist in the early identification of any arising health issues and hence enable their prompt treatment, as appropriate.
Methods of inspecting animals with minimal disturbance should be considered, such as closed circuit television (CCTV) where daily physical inspection of a species is difficult.
A regular review of animal care staff's ability to observe abnormalities in health or behaviour should be undertaken and suitable opportunities provided for staff for training to further develop their abilities and skills.

Veterinary Facilities

Appropriate facilities must be readily available for the safe examination, diagnosis and treatment of animals (CAWC, 2003; DEFRA, 2008). Suitable and appropriate equipment for the safe capture, handling and examination of animals shall also be available. Where there is a resident veterinarian on site at the institution, basic diagnostic and surgical equipment and instruments shall be available.

Veterinary facilities for the routine or emergency treatment of animals should be designed and maintained to minimise the potential risk of the transmission of zoonoses between animals and staff, and personnel must be trained in appropriate cleaning and disinfection procedures and protocols. The maintenance of a high standard of biosecurity is essential to help protect the health and welfare of the animals within the institution.

Requirements
Facilities must be adequately equipped for the practical veterinary needs of the animal collection.
A dedicated treatment room shall be provided on site be available at all times for the use for the routine examination and treatment of animals. The room should be of sufficient size, have washable floor and wall surfaces, and be hygienically maintained with adequate drainage. The minimum facilities shall include: a) examination table; b) hot and cold running water; c) safe and secure storage of all pharmaceuticals; d) appropriate ambient temperature; e) suitable ventilation; f) good lighting; and g) electrical power
All pharmaceuticals and other veterinary products shall be kept appropriately secure with only authorised personnel having access. The veterinarian must regularly remove and appropriately dispose of expired drugs. Complete, accurate records of drug stock, usage and disposal must be kept.
All used, unwanted or contaminated veterinary material or equipment must be safely and appropriately disposed of in accordance with accepted international practice and in compliance with existing legislation. Facilities for the safe and appropriate handling and disposal of clinical waste must be available.
Specific accommodation must be available for the isolation and examination of new animal arrivals, and for the care of sick or injured animals.

Suitable facilities and equipment for capture, restraining, treating, and, if necessary, for the administration of general anaesthesia, for euthanasia and for the after-care of all of the species kept at the institution shall be available.

There must be strict hygiene practices and biosecurity where sick, injured, isolated or quarantined animals are kept. Protective clothing, equipment and utensils used by personnel only in the isolation area must be appropriately cleaned and stored in that area only.

Recommendations

Specific cold storage or freezer facilities should be available for the appropriate storage of animal carcasses that cannot undergo prompt post mortem examination. Where this is not possible, veterinary advice should be obtained.

Euthanasia

One of the fundamental requirements for good welfare is the maintenance of good health. This can be achieved through preventative medicine programmes, the prompt recognition of pain and illness in different species and the rapid diagnosis and treatment of injury and disease. However, in certain circumstances where welfare is gravely compromised due to poor physical or psychological health which cannot be adequately improved and it is determined to be in the best interest of the individual animal concerned, euthanasia may be necessary.

Institutions should have a documented protocol detailing situations in which euthanasia is appropriate and justifiable and this should be regularly reviewed by the institution's ethics committee (PAAZAB, 2010) and Management Authority. This document should also clearly state approved and acceptable standard operating practices. The discussion with staff directly involved with the animal in each individual proposed circumstance of euthanasia is important and must take place (BIAZA, 2012b).

Euthanasia must be carried out following appropriate, approved operating standards, and according to local legislation. Local customs and different cultural beliefs should also be considered provided that the parameters for the euthanasia or humane destruction of animals are not compromised. In all situations, the welfare of an animal and its quality of life should be the prime consideration (WAZA, 2003; Edwards, 2004; BIAZA, 2012b).

To ensure minimal pain, discomfort and stress for the animal, the euthanasia of an animal should be undertaken under veterinary supervision or by competent personnel with appropriate training and experience in the technique to be used (AVMA 2001; NAWAC 2005). Experience in the handling and appropriate restraint of the species is necessary to reduce the animal's stress and to ensure the safety of the operator (AVMA 2001; NAWAC 2005). Careful consideration must be given in each individual case to the manner and type of animal restraint required, in addition to the method of

euthanasia. Factors that should be taken into account include the species, location of the animal, presence of injury or disease, personnel experience and safety aspects (AVMA, 2001). Minimising animal stimulation by either sight, sound or touch can help to reduce stress and anxiety in animals. Distressed animals may vocalise which can cause agitation in other animals, hence other animals should not be present when an individual animal is to be euthanized (AVMA, 2001).

Euthanasia must result in the death of the animal as rapidly and as painlessly as possible (AVMA 2001; WAZA 2003; NAWAC 2005; BIAZA 2012b). Following euthanasia, it is important that the death of the animal is confirmed, taking into account the species of animal and the method of euthanasia, prior to the appropriate disposal of the animal (AVMA, 2001). An appropriate post mortem examination shall be undertaken.

A high standard of animal husbandry, management and care is vital to adequately protect the welfare of animals, hence it is important to strive to achieve and subsequently maintain this high standard. Yet in some cases, for example where physical resources and facilities may be limited, in order to prevent welfare compromise, humane animal destruction may be warranted, only as a final option and following thorough consideration and exhaustion of all other possibilities and where appropriate alternatives are not available (DEFRA 2008; BIAZA, 2012b; Maple and Purdue, 2013). In such situations, appropriate measures must be put in place to prevent the recurrence of such circumstances and hence prevent the need for repeated humane animal killing.

Requirements
Euthanasia must be carried out in compliance with regional and national legislation and in an acceptable way. Euthanasia must be undertaken in a distress free manner that involves a rapid and painless death.
There must be a written institution policy and standard procedure for the euthanasia of animals, which is regularly reviewed. These must show that: • Veterinary advice and guidance regarding euthanasia and acceptable emergency methods of euthanasia has been obtained • For all of the species kept at the institution, there are suitable facilities and equipment available for euthanasia, including for the emergency euthanasia of casualties. Such facilities and equipment must be securely kept and well maintained. • A competent, suitably trained senior staff member, who has access to the necessary facilities and equipment, is contactable and available at all times. All staff involved with the euthanasia of animals must be fully aware of acceptable euthanasia methods and must be appropriately trained and experienced in those methods.
Any animal restraint or handling that is necessary for the euthanasia of the animal to be carried out and the method of euthanasia must result in minimal stress to the animal.

It is unacceptable to give surplus or aged zoo animals to hunting ventures as a means of euthanasia and it must not take place.

Where the humane killing of animals (eg. mice, rats, rabbits and birds) is carried out to feed zoo animals, it must be carried out ethically and according to acceptable and recognised welfare standards.

Recommendations

O*ther animals should not be present when an individual animal is to be euthanized.*

Domain 4: Behaviour

Behavioural or interactive restriction through confinement in barren environments, or where there is long-term social isolation, is associated with emotional unresponsiveness and can lead to extreme boredom, frustration and the development of abnormal behaviour patterns. Consequently, the provision of species appropriate complex and variable environments, space and resources that encourage exercise and enable the display of a range of natural behaviours, is important for both physical and mental health. Species appropriate environmental enrichment should also offer the animal the ability to make choices and hence exert a level of control over its environment; by encouraging decision-making, it allows the animals to express a preference and select the environmental conditions which they favour, thus promoting a positive psychological state and hence good welfare. Appropriate positive reinforcement training may be used to provide enrichment for captive wild animals and this should focus on and be used to encourage the display of natural behaviours.

Visitor presence can have both positive effects (PAAZAB, 2010; Maple and Perdue, 2013) and negative effects on the behaviour of some species of captive wild animals (Carrasco et al 2009; Rees 2011); the welfare of the animals must always be of primary importance and must be considered at all times.

Environmental Enrichment and Stimulation

It is vital that consideration is given to incorporate appropriate environmental enrichment into the overall design and construction of an animal's accommodation and captive environment, alongside providing appropriate facilities, so as to prevent the captive environment imposing restrictions in behaviour expression and to enable the animal to perform a full range of natural behaviours and movements, thereby meeting its psychological, as well as the physiological, needs. This is dependent upon accurate knowledge and understanding of the different species' biology and range of normal behaviours, although an ability to accurately interpret abnormalities in different species'

behaviour is also crucial in order to promptly react to and appropriately address any potential compromises of animal welfare.

Behaviours are often species-specific and a species' normal range of behaviour expressions will include some behaviours that occur as a result of a strong internal drive or motivation with an absolute need for the performance and undertaking of these particular types of behaviours in order to protect behavioural and mental health and prevent poor welfare (Pethrick and Rushden, 1997; CAWC, 2003). For example, an animal that is strongly motivated to nest build has a fundamental need to perform this behaviour and if restricted from doing so, serious welfare compromise will result. Furthermore, the natural behaviour tendencies of some wild species may increase their susceptibility to welfare compromises occurring in captivity. For example, in some species such as carnivores that have large natural home ranges, a high incidence of stereotypies and high neonatal mortality has been observed in their captive populations (Clubb and Mason 2007; Portas, 2013). Also, the intelligence or cognitive capacity of different species must be taken into account in the design and provision of appropriately enriching, complex captive environments, with species that are highly intelligent, such as primates, needing a high degree of mental stimulation and hence environmental complexity, to address their psychological needs and to prevent the development of abnormal behaviour patterns such as stereotypies. To improve the welfare of captive wild animals, careful attention must be paid to captive wild animal husbandry and management in order to provide a species specific, suitably stimulating and variable environment in which the expression of inherent natural behaviours is encouraged and choices about the animal's environment, and hence a level of control by the animal over its environment, are available.

Abnormal behaviours:

Many animals housed in barren, unrewarding environments with limited ability to express different natural movements and behaviours may not only develop abnormalities in their physical health (UFAW, 1988), but may also increase the performance of abnormal behaviours directed at either themselves, for example hair pulling and body scratching, or their surroundings, such as bar licking (Gregory, 2004; WSPA, 2005). The development of stereotypies, defined as abnormal behaviours that are repetitive, persistent, recurrent and apparently purposeless activities, and other abnormal behaviours, such as frantic activity levels or lethargy, all reflect compromises in animal welfare (CAWC, 2009) and may occur in animals for a wide variety of different reasons, often associated with inadequacies in their environment. For example, stereotypies can occur in animals that are emotionally numb, if animals are chronically frustrated with or chronically stressed as a result of their confined environment and the associated imposed restrictions, or as a means of coping in the absence of the opportunity to perform other natural behaviours (Pethrick and Rushden, 1997; Gregory, 2004; WSPA, 2005; Maple and Perdue, 2013). However, stereotypies may remain in an animal's range of behavioural expression as a result of their development in the past from previous experiences in the animal's lifetime and may not reflect the effect of present management or environmental conditions on welfare (Swaisgood and Shepherdson, 2005; DEFRA, 2008; Rees, 2011; Maple and Perdue, 2013). Common stereotypies in captive wild animals include fence pacing, head weaving and body rocking. Fence pacing, for example, may occur due to space restriction, lack of a natural environment, confinement with an inability to escape or express roaming behaviours, or as a result of threats from conspecifics (Gregory, 2004).

Stereotypies may have species-specific characteristics, but the performance of any stereotypy is suggestive of a negative welfare state. Stereotypies can also cause physical injuries and harm as a result of the performance of the repetitive actions and abnormal behaviours, such as for example, chronic skin lesions caused by repeated escape attempts at enclosure boundaries (DEFRA 2008; Morgan *pers obs*). Stereotypies are rarely observed in non-captive wild animals (Rees, 2011). Yet, by giving animals the opportunity to show preferences and make choices within a complex environment, and enabling varied behavioural expression and ranges of movement, this may help to reduce the development of pathological behaviours.

Enrichment programmes:

Environmental enrichment is an important management technique to help increase the expression of normal behaviours in different species and reduce the development of stereotypies and abnormal behaviours (Carrasco et al, 2009). It can also provide the animal with a degree of choice about its environment and offer the animal preferred resources. Environmental enrichment is a dynamic process that involves the use of appropriate structures, enclosure furniture and husbandry procedures and techniques to create a stimulating and appropriately complex environment which increases the opportunity for, and encourages the performance of, species-specific natural behaviours, movements, exercise and exploration, resulting in an improved mental and physical state and ultimately improved animal welfare.

Before the implementation of environmental enrichment programmes, appropriate discussions between the animal keeper personnel and the Management Authority should be undertaken. Enrichment programmes may involve the use of the overall structural design of the enclosure, its furnishings and different management practices in order to provide novel stimulating experiences and to encourage the performance of natural behaviours such as foraging, exercise, resting and sleeping. For example, the enclosure design should be such that it incorporates the provision of structures that may mimic the natural environment such as pools, mature trees and suitable vegetation, rocks, ground cover and a varied landscape, as appropriate for the specific species being accommodated, in order to provide the opportunity for exploration, natural behaviour expression and movements. Enclosure furniture should be provided that is suitable for the species and may consist of a variety of different things, such as branches, logs, log piles, nest boxes, resting platforms, scratching posts, perches, cardboard boxes or climbing facilities, all of which may be used to encourage the performance of natural behaviours including exercise, nesting, climbing, foraging, play and exploration. Where pools are provided for species that require both a terrestrial and aqueous environment, animals must be given sufficient appropriate access and exit points and they must be able to easily move in and out of the pool (NAWAC, 2005) without hindrance from conspecifics.

