

# THE EU ZOO INQUIRY 2011

An evaluation of the implementation and enforcement of the EC Directive 1999/22, relating to the keeping of wild animals in zoos.

## ESTONIA



Written for the European coalition ENDCAP by the Born Free Foundation



## **THE EU ZOO INQUIRY 2011**

An evaluation of the implementation and enforcement of the EC Directive 1999/22, relating to the keeping of wild animals in zoos.

Country Report **ESTONIA**



# CONTENTS

|                                         | page      |
|-----------------------------------------|-----------|
| <b>ABBREVIATIONS USED</b> .....         | <b>04</b> |
| <b>TERMS USED</b> .....                 | <b>04</b> |
| <b>SUMMARY</b> .....                    | <b>05</b> |
| <b>RECOMMENDATIONS</b> .....            | <b>06</b> |
| <b>THE EU ZOO INQUIRY 2011</b>          | <b>07</b> |
| <b>INTRODUCTION</b> .....               | <b>08</b> |
| <b>METHODOLOGY</b> .....                | <b>09</b> |
| <b>COUNTRY REPORT: ESTONIA</b>          | <b>11</b> |
| <b>INTRODUCTION</b> .....               | <b>12</b> |
| <b>RESULTS AND INTERPRETATION</b> ..... | <b>15</b> |
| GENERAL INFORMATION .....               | <b>15</b> |
| CONSERVATION .....                      | <b>17</b> |
| EDUCATION .....                         | <b>19</b> |
| EVALUATION OF ANIMAL ENCLOSURES .....   | <b>22</b> |
| EVALUATION OF ANIMAL WELFARE .....      | <b>25</b> |
| <b>CONCLUSION</b> .....                 | <b>27</b> |
| <b>REFERENCES</b> .....                 | <b>36</b> |

## ABBREVIATIONS USED

|                 |                                                                       |
|-----------------|-----------------------------------------------------------------------|
| APA .....       | Estonian Animal Protection Act (13/12/2000)                           |
| APOS .....      | Animal Protection Ordinance of Switzerland, Tierschutzverordnung 2008 |
| CBD .....       | Convention on Biodiversity (1992)                                     |
| DEFRA .....     | UK Department for Environment, Food and Rural Affairs                 |
| EAZA .....      | European Association of Zoos and Aquaria                              |
| EEP .....       | European Endangered Species Breeding Programme                        |
| ESB .....       | European Studbook                                                     |
| EU .....        | European Union                                                        |
| EARAZA .....    | Eurasian Regional Association of Zoos and Aquariums                   |
| IAS .....       | Invasive Alien Species                                                |
| IUCN .....      | International Union for Conservation of Nature                        |
| NGO .....       | Non-Governmental Organisation                                         |
| R237/2003 ..... | Government Regulation No.237, (19/09/2003) (licensing of zoos)        |
| R245/2004 ..... | Government Regulation No.245, (08/07/2004) (requirements for zoos)    |
| OIE .....       | World Organisation for Animal Health                                  |
| SMZP .....      | Standards of Modern Zoo Practice, DEFRA, 2004                         |
| VFB.....        | Veterinary and Food Board                                             |
| WAZA .....      | World Association of Zoos and Aquariums                               |

## TERMS USED

**Animal:** A multicellular organism of the Kingdom Animalia including all mammals, birds, reptiles, amphibians, fish, and invertebrates.

**Animal Sanctuary:** A facility that rescues and provides shelter and care for animals that have been abused, injured, abandoned or are otherwise in need, where the welfare of each individual animal is the primary consideration in all sanctuary actions. In addition the facility should enforce a non-breeding policy and should replace animals only by way of rescue, confiscation or donation.

**Circus:** An establishment, whether permanent, seasonal or temporary, where animals are kept or presented that are, or will be, used for the purposes of performing tricks or manoeuvres. Dolphinaria, zoos and aquaria are excluded.

**Domesticated Animal:** An animal of a species or breed that has been kept and selectively modified over a significant number of generations in captivity to enhance or eliminate genetic, morphological, physiological or behavioural characteristics, to the extent that such species or breed has become adapted to a life intimately associated with humans.

**Environmental Quality:** A measure of the condition of an enclosure environment relative to the requirements of the species being exhibited.

**Free-roaming Animals:** Animals that have been deliberately introduced to the zoo grounds and that are free to move throughout the zoo.

**Not Listed:** Species of animal that are not listed on the IUCN Red List of Threatened Species™, including species that have yet to be evaluated by the IUCN and domesticated animals.

**Pest:** An animal which has characteristics that are considered by humans as injurious or unwanted.

**Species Holding:** The presence of a species in a single enclosure. For example, two separate enclosures both exhibiting tigers would be classed as two *species holdings*; while a single enclosure exhibiting five species of birds would be classed as five *species holdings*.

**Threatened Species:** A species that is categorised by the IUCN Red List of Threatened Species™ as *Vulnerable*, *Endangered* or *Critically Endangered* (IUCN Red List website).

**Wild Animal:** An animal that is not normally or historically domesticated in Estonia.

**Zoonoses:** Those diseases and infections which are naturally transmitted between vertebrate animals and man.

**Zoo:** All permanent establishments where animals of wild species are kept for exhibition to the public for seven or more days in a year, with the exception of circuses, pet shops and establishments which Member States exempt from the requirements of the Directive on the grounds that they do not exhibit a significant number of animals or species. (Directive 1999/22/EC).

## SUMMARY

Of the six licensed zoos in Estonia, four were assessed as part of a pan-European project to evaluate the effectiveness and level of implementation and enforcement of European Council Directive 1999/22/EC (relating to the keeping of wild animals in zoos) in European Union (EU) Member States. A total of 222 species (including subspecies where appropriate) were observed in 227 enclosures across the four zoos. Information was collected about a number of key aspects of each zoo's operation including: participation in conservation activities; public education; enclosure quality; public safety; and the welfare of the animals. These parameters were evaluated against the legal requirements of Directive 1999/22/EC ('Directive'), Animal Protection Act (13/12/2000) (amended 01/01/2011) ('APA'), the Government Regulation No.237 (19/09/2003) (amended 01/02/2009) ('R237/2003') and the Government Regulation No.245 (08/07/2004) (amended 01/10/2007) ('R245/2004'). Key findings were:

- **Zoo regulation in Estonia is incorporated into legislation that promotes animal welfare and principles in animal husbandry.** This is different to many other EU Member States which have incorporated the Directive's requirements into legislation that aims to conserve biodiversity.
- **The Animal Protection Act and Government Regulations R237/2003 and R245/2004 have not recognised the fundamental objective of the Directive to conserve biodiversity.**
- **The Animal Protection Act and Government Regulations R237/2003 and R245/2004 have not adopted all the minimum requirements applicable to zoos (Article 3 of the Directive).**
- **The Animal Protection Act and Government Regulations R237/2003 and R245/2004 have not recognised all the minimum requirements for the licensing and inspection of zoos (Article 4 of the Directive).**
- Zoos are licensed and regulated through the Environmental Board in the 13 provinces of Estonia. **The results highlight inconsistencies in the interpretation and application of APA and Government Regulations between the different provinces.**
- **The Environmental Inspectorate and the Veterinary and Food Board, which inspect zoos to ensure compliance with Animal Protection Act, do not have sufficient knowledge of, or training in, wild animal welfare and health.**
- **None of the Competent Authorities appear to hold a database of licensed zoos. Two additional unlicensed but operational zoos have been identified.** This calls into question whether all zoos (as defined) have been properly identified and licensed.
- Whilst some zoos in Estonia maintain higher standards of legal compliance, **evidence indicates that conditions in others remain substandard and that these zoos are failing to meet their obligations.**
- **Estonian zoos are making an insignificant contribution to the conservation of biodiversity.** The majority of species exhibited in the zoos are either of *Least Concern* (species of low conservation priority) or are *Not Listed* by the IUCN Red List of Threatened Species™. Overall, only 14% of species observed at the zoos were classified as Threatened.
- **The commitment to and standard of public education in all zoos was poor.** On average, 41% of *species holdings* completely lacked any form of species information signage and 95% of signs did not include all best practice criteria (SMZP).
- **On average, nine out of ten enclosures did not provide the animals with any behavioural or occupational enrichment opportunities by way of items, specifically toys or feeding devices.**
- **On average, more than 80% of enclosures were not environmentally complex.** The zoos appear to have given little consideration to the essential biological, spatial and behavioural needs of the animals.
- **The Estonian minimum 'requirements for the keeping of animals in zoos' (R245/2004) fail to adequately provide all animals with their spatial, physical, physiological and behavioural needs.**

## RECOMMENDATIONS

### ***The Estonian Government should take the necessary measures to:***

- 1) Revise the Animal Protection Act (13/12/2000), and amend Government Regulations R237/2003 and R245/2004 to ensure they adopt all the minimum standards as required by the Directive, specifically the requirements applicable to zoos, Article 3 of the Directive, and requirements for licensing and inspections, Article 4.
- 2) Ensure that Estonian zoo law adopts provisions that require all zoos (as defined) to undertake conservation, education and scientifically-valid research activities with the overall aim of benefitting the conservation of biodiversity.
- 3) Amend the Estonian minimum '*requirements for the keeping of animals in zoos*' (R245/2004) so that they adequately provide all animals with their minimum spatial, physical, physiological and behavioural needs.
- 4) Ensure that new zoos are inspected, through an on-site visit, to ensure their compliance with all licensing requirements before the granting of an operating licence and ensure all existing zoos are annually inspected to ensure their compliance.
- 5) Review the findings of this report in relation to the identified inconsistencies in the interpretation of requirements, ambiguous requirements and application of APA and Government Regulations R237/2003 and R245/2004. Ensure consistency across provinces in the correct identification of a 'zoo' and the consistent interpretation of exemption criteria to ensure compliance with Article 2 of the Directive.
- 6) Establish a zoo database to monitor and regulate zoos. This should be updated annually to ensure all 'zoos' are correctly licensed, categorised and administered. Details should be available online.
- 7) Establish a zoo inspectorate that is; competent in the implementation and enforcement of Estonian zoo law; has independence from the zoo industry; is aware of the minimum '*requirements for the keeping of animals in zoos*' (Annex to R245/2004); and is provided with the relevant training and skills pertaining to the care and welfare of wild animals in captivity.
- 8) Establish criteria to evaluate and improve educational and conservation measures in zoos. This should not be developed and implemented by the zoos themselves but through an independent enforcement agency.
- 9) Ensure that all veterinarians working in zoos, or who provide veterinary support for zoos, are equipped with the relevant training and skills relating to the health and welfare of wild animals in captivity.
- 10) Ensure that all zoo keepers, being those people who have responsibility for the care of animals in zoos, are provided with relevant training and skills in animal care and welfare. All keepers should attain a nationally-recognised qualification in captive wild animal care and husbandry.
- 11) Ensure zoos keep and conserve predominantly indigenous and European Threatened species rather than non-European species.
- 12) Publish guidance, as necessary, to assist zoos, enforcement personnel, veterinarians, NGOs and other stakeholders to effectively interpret the requirements of APA and R245/2004, specifically with regard to their participation in, and their application of, recognised peer-reviewed conservation and education programmes.

### ***The Environmental Inspectorate should take the necessary measures to:***

- 1) Ensure all permanent establishments open for seven days or more in a year and that display any number of animal species to the public, are licensed, receive regular inspections and meet the specified requirements of APA and R245/2004.
- 2) Ensure the zoo operators are aware of the minimum '*requirements for the keeping of animals in zoos*' (Annex to R245/2004) and take the necessary steps to meet these species-specific requirements.
- 3) Ensure, through effective enforcement, that all zoos (as defined by the Directive) abide by the requirements of national zoo law and apply existing available penalties (Article 32 and 664, APA) to zoos that fail to meet the requirements.
- 4) Close any zoo unable, within a specified period of time, to meet the requirements of APA and R245/2004.

# THE EU ZOO INQUIRY 2011

Introduction and methodology



## INTRODUCTION

Council Directive 1999/22/EC ('the Directive'), relating to the keeping of wild animals in zoos, was adopted in 1999. The Directive came into force in April 2002, when the EU comprised 15 EU Member States. Since then, all countries that are Members of the EU have been obliged to transpose the requirements of the Directive into national legislation and, from April 2005 (2007 in the case of Bulgaria and Romania), fully implement and enforce its requirements. The European Commission has responsibility for overseeing and ensuring the effective implementation of the Directive by Member States and for taking legal action in the event of non-compliance.

The Directive provides a framework for Member State legislation, through the licensing and inspection of zoos, to strengthen the role of zoos in the conservation of biodiversity and the exchange of information to promote the protection and conservation of wild animal species. This is in accordance with the Community's obligation to adopt measures for *ex situ* conservation under Article 9 of the Convention on Biological Diversity (1992). Member States are also required to adopt further measures that include: the provision of adequate accommodation for zoo animals that aims to satisfy their biological needs; species-specific enrichment of enclosures; a high standard of animal husbandry; a programme of preventative and curative veterinary care and nutrition; and to prevent the escape of animals and the intrusion of outside pests and vermin.

Although the Directive has been transposed in all Member States, national laws often lack detailed provisions relating to educational and scientific activities, guidance on adequate animal care, licensing and inspection procedures, as well as clear strategies for dealing with animals in the event of zoo closure. The Directive's requirements themselves are relatively ambiguous and allow for inconsistencies in interpretation. Competent Authorities in Member States have not been provided with comprehensive guidance or training to facilitate the adoption of the provisions of the Directive and, as a consequence, many are failing to ensure these provisions are fully applied by zoos (Eurogroup for Animals, 2008; ENDCAP, 2009).

Estimates place the total number of licensed zoos in the EU to be at least 3,500. However, there are thought to be hundreds of unlicensed and unregulated zoological collections that have yet to be identified and licensed by the Competent Authorities. No more than 8% of the total number of zoos in Europe are members of the European Association of Zoos and Aquaria (EAZA) which, therefore, should not be regarded as a representative of zoos in the European Community.

Preliminary investigations revealed that many zoos in the EU are substandard and are failing to comply with the Directive. Furthermore, EU Member States are inconsistent in their application of the Directive, but little effort has been made to identify and address the reasons behind this. The project aims to assess the current situation in the majority of Member States, identify any issues requiring attention and provide recommendations with regard to how implementation can be improved.