Environmental security:

Physical barriers within enclosures can not only offer privacy, but also provide individual animals with the opportunity to escape or avoid conflict from other individuals in the social group (Swaisgood and Shepherdson, 2005). The suitable use of vertical space should be considered during enclosure design to maximise the potential for exercise opportunities and the provision of a stimulating environment, as appropriate for the species, as well as offering the opportunity of

species appropriate refuge from conspecifics (Swaisgood and Shepherdson, 2005; Caws et al 2008). For example, a suitable complex vertical space is important for arboreal apes for obtaining food, to explore, for nesting and sleeping, and also to enable escape from aggressive interactions from conspecifics (Maple and Perdue, 2013). Arboreal primates have a vertical flight response, climbing when they are alarmed, which emphasizes the fundamental requirement for the provision of appropriate and sufficient vertical space (Caws et al, 2008).

The social environment or social grouping of animals may also impact upon the welfare of individual animals. Complex social groups are important for naturally social species, such as primates and elephants, and can provide appropriate social stimulation, enrichment and companionship (Rees, 2011; Maple and Perdue, 2013). For animals that usually live in social groups, long-term isolation from conspecifics can have detrimental effects on animal welfare. For example, animals that live in family groups, herds or flocks gain security from the social contact with their conspecifics, providing the animals with a positive mental state, thus deprivation of this social contact can lead to negative states and hence decreased welfare (Gregory, 2004). Chronic social isolation or an absence of appropriate social partners can also increase the risk of the development of stereotypies, yet the effects of social isolation are species-specific as some animals lead a naturally solitary lifestyle for part of their lives (Gregory, 2004). Although animals with a solitary way of life, as well as those that live in monogamous pairs, also require adequate social complexity (Maple and Perdue, 2013).

Although species appropriate social environments can positively affect welfare, social groups can result in occasions of negative experiences for individual subordinate animals, especially if the enclosure restricts the opportunity to avoid or escape adverse behaviours from dominant group members (Laule, 2003). Social group sizes and structures must be appropriate for the species concerned. Aggression between conspecifics can be increased if there is inappropriate group composition (DEFRA, 2008) and changes in the existing social group composition, for example through the temporary removal of a group member or the introduction of a new born animal into the group, can result in conflict (Kohn, 1994). Furthermore, stress arising from sudden changes in the social environment has been documented to cause arteriosclerosis (heart disease) in some captive wild animal species (Gregory, 2004), negatively effecting animal health and hence welfare. Therefore, the behaviour and the severity, frequency and duration of any aggressive interactions between conspecifics in a group of animals, should be monitored and appropriate action taken, when necessary, to safeguard the welfare of individual animals within a social group.

Environmental challenges and novelty:

The greater the environmental complexity, the greater the potential for a wider variation in expressed natural behaviours, which in turn, can increase the degree of control an animal has over its environment through the variety of behavioural choices it can make (Maple and Perdue, 2013), resulting in improved welfare. Species-specific problem solving items, puzzle feeders or objects that require physical manipulation can encourage decision-making, provide environmental enrichment and increase exploration (Laule, 2003; Swaisgood and Shepherdson, 2005).

However, the use of species appropriate furniture objects such as swings, cardboard boxes and other 'toys' should be suitably rotated to maintain variety and a change in the animal's environment. Although this should follow an appropriate length of time of the object being in the enclosure to

allow for acclimatisation by the animal to the object's presence, and hence minimise any stress experienced by the animal on the removal of the object (Fairhurst et al, 2011). The use of enrichment structures, furniture and techniques should be regularly recorded and monitored by keeper personnel to assess their continued novelty to the species and the individual animals and hence the positive welfare benefits of their use (PAAZAB, 2010; Rees, 2011).

The manner by which appropriate nutritional food is provided should additionally be incorporated into an enrichment programme, as many species are strongly motivated to explore their environment and in the wild can spend a large part of their daily routine foraging for food; offering food in a varied and appropriate way that satisfies the animal's species-specific natural feeding behavioural needs and motivations and encourages activity is important to prevent poor welfare, in addition to ensuring that the nutritional requirements of the animal are met. In some species, scatter feeding, for example, can provide the opportunity for foraging, as well as increased exercise opportunities, whereas the supply of appropriate vegetation for browsing can be enriching for grazing and browsing animals. However, social group dynamics should be considered when food is used as part of an enrichment programme, for example if feeding methods are used that enable dominant animals to exert control over the food, then the subordinate animals may subsequently suffer negative experiences (Rees, 2011).

Another management technique that can offer psychological enrichment to captive wild animals is the interaction of the animals with their keepers during positive reinforcement training (Laule, 2003; Swaisgood and Shepherdson 2005).

Environmental complexity:

Appropriate facilities and enrichment programmes must suitably provide for an animal's behavioural and psychological needs throughout all stages of its life and development (NAWAC, 2005). Species appropriate environmental enrichment programmes are essential to achieve the optimum level of environmental stimulation and behavioural variability, which is integral in safeguarding animal welfare in captive wild animals. Appropriate environmental enrichment can therefore improve the welfare of captive animals by increasing the expression of a range and variety of natural, species specific behaviours, movements and exercise; by increasing the quality of the provided space and thus increasing the positive and maximum use of the space provided; by increasing mental stimulation and providing learning opportunities through exploration and interaction with a complex and variable environment, and by increasing control over the environmental factors, which all can ultimately reduce the incidence of abnormal behaviours.

A lack of sensory stimulation arising from a lack of complexity in a captive animal's environment can negatively affect welfare, as can inappropriate sights, smells or sounds (Swaisgood 2007, cited in Maple and Perdue, 2013, p29). For example, inappropriate odours can occur during hygiene practices from the use of cleaning products (Swaisgood 2007, cited in Maple and Perdue, 2013, p29), although these inappropriate odours may be reduced by appropriate ventilation (Maple and Perdue, 2013). Unsuitable loud noise can also compromise animal welfare; crowd noise or noise created by steel structures in accommodation buildings can negatively impact upon elephant welfare (Maple and Perdue, 2013), whilst inappropriate mechanical noise in dolphinaria associated with the loud music that may accompany visitor show performances or from the captive environment (eg, from

pumps or filters) may negatively affect cetaceans (WDCS, 2011). Where applicable, inappropriate sights that may create negative states should also be avoided; some species of animal may suffer distress if housed in the presence of other certain species in neighbouring enclosures. For example, the housing of tigers in view of other tigers in nearby enclosures can have a negative effect on tiger wellbeing and may result in an increase in stereotypic pacing (Miller et al, 2008).

However, the provision of appropriate sounds, sights and smells, such as natural sounds and edible vegetation (Laule, 2003), can create a stimulating sensory environment for animals and have a positive effect on welfare; appropriate sound and odour enrichment has been observed to contribute to positive welfare states in captive wild animals such as gorillas and elephants (Rees, 2011). Ensuring the suitability of sensory information in the animals' environment, in addition to increasing in the complexity of the environment can help to improve welfare.

The provision of appropriate lighting is also important for some species to display natural behaviours and activity levels. For example, nocturnal species should be provided with appropriately reversed lighting in a nocturnal exhibit if activity is required during daytime hours (WSPA, 2005) to prevent sleep deprivation and behavioural restriction (NAWAC, 2005).

Multi-species exhibits:

Multi-species exhibits can create a stimulating environment for the animals involved through increased complex interactions, but there is the potential for negative effects, for example, aggressive interactions between individuals of the different species, or competition between the species for food (Rees, 2011). Therefore, the provision of sufficient species-specific space and appropriate opportunities for one species to escape from the other is important to reduce the risk of conflict between species in these exhibits. The territorial behaviours of the different species must also be considered. Accordingly, the interactions between individuals of the different species should be regularly monitored and assessed and appropriate action taken to separate the species if aggressive conflict resulting in a compromise in animal welfare occurs (PAAZAB, 2010). Consequently, thorough research should be undertaken with appropriate review by the Management Authority before a mixed-species exhibit is created to prevent any compromises in animal welfare.

Requirements

Enclosure design must provide:

a) **Security:** Areas for seclusion and refuge (eg, a den, an elevated resting place, sufficient suitable enclosure space, a burrow, or nests with appropriate nesting materials) are important for animals to escape from public viewing, or from the attention of conspecifics. Naturally social animals can also feel secure in the presence of compatible conspecifics.

b) **Complexity:** a suitably complex environment to encourage normal behaviours and increase exercise, behavioural diversity and stimulation must be provided. For example, some birds need access to sufficient suitable perches and enough space for flight. The animals must be able to display their natural response to the photoperiod.

c) **Challenge:** Environmental choices must be provided. Enrichment programmes shall be used to encourage decision-making and allow animals to choose their preferred environmental conditions, giving them more control over their environment and daily lives.

d) **Novelty:** a safe, variable environment shall be offered (eg rotation of enclosure furniture, enrichment tools, husbandry management regimes, etc), but the balance between environmental change and the husbandry routine must be appropriate to avoid stress.

An appropriate environmental enrichment programme must be developed and put in place for each species kept at the institution.

Before an enrichment programmes is put in place, it must be appropriately researched and planned. Once in place, it shall be suitably recorded, and assessed. Improvements or changes in the programmes shall be made where necessary.

Animal Training

Training should be founded on and used to encourage the display of natural behaviours. All training techniques should be thoroughly researched and regularly assessed to safeguard animal welfare and must not be harmful to the individual animals involved; the training of captive wild animals should only be undertaken after detailed appropriate research (Parry Jones, 1989) and consultation, with the ultimate aim of improving the well-being of the animals. Providing the opportunity for the expression of many aspects of different animals' natural behaviours is a fundamental physical and psychological need. Appropriate training can enrich the environments of animals and address psychological needs by facilitating both exercise and mental stimulation to reflect their intellectual and physical abilities and by giving the animals the opportunity to have a degree of control over their surroundings and environment (Scott, 1989; UFAW, 1990; PAAZAB, 2010). Appropriate training is also important to assist with the undertaking of routine husbandry and health management procedures that may be necessary in the care of captive wild animals (Kirkwood et al, 1989; BIAZA, 2012).

Training can help reduce stress in captive wild animals, in addition to its role in environmental enrichment. Training animals can enable the undertaking of management procedures such as veterinary examinations or biological sample collection, without the need for physical or chemical

restraint, thereby facilitating the relaxed examination and treatment of the animal and reducing any stress the animal may experience during the procedures, whilst also improving safe handling (Kirkwood et al, 1989; Kohn, 1994; O'Brien, 2008; Maple and Perdue, 2013). Positive reinforcement training techniques have been successfully used to train various species to readily present or show different parts of their body for examination (Maple and Perdue, 2013). Consequently, by assisting with routine veterinary procedures, training can help improve the overall health and well-being of animals.

The welfare of the animal should always be the prime consideration during training sessions and the development of training programmes (Parry Jones, 1989). Poor training and handling methods will compromise an animal's welfare. The use of physical punishment in training may result in the development of undesirable behaviours such as aggression and increased anxiety (Waran et al 2002; Kane et al 2005) and is harmful to the individual animal, negatively affecting animal wellbeing. Training techniques and practices must not be used that may compromise an animal's normal physical or behavioural health, development, psychological well-being, or welfare (CAZA, 2008e; DAFF, 2009).

Animal-training methods should use positive reinforcement techniques. The use of positive reinforcement training involves rewarding the animal with something it enjoys, for example a food reward, for performing the desired behaviour. It is the voluntary cooperation of the animal during positive reinforcement training that offers the animal the opportunity to exercise more choice and control over its environment and can additionally increase the animal's psychological stimulation (Laule, 2003).

Patience, composure, kindness and the use of rewards are key principles for humane, effective and successful training (UFAW, 1990; Waran et al, 2002; DLGRD, 2003) and there should be the development of a positive, friendly relationship between the animal and the trainer (UFAW, 1990). The trainer should respect the animal, have a good understanding of the species' natural behaviours and biology and should also regard each animal individually during training so as to effectively monitor the individual's progress. Personnel must be competent in the undertaking of acceptable animal training practices and should receive appropriate regular tutoring in approved training techniques (Kohn, 1994; PAAZAB, 2010).

The nature of the relationship between keepers and animals may be enhanced by the keeper interacting with the animal through a barrier rather than via entry into the enclosure (Carlstead, 2009), which highlights the welfare benefits that can be achieved by using positive reinforcement training techniques in reducing the stress experienced by captive wild animals. It similarly further emphasizes the significance of positive reinforcement training methods in the management of captive wild species such as elephants (Maple and Perdue, 2013). Protected contact is a form of managing elephants using positive reinforcement training as the principle technique to modify behaviour and obtain the voluntary cooperation of the elephant in husbandry procedures; the keeper and animal are separated by an appropriate barrier and it is the development of a positive, friendly working relationship between the elephant and the keeper or trainer that is the key to its success.

All training methods, programmes and educational talks should be documented and approved by the Management Authority prior to their implementation and regularly assessed, in order to safeguard animal welfare. An appropriate ethical review should also be in place. Training policies should detail the philosophy of animal training, the application of all animal training programmes, be in accordance with any local legislation and should be regularly reviewed. Appropriate records should be kept detailing the objectives, goals and method of an animal training programme, as well as the actual undertaking and its progress (EAAM, 2009; PAAZAB, 2010).

Educational talks may incorporate trained animals and these public demonstrations should responsibly promote visitor understanding of natural animal behaviours and should always be a positive experience for the individual animals concerned. Animal demonstrations or presentations must not be detrimental to the physical health of the animals or result in negative mental experiences for the animals involved (NAWAC, 2005).

Requirements
Training must not cause the animal any pain, injury or distress. Training methods must use positive reinforcement techniques. Negative reinforcement and punishment techniques should never form the basis of training and must be avoided. The deliberate infliction of injury or pain is unacceptable and should not be practised.
Training areas, equipment and facilities should be appropriate and well maintained.
Training techniques must be appropriate for the species and the individual animal, taking into account the differences in physical and mental capabilities that may occur between individual animals.
The duration of training sessions must be tailored to the individual animal's responses and condition. The animal must not be over-worked.
Personnel involved in animal training must be experienced and competent in carrying out acceptable animal training techniques.
Training techniques must be properly researched and all training methods and their aims shall be appropriately documented and approved by the Management Authority before being put into place. They shall also be recorded and regularly assessed.

An appropriate ethical review process shall be established and used to examine animal training and display practices. Inappropriate and unethical practices should be identified and promptly stopped.

Recommendations
The use of appropriate barriers can enhance the relationship between the animal and the keeper during positive reinforcement training, encouraging the voluntary participation and cooperation of the animal in the training programme, whilst also giving the animal more choice over its environment.
Personnel involved in animal training should be regularly assessed in terms of their competence by the institution's Management Authority.
Accurate records relating to all aspects of an animal's training and display should be maintained, and should be regularly reviewed to ensure that there are no physical or behavioural problems.

Animal Contact

Visitor encounters with live animals, for example via touch pools, walk-through exhibits and hands-on education lessons, can offer informative and educational experiences for the public, but the welfare of the animals must be considered at all times and ensuring positive welfare is of paramount importance. Public and staff safety must also never be compromised. In all situations where contact with captive wild animals occurs, it must focus on educating visitors about natural animal behaviours, animal biology and conservation issues, and it must be strictly regulated and controlled to always adequately protect the welfare of the animals, as well as the health and safety of members of the public.

Walk-through exhibits may involve a number of different species including birds, bats, lemurs, marmosets, butterflies and lizards, whilst drive-through exhibits are a component of safari parks. In order to safeguard the welfare of the animals within these exhibits, it is important for visitors to understand the need to keep to the designated pathways/roads and not to feed, touch or interfere with the animals. Additional strict specific safety measures must be enforced for visitors to drive-through exhibits, including remaining in a secure vehicle at all times (EAZA, 2008) and local legislation specifically relating to drive-through exhibits must be adhered to. Children's petting zoos or touch paddocks may feature domestic farm animals and permit visitors to enter some of the enclosures and touch and feed the animals with authorised food provided by the institution. To protect the animals' health, only appropriate food supplied by the institution should be fed to permitted animals in touch paddocks and the consumption of food by visitors in any animal contact area must not be allowed. Walk-through and drive-through exhibits and petting areas must be

designed with appropriate barriers and double gated entrances and exits to prevent the animals escaping from the exhibit. Diving in zoos and aquaria and swim-through experiences are other situations where visitors may experience contact with captive wild animals. In all institutions where diving is carried out, a dive manual must be maintained, detailing, for example, standard operating diving procedures, diver conduct and risk assessments, and within which the welfare of the animals is a fundamental element of the operating practices (DEFRA, 2008).

In situations where visitors may encounter free-ranging animals via, for example, walk-through exhibits, swim-through or drive-through exhibits, or in circumstances where there is direct animal contact, such as touch pools, hands-on education or petting areas/touch paddocks, to ensure the health, safety and welfare of the animals and the visitors, it is necessary to have an appropriate member of personnel present at all times, with the numbers of personnel present being determined by the situation. Appropriate staff supervision and staffing levels of suitably experienced and competant personnel, taking into account the species of animal involved, are essential in all circumstances where there is contact with animals in order to protect the welfare of the animals (NAWAC, 2005; PAAZAB, 2010; BIAZA, 2012a). Appropriate documented emergency protocols must be instigated in the event of unauthorised visitors inside an animal enclosure (SEE MISCELLANEOUS - ESCAPES).

All staff involved in animal contact situations should be appropriately trained in animal handling, and must recognise signs of ill health, injury or disease and behaviours indicative of compromised animal welfare. Any abnormal animal behaviours or signs of ill health must be promptly and appropriately reported. If there is any indication that the health and welfare of an animal being used in a contact situation is compromised, then the episode of contact should stop immediately. Animals involved in contact situations with the public must have received appropriate training or be habituated to such interaction and must be under the direct control of an experienced keeper. Care should be taken by personnel when removing appropriate animals authorised for visitor hands-on contact experiences from their enclosures as the behaviour of all animals can become less predictable when they are in unusual surroundings or stressed and animals must always be accompanied by suitably competent personnel (EAZA, 2008; PAAZAB, 2010). However, animals should not be removed from environments and surroundings that are fundamental for their survival. For example, animals that are dependent on a water environment must not be removed from that environment otherwise poor welfare will result. All animal handling should be undertaken with the animal's welfare in mind and should not cause the animal any unnecessary discomfort, fear, distress or injury.

Personnel should be trained in and understand the importance of good hygiene practices and of minimising disease risks, in accordance with the institution's hygiene protocols. With all situations where there is contact with animals or objects touched by animals, hygiene is important and appropriate hand-washing facilities must be provided; staff and visitors should wash their hands before and after animal contact to reduce the risk of the animals being exposed to infection, as well as minimising the risk of exposure of members of the public and personnel to zoonotic infection. Hand-washing is particularly critical in contact situations that involve invertebrates; nicotine is fatal for many invertebrates, hence it is vital for people who smoke to adequately wash their hands before coming into contact with these animals (BIAZA, 2012a). With regards diving- or swim-through experiences, appropriate measures should be taken to minimise the spread of disease to animals in different tanks by divers, such as freshwater showers between diving in different marine tanks (DEFRA, 2008).

Individual records for all animals used in contact circumstances should be kept, including details of husbandry, health status (including deaths), behaviours and frequency of individual animal use in contact encounters with members of the public (BIAZA, 2012a). Records enable the monitoring of the effects of contact encounters on the well-being of the animals and the early identification of any problems and subsequent implementation of measures to rectify them. Mortalities of animals in contact areas or of those involved in contact experiences should be investigated by post mortem examination and appropriate disease screening undertaken (PAAZAB, 2010).

All contact between animals and visitors should be supervised and for restricted timeframes. Neonates and breeding animals should not be used in contact situations (BIAZA, 2012a). There should be sufficient rest periods away from direct visitor contact for the animals that are used in contact situations. This may be facilitated by appropriately rotating the individual animals that are used for contact and by ensuring that the frequency with which the animals are used for contact is appropriate (BIAZA, 2012a). All walk-through exhibits, touch pools and touch paddocks/children's petting areas should be of a suitable size and should have suitable refuge areas which the animals can access away from visitors. If touch pools allow direct contact, they should be continuously monitored by a competent member of staff and the animals should be appropriately rotated to help reduce stress (PAAZAB, 2010). Painful procedures, for example the removal of teeth, claws or stings, in order to make animals safer to handle, are unacceptable and must not be performed (PAAZAB, 2010; BIAZA, 2012a).

All events involving contact between the animals and public should be documented and approved by the Management Authority prior to their implementation and regularly assessed. An appropriate ethical review should also occur.

Visitor effects:

Although animal contact encounters can offer educational experiences for visitors, the effect of general visitor presence on captive wild animal well-being must also be considered. Visitor presence may create a positive or enriching experience for some animals (PAAZAB, 2010; Maple and Perdue, 2013), but the presence of the public around animal enclosures can also have an adverse effect on the behaviour and hence welfare, of some captive wild species, such as primates (Carrasco et al, 2009; Rees 2011). Disturbances in the group dynamics of chimpanzees and other primates have been documented during peak visitor numbers at their enclosures, with increased aggressive contact observed (Carrasco et al, 2009). Although by combining positive training techniques with social unstructured playing sessions in the management of captive primates, it may help to improve animal well-being and social group dynamics, and may result in a reduction in negative behaviours observed at times of visitor presence (Carrasco et al, 2009). It has also been suggested that large enclosures may help to reduce the detrimental effects of visitors on zoo animal behaviour, lessening animal disturbance from visitors suddenly appearing by increasing the distance between the animals and the visitors (Forthman 1998, cited in Maple and Perdue, 2013, p155). Furthermore, for animals that seem particularly disturbed by visitor presence, exposure to visitors and any associated negative effects can be reduced by obscuring view point windows (eg with camouflage netting), by providing sufficient appropriate areas within the enclosure for opportunities for seclusion and refuge from visitors, or by masking enclosure perimeters (Rees, 2011). The overall design of enclosures should also take into account minimising the negative effects of visitor presence on animals; lowering the

height of visitor viewpoints can reduce aggressive behaviours in arboreal primates when visitors are present (Chamove et al, 1988).

Requirements
Only contact which is neutral or of positive benefit to the animal is acceptable. The wellbeing of the animals must be regularly assessed.
Abnormal demands must not be made on animals (eg continuous petting) and animals must not be made to carry out displays that compromise their wellbeing. Contact experiences and associated noise must not be distressing for the animals and suitable measures must be in place to prevent animals from being provoked or worried by visitors.
Animals involved in contact situations must have received appropriate training, be habituated to such interactions and must always be supervised and under the direct control of an experienced, competent animal keeper. Contact situations must consider and be appropriate for the individual animal's physical and mental capability.
Animal contact situations must always be strictly controlled and supervised by authorised personnel. Suitably experienced and competent personnel with appropriate training and knowledge must be present at all times in situations where there is animal contact.
If injury, ill health or abnormal behaviours are observed, they must be immediately reported and the animal must not be involved in animal contact, or the contact session immediately stopped.
The mutilation of any animal to make it safe for handling is unacceptable and must not be carried out.
All circumstances involving animal contact shall be recorded and approved by the Management Authority prior to their implementation and regularly monitored, reviewed and assessed. A documented policy statement on the use of animals for contact with the public should be produced and an appropriate regular ethical review process should be established.
Suitable measures to prevent the risk of disease transmission must be in place where there is animal contact. Personnel and visitors shall appropriately wash their hands before and after animal contact.

Visitors must not feed the animals unless they have been permitted by the institution to do so. Unauthorised food must never be given to the animals.
Appropriate Legislation must be adhered to in order to ensure the health and safety of the animals, visitors and staff.
Animals destined for rehabilitation must not be used for public-animal contact.

Recommendations
All situations where the public and animals are in direct physical contact should be subject to regular annual risk assessment. Incidents including all bites and scratches should be appropriately recorded, detailing time, date and animal involved.
Freshwater showers between dives in different marine tanks will minimise the risk of the spread of disease where diving experiences are operating.

Mental Components

Good mental health and well-being is associated with the individual animal's biological and physical requirements (as represented by the four physical domains) can be accomplished when all of those needs are met, and positive welfare states can be achieved when the individual's psychological or mental needs (fifth domain), as well as the physical needs, are addressed (Green and Mellor, 2011; Mellor 2013; Portas 2013). Yet, animals may experience a different range of emotional and mental states according to their sentience and different cognitive capacities, and not only do animals vary in their sentience, which is their ability to experience positive states, such as happiness, and negative states, such as pain and fear (Broom, 2007), but sentient animals may experience different emotions from one point in time to the next. In addition, within a species, individual differences in personalities and behaviours may occur, which can result in individual animals responding differently to aspects of their captive environment (Horvath et al, 2013). Therefore, when considering the management of wild animals in captivity and how to best ensure that their psychological needs and requirements are met, it is important to take into account species' differing cognitive capacities and their sentience, in addition to the different individual animal traits, and these considerations must be undertaken throughout the animals' lifetime.

Domain 5: Mental State

An individual's mental state may be determined by the physical and biological health of the animal, the type of sensations it experiences, whether they be positive or negative, along with cognitive feedback from external environmental stimulation (Green and Mellor, 2011; Mellor, 2013), which, in turn, can affect the animal's overall welfare state. Suffering is a term referring to an unpleasant mental state and a level of cognition is necessary for mental suffering (Gregory, 2004), as well as sentience. With this in mind, taking into account the animal's cognitive capacity, there can be a large range of differing negative mental states that may lead to suffering and a poor state of welfare, including pain, frustration, fatigue, boredom, distress and loneliness (Gregory, 2004). Pain, can cause aggression, as can overcrowding, inappropriate social grouping and fear. Prolonged and extreme pain, fear or stress negatively affects the welfare of individual animals.

Pain is a sensory input that protects the body from damage and harm, but physical pain is an unpleasant sensation and can lead to suffering (Gregory, 2004). The ability to recognise the range of behaviours that may indicate pain in animals and the knowledge that different ages of animals may have different behavioural expressions of pain is fundamental in animal management and husbandry in order to appropriately offer relief of pain. Trauma and injuries may occur due a variety of different reasons, for example, from abnormal self-mutilation behaviours, aggressive conflicts with conspecifics, damage from rough surfaces in accommodation enclosures (eg poorly maintained flooring), or from poor handling during transport, and different types of trauma and injuries can cause different experiences of pain. Additionally, disease is a significant cause of suffering (Gregory, 2004) and there is often pain associated with the diseased area. The degree of suffering experienced as a result of disease depends on the nature of the particular disease; disease can negatively affect the mental state of an animal by causing a range of negative experiences, depending on the type of disease, such as breathlessness, fatigue, nausea and pain (Mellor, 2013), thereby resulting in poor animal welfare. Therefore, appropriate measures must be taken to ensure good physical health through the prompt detection and treatment of illness or injuries in order to minimise unpleasant sensations and hence safeguard positive welfare.

However, animals can also experience positive emotions, including a sense of security, playfulness, calmness and contentment, which may result from good physical health and positive interactions with the environment and other animals and conspecifics (Mellor, 2011; Mellor, 2013).