## METHODOLOGY

Between March and December 2009, an assessment of 200 zoological collections in 20 EU Member States was made as part of an evaluation of the level of implementation and enforcement of European Council Directive 1999/22/EC. The project included an evaluation of national laws pertaining to zoos in each EU Member State compared to the requirements of the Directive, an analysis of the implementation and enforcement of those laws and an assessment of the status and performance of selected zoos in each Member State.

A Zoo Assessment Protocol was developed and tested to ensure consistency in data collection. For certain Member States (England, France, Germany, Ireland, Italy, Malta and Portugal) individual, locally-fluent investigators were contracted to undertake the work. In other Member States (Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Estonia, Greece, Hungary, Latvia, Lithuania, Poland, Romania and Slovenia) a single investigator from the UK, collected and analysed the data.

### Implementation and enforcement of Member State legislation

Data were collected and evaluated through:

- Completion of a questionnaire by the Competent Authorities in each Member State
- Informal interviews with the Competent Authority
- Reviewing national zoo legislation

### Status and performance of zoos

Using the definition of a zoo in the Directive\*, a variety of zoological collections was assessed including: traditional zoos, safari parks, aquaria, dolphinariums, aviaries and terraria. In some cases, national legislation does not use this definition, which can lead to inconsistencies in application. Where this is the case, any variance was noted but zoos, as defined by the Directive, were nevertheless included in the project to maintain consistency.

Zoos were selected for evaluation using two methods: A. For those Member States with large numbers of zoos, 25 zoos were randomly-selected (France, Germany, Italy and England). B. For those Member States (n = 16) with a small number of zoos, between three and 10 collections were selected, dependant upon the total number of zoos in the country and their accessibility. Zoos were identified by referring to Government records (if these exist), using online resources, published media and information from local NGOs.

Data were collected using a video camera which recorded a complete overview of the structure and content of each zoo, including: all enclosures; all visible animals; signage; public education facilities; any talks, shows or interactive animal handling sessions; public/animal contact and security issues. Additional information was collected from the zoo website and literature that was, occasionally, provided by the zoos themselves. Data collection was undertaken without the prior knowledge of the zoo management and therefore only areas accessible to the general public were recorded. Thus, for example, off-show areas, food preparation and storage rooms, quarantine and veterinary facilities were not included.

Data were analysed using a Zoo Assessment Protocol that had been developed and refined during an assessment of zoos in Spain (InfoZoos 2006 - 2008) and which took into consideration the requirements of the Directive, national zoo law and the EAZA Minimum Standards for the Accommodation and Care of Animals in Zoos and Aquaria (available on the EAZA website and referred to in the preamble of the Directive). Information and guidance was also drawn from the DEFRA Standards of Modern Zoo Practice 2004 (SMZP) and Zoos Forum Handbook. The Zoo Assessment Protocol was adapted for each Member State dependent upon the specific requirements of national law.

\*'...all permanent establishments where animals of wild species are kept for exhibition to the public for seven or more days a year...' (Article 2, European Council Directive 1999/22/EC)

The analysis was separated into the following sections:

- A. General Zoo Information.
- B. Conservation Commitment.
- C. Public Education.
- D. Evaluation of Animal Enclosures.
- E. Animal Welfare Assessment.

Further details of the assessment methodology are available at [www.euzooinquiry.eu](http://www.euzooinquiry.eu)

All zoos included in the evaluation were asked to complete a Standard Zoo Questionnaire that asked for details of their participation in: European coordinated captive breeding programmes; *in situ* conservation projects; public education; and current research activities.

The Questionnaire also sought information relating to levels of staff training; veterinary care; and programmes to provide environmental enrichment and appropriate nutrition.

Resources dictated that the EU Zoo Inquiry 2011 included an assessment of the following EU Member States: **Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Estonia, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Malta, Poland, Portugal, Romania, Slovenia and United Kingdom (England only).**

The remaining seven Member States were not included in this zoo assessment (March – December 2009). However, a further report focussing on zoo regulation in **Spain** will be published in 2011.

**ESTONIA**

Country Report



## INTRODUCTION

Estonia joined the European Union (EU) in May 2004. By April 2005 Estonia, along with 24 other EU Member States, was required to have transposed and implemented the requirements of the European Council Directive 1999/22/EC into its national law. The Directive has been transposed into national legislation by means of the Animal Protection Act, Chapter 7, Article 28 (13/12/2000) (Official Gazette No.2001, 3, 4) (last amended on 01/01/2011) ('APA') and, specifically, the Government Regulation No.237 for the licensing of zoos (19/09/2003) (amended 01/02/2009) ('R237/2003') and the Government Regulation No.245 for the '*planning and building of zoos and for the keeping of zoo animals*' (08/07/2004) (amended 01/10/2007) ('R245/2004'). The Ministry of Environment has overall responsibility for the implementation of the Directive in Estonia, however, zoo licensing and regulation is administered through the Environmental Board (Standard Member State Questionnaire).

As part of this investigation, the Competent Authorities were asked to complete a Standard Member State Questionnaire. The responses received from the Ministry of Environment, Environmental Inspectorate and the Veterinary and Food Board (Standard Member State Questionnaire), have been included throughout this report. Information has also been collected and reviewed by our Estonian partner organisation, Eesti Loomakaitse Selts (ESPA).

In Estonia, zoo licensing and operation is regulated through the Animal Protection Act (APA), specifically referenced in Chapter 7, Articles 28 to 32, which provides a framework for various Government Regulations, including Regulations R237/2003 (Article 29(5), APA) and R245/2004 (Article 28(3), APA), which are both specific to zoo regulation. Zoos are licensed through R237/2003, which includes details of the application procedure, the formation of the Ministerially-appointed zoo licence Advisory Commission and the issuing of the operating licence. The requirements for operating zoos are specified by R245/2004, which focuses predominantly on the conditions required for the keeping of animals.

A zoo licence is issued through the Environmental Board following the advice of the Advisory Commission, a group of individuals established by the Minister of Environment, that represent the Ministry of Agriculture, the Environmental Board and local government (Articles 2 and 4, R237/2003), and which may also include invited experts (Article 7, R237/2003). The Commission is convened for each zoo application and is required to review and verify that the applicant will fulfil the requirements set out in Article 29(4) of APA. The Commission's decision, whether to grant or refuse the licence, is required within a 35 day period (Articles 5, 6 and 7, R237/2003 and Article 29(4), APA) and the process from licence application to the granting (or refusing) a licence should be no more than 60 days (Article 29(3), APA).

The inspection of zoos falls under the jurisdiction of the Environmental Inspectorate, which undertakes regular inspections of all establishments regulated through APA, with the cooperation and participation of the Veterinary and Food Board and local police prefectures (Article 66<sup>11</sup>, APA). The regularity of inspections is apparently governed by an annually established work plan that takes into account: notifications, complaints received and financial resources (Standard Member State Questionnaire). A database keeps record of all inspections and licences are granted for an indefinite time period (Article 29(3), APA) (Standard Member State Questionnaire).

At the time of the investigation (2009), the Ministry of Environment did not maintain a database of the zoos in Estonia. However, the Ministry stated there were six licensed zoos (Standard Member State Questionnaire).