A positive state of welfare may be achieved by ensuring that captive wild animals are appropriately provided with situations and environmental conditions that enable them to meet their physical and biological needs, with this accomplishment involving management practices that promote positive psychological well-being and prevent unpleasant or negative experiences, thereby avoiding or minimising suffering, throughout the animal's lifetime. For example, social grouping that is appropriate for the ages of the animals and the species can offer opportunities for play, companionship and a sense of security. Yet if specific circumstances in social groups are sub-optimally managed, such as when there is overcrowding or an unnatural ratio of males to females, individual animals may experience distress with a resultant adverse psychological state. If negative

emotions are severe or prolonged and the individual animal, because of its circumstances, cannot escape or avoid them, welfare will become poor (DEFRA, 2008).

Additionally, the use of environmental enrichment techniques to provide a more complex and stimulating environment can help prevent frustration and boredom (Duncan, 2004) with the quality of the environment being an important factor in reducing stress (Tribe, 2008; Rees, 2011). An increase in the expression of a range of natural behaviours, such as exploration, foraging and play, which can be associated with a suitably stimulating and variable environment can promote a positive mental state, ultimately improving the welfare status of the animal. Providing individual animals with choices and the ability to make decisions within their environments is also important for creating positive affective states.

Consequently, the core function of captive wild animal husbandry and management should be to promote positive experiences, to minimise stress and negative experiences, and to provide opportunity for natural behaviour and for making choices about their environment. Promoting positive, pleasurable experiences for the animals may also offset any unavoidable negative experiences (Duncan, 2004).

Welfare assessment:

As previously discussed, the 'Five Domains' concept offers a useful template for the general assessment of animal welfare, addressing the need to consider physiological and behavioural indicators of animal well-being, in association with the various mental states an animal may experience (Mellor, 2013; Portas, 2013). Yet, the assessment of animal welfare and an individual animal's affective state or psychological health provides challenges as it cannot be measured directly. Although assessment of the affective state of an animal can be performed indirectly via observations of its physical state and behaviour which may indicate the presence of positive or negative experiences or sensations (Gregory, 2004). Experienced observation and interpretation of species-specific behaviours is required. Therefore, assessments of animal welfare should involve reviewing animal based measures, as well as resource based measures. Animal based measures, which can provide guidance to the welfare state of the individual animal, are important for understanding and ultimately achieving good animal welfare and must therefore be taken into account when considering the overall welfare of captive wild animals, in addition to resource based measures that involve an assessment of the provisions of the animal's environment, such as appropriate nutrition, suitable shelter, etc, as depicted in the four physical domains (nutrition, health, environment and behaviour).

Animal based measures may incorporate a number of different assessment techniques which in general may involve behavioural measures, physiological measures, health assessments (injury occurrence, disease presence and mortalities) and animal group or population data analysis (Portas, 2013). However, each of these four animal based measures or assessment techniques should not be considered alone, since independently each one has limitations, where as if outcomes from more than one assessment method is used, a more reliable indication of an animal's welfare state may be achieved (Portas, 2013). For example, an individual animal may be in good physical health with normal physiological measures, yet its mental state and hence welfare may be poor if its fundamental need to burrow or nest, for instance, is not provided for. Population data is useful

when assessing the welfare of big groups of animals where it may be difficult to determine the identification of individuals.

Observing what behaviours different animals perform, the duration of the expressed behaviours and comparing these observations to the behaviours displayed by their wild counterparts has been used as a method to assess welfare (Kagan and Veasey, 2010). Behavioural measures of an individual's welfare can also include the observation of abnormal behaviours such as stereotypies, avoidance, over-grooming, self-harming, excessively low levels of activity, poor maternal care, or hyper-aggression (Draper and Harris, 2012). Yet, poor maternal care may occur for a variety of reasons; it can be associated with stress or occur as a result of ill health of the mother (DEFRA, 2008).

The performance of stereotypies is suggestive of a negative welfare state; they are considered indicators of poor animal welfare. Stereotypies may develop in animals for a variety of different reasons, but are often associated with suboptimal environmental provision, chronic social isolation and chronic stress or frustration as a result of the confined environment and its associated imposed restrictions (Pethrick and Rushden, 1997; Gregory, 2004; Maple and Perdue, 2013). Stereotypies can also cause physical injuries and harm as a result of the animal's repetitive actions and abnormal behaviours (SEE ENVIRONMENTAL ENRICHMENT AND STIMULATION). Although, their expression may be needed to help the animal to cope in its current environment and situation (DEFRA, 2008; Tribe, 2008). However, if the occurrence of stereotypies is used as an animal based measure of welfare, it should also be noted that stereotypies can reflect previous, historical experiences in the animal's lifetime and therefore may not represent the effect of present management or environmental conditions on welfare (Swaisgood and Shepherdson, 2005; DEFRA, 2008; Rees, 2011; Maple and Perdue, 2013); where the observation of stereotypies is used as a welfare assessment method, other measures of welfare should also be used in conjunction with stereotypy observation to give a more reliable indication of an animal's welfare state.

Physiological measures may include heart rate, measures of stress hormones (corticosteroids such as cortisol) and other biological measures of physical health and stress, such as a change in body weight. Cortisol can be measured via blood samples, saliva, faeces or urine, although like other physiological measures such as heart rate, changes in cortisol level may not specifically relate to negative experiences, they may also indicate positive experiences by the animal and hence should be interpreted in association with the specific environmental circumstances and conditions at the time of sampling (DEFRA, 2008; Kagan and Veasey, 2010). Body weight changes may also occur due to a large number of different reasons, such as seasonal weight changes, changes associated with age or the presence of disease, and hence, alone, should not be used as a reliable measure of animal welfare.

It is important that the interpretation of all animal based assessments should be carefully considered with specific reference to the environmental and management conditions experienced by the animal at the time of observation or sampling.

Requirements
Management and husbandry practices must minimise unpleasant, negative emotions and experiences (eg pain, fear, etc), whilst promoting and encouraging positive emotions and experiences (eg, happiness, calmness, etc) for the animals.
Natural behaviours shall be encouraged. Important natural behavioural considerations for each species include: a) feeding behaviour; b) excretory and elimination behaviour; c) agonistic and aggression behaviour; d) sexual and reproductive behaviour; e) relaxation behaviour; f) comfort-seeking behaviour; g) investigatory or exploratory behaviour; h) mimicry and group behaviour; i) care-seeking behaviour; j) care-giving behaviour; and k) play behaviour
Enclosures must provide suitable sensory stimulation that is appropriate for the species within a suitably complex, variable and mentally challenging environment that allows for normal exercise and behaviour expression.
Negative experiences that may cause individual animals fear and distress must be avoided or minimised: a) Animal handling and restraint, when required, must be carried out with the necessary and appropriate care and consideration b) In situations where there is permitted direct physical contact between animals and visitors it must be of an appropriately restricted duration, supervised and must not negatively impact upon the animal's physical or mental health. c) Social animals that are normally maintained within a group, should they need to be temporarily accommodated away from their group mates, must not be separated for such a length of time that will cause problems when reintroduced to their group, unless under veterinary instruction. d) If individuals are showing signs of distress, appropriate measures must be promptly taken to correct the situation to promote positive experiences for the animals.
Ill health in individual animals must be promptly addressed to minimise negative experiences for the animal. For example: a) Any individual animal showing signs of poor health, injury or disease must be thoroughly assessed and promptly receive the necessary and appropriate veterinary treatment and care b) Veterinary consultation must be undertaken immediately in emergency situations and within at least 24 hours for non-emergency cases.

c) Keeper staff must be competent in recognising signs of ill health, trauma, pain or stress in an animal
d) Animals must be frequently and routinely observed by experienced and competent staff and any abnormalities in health or behaviour promptly and appropriately reported
e) Enclosures where infectious animals have been accommodated must be appropriately cleaned and disinfected before re-use

Miscellaneous

Peripheral to the Five Domains, other elements that are important contributing factors that help to indirectly safeguard animal health and well-being include the maintenance of good animal records and the prevention of an animal escape, along with documented contingency plans for the appropriate management of the situation in the event of an animal escape.

Record Keeping

The maintenance of accurate and well documented records forms an important part of good animal husbandry and care, and in some jurisdictions it is a legal requirement for zoos to keep records (Rees, 2011). Records must be kept by such a method that enables quick and easy access to the information. Computerised records are especially constructive in that information may be easily incorporated into global zoo animal databases such as the International Species Inventory System (ISIS), but computerised records must be adequately and securely backed up.

Records detailing health, husbandry and behavioural observations enable the assessment and monitoring of patterns, whilst also providing a method of assessing animal welfare (CAWC, 2003; DEFRA, 2008; CAWC 2009). Health records, alongside recorded daily behavioural observations, can facilitate the interpretation of trends in disease and observed mental health and hence may be used as indicators of general welfare. Demographic or population data is also valuable for the assessment of welfare in substantial groups of animals (DEFRA, 2008). However, when considering individual animal welfare, the observations and records of individual animals should be interpreted collectively alongside the records of other individuals within the social grouping; enhancing the behaviour in one individual, can negatively affect the welfare of another individual in the group (Keeling et al, 2011, cited in Maple and Perdue, 2013, p38).

In addition to facilitating the monitoring of the health and welfare of both individuals and, particularly, groups of animals, records may also play a role in breeding management. Many institutions (both zoos and aquaria) actively participate in captive breeding programmes and whether the aim is to maintain genetic diversity of captive populations of species, or as part of a reintroduction programme, accurate records are vital (Kohn, 1994).

In order for accurate records to be kept, the identification of each individual animal is important. Individual animal identification of some species can occur via distinctive natural markings on or

appearance of the pelage, although where appropriate, most animals may be individually marked using a suitable marking system (Beausoleil et al, 2004: Mellor et al, 2004). Marks and marking systems should be used that have minimal adverse effects on the animal (Beausoleil et al, 2004; Mellor et al, 2004). Individual identification using the subcutaneous implantation of a unique microchip may be used, where appropriate for the species concerned. Where the permanent marking of animals using external marks or microchips is undertaken, it should only be performed by trained and competent personnel, using suitable equipment, under hygienic conditions (DEFRA, 2003). Marking systems for individuals of different species should be appropriate, easy to apply with negligible discomfort to the animal, and the mark itself (for example, the tag or microchip) should cause no long-term harm or irritation (Mellor et al, 2004). It is important that the health and natural behaviour of the animal is not compromised through its marking (Rees, 2011).

Requirements
Records must be kept and maintained of all individually recognisable animals and groups of animals in the institution. Where possible, animals must be suitably individually identified by a marking means that causes the animal no long-term harm and does not adversely affect natural behaviour.
Records must be kept by a method that enables quick and easy access to the information and which is secure. There shall be a secure, long-term archive system in place.
The records must provide the following information: a) identification to specific level and scientific name; b) whether captive-born or wild born. Identification of parents, where known, and previous locations the animal has been kept at, if any, must also be recorded; c) dates and details of entry into the collection and source, and disposal from the collection and if applicable, to whom; d) date, or estimated date of birth or hatching; e) sex (where known); f) any distinctive markings, including tattoos, freeze-brands, tags, rings or microchips; g) health records and clinical data, including details and dates of any treatment given and whether an individual or the whole group was medicated; h) behavioural and life history data; i) breeding records of each animal and of the group; j) date of death and results of any post-mortem examination and laboratory investigations; k) food, daily food intake and diets; l) details of any escapes, including damage or injury caused to the animal, or to persons or property, reason for escape and action taken to prevent reoccurrence of such an event; and m) additional species-specific information may need to be kept in accordance with applicable local legislation.

Accurate records of specific environmental parameters, as appropriate for the species, must be kept.

Recommendations

In addition to the individual animal records, an annual species stock list should be made, detailing entry into and exit out of the institution's collection.

Escapes

The prevention of the escape of captive wild animals from their enclosures is vital to safeguard the health and welfare of each individual animal accommodated within the enclosure, in addition to ensuring the safety of personnel and members of the public and to help protect the local biodiversity and the viability of local ecosystems. The escape of an animal from an enclosure may not only result in potentially serious injury to persons or damage to property, but has the probable consequence of the escaped animal itself being subject to significant injury and harm. Therefore it is imperative that sufficient thought and consideration is given to the security and appropriate design and maintenance of animal enclosures, as well as the institution's perimeter fencing. Both of these barriers must undertake a vital role in the prevention of the escape of an animal and hence both should be secure and be of appropriate height, strength and construction. Entries to all animal enclosures should be kept secure, to prevent animal escapes and to prevent the unauthorised access by members of the public.

The development of a suitable emergency protocol should an animal escape occur is essential, along with its regular review. Emergency protocols must also state the procedures that are to be taken in the event of an unauthorised person entering an enclosure. All staff personnel should be familiar with the protocol and understand its implementation, as well as the need for prompt and appropriate action in the event of an animal escape, with training and practise drills being periodically undertaken. In certain circumstances and situations, the humane destruction of the animal escapee may be necessary, hence the documented protocol should incorporate the necessity to have a capable and experienced member of staff with sufficient authority available at all times to take decisions regarding escaped animals. This emergency protocol must additionally address the requirements of local legislation; the notification of the local authority within the required time frame in accordance with any existing local legislation may be necessary in the event of an escape of a captive wild animal.

Environmental disasters and other catastrophes have the potential to severely compromise animal welfare by causing traumatic injury and harm to animals via direct effects or as a result of escapes, but climatic extremes may also have serious detrimental effects on animal welfare. Each species of animal is adapted to living within particular environmental conditions that include, for example, specific thermal ranges and humidity levels; severe changes in weather patterns will compromise

welfare by potentially exposing animals to, for example, heat stress or cold stress. Therefore, the effect of fire, extreme weather, natural disasters and other such like catastrophes must also be taken into account when devising an emergency protocol and it is critical to ensure that appropriate contingency measures to safeguard the welfare of the animals held at the institution are devised and ready for immediate implementation should such unpredictable events occur.

The welfare of an escaped animal free-roaming within the local natural environment may be compromised through physical injury and psychological harm occurring to the animal, but also through potential exposure of the animal to novel pathogens or diseases against which it may have little immunity, all of which will negatively affect the animal's health and welfare status. This is particularly true of a non-indigenous animal escapee as they may encounter pathogens found in the geographical environment within which the institution is located, or carried by indigenous animal species, to which they have had no previous exposure and to which they have not developed immunity (CAWC, 2003) with the risk of serious ill health and poor welfare. Therefore, every effort must be made to effect recovery of all escaped animals. If an animal escapee is recovered alive, the potential risk to the health and hence welfare of the other animals accommodated within the institution should be considered, with a period of quarantine for the escapee being enforced if deemed appropriate following veterinary consultation.

Requirements
There must be a written emergency protocol for managing animal escapes, or if unauthorised persons enter an enclosure, detailing the procedures that should be immediately carried out in such an event. These procedures must be understood by all staff and periodically practised and assessed in an appropriate manner. This protocol must comply with all relevant local and national legislation, be available to all members of personnel and be regularly reviewed and up-dated, as appropriate.
Every attempt must be made to recover all escaped animals, live or dead. There shall be a written protocol for the possible destruction of the escapee, which shall ensure that a capable and experienced, senior member of staff is always available to make decisions regarding escaped animals.
Emergency protocols covering fire, extreme weather, natural disasters, and other such catastrophes must be developed in relation to managing an animal escape and implemented as appropriate, and suitable, effective contingency plans must be produced.
A record of all escapes shall be kept.

Consideration should be given to any danger that may arise in the event of an animal escaping from its enclosure, with regular review of risk assessments.

Recommendations

Local conservation authorities might require notification of the escape of non-domesticated animals, in accordance with local legislation.

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NATIONAL CAPTIVE WILD ANIMAL WELFARE STANDARD

Introduction

Zoos, safari parks and aquariums are public centres that should provide the highest possible standards of conservation, education, research and animal husbandry and welfare. The National Captive Wild Animal Welfare Standard defines, directs and supports the enforcement of such standards to support the operation of zoos, safari parks and aquariums.

This document details fundamental captive wild animal husbandry requirements that are essential for the protection of animal well-being and supports positive in- situ conservation efforts. The standard facilitates improved conditions for captive wild animals, by setting achievable husbandry standards for captive wild animal facilities and provides direction for authorities to both implement and enforce those standards.

While this standard contains some supplementary guidance through further codes of practice, it requires further guidelines and regulations for the provisions for specific species and management policies. It delegates authority to define specific standards of captive animal care and welfare, and can be used as guidance for addressing non- compliance with the standard content.

Contents

1 Scope

This standard lays down provisions for the management and operation of all zoos, safari parks and aquariums, including private facilities, animal rescue facilities or any other facility that holds wild animals under human care (referred to in this standard as "institutions". It includes provisions for management systems, the husbandry and welfare of animals, conservation and research practices, and educational and recreational aspects. This standard does not cover the management or operation of circuses and pet shops.

Alongside these standard guidelines, implicit in the principles and consequent practices of modern institutions are the following:

a) Provide a supportive environment for the animals, that must;
   1. Be based on knowledge of the animal's biology and behaviour in the wild.
   2. Appropriately address the cognitive abilities of the animals,
   3. Allow the animals to behave and exercise normally,
   4. Protect their health and safety, and
   5. Offer an interesting and stimulating environment.

b) Provide a supportive environment for the animals, personnel and the public;

c) Provide provisions of educational opportunities for learning about animals and their environments.

d) A facility should employ or be prepared to train staff to be suitably experienced in the care of the animals housed within the institution.

e) The number of animals kept at the zoo must not be greater than the capacity of the zoo to achieve and only animals that can be comfortably and suitably housed throughout their lifetime at the zoo should be brought into the collection.

The principles below provide a framework for animal welfare standards and are based on the five-domain animal welfare concept. The sections cover Nutrition, Environment, Health, Behaviour and Managing Positive Experiences for Animals. Each section has further Subsidiary Guidelines at the end of the document. The document also includes an Annex that covers specific policies and activities in more detail.

2 Normative reference

The following document, in whole or in part, are normatively referenced and is indispensable for its application. For undated references, the latest edition of the referenced document (including any amendments) applies.

WAZA Welfare Strategy 2015
WAZA Conservation Strategy
Wild Welfare Core Fundamentals 2015

3 Terms and Definitions

NOTE The meaning of definitions is determined by context, but in cases of dispute concerning meaning, the decision of the authority administering this standard is final.

acceptable
acceptable in terms of international norms
adequate
sufficient and suitable for the intended purpose
animal
any mammal, bird, reptile, amphibian, fish, invertebrate or other sentient organism that is not a plant or a fungus
barrier
structure built to contain or prevent passage

- **containment barrier**
  the primary barrier that in its effect confines the animal
- **safety barrier**
  the barrier designed to keep humans at a safe distance from the animal enclosure and to prevent human / animal conflict

behavioural enrichment
is a concept which describes how the behavioural repertoires of animals under human care can be managed and enhanced for their wellbeing
biosecurity
is a means of reducing the risk of disease occurring or being transmitted to other animals
captivity
state wherein animals are kept in confinement by human beings, whereby the animals' day-to-day needs, welfare and wellbeing are subject to the provision of human intervention and care
cognition
the mental process of acquiring knowledge through the senses, experience, understanding and thought and which involves reasoning, perception, awareness, intuition and judgement.
commercial breeding centre
a facility where live animals are bred, produced or cultured for purely commercial purposes
commercial exhibit facility
a legal facility where living animals are exhibited to the public for exclusively commercial purposes
pet shop
a mercantile facility for the retail sale of live animals and related goods or services
positive reinforcement
the addition of a reward following a desired behaviour.
competent
capable of executing one's duties effectively
conspecific
an animal belonging to the same species as another
domesticated animal
an animal that has been genetically modified through selective breeding over many generations in order to serve various human objectives
domesticated pet
is a domesticated animal kept by humans for household/personal companionship and pleasure
environmental enrichment
is a concept which describes how the environments of animals under human care can be managed for their wellbeing through the provision of a species appropriate stimulating environment.
epidemiology

the investigation of disease as it affects groups of animals

exotic pet

an animal kept by humans that is not fully domesticated and that belongs to a species not indigenous to the geographical area where it is kept, but which is kept by humans for household/personal companionship and pleasure

euthanasia

the humane, painless and distress-free termination of an animal's life where it is considered to be in the best interest of the individual animal concerned, using a method which produces concurrent loss of consciousness and central nervous system functioning

feral animal

a domestic animal that is living in a wild state which has poor habituation to, and fear of, humans. Placing such an animal into a typical household situation would as such, have detrimental effects on its wellbeing.

hybrid species

an offspring of two animals of different races, breeds, varieties, species, or genera

justifiable

supportable by argument

longevity

the length or duration of life

management authority

Senior Personnel within the facility responsible for day-to-day management and administration

negative reinforcement

the process of removing or withholding an aversive during training

normal behaviour

behaviour that occurs at a frequency, duration and intensity within the range expressed by free-living wild conspecifics

private collection

a collection of animals without visiting public access, for the exclusive benefit to a private individual or individuals

rehabilitation centre

a permanently-sited facility without visiting public access, exclusively administered for the short term, temporary care of indigenous wild animals with the primary aim of their return to the wild

sanctuary

a permanently-sited facility exclusively administered for on-site, long term or lifelong, individual animal care. A sanctuary is a facility that rescues and provides care for animals that are in need of appropriate care, or have suffered abuse, injury or have been abandoned.

sentience

is the capacity to have subjective experiences and feel and perceive emotions such as pain and pleasure. It implies a level of conscious awareness and the ability to suffer.

species

a kind of animal that does not normally interbreed with individuals of another kind and includes any sub-species, cultivar, variety, geographic race, strain, hybrid or geographically separate population

specimen

any living or dead animal, egg, gamete, or propagules or part of an animal, capable of propagation or reproduction or in any way transferring genetic traits; any derivative of any animal

suffering

an adverse mental state that negatively affects the welfare status of an animal and is associated with negative experiences such as pain, distress, extreme boredom, injury and disease.

suitable

appropriate for the intended purpose

stereotypy

repetitive behaviour with no obvious goal or function that can often indicate poor welfare in animals

technical

according to principle; formal rather than practical and relating to, or employing the methodology of science

veterinarian

any person legally registered as a veterinarian with the appropriate legislative body in the country within which the institution is located.

welfare

the welfare of an individual animal is "its state as regards its attempts to cope with its environment" (Broom 1986, cited in Broom 2007, p103); welfare concerns the state of the animal, not the husbandry practices used to manage the animal or the care it receives. The welfare status of an individual animal takes into account the different sensations or emotions experienced by the animal, whether they be positive or negative. Therefore, an animal's welfare state will be good when it experiences positive emotions that may result when the animal is in good health, can comfortably and safely rest, play and readily express a range of normal behaviours, and if it is not experiencing negative or unpleasant feelings such as fear, frustration, pain or distress. It involves a human responsibility to provide appropriate housing, veterinary treatment, behavioural management, nutrition, disease management, responsible care and use, humane handling and, when necessary, euthanasia/humane killing.

wellbeing

a state of harmony between the animal's physical and psychological functioning

wild animal

a species of animal not domesticated in terms of this document and which retains its wild traits

zoo/aquarium

a permanently-sited facility primarily open to and administered for the visiting public, where living animals are maintained under predominantly ex situ circumstances.

- **bird park**
  a facility specialising in the public exhibition of live birds
- **reptile park**
  a facility specialising in the public exhibition of live reptiles

zoonosis

a disease that is communicable between vertebrate animals and man. (Zoonoses – plural).

4 Animal Welfare Concept

This standard specifies the primary welfare requirements for the maintenance of wild animals is dependent upon the provision of daily care by humans and adopts the concept of the 'Five Domains'. This acts as a foundation, defining and underpinning fundemental standards and considerations.

In the Five Domains model, the four functional domains (nutrition, environment, health and behaviour) are concerned with biological function, or physical well-being. The fifth domain considers the 'affective state' or psychological well-being, and represents the animal's overall feelings and experiences. Both the functional domains and the affective state must be provided for to provide the highest standards of care.

This standard supports the implemention of management techniques and standards that utilise the five domain model of animal welfare, and promotes positive physical and mental health for every species accommodated within institutions whilst also minimising unpleasant experiences for the animal.

5 Prohibited Practices

Prohibited practices are those that demonstrate unnecessary suffering, and prevent the application of the principles and practices the standard is promoting.

5.1. The feeding of live vertebrate animals to other vertebrates: The live feeding of vertebrate prey should be avoided save under exceptional circumstances, and only under veterinary advice. Where it has to be undertaken, a written justification and ethical review process must have been undertaken and agreed by senior staff weighing up the welfare of predator and prey; feeding must be observed and live prey not left in the enclosure. Such feeding should not take place in the presence of the public. (does not apply to embryos or fetuses)

5.2. Training techniques involving physical punishment, or training practices that compromise the animal's physical or behavioural health, development or psychological well-being.

5.3. Animal demonstrations and close contact encounters that are detrimental to the physical or psychological well-being of the animals. Photo opportunities and visitor handling with wild animals should be strictly prohibited.

5.4. Confinement in barren, un-stimulating enclosures that severely restrict physical movement and compromise psychological wellbeing (see Section 8.1/8.2)

5.5. Mutilation procedures for cosmetic purposes or to make an animal safe for handling: Mutilation is defined as an action that deliberately injures, disfigures, or physically changes an animal by removing or irreparably damaging parts of its body. Examples of mutilation include pinioning, de-clawing and teeth removal.

5.6. Unregulated feeding of the animals by visitors: Animal food should not be sold to visitors to discourage public feeding of the animals. Where feeding of specific animal species by visitors, for example some domestic farm species housed in touch paddocks within zoological institutions, has been approved by the Management Authority, only suitable food provided by the institution should be used and the feeding controlled to prevent over-feeding. Visitor feeding must be regularly reviewed by the institution's ethics and welfare committee and Management Authority.

5.7. The breeding of animals that results in overcrowding, disease, injury or isolation of animals within an institution.

5.8. The breeding of hybrid animals. Where a hybrid animal is bred by accident, if transferred to another collection, the recipient organisation must be informed that the animal is a hybrid. If practical, the animal should be permanently sterilised prior to transfer.

6 Husbandry and welfare of captive animals

Providing a high standard of care and positive animal welfare should be a priority for all institutions holding captive wild animals and included in the institutional mission statement. Institutions should ensure staff caring for the animals understands the natural biology of each animal species and their fundamental physiological requirements during all stages of their life, as well as their natural behaviours. It is recommended that at least one paid staff member, with experience in animal welfare concepts, should be employed by the insituation to help co-ordinate specific welfare management programmes.

7 Nutrition

7.1 Nutrition and Feeding

An institution should always ensure clean water and a nutritionally appropriate diet is provided. Food should be presented to animals in a way that satisfies the animal's natural feeding

behavioural requirements and motivations. Foraging/hunting or simply aquiring food can be a significant part of an animal's activity and food related enrichment strategies should form an important part of enrichment programs.

7.2 Food Hygiene

The preparation and storage of food for animals must be carried out in a dedicated area that is hygenic; where the food is protected from damp and contamination and perishable foods are kept refrigerated. Feeding and drinking receptacles in the enclosures should be cleaned daily and uneaten food removed regularly.