### Zoo Licensing Requirements

In Estonia, zoos are defined as 'all permanent establishments where animals are kept for exhibition to the public for 7 or more days a year' (Article 28(1), APA and Article 1, R237/2003). This appears to include all kinds of zoological collections from the traditional zoo and small menageries, to specialised collections such as aquaria, aviaries and terraria, as well as dolphinarium (Standard Member State Questionnaire). All such facilities are referred to as 'zoos' in this report. Unlike Article 2 of the Directive, neither APA nor R237/2003 mentions any exemptions to this definition. However, Articles 2(2) and 2(3) of APA do differentiate 'farm' and 'pet' animals (respectively) from animals in zoos and refer to other provisions.

Before the zoo is opened to the public, and on an application for a zoo operating licence to the Environmental Board, the applicant must provide certain legal documents and other details about the proposed zoo. This includes a list of the species and their numbers thereof, a description of the buildings and infrastructure, and details of proposed staffing (including their respective qualifications). This information is reviewed by the zoo licensing Advisory Commission and, should a licence be granted, conditions on the licence then stipulate (amongst other details) which species the zoo may keep, the number of animals for each species and the required number of scientific and technical personnel (R237/2003).

The Animal Protection Act requires all animals (mammal, bird, reptile, amphibian, fish or invertebrate) to be kept in conditions which ensure their health and welfare (Articles 1, 2(1) and 3, APA), with similar specifications given for animals in zoos through Article 28, APA, which requires compliance with R245/2004. This includes the following requirements that are applicable to all zoos in Estonia:

### Conservation

- *'A zoo shall engage in animal research..'*

(Article 28(4), APA)

No further legal requirements or guidance is provided by the Competent Authority to help the local government or zoo operators interpret the meaning or significance of this requirement.

### Education

- *A zoo shall ensure 'provision [of] information to the public concerning animal species and their natural habitats, and the dissemination of information about animal protection.'*

(Article 28(4), APA and Article 3 of the Directive)

- *'the zoo keeper must ensure that on each exhibited space or enclosure, signage must be visible to the visitors that at least includes the name of the animal, and preferably, information about the geographical distribution of the species, its conservation and overall ecology.'*

(Article 2(7), R245/2004)

No further legal requirements or guidance is provided by the Competent Authority to help the local government or zoo operators further interpret the requirements of Article 28(4), APA and Article 2(7), R245/2004.

### Animal welfare provisions

The promotion of high standards in animal health and welfare is given prominence within the APA (Articles 3 and 28). However, the majority of requirements applicable to animal care in zoos are stipulated through R245/2004. This includes:

- *The [animal] keeper must take into account the animal species and the age of the animals when providing::*
  - Quantity of food and drinking water;*
  - Appropriate maintenance;*
  - A suitable environment that allows the animal(s) to exercise; and*
  - for the health and well-being of an animal.'*

(Article 3(2), APA)

- *'A zoo shall be designed and constructed in a manner which guarantees the health and well-being of the animals..'*

(Article 28(2), APA)

Article 28(3) of APA states that *'zoo design and structures shall comply with the requirements established by the Government of the Republic.'* This refers to R245/2004, the *'requirements for the keeping of animals in zoos'*. These include:

- Zoo landscape, vegetation and buildings must be suitable for the keeping of animals. (Article 2(1))
- The zoo shall have appropriate premises and facilities for the keeping of animals, treatment and research facilities and food storage and preparation. (Article 2(2))
- Enclosures shall be maintained so not to cause injury to the animals. (Article 2(3))
- Enclosures must be large enough, given the specific nature of the species, size and activity of the animals, and group size and structure. (Article 4(1))
- Enclosures must be furnished and equipped for the species' needs and natural behaviour. (Article 4(3))
- Enclosure floor and substrate used must be suitable for the species and must not cause injury. (Article 4(11))
- For animal species, whose lifestyle includes or requires water for swimming, enclosures must be equipped with a swimming pool of the appropriate size, depth, quality, temperature, and salinity and sufficient to allow the occupancy of all the individual animals within the enclosure. (Article 4(15))
- Enclosure fencing and related structures shall be kept in a good condition. (Article 6(4))
- Feeding and watering equipment must be clean. (Article 7(5))

Furthermore, the Annex to R245/2004 provides *'requirements for the keeping of zoo animals'*. These species-specific standards for mammals, birds and reptiles and amphibians, stipulate minimum surface area for outdoor and indoor enclosures (dependent upon the number of animals) and necessary features to encourage natural, but limited, behaviour.

APA and R245/2004 also stipulate other requirements including measures to prevent the escape of animals (Article 28(2), APA and Article 5(5), R245/2004); euthanasia policy (Article 18, APA); disease control (Article 27(1), APA); measures to protect keepers and zoo visitors (Article 2(6), R245/2004); measures to warn the public about potentially dangerous situations (Article 2(6)1, R245/2004) and; the need for zoo keepers to undertake daily inspections of the animals' wellbeing and ensure the immediate and appropriate veterinary care of sick or injured animals (Article 7(1) and 7(2), R245/2004).

According to the Ministry of Environment, there is no requirement for zoos to maintain or provide the Competent Authority with an annual animal stocklist (Article 3(5) of the Directive).

### **The Zoo Investigation**

A total of four zoos in Estonia were selected. Data was collected at the following zoos during April 2009 (Fig. 1):

Data were collected at the following zoos in October 2009 (Fig. 1):

- Alaveski Wild Animal Park
- RMK Elistvere Wild Animal Park
- Mini Zoo, Parnu
- Tallinn Zoological Gardens



**Figure 1** Geographical locations of the four zoos assessed in Estonia.

## RESULTS AND INTERPRETATION

### GENERAL ZOO INFORMATION

#### Overview

The investigation evaluated four out of the six licensed zoos in Estonia. Two, RMK Elistvere Wild Animal Park and Tallinn Zoological Gardens, are Municipally-owned, whilst Alaveski Wild Animal Park and Mini Zoo in Pärnu are privately owned. All zoo entrance fees were less than 50 kroons (€3.20).

Of the four zoos evaluated, only one appeared to be a member of a zoo association. Tallinn Zoological Gardens is a member of the *Eurasian Regional Association of Zoos and Aquariums* (EARAZA), the *European Association of Zoos and Aquaria* (EAZA) and the *World Association of Zoos and Aquariums* (WAZA). EARAZA was established in 1994 to promote and strengthen co-operation in the professional activities of the zoological institutions of the former USSR and it currently has 56 Full and Associate Members (EARAZA website). EAZA has a membership of 277 zoos in the EU (EAZA website) being 8% of an estimated total of 3,500 zoos in the EU. Each association represents a minority of the total number of regional zoos. EARAZA is an Associate Member of WAZA.

According to the Estonian Ministry of Environment, at the time of correspondence (August 2009), all six zoos were licensed and regularly inspected. Despite a database reportedly maintained by the Environmental Inspectorate that records details about zoo inspections, there is no central zoo database maintained by the Competent Authority (Standard Member State Questionnaire).

A total of 222 species (including subspecies where appropriate) were observed in 227 enclosures across the four zoos. A total of 15 *species holdings* could not be identified (see online Methodology).

Two of the four zoos, Tallinn Zoological Gardens and RMK Elistvere Wild Animal Park, returned the Standard Zoo Questionnaire, which had been sent to all selected zoos. This information has been included in all relevant sections of this report.

### Prevention of animal escapes

*'A zoo shall be designed and constructed in a manner which guarantees the health and well-being of the animals and prevents their escape.'*

(Article 28(2), APA)

*'Zoos should take measures to control rodents and pests.'* (Article 2(5), R245/2004)

*'The outdoor enclosure should have sufficiently strong and high fencing, or another similar defense, that shall effectively prevent the escape of animals at any time of the year. If necessary, the outdoor enclosure should be covered.'*

(Article 5(5), R245/2004)

The Directive and Estonian law appear to ascribe importance to preventing the escape of non-indigenous zoo animals. All four zoos evaluated had a perimeter fence that could realistically be expected to contain escaped animals. Furthermore, no free-roaming animals were observed in any of the selected zoos.

### Public placed at risk of injury and disease transmission

*'Special measures must be applied to ensure the safety of the zoo visitors and those people exposed to animals'*

(Article 2(6), R245/2004)

*'..measures must be taken to prevent physical contact between the [zoo] visitors and the animals, and for extremely dangerous situations, signage must be present to warn the public.'*

(Article 2(6)1, R245/2004)

**Figure 2**

Alaveski Wild Animal Park. The lack of sufficient stand-off barrier at this brown bear (*Ursus arctos*) enclosure could potentially allow the public to have contact with this Category 1 'Greater Risk' hazardous animal (SMZP).



Although none of the zoos actively encouraged members of the public to have direct contact with the animals, the frequently poor design of enclosures, lack of stand-off barriers and lack of available zoo staff allowed for direct contact and, in some cases, placed the public at significant risk. The public could easily come into direct contact with potentially dangerous wild animals in 19 out of the 98 randomly-selected enclosures (Section D and E), eight of which contained Category 1 'Greater Risk' hazardous animals (SMZP). This included species such as Eurasian lynx (*Lynx lynx*), brown bear (*Ursus arctos*) and African buffalo (*Syncerus caffer*). Of the four zoos, 59% of the selected enclosures that contained Category 1 animals did not have the required signage to warn the public of the potential danger (Article 2(6)1, R245/2004). Alaveski Wild Animal Park, for example, had no warning signs despite exhibiting brown bears and Eurasian lynx without sufficient stand-off barriers.

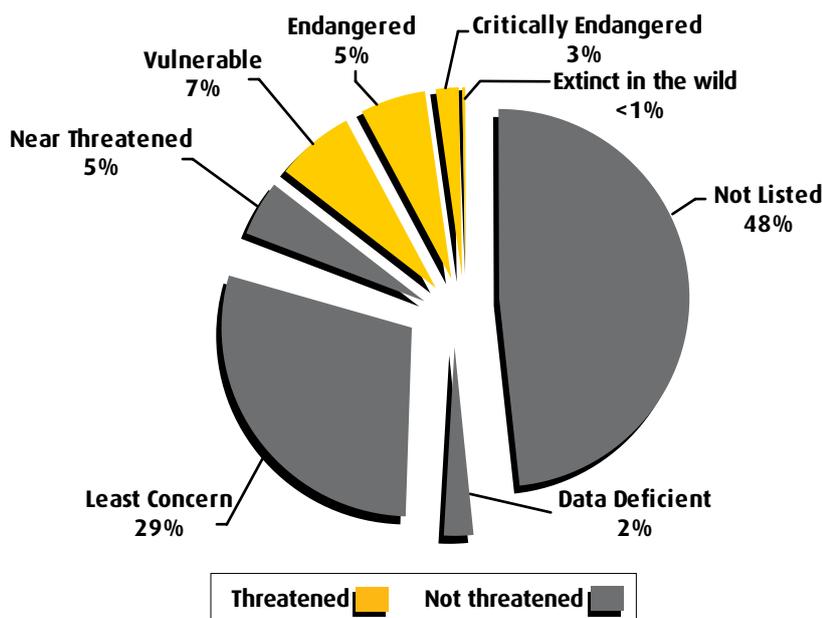
## CONSERVATION

The conservation of biodiversity is the main objective of the Directive and zoos in the EU are required to participate in at least one of four possible conservation measures (Article 3 of the Directive). Estonian zoo law does not appear to have adopted this requirement. Instead, the only reference given to conservation is the recommended inclusion of information about the conservation of the species on enclosure signage (Article 2(7), R245/2004). However, there is a requirement in the Animal Protection Act which states that zoos 'shall engage in animal research', but no further explanation is given as to what this actually means (Article 28(4), APA).

The Ministry of Environment has confirmed that conservation is not a priority, explaining in their response to the Standard Member State Questionnaire that neither the Ministry nor the Environmental Board provides guidance on, or stipulates participation in, species conservation. The Ministry indicated that the zoos themselves may choose to adopt conservation activities if they so wish. Of the six licensed zoos in Estonia, apparently only Tallinn Zoological Gardens participates in species conservation, with the remaining five zoos focussing on public education (Standard Member State Questionnaire).

The results of this investigation have confirmed that the overall commitment to the conservation of biodiversity by Estonia's zoos, particularly the protection of Threatened species, is not a priority.

### Percentage of Threatened Species



**Figure 3** Proportion of the 222 species identified (including subspecies where appropriate) in the four Estonian zoos that are categorised by the IUCN Red List of Threatened Species™ as Threatened and Not Threatened.

### Percentage of Threatened Species and Taxa

| IUCN Red List of Threatened Species™ Categorisation | Taxonomic Group |           |            |            |            |               | Total No. Species | Proportion of total no. Species (%) |
|-----------------------------------------------------|-----------------|-----------|------------|------------|------------|---------------|-------------------|-------------------------------------|
|                                                     | Mammals         | Birds     | Reptiles   | Fish       | Amphibians | Invertebrates |                   |                                     |
| Not Listed                                          | 4               | 1         | 36         | 55         | 0          | 11            | 107               | 48%                                 |
| Not Evaluated                                       | 0               | 0         | 0          | 0          | 0          | 0             | 0                 | 0%                                  |
| Data Deficient                                      | 1               | 0         | 0          | 3          | 1          | 0             | 5                 | 2%                                  |
| Least Concern                                       | 36              | 9         | 7          | 9          | 4          | 0             | 65                | 29%                                 |
| Near Threatened                                     | 5               | 0         | 3          | 2          | 2          | 0             | 12                | 5%                                  |
| Vulnerable                                          | 8               | 2         | 4          | 2          | 0          | 0             | 16                | 7%                                  |
| Endangered                                          | 9               | 1         | 0          | 0          | 0          | 0             | 10                | 5%                                  |
| Critically Endangered                               | 3               | 1         | 1          | 0          | 1          | 0             | 6                 | 3%                                  |
| Extinct in Wild                                     | 1               | 0         | 0          | 0          | 0          | 0             | 1                 | <1%                                 |
| <b>Total No. Species</b>                            | <b>67</b>       | <b>14</b> | <b>51</b>  | <b>71</b>  | <b>8</b>   | <b>11</b>     | <b>222</b>        | <b>100%</b>                         |
| <b>Proportion of total no. Species (%)</b>          | <b>30%</b>      | <b>6%</b> | <b>23%</b> | <b>32%</b> | <b>4%</b>  | <b>5%</b>     | <b>100%</b>       |                                     |

**Table 1** Proportion of the 222 species (including subspecies where appropriate) identified in the four Estonian zoos, categorised as Threatened and Not Threatened by the IUCN Red List of Threatened Species™ by taxa.

The results indicate that 14% (n = 32) of the total number of species from the four zoos can be described as Threatened (*Vulnerable* (7%), *Endangered* (5%) and *Critically Endangered* (3%)) (Table 1). Of the 32 Threatened species, 32% were mammals, 16% were reptiles, 13% were birds, 6% were fish and 3% were amphibians. The remaining 85% of the Not Threatened species were either classified as *Least Concern* (29%), *Near Threatened* (5%) or *Data Deficient* (2%) by the IUCN Red List of Threatened Species™ categorisation, or were *Not Listed* (48%) (Fig. 3). **The majority of species exhibited in the zoos are either of *Least Concern* (species of low conservation priority) or are *Not Listed* by the IUCN Red List of Threatened Species™.**

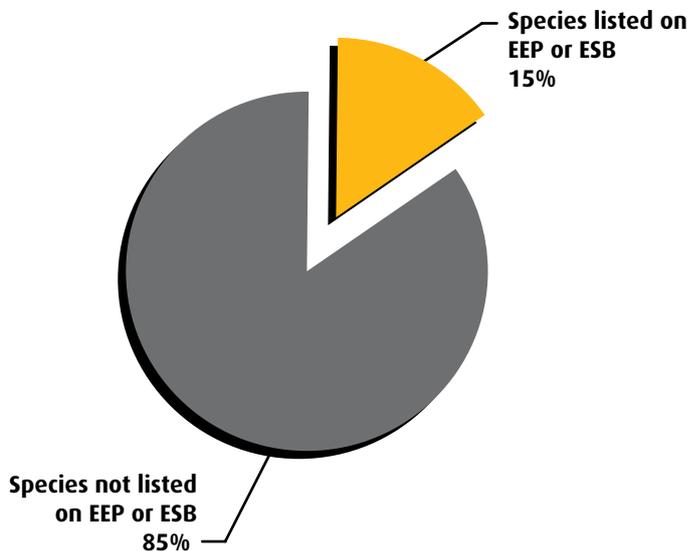
This investigation has confirmed that of the four zoos assessed, Tallinn Zoological Gardens was making the largest contribution to the conservation of biodiversity, exhibiting 30 Threatened species (including subspecies where appropriate). The highest proportion was mammals, which included Amur tiger (*Panthera tigris altaica*), Asiatic lion (*Panthera leo persica*) and black rhinoceros (*Diceros bicornis*).

### Participation in European coordinated captive breeding programmes

A further indicator of a zoo's commitment to the conservation of biodiversity is the degree to which it participates in *ex situ* conservation and the management of species through coordinated captive-breeding programmes. This is stipulated as an option under the 'requirements applicable to zoos' (Article 3 of the Directive), but this is not included in Estonian zoo law. In fact, the Competent Authority claims there to be a lack of experts to help establish species conservation programmes in Estonian zoos (Standard Member State Questionnaire).

The results indicate that only a minimal number of species kept by the selected zoos are listed on the register of European captive breeding programmes.

### Percentage of species in Estonian Zoos involved in coordinated captive breeding programmes (EEPs or ESBs)



**Figure 4** The percentage of the 222 species (including subspecies where appropriate) identified in the four Estonian zoos that are part of an ESB or EEP.

Only 15% (n = 34) of the 222 species in the zoos are listed on the register of European Endangered Species Breeding Programmes (EEPs) or European Stud Books (ESBs) (Fig. 4). Tallinn Zoological Gardens, Alaveski Wild Animal Park and Elistvere Animal Park all kept species listed on either EEPs or ESBs, including Asiatic lion (*Panthera leo persica*) and African elephant (*Loxodonta africana*) at Tallinn Zoological Gardens, European bison (*Bison bonasus*) at Elistvere Animal Park, and Eurasian lynx (*Lynx lynx*) at all three zoos. However, evidence on the zoos' websites, in guidebooks (if available), on signage within the zoos or in the Standard Zoo Questionnaire, could only confirm that 32 of these species were actively participating in captive-breeding programmes. Of the four selected zoos, only Tallinn Zoological Gardens appeared to participate in species management programmes.

Of the observed 32 species participating in the species management programmes at Tallinn Zoological Gardens, two (6%) were European Threatened Species (European Red List website) (which account for <1% of the reported 588 species housed at the Zoo (Standard Zoo Questionnaire & Tallinn Zoological Gardens website)). This included the *Endangered* European mink (*Mustela lutreola*), which is the subject of particular focus at Tallinn Zoological Gardens since the formation of the Lutreola Foundation in 1999. Established by the Tallinn City Government to protect the remaining wild population of *Mustela lutreola*, the programme is now coordinated by the IUCN SSC Mustelid, Viverrid and Procyonid Specialist Group, which oversees research, captive-breeding and the reintroduction of European mink onto an Estonian island (Tallinn Zoological Gardens 2009 guidebook). The mink are bred at a breeding centre within the Zoo grounds, but at a site that is not accessible to zoo visitors. Tallinn Zoological Gardens also claims to have contributed to all EAZA Conservation Campaigns since 2000. However, no evidence at the zoo, on the website or in the guidebook could be found to substantiate this, or denote the zoo's level of contribution (Standard Zoo Questionnaire).

Literature provided by the Elistvere Animal Park claims that the zoo '*preserves animal species that were originally found in our climatic zone, but became extinct*', offering the 'European buffalo' as an example. Of the 20 species observed and identified at the zoo during the assessment, the only European Threatened Species exhibited was the European bison (*Bison bonasus*) (European Red List website) and according to the IUCN Red List of Threatened Species™ website, none are species that have since become extinct in Estonia. However, no evidence could be found that confirmed the participation of any of these species in a species management programme. Elistvere Animal Park has also reportedly established a rodent research centre in collaboration with the Estonian Naturalists Society, which since 2000 has apparently been treating injured wild animals. This infers, perhaps, that the Elistvere Animal Park participates in in-house research but, in the Standard Zoo Questionnaire, the Zoo states that they do not participate in conservation projects, nor do they carry out any research to benefit species conservation.

This was the only evidence of participation in *in situ* conservation or in-house research within those selected zoos.

## **EDUCATION**

The Directive states that zoos should '*promote public education and seek to raise awareness in relation to the conservation of biodiversity, particularly by providing information about the species exhibited and their natural habitats*' (Article 3). This has been partially transposed into Estonia's APA, which states that zoos must educate the public about the species exhibited, as well as ensure all enclosures are appropriately labelled with information about the species, their natural habitats, conservation and overall ecology. Unlike other EU Member States, there is no specific legal requirement for zoos in Estonia to establish an education programme, although some of the selected zoos appeared to operate a number of educational activities. According to the Ministry of Environment, no guidance is issued to the zoos to encourage educational practices (Standard Member State Questionnaire).

As with species conservation, educational activities appear to be dependent on the zoo operator rather than legally enforced. Of the four zoos, two (Tallinn Zoological Gardens and Elistvere Animal Park) appeared to have established certain activities aimed at public education. However, it should be noted that the owners of both Mini Zoo in Pärnu and Alaveski Wild Animal Park provided a complimentary tour of their animals if desired. The owner of the Mini Zoo in particular, appeared to be incredibly knowledgeable about the reptiles. Tallinn Zoological Gardens and Elistvere Animal Park also claim they provide guided tours, as well as illustrated species talks (although none were observed during the assessment) and Tallinn Zoological Gardens reportedly also has classroom facilities (Standard Zoo Questionnaire). In 2000, Tallinn Zoological Gardens established its Environmental Education and Public Relations Department, which apparently collaborates with the Ministry of Education, the Education Board and the Ministry of Environment to provide a variety of educational activities including: species information signage; exhibitions; lectures and; curricular nature studies for schools (Standard Zoo Questionnaire). Tallinn Zoological Garden's Strategic Plan 2008 – 2012 includes the building of an education centre at the Zoo, however, according to the zoo this centre has yet to be built (Standard Zoo Questionnaire).

### Minimal species information

A basic requirement of a zoo is to inform its visitors about the animals exhibited. Both APA and R245/2004 state that this information should include: the species common name; scientific name; key aspects of its biology/ecology; and the natural habitat of the species. Furthermore, Article 2(7) of R245/2004 stipulates that this should also include the geographic distribution of the species and conservation status.

Despite these requirements, certain species information was lacking in all the zoos.

### Proportion of Species Information Signage Present



**Figure 5** The average percentage of species information signage present or absent (for all 307 *species holdings*) in the four Estonian zoos.

On average, 41% of *species holdings* completely lacked any form of species information signage (Figs. 5 & 6). Signage for nine *species holdings* was incorrect (inaccurate species' scientific names) whilst others displayed only minimal information about the species. In Alaveski Wild Animal Park species information signage was absent. Figure 7 provides an overview of the content of the signage in the zoos.

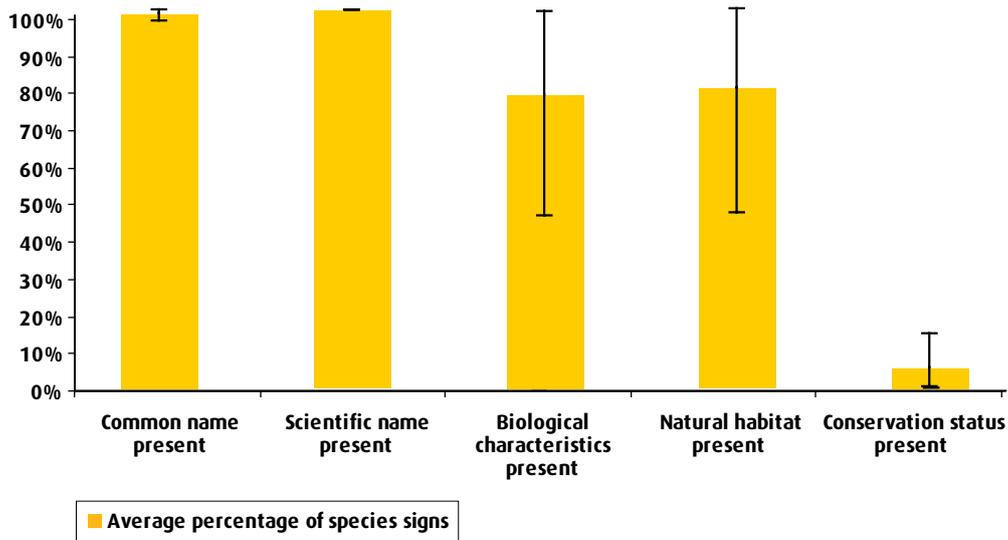
### Figure 6

Mini Zoo.

Many enclosures did not have species information signage.



## Quality of Species Information Signs



**Figure 7** Content of species information signage from the four Estonian zoos. Each column represents specific information, as indicated by best practice criteria (SMZP). Each value (e.g. Conservation status present, 5%) represents the average of the 79 species information signs observed in 30 randomly-selected enclosures. Error bars are a visual representation of the standard deviation from the mean value, demonstrating the variation in performance amongst selected zoos (e.g. the presence of species natural habitat information on signage varied considerably between zoos in comparison with the presence of the species scientific name, which was almost universally present).

The results (Fig. 7) demonstrate that on average, 95% of species information signage did not contain all the required information (Articles 28(4), APA and 2(7) of R245/2004, as well as SMZP). On average, 21% of species information signage did not include information on the species' natural habitat and 95% did not specifically include information on the conservation status of the species (as required by Article 2(7) of R245/2004) (Fig. 8). Of the 95% of *species holdings* that had signage at Tallinn Zoological Garden, 84% of these signs did not include information about conservation.

### Figure 8

RMK Elistvere Wild Animal Park. Species information signage often lacked all the required information. In particular, 95% of signage did not include information about the species conservation status, recommended by Estonian law.



## EVALUATION OF ANIMAL ENCLOSURES

To evaluate the suitability and quality of each of the 98 randomly-selected enclosures, data relating to 12 criteria regarded as vital to the health and welfare of wild animals in captivity were analysed using the evaluation method as described in Sections D and E of the Methodology, the requirements as specified in Chapter 2 and Article 28 of APA and the Estonian standards *'for the keeping of zoo animals'* (Annex to R245/2004).

The 'Five Freedoms' (OIE Terrestrial Animal Health Code, 2010) were referenced as the basis for minimum standards for the keeping of animals but, species-specific needs were also taken into account, particularly in relation to the suitability of the captive environment. In reference to the Five Freedoms and the 12 criteria used to assess enclosure quality, the following observations were made:

### **Freedom from Hunger and Thirst: Provision of Food and Water**

*'The animal feeding utensils must be easily cleaned in order to lower the risk of contamination as much as possible, and they should be located so that each animal is ensured access to them.'*

(Article 7(7), R245/2004)

Many animals did not appear to have access to clean drinking water.

### **Freedom from Discomfort: Provision of a Suitable Environment**

*'Animal enclosures to be furnished, in accordance with the needs of the species in question, with such items as bedding material, perching, vegetation, burrows, nesting boxes and pools.'*

(Article 11, EAZA Standards (2006))

*'Enclosures must be furnished and equipped for the species needs and natural behaviour.'*

(Article 4(3), R245/2004)

Species requiring features to climb, bathe, height to fly, or a suitable substrate to dig or burrow in were often housed in conditions where natural behaviour was compromised. Enclosures generally lacked the appropriate furnishings or substrate to enable the animals to express natural behaviours. For example, striped hyaena (*Hyaena hyaena*), Azara's Agouti (*Dasyprocta azarae*) and domestic rabbits (*Oryctolagus cuniculus domesticus*) were kept in enclosures with concrete or tiled flooring that prevented natural digging behaviour. Furthermore, the brown bears (*Ursus arctos*), polar bears (*Ursus maritimus*) and European mink (*Mustela lutreola*) at Tallinn Zoological Gardens were kept in enclosures with insufficient sized pools. Such conditions would compromise the animal's ability to exercise properly and express natural behaviour.

At the time of assessment (April 2009), across the four zoos, enclosures appeared to provide the animals with appropriate temperature and ventilation, but this may not be the case during winter months when temperatures in Estonia can reach -30°C (BBC website). This would need further evaluation. During the investigation, many of the animals at Tallinn Zoological Gardens were kept indoors with no access to their outdoor enclosures. This was supposedly due to the low outside temperatures.

### **Freedom from Pain, Injury and Distress: By Prevention and Provision of Suitable Health Care**

It appeared that many animals did not have access to clean, fresh drinking water. Many animals were housed in unhygienic conditions. Problems included the build-up of faeces, urine and stagnant water.

*'The zoo keeper must ensure a daily inspection of an animal's health is undertaken.'*

(Article 7(1), R245/2004)

Some animals observed appeared to be suffering from illness or debilitating conditions (e.g. hyaena at Tallinn Zoological

Gardens with an open wound); which raises the questions of the availability of sufficient husbandry expertise, health care and veterinary attention.

**Freedom to Express Normal Behaviour: Provision of Suitable Space and Proper Facilities**

*'Animals to be provided with an environment, space and furniture sufficient to allow such exercise as is needed for the welfare of the particular species.'*

(Article 3, EAZA Minimum Standards for the Accommodation and Care of Animals in Zoos and Aquaria, 2006)

*'Enclosures must be large enough, given the specific nature of the species, size and activity of the animals, and group size and structure.'*

(Article 4(1), R245/2004)

Enclosures for some species were of an inadequate size and therefore did not permit natural locomotive behaviour. In cases where there was more than one individual, there did not appear to be sufficient space for animals to escape conflict and seek refuge. This appeared to be the case for the degu (*Octodon degus*) at Elistvere Wild Animal Park and the grey seal (*Halichoerus grypus*) at Tallinn Zoological Gardens.

Many enclosures did not appear to meet the Estonian minimum standards (R245/2004). Most notably this included the African buffalo (*Syncerus caffer*) at Tallinn Zoological Gardens and Nile crocodile (*Crocodylus niloticus*) at the Mini Zoo in Pärnu. Both enclosures were too small.

The majority of enclosures lacked the appropriate furnishings and environmental enrichment to allow the species to express natural behaviours. Typically, social species, such as African buffalo (*Syncerus caffer*), domestic goat (*Capra hircus*) and roe deer (*Capreolus capreolus*) were observed housed alone. Of the selected enclosures, on average, 27% failed to meet the requirements of the minimum standards (Annex to R245/2004).

**Freedom from Fear or Distress: Ensuring that conditions do not cause mental suffering**

*'The environment must be sufficiently calm and quiet for the normal functioning of the animals.'*

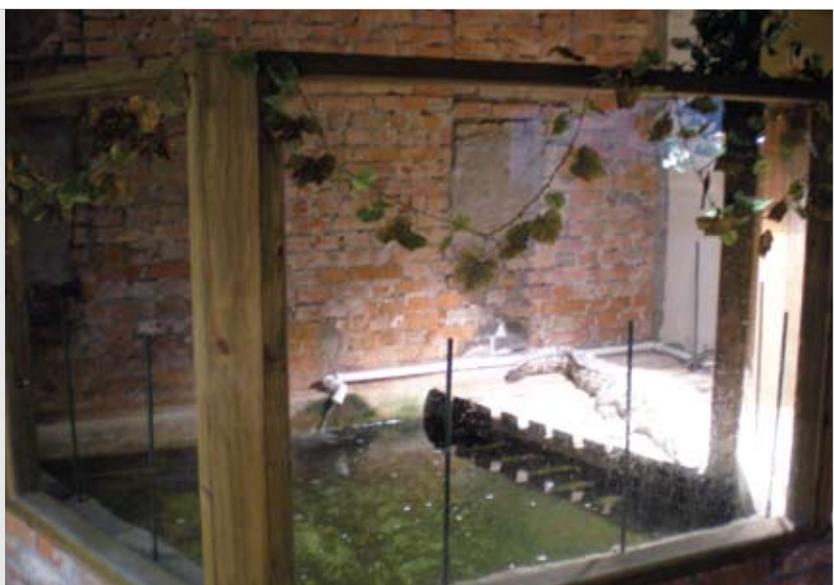
(Article 2(1), R245/2004)

In some cases, predators were housed in close proximity to each other, opposite prey species, or in other cases animals were housed in conditions which could cause them distress. Many enclosures lacked places of refuge or privacy from public view. Some animals were observed displaying stereotypical behaviour, whilst others were noticeably distressed in the presence of the public.

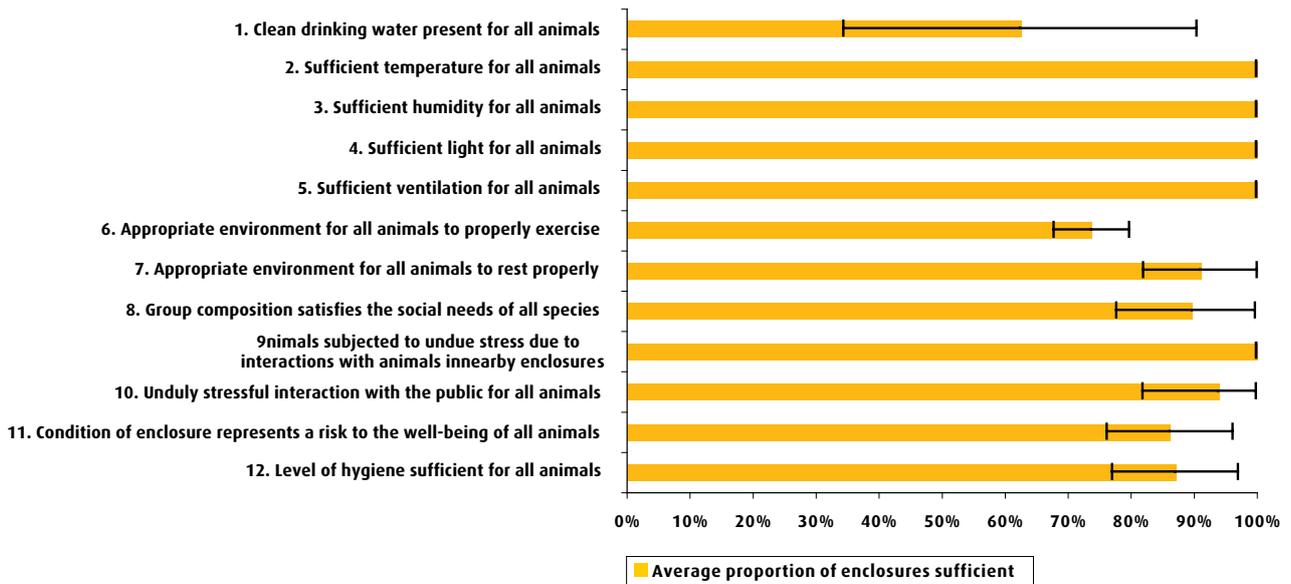
**Figure 9**

Mini Zoo.

Nile crocodile (*Crocodylus niloticus*) exhibited in an enclosure which does not meet the Estonian minimum standards for the keeping of animals in zoos (R245/2004).



## Environmental Quality of Enclosures



**Figure 10** Environmental quality of the 98 randomly-selected enclosures from the four Estonian zoos. Each column represents a parameter used to assess the suitability of the enclosures to meet the needs of the animals contained. Error bars are a visual representation of the standard deviation from the mean value, demonstrating the variation in performance amongst selected zoos (e.g. the presence of clean drinking water varied considerably between zoos in comparison to the quality of temperature). Where the presence of a condition or factor could not be determined, data