8 Environment

8.1 Environmental enclosure design & management

Animal enclosures should be designed to meet the physical, physiological and psychological requirements of the animal at all times and throughout its entire lifetime.

Enclosure size, shape and layout must be designed to provide opportunities for the animal to perform natural and normal behaviours at all times and have places for refuge from the viewing public. Institutions should only keep animals that can be provided with the appropriate physiological environmental requirements.

Enclosure design must be of a sufficient space, shape and layout that allows for social species to be kept in compatible, non-aggressive groups, but overcrowding must be avoided at all times. All off show and quarantine facilities should be of a similar high standard to on show facilities and provide species suitable accommodation.

Enclsoure design should allow for appropriate human intervention that minimises stress to the animals, including capture, handling, cleaning and maintenance, and general husbandry and veterinary practices.

8.2 Structural Enclosure Design

An enclosure's structural design should protect animals from injury as well as aggression between co-specifics. It should be predator proof, well maintained and prevent the spread of parasites. Enclosure design should include appropropriate control over temperature, ventilation, lighting, humidity and noise control that meets the species physiological needs.

8.3 Servicing

The design of animal accommodation must primarily address the needs and requirements of the specific species to be accommodated but enclosures must also be designed for staff access so they can be regularly maintained and protect animals from injury. In addition to the safety of the animals, the safety of the staff and visitors is important in the overall design of animal enclosures. Veterinary consultation on enclosure design can help ensure that the enclosure structure and facilities will be conducive for carrying out any necessary veterinary and other management procedures safely and securely and stress free.

8.4 Transport and Movement of Animals

The transportation of captive wild animals can be an extremely stressful experience for the animals. The welfare of the animal should be considered at all times, including capture, handling and during transport, and carried out by experienced personnel only. The transportation and movement of animals should conform to all relevant legislation and standards and must adhere to an institutional transport plan that includes all necessary travel

permits, records, health checks and ensures that transport facilities are safe and suitable for the species to provide for adequate accommodation and standard of care while in transportation

8.5 Transactions & Acquisitions of Animals

Management must consider the necessity of all animal transactions. The movement of animals should only occur when it can be shown to be in the best interests of the species, individual animal or social group to which that animal belongs. An acquisition should only occur if the institution has the appropriate facilities and expertise to care for the species to a high standard, and there is a commitment to the welfare of the animal over the course of their lifetime; ensuring that the welfare is not compromised if it is deemed necessary to transfer the individual to another facility

All animal transactions and acquisitions must provide appropriate documentation to ensure recognised welfare standards are upheld, in addition to confirming adherence to all necessary (regional, national or international) legislation.

Animal acquisition from the wild is prohibited unless:

- It is done solely for the purpose of improving the welfare of an individual animal due to a high likelihood of experiencing irreversible suffering if left in the wild;
- An individual that have been confiscated as part of an illegal trade and cannot be returned to the wild;
- It involves an endangered species whose habitat is being destroyed and is unable to relocate to another suitable location. This species must be part of a strategic rehabilitation and re-release into the wild programme at a pre-planned date.

All such action must be linked to measurable and effective habitat conservation.

9 Health

9.1General Animal Health

A fundamental requirement for good welfare is the maintenance of good health, and instituations should have appropriate husbandry and management procedures in place to provide good health to all animals in their care. Good preventative medicine and veterinary records, alongside appropriate capture, diagnostic and treatment facilities are essential for any instituation holding wild aniamls.

All animals should be kept in good physical condition, demonstrate normal, expected and positive behaviours, growth, reproduction and life expectancy. An animal demonstrating disease, trauma, pain, abnormal behaviours and stress should be attended too immediately by an experienced veterinarian or personnel.

9.2 Veterinary Care

Good veterinary provisions should always be available. A comprehensive programme of care should be established at a level that is consistent with the overall welfare needs of all the animals, and maintained under the supervision of an experienced veterinarian. If specific veterinary care cannot be provided for a species, that species should not be held at the instituation.

9.3 Veterinary facilities

Instituations should have access to veterinary facilities that adaqeutly provides for both preventative and curative treatement to support a high standard of veterinary care. This

includes the quarantine and examination of new animal arrivals for transmissable diseases, the treatment of parasites, the care of nursing animals, post-mortem access and for the care of sick or injured animals.

9.4 Euthanasia

Euthanasia should be carried out where an animal's physiological or psychological welfare is severely compromised and cannot be adequately improved through veterinary care and management. Euthanasia must be undertaken in a stress free manner that involves a rapid and painless death and performed by personnel trained in the handling of species and the administration of euthanasia drugs. Internationally recognised drugs proven to ensure a pain free death must be used.

An ethical review should be undertaken for all euthansia procedures and also include animals that are killed to feed other animals at the zoo. All institutions should have a documented euthanasia protocol which is reviewed regularly. (See Annex (F))

9.5 Record Keeping

Records must be kept and maintained of all individually recognisable animals and groups of animals in the institution contributing to a long term archive system (see Annex (G)). Animal records must provide information that relates to the management, veterinary care, health and welfare of the animals. Where possible, all animals should be individually identified by a marking that causes the animal no long-term harm and does not affect their natural behaviour.

9.6 Escapes

All institutions should hold a written emergency protocol for managing animal escapes which must comply with all relevant local and national legislation. A record of all escapes must be kept and every attempt must be made to recover all escaped animals, live or dead.

10 Behaviour

10.1 Environmental Enrichment

Environmental enrichment should be part of the daily care routine and be equipped and designed to aid and encourage normal and positive behaviour patterns and minimise any abnormal behaviour.

Institutions should have a written environmental enrichment protocol for all species held. The protocol should be regularly reviewed by an expert committee and consider all aspects of an animal's environment to create a stimulating and appropriately complex environment. The protocol should include species appropriate; enclosure design, enclosure infrastructure, diet and feeding, social or compatable grouping, training, animal keeping and veterinary practices.

10.2 Animal Training

Training is required for the treatement, movement and care of animals to reduce stress and ensure their positive welfare. The training of animals for shows or entertainment is strongly discouraged. Training must not cause the animal any pain, injury or distress and all methods of training must use positive reinforcement techniques. The deliberate infliction of injury, pain or fear is unacceptable and should not be practised.

10.3 Animal Close Encounters

Animal close encounters can be described as visitor encounters with live animals. These include touch pools, walk-through exhibits, hands-on education, petting zoos, dive experiences and animal shows. In all situations where close contact with captive wild animals occurs, it

must focus on educating visitors about natural animal behaviours, animal biology and conservation issues. It must be strictly regulated and controlled to adequately protect the welfare of the animals, as well as the health and safety of members of the public.

All close encounter experiences should be subject to regular risk assessments and ethical review processes. Direct contact with animals is strongly discouraged. If it occurs, animals involved must have received appropriate training, be habituated to such interactions and must always be supervised and under the direct control of an experienced, competent animal keeper.

10.4 Welfare Assessments

A welfare assessment can be either a clinical assessment carried out by an experienced vet, or an observational assessement. (See Annex (D)) An observational welfare assessment should be recorded by personnel daily, except in situations such as when daily inspection may negatively affect the animal's welfare or disturbance my be detrimental to the animal's welfare. A observational welfare assessment should include both a physical and behavioural assessment.

Immediate appropriate action must be taken if an animal is injured or unwell, or if the animals are showing behaviours that may suggest poor welfare such as abnormal behaviours. Any signs of injury, poor health or abnormal behaviour shall be immediately reported and a veterinarian and/or a behaviourist promptly consulted as necessary.

10.5 Animal Breeding

Over breeding of animals which results in overcrowding, disease, stress and poor welfare is prohibited. The breeding of an animal should only be undertaken if it is part of a recognised and cooperative breeding programme and the institution has the veterinary and husbandry expertise and resources to effectively care for every individual within the population.

All breeding animals should be provided with appropriate nesting and nursing facilities as well as refuge from the public and aggression from co-specifics with off show facilities made available if needed. New born animals must receive expert veterinary care required and be appropriately integrated into social or compatable groups if relevant.

11 Managing Positive Experiences for Animals

Negative experiences and environments that cause individual animals fear and distress or prevent positive experiences such as contentment, play and rest, must be avoided. These include unneccesary handling or direct physical contact, inappropriate environmental design, fear through aggression or lack of refuge and isolation for social animals. Management and husbandry practices must consider the specific species reqirements to promote positive experiences throughout the lifetime of all animals within their care.

12 Subsidiary Guidelines

a) Nutrition and Feeding

- Fresh, clean drinking water of sufficient quantity and quality must always be accessible by the animals.
- A nutritionally balanced diet must be provided to keep the animal in good health. The diet should be suitable for the animal's species, age, size, body condition, activity level, and reproductive and health status.
- Food and drinking water must be provided in a way that is appropriate for the species and encourages natural feeding behaviours, while also preventing contamination, dominance or competition from other animals in the social group.

- All diets must be documented. Feeding records should provide information on the diet, feeding frequency and food intake of individual animals
- Feeding methods must be safe for animals and personnel.

b) Food Hygiene

- The preparation and storage of food must be carried out hygienically in a specific separate area that is protected from damp and contamination.
- No toxic substances should not be kept in the food storage or food preparation areas.
- Food and drink receptacles should be placed in positions within the enclosure that minimize the risks of contamination.

c) Environmental enclosure design & management

- Animal enclosures should include:

  1. Sufficient space (vertical as well as horizontal) to give opportunity for the animal to perform normal ranges and patterns of behaviours and exercise
  2. Sufficient protection and shelter from weather extremes, compatible to the species' requirements.
  3. Appropriate substrate, and vertical and horizontal infrastructure for the species
  4. Refuges that allow animals to rest away from the public view or group mates
  5. Appropriate environmental choices, stimulation and variability
  6. The enabling of effective cleaning, maintenance and animal management and veterinary intervention.

- The temperature, ventilation, lighting, humidity and noise levels of enclosures should be suitable for the comfort and wellbeing of all animals, considering factors such as their age and health status.
- Different species or incompatible individuals must not be housed together or within such a distance that it will cause distress.
- Social species shall be kept in compatible social groups and never housed in isolation. The group must consist of an appropriate number, age and sex ratio of animals. Social animals should not be housed in isolation except where it is necessary for veterinary purposes.

d) Structural Enclosure Design

- An enclosure and barrier design, construction and maintenance must fully ensure the safety of the animals, personnel and visitors.
- Water-filled and dry moats must provide a means of escape back into the enclosure should animals fall into them.
- Enclosure design should prevent provoking or exceessive stress of animals by visiting public.
- Inter-species interaction should be monitored, recorded and reviewed in mixed species environments; where detrimental conflict arises, species should be separated.
- Enclsoure design should allow for appropriate human intervention that minimises stress to the animals, including capture, handling, cleaning and maintenance, and general husbandry practices.

e) Servicing

- Enclosure accommodation and fittings should be well maintained and inspected regularly

- Enclosures should be designed to allow for suitable access by staff and conducive to necessary and safe veterinary or management interventions
- If maintenance is required it must be promptly and suitably repaired or replaced, or the animal must be relocated to other suitable accommodation.

f) Transport and Movement of Animals

- Emergency protocols and contingency plans to safeguard animal welfare during transportation should also be produced.
- Handling techniques should be appropriate to the species and safe for both the animal and handler.
- The time animals are confined to their transport containers should be kept to a minimum.
- Transport accommodation must be of a sufficient size to accommodate socially compatible groups of individuals. Animals of very different ages, weights or sizes shall not be mixed together for transport.

g) Transactions & Acquisitions of Animals

- An institution's primary scope of business must not be the trade in animals.
- An ethical review for all transitions or acquisitions should be carried out to adequately protect animal welfare, as well as the sustainability of wild animal populations.
- The veterinarian of the institution acquiring an animal must undertake a disease risk analysis.
- The institution must ensure that the animals leaving the collection are only passed to institutions with the appropriate facilities, resources and expertise to achieve high welfare standards.
- Breeding programmes should be managed to prevent overpopulation and to ensure that each animal or group of animals can be maintained in compliance with this standard.
- Only institution personnel competent at reintroducing or rehabilitating animals into the wild should do so. The release of animals into the wild should be undertaken in conjunction with recognized national and international guidelines, standards and legislation.

h) General Animal Health

- All personnel caring for animals should be competent in recognizing and assessing common indicators of good health and welfare (see Annex (D)).
- Records should be kept by the personnel in direct charge of the animals, indicating changes to the prescribed diet, health checks, any unusual behaviour or activity or other problems and remedial action taken.
- Any animal that requires specific veterinary expertise and cannot be cared for by current veterinary programmes should not be held at the institution until such expertise is sought.

I) Veterinary Care

- Enclosures where infectious animals have been accommodated must be appropriately cleaned and disinfected before re-use
- A preventative routine veterinary medicine programme should be documented, which should include regular monitoring and assessment and appropriate records kept.
- Veterinary care must include routine clinical examinations, health and behavioural monitoring, post-mortem examinations, appropriate and supervised quarantine facilities and dietary management.

j) Veterinary facilities

- All pharmaceuticals and other veterinary products shall be kept appropriately secure and disposed of safely in accordance with current legislation.
- Appropriate care should be taken to avoid contamination and transmission of diseases and include the control or deterrence of pests.
- Personnel should be instructed to report, in confidence, any medical condition or disability which might affect his/her capacity to manage the animals in a safe and competent manner.
- All personnel that work with animals, and especially those working with primates, should be tested annually for tuberculosis.

k) Euthanasia

- A standard euthanasia protocol must be documented and include:

    1. A suitably experienced senior member of personnel is available to take decisions regarding the euthanasia of animals
    2. Euthanasia should be undertaken under veterinary supervision or by competent personnel with appropriate training and experience.
    3. For all of the species kept at the institution, there are suitable facilities and equipment available for euthanasia, including for the emergency euthanasia of casualties.

- Where the humane killing of animals (eg. mice, rats, rabbits and birds) is carried out to feed zoo animals, it must be carried out ethically and according to acceptable and recognised welfare standards.

l) Record Keeping

- Animal records must provide:

    1. An auditable record, kept by the animal care staff responsible for the animals, indicating changes to the diet, daily health checks, breeding behaviours, any unusual behaviour or activity, or other problems and the action taken;
    2. accurate veterinary records documenting clinical observations, laboratory procedures undertaken, the results of post-mortem examinations, details and dates of any treatment given.

m) Escapes

- An escape emergency protocol should include the possible humane destruction of escapee's by experienced personal, and emergency protocols covering natural disasters and other catastrophes.
- The protocol should be available to all members of personnel.

n) Environmental Enrichment

- An animal's environment should include:
    1. Infrastructure that allows for the expression of normal and positive behaviours;
    2. Environmental protection and comfort;

3. Provide species appropriate challenges and stimulation;
4. Protection from distress, injury and continual fear
5. Effective management including hygiene, veterinary and health matters.

- The requirements of the species should direct the design and management of the enclosure environment and must take into account the natural habitat of the species.
- Environmental Enrichment should:
    1. Be regular and part of the daily routine.
    2. Provide environmental choices, encourage decision making and allow animals to choose their preferred environmental conditions
    3. Provide social species, socially compatible social groups
    4. Be equipped in accordance with the needs of the animals with bedding material, branch work, burrows, nesting boxes, pools, substrates and vegetation and other enrichment materials designed to aid and encourage normal behaviour patterns and minimise any abnormal behaviour.
    5. Take into account growth of animals and must be capable of satisfactorily providing for their needs at all stages of their growth and development.

o) Animal Training

- All methods of training must use positive reinforcement techniques. Negative reinforcement and punishment techniques must never form the basis of training and must be avoided.
- The deliberate infliction of injury or pain is unacceptable and should not be practised. All training should:

    1. Be appropriate for the species and the individual animal's capabilities.
    2. Include training sessions tailored to the individual animal's responses and condition. The animal must not be over-worked.
    3. Involve personal that are experienced and competent in carrying out acceptable animal training techniques.
    4. Training techniques should be appropriately documented, recorded and assessed.
    5. An appropriate ethical review process shall be established and used to examine animal training and display practices.

p) Animal Close Encounters

- Animals destined for rehabilitation should not be used for public-animal close encounters.
- Young animals should not be removed from their mothers to be used for public-animal encounters and no abnormal demands should be made on animals.
- Animal encounters where possible, should be within an animal's natural environment and no animal should be purposely removed from their enclosures for visitor encounters.
- Encounter experiences must not be distressing for the animals and suitable measures must be in place to prevent animals from being provoked by visitors.
- Animal/public interactions must always be strictly controlled and supervised by experienced and authorised personnel
- The mutilation of any animal to make it safe is unacceptable and must not be carried out.
- Visitors must not feed the animals unless they have been permitted by the institution to do so. Unauthorised food must never be given to the animals.

q)Managing Positive Experiences for Animals

- For every animal, specific requirements should be considered and encouraged in relation to any possible:

a) Species-specific physiological needs;
b) Particular social requirements;
c) Behavioural developments over an animal's life span and the impact and demand these would have on the animal's environment.

r) Conservation

- All institutions should participate in a demonstrable and measurable manner in a conservation-related practice. Involvement in conservation related activities should be measurable, recognized and endorsed by the relevant authorities or regional zoo association or chapter thereof.
- All institutions should promote public education and awareness in relation to the conservation of biodiversity, by at least providing information about the species exhibited and their natural habitats.
- All institutions should strive to develop an integrated approach to conservation, and include sustainable operating, habitat design, exhibit theming, education and marketing.

s) Education

- Institutional staff, volunteers and tenants should understand the role they play in educating the public and they should actively participate.
- Education staff members should be involved in exhibit design, graphics, interpretation and all structured programmes for visitors.
- An institution should have a dedicated resource or education centre on site
- All education programmes should be evaluated regularly.
- Any education programme involving a live animal should include relevant risk assessments and ethical reviews. No education programme should have a negative effect on animal's welfare.
- An education programme should provide the public with information on both individual animals and populations with regards to their natural history, natural behaviours, cognitive abilities, emotional capacities, welfare & conservation

Annex

(A) Conservation

The main objectives for holding animals in an institution should be for demonstrable conservation, educational or research pursuits. This recognition should be evident by means of an operational declaration made by the highest governing authority of the institution to this effect. All conservation programmes should consider the welfare of animals involved and no conservation activity should be to the detriment of an animal's welfare. This includes in-situ breeding programmes, release programmes and education and conservation messaging.

(B) Education

Education should be in the mission statement of all institutions and hold a written education plan that delivers both a conservation and welfare message, that is easy for all ages to understand and interpret and demonstrable to all visitors. Any education programme involving a live animal should include relevant risk assessments and ethical reviews. No education programme should have a negative effect on animal's welfare.

(C)Research

All institutions should encourage conservation and welfare research. This research should

comply with relevant legislation and be subject to regularly ethical review. No research should be carried out that could injure, harm or negatively effect an animal's welfare.

Institutions should ensure that they collect and keep all relevant data from the animals and use this information in a scientific manner so as to benefit the animals concerned. Where the institution is not able to become involved in research, it should be open to research being undertaken within its facility by accredited research personnel.

(D) Natural Behaviours

Most natural behaviours shall be encouraged to promote positive welfare and conservation. Important natural behavioural considerations for each species include:

- Feeding behaviour;
- Excretory and elimination behaviour;
- Agonistic and aggression behaviour;
- Sexual and reproductive behaviour;
- Relaxation behaviour;
- Comfort-seeking behaviour;
- Investigatory or exploratory behaviour;
- Mimicry and group behaviour;
- Care-seeking behaviour;
- Care-giving behaviour; and
- Play behaviour

Overuse of any natural behaviour can be negative for an animal and careful observation should record the level and intensity of all behaviours to ensure they are promoting positive welfare. Simple daily observations can assist with the monitoring of behavioural activities and support comprehensive welfare programmes.

(E) Welfare Assessment Process

(1) Instituational Assessments: Animal based measures can include a number of different assessment techniques. The best welfare assessments are a combination of techniques. Animal care and keeping staff should carry out and record health and behaviour assessments on a regular basis. A regular review of animal care staff's ability to observe abnormalities in health or behaviour should be undertaken and suitable opportunities provided for staff for training to further develop their abilities and skills.

If feasible and can be achieved through minimal stress to the animal, regular weighing of animals within the collection should be considered to assist in the early identification of any arising health issues and hence enable their prompt treatment, as appropriate. Methods of inspecting animals with minimal disturbance should be considered, such as closed circuit television (CCTV) where daily physical inspection of a species is difficult.

An ethogram is a useful tool to record behavioural observations in animals. An ethogram is a list of species-specific behaviours describing the elements and function of each behaviour. It will allow you to record how often certain behaviours are being observed and to what intensity, helping to identify possible abnormal behaviours. An ethogram can be created that suites your specific institution, but it is important to also include details such as observer details, time of day and function.

Alongside an ethogram, institutional assessments can also be observed and recorded by keepers and should include:

Daily Observation Assessment	Behavioural observations (can be included in an ethogram)	• level of expression of normal/natural behaviours and positive interactions with the environment (see Annex (D) • the duration of the expressed natural behaviours • observation of abnormal behaviours that include stereotypies, avoidance, over-grooming, self-harming, excessively low levels of activity, poor maternal care, or hyper-aggression. • level of expression of abnormal behaviours
Daily Observation Assessment	Health observations:	• the good physical condition of an animal; • absence of disease, trauma, pain and distress; • normal levels of growth, development, reproduction and life expectancy; • a bright, alert animal that reacts appropriately to new or unexpected stimuli.
Regular	Veterinary checks	Veterinary personal should carry out and record regular clinical and diagnistic assessments to ensure the animal is in good health. Clinical assessment includes cortisol levels, disease prevelance and reproductive status indicators (see below for further information on assessment indicators).
Regular	Population data analysis	population data analysis from records can be used when assessing the welfare of big groups of animals where it may be difficult to determine the identification of individuals.

(2) Independent Assessments: All instituations should be subject to assessments carried out by assessors/inspectors independent of the facility and who are trained in the measurement of welfare outcomes for captive wild animals. These assessments should be part of the authorities monitoring prodecures and co-ordinated between the chosen regulatory body and legislative authority.

These Welfare assessments should;

- be independently assessed
- be carried out on specific enclosures (chosen at random)
- include assessment of instituational record keeping and current monitoring of welfare
- incorporate an assessment of
    - the nutritional value of the diet (assessed against recognised species specific standards where possible)

- the suitability of the social & physical environment to meet the needs of the individual animals (assessed against this standard and other recognised species specific standards where possible)
- behavioural, physiological and clinical indicators (see below)

Assessment Indicators

Behavioural indicators	• level of expression of normal/natural behaviours and positive interactions with the environment (see Annex (D) • the duration of the expressed natural behaviours • observation of abnormal behaviours that include stereotypies, avoidance, over-grooming, self-harming, excessively low levels of activity, poor maternal care, or hyper-aggression. • level of expression of abnormal behaviours (see below) • Assessment of approach/avoidance behaviour; Approach and avoidance behaviours generally indicate stimuli that cause positive or negative emotional states, respectively. If observations of an animal reveal that it persistently avoids certain parts or features of its environment then it is possible that this aversion is associated with unpleasant feelings. • Assessment of incidence and intensity of stereotypies; Careful observations should be made to determine if an animal is showing stereotypic behaviours and, if so, to determine when, under what circumstances, how often and for how long. • Assessment of the occurrence of over grooming and other self- harming behaviours. • Behavioural apathy (low levels of activity, excessive sleeping/resting) can be caused by chronic stress, depression and anhedonia (impaired abilities to feel pleasure) • Poor maternal care/infanticide • Hyper aggression; aggressive interactions that result in injury. A high level of non-injurious aggression also has the potential of reducing welfare and the threat of aggression can have harmful psychological effects on potential recipients and reduce access to resources such as food or resting areas.
Physiological indicators	• the good physical condition of an animal; • absence of disease, trauma, pain and distress; • normal levels of growth, development, reproduction and life expectancy; • a bright, alert animal that reacts appropriately to new or unexpected stimuli. • Cortisol levels; Cortisol can be measured in blood plasma, saliva, faeces and urine. However, the changes in glucocorticoid levels are not always linked to a decrease in welfare. Changes in cortisol concentrations signal responses to events that the animal may perceive as either pleasant or unpleasant, therefore again, this should not be used as the sole assessment parameter. • Immune measures; the relative concentrations of neutrophils and lymphocytes in the blood may be affected by hormonal responses to stress. Measuring neutrophil/lymphocyte ratio may provide an index of adrenal cortex activity associated with the impact of potential stressors.

	• Weight changes; Weight changes can occur as a result of a wide variety of normal or pathological factors. There may be normal diurnal or seasonal weight changes, or changes due to age or reproductive status. Interpreting weight changes therefore depends upon knowledge of normal patterns of variation. Animals must be trained to stand on a weighing device to prevent animals being stressed.
Clinical and pathological indicators	• Visual inspection to identify a large number of parameters for example a change in response to humans or conspecifics, lethargy, failure to feed, distress vocalizations, wounds (other injuries), obvious infection/discomfort, abnormal texture and colour of faeces etc. • Health and Husbandry Records; assessment of demographic data (birth rates, mortality rates, longevity) and health data (disease categories/types and incidence)

(F) Ethical review processes

All Institutions should have a form of ethical review process that ensures that any use of animals does not conflict with the best welfare interests of the animal(s). Examples of ethical issues are:

- sources and methods of acquisition of institution animals;
- disposal, transfer, loan practices and the sale of institution animals;
- euthanasia practices and policies;
- surgical mutilations;
- human-animal interaction;
- the design and appropriateness of enclosures for animals;
- research projects;
- education and conservation functions; and
- welfare and husbandry practices relating to the promotion of good welfare standards and the recognition of sub-standard welfare conditions.

An institution should appoint its own ethics committee and an institution operator should access ethics advice from other committees, individuals or advisors. An institution's ethical review system should be effective and transparent and provide mechanisms that can regularly review husbandry practices and acceptable standards, and provide guidance on procedures for effective management.

(G) Animal Records Template

Animal Records are essential for the professional management of animals in captivity and contribute to maintaining high standards of care and provision of good welfare. Records should include:

- identification to specific level and scientific name;
- whether captive-born or wild born. Identification of parents, where known, and previous locations the animal has been kept at, if any, must also be recorded;
- dates and details of entry into the collection and source, and disposal from the collection and if applicable, to whom;

- date, or estimated date of birth or hatching;
- sex (where known);
- any distinctive markings, including tattoos, freeze-brands, tags, rings or microchips;
- health records and clinical data, including details and dates of any treatment given and whether an individual or the whole group was medicated;
- behavioural and life history data;
- breeding records of each animal and of the group;
- date of death and results of any post-mortem examination and laboratory investigations;
- food, daily food intake and diets;
- details of any escapes, including damage or injury caused to the animal, or to persons or property, reason for escape and action taken to prevent reoccurrence of such an event; and
- additional species-specific information may need to be kept in accordance with local legislation guidance

(H) Transportation Facility Requirements

The transportation and movement of animals should conform to all applicable regional, national and international legislation, norms, standards and guidelines. All necessary travel documentation, health certificates and permits must be complete and readily available for inspection, as appropriate, to avoid any delays in the transportation. The transportation and transport management should be designed in such a manner that it minimises the stress of the animal and protects it from any injuries and poor health which may occur as a result of being in transit.

A transport plan must be in place which should include:

- Contingency plans to counter the effects of unplanned delays in transport, especially where such delays might subject the animals to excessive heat, cold, thirst or hunger.
- Emergency protocols to safeguard animal welfare during transportation
- Appropriate veterinarian inspection prior to transportation to ensure that all animals are fit to travel. Species appropriate restraints and handling techniques that are safe for both the animal and the handler.
- Appropriate number of required competent and experienced personnel involved at every stage of animal transportation to ensure the security, health and welfare of the animals during transport.
- Transport accommodation and facilities that are to:

    a) be free of projections, fittings or structures that might injure the animal
    b) be secure and appropriate in design and structure for the species of animal, age and number of animals being transported
    c) have suitable ventilation of appropriate airflow
    d) provide species appropriate environmental conditions
    e) provide flooring and bedding that, where appropriate, gives secure footing for the animals
    f) provide an adequete supply of water for long journeys
    g) provide appropriate equipment, drugs, tools and supplies to deal with possible eventualities and accidents that could reasonably occur during all phases of the transportation process.
- Guidelines on the transportation of naturally social animals. The group must be of compatible individuals and the transport accommodation must be of sufficient size. Animals of very different ages, weights or sizes shall not be mixed together for transport.

- Guidelines on journey times to ensure they are kept to a minimum. Where it is avoidable, long distance transport of captive wild animals should not occur and provisions should be made for minimising or avoiding delays during transportation.
- Guidelines on animal confinement. Animals shall only be kept confined in their transport containers whilst they are in transit or during the preparation period immediately prior to transit; time from boxing to arrival at the destination must be kept to a minimum.
- Animal records that accompany all animal transfers. As a minimum requirement, the records shall provide the recipient with sufficient information to adequately accommodate, feed and treat (if applicable) any animal being transferred.

(I)*Infectious disease policy*

All institutions should hold an appropriate infectious disease policy and protocols to mitigate the risk of disease spreading. When disease occurs in multiple individuals in a group of animals, particularly if it occurs over a prolonged time frame, consideration must be given to the husbandry system and standards as well as the nature of the disease, whether it be infectious or non-infectious, and its epidemiology.

An infectious disease protocols should cover all aspects of potential disease transmission that will prevent the accumulation and spread of infectious agents and parasites.It should include:

- An appropriate biosecurity protocol that must be immediately implemented if an infectious disease is identified in any animal
- Guidelines on the appropriate storage and handling of carcasses of animals and any tissue samples taken for laboratory examination to minimise the risk of exposure of other animals in the zoological collection to any potential infectious diseases and the potential risk of the transmission of zoonoses to staff.
- Guidelines on the safe, hygienic and appropriate disposal of the bodies of all dead animals to reduce the risk of disease transmission
- Guidelines on the risk of introducing novel infectious diseases to free-living wild animals during rehabilitation and release of captive animals.
- Appropriate guidelines on the clearning and disinfection of enclosures where infectious animals have been accommodated
  Guidelines on appropriate food storage and sourcing to prevent the spread of infectious disease agents or other chemicals or impurities that may adversely affect the animal.

(J) Euthansia Policy and Review

Good animal welfare relies on a commitment to promoting the physical and psychological well-being of animals. Animal welfare may be assessed on a spectrum ranging from poor to neutral to good. Every effort should be made to prevent animals from having poor welfare, and euthanasia should be considered if the animal cannot be removed from a poor welfare state.

There must be a written institution policy and standard procedure for the euthanasia of animals, which is regularly reviewed. These must show that:

- Veterinary advice and guidance regarding euthanasia and acceptable emergency methods of euthanasia has been obtained
- For all of the species kept at the institution, there are suitable facilities and equipment available for euthanasia, including for the emergency euthanasia of casualties. Such facilities and equipment must be securely kept and well maintained.
- A competent, suitably trained senior staff member, who has access to the necessary facilities and equipment, is contactable and available at all times.

All staff involved with the euthanasia of animals must be fully aware of acceptable euthanasia methods and must be appropriately trained and experienced in those methods.

The decision to euthanise should be made by an ethics and welfare committee. An ethical review or decision matrix should be carried out to determine the best course of action for the individual animal concerned and the welfare of that individual should remain the priority. Once the decision to euthanize has been made it is pertinent that euthanasia is carried out by appropriately qualified, trained and skilled personnel, and In all situations, the welfare of an animal and its quality of life should be the prime consideration.

Euthanasia Protocol Considerations:

a) Euthanasia must be carried out following appropriate, approved operating standards, and according to local legislation.
b) To ensure minimal pain, discomfort and stress for the animal, the euthanasia of an animal should be undertaken under veterinary supervision or by competent personnel with appropriate training and experience in the technique to be used
c) Where possible the procedure should be carried out in a calm, quiet environment away from co-specifics and other species. Minimising animal stimulation by either sight, sound or touch can help to reduce stress and anxiety in animals. Distressed animals may vocalise which can cause agitation in other animals, hence other animals should not be present when an individual animal is to be euthanized
d) The animal should not remain in isolation for any longer period of time than is absolutely necessary to carry out the procedure effectively.
e) The handling and management of the animal should be carried out by competent, personnel trained in humane animal handling of that particular species.
f) Careful consideration must be given in each individual case to the manner and type of animal restraint required, in addition to the method of euthanasia.
g) Euthanasia should be performed only by personnel trained in the administration of euthanasia drugs or the euthanasia procedure required for that species.
h) At all times, at least two experienced personal should carry out the procedure.
i) Following euthanasia, it is important that the death of the animal is confirmed, taking into account the species of animal and the method of euthanasia, prior to the appropriate disposal of the animal
j) A post-mortem should be carried out on all euthanized animals.
k) All euthanasia procedures should be appropriately recorded.

(K) Staff Development & Training Policies

Staff development should be adequately addressed and continually assessed within an institution. All staff should be qualified in their relevant job roles and if specific expertise is required then appropriate training must be sought. Institutional training policies that promote continued development are encouraged. All institutions should ensure they have a sufficient

number of staff adequately trained in the management of specific species to meet their continued physical, psychological and behavioural needs.

(L) Species Specific Guidelines

Species specific 'animal management' manuals should be collated by species specific experts which incorporate the principles of the 'five welfare domains' and should be sourced by all instituations. Regional zoological associations should help develop and maintain species guidelines and where necessary international guidance should be used.

(M) International Conventions

Adherence to the following international conventions and frameworks should be made;

a. Convention on the International Trade in Endangered Species of Wild Fauna and Flora (CITES): to regulate the trade in wildlife for conservation;
b. Convention on Biological Diversity (CBD 1992): promoting sustainable development;
c. International Union for Conservation of Nature and Natural Resources: Guidelines on wildlife conservation and sustainable use of natural resources: Guidelines on the reintroduction of wild animals and plants;
d. World Organisation for Animal Health (OIE): guidelines for government veterinary agencies with regards the prevention and management of animal disease outbreaks; terrestrial codes stipulating animal welfare standards during transport.
e. International Air Transport Association (IATA) Live Animal Regulations (LARs) for the transport of animals by air.

Re: Notification 2018/033, requesting information on the implementation of Resolution Conf. 11.20 (Rev. CoP17) on Definition of the term 'appropriate and acceptable destinations' and Article III, paragraphs 3 (b) and 5 (b), of the Convention

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Thank you for providing World Animal Protection the opportunity to contribute to this important work.

World Animal Protection and its veterinary staff have robust experience working collaboratively with venue owners, mahouts, the travel industry and communities to facilitate the transition of elephant venues from worst husbandry to best possible captive conditions. As part of this work, World Animal Protection has developed criteria by which to assess the suitability of facilities that keep elephants and which ensure the most feasible option to achieve best possible welfare for those captive animals.

We hope that the following criteria may be helpful in informing a conversation around what constitutes a facility that is "suitably equipped to house and care for" an elephant.

Potential Factors to Consider in Assessing "Suitably Equipped" Criteria

HANDLING OF ELEPHANTS	Elephants are handled humanely in all situations. No aversive conditioning of elephants is used. The use of potential pain-inflicting tools, such as bull-hooks, is reserved only for emergencies and if in the best interest of the animals. Positive reinforcement is used wherever possible to manage elephants while ensuring health and safety of workers and animals. Access to skill development opportunities of mahouts to develop understanding of such methods.
ELEPHANT ENTERTAINMENT	No exploitative use of elephants for human entertainment such as shows, rides or inappropriate public displays.

VISITOR-ELEPHANT INTERACTION	No direct interaction between visitors and elephants. This therefore excludes activities such as elephant riding, washing or be-a-mahout courses. To adhere with these guidelines, direct interactions between non-visitors and elephants are only permitted for individuals with appropriate training or expertise that will ensure that the welfare and safety of animals and people is not compromised.
MOBILITY AND SOCIAL INTERACTION	Wild or semi-wild conditions for elephants during the day & night, e.g. chain-free enclosures with naturalistic characteristics; supervised, chain-free access to natural habitat; or well-monitored release program into the wild, allowing for: • Social interaction in natural social groupings. • Foraging from a range of natural vegetation. • Space for adequate movement. • Adequate stimulation of elephants through naturally occurring or artificially created environmental enrichment
HUSBANDRY STANDARDS	Meet acknowledged international husbandry standards for Asian or African elephants[1] for husbandry factors not addressed by this document and if not contradicting any of the above criteria. 'Protected contact' facilities are recommended. Adequate diet, clear and appropriate management protocols and reliable access to high quality veterinary care are essential.

Further Information to Consider

Handling of Elephants

In elephant friendly venues elephants should only be handled humanely, e.g. ideally through positive-reinforcement methods, disqualifying the use of bull hooks, or other tools that may lead to injury and inflicting of pain if used inappropriately, unless for emergency situations. Where skills are lacking to implement humane methods, training opportunities for staff need to be introduced to build capacity. When relying on positive-reinforcement, security for elephant care-takers must be ensured through the design of the enclosure, making any unsafe interaction with the elephant unnecessary. Only in special situations, e.g. medical treatments, transport, relocations or emergencies, may the use of other methods be required but should be applied in the most humane way to still ensure safe and successful handling of the elephant in that particular situation. Transition venues may still need to rely on frequent direct interactions between care-takers and elephants and thus may need to retain the use of common controlling tools. However, their use must be limited to the bare minimum and not cause any harm to the elephant. Elephants should not be aversively conditioned through these tools or any other way.

[1] E.g. Global Federation of Animal Sanctuaries (GFAS)

Elephant Entertainment

In both elephant-friendly as well as transitional venues elephants are not used for exploitative entertainment, such as shows, rides or inappropriate displays of unnatural behavior for visitors. Interactions with elephants must follow the guidelines given in the previous point.

Visitor-Elephant Interaction

Best practice venues do not permit any direct or close interaction between elephants and visitors. The key attraction value at these venues is observation of elephants in semi-wild conditions in a non-intrusive way. In transitional venues limited direct interaction is offered but only if elephants are participating voluntarily, e.g. approaching visitors on their own and being free to remove themselves from such interaction at any time. Common activities such as washing by visitors or be-a-mahout courses are mostly not voluntary by the elephant and thus should not be included. Activities such as touching an elephant, feeding or following an elephant may be acceptable for transitional venues if the elephant at all times can decide to retreat.

This criterion is primarily limited to visitor interaction. Elephants that have been used for years in captivity may benefit from their mahout's daily presence or guidance of the elephant for relocations or examinations. Efforts should be made to monitor the impact of the mahout's presence on the elephant's well-being.

Elephant restraint and Social interaction

The goal is to have sanctuary-type solutions with available large areas of land, offering semi-wild conditions or enclosures with characteristics that resemble natural habitat and ability for social interaction with other elephants; or reintroduction into the natural, wild habitat while ensuring mitigation of human-elephant conflict situations or poaching. It is acknowledged that these solutions are either very expensive to build and maintain or not feasible for large numbers of elephants. Thus, the transitional category compromises on this point and only recommends chain-free or enclosure environments during the day, allowing for social interaction in a natural habitat. Adequate supervision of elephants by staff is essential to ensure free-roaming elephants don't damage property or cause injury. At night, elephants should be kept in ways that prevent them from roaming outside determined boundaries but still give a maximum of freedom and ability to interact socially, such as pens or, if absolutely necessary, long ropes / chains with more than 10m length. Further, the elephants must be kept on clean, dry, natural ground at night. Short chains or concrete ground are not accepted.

In elephant friendly venues elephants will be kept in semi-wild or wild conditions with free social interaction with other elephants which should provide a fully enriched environment. In transitional venues that do not have such semi-wild facilities available, adequate environmental enrichment protocols must be employed to provide sufficient stimuli to the elephant required for a high welfare standard. Social interaction between elephants will be essential for this.

Husbandry Standards

Whenever not in contradiction to these criteria, it is essential that the venue fulfils best available husbandry standards for elephants, e.g. standards provided by the Global Federation of Animal Sanctuaries (GFAS). Elephant-friendly venues should meet such standards wherever the criteria in this document do not provide guidance. Transitional venues are required to at least fulfil national guidelines applicable to elephants – where existing. If these do not exist, then national zoo guidelines should be met and ideally exceeded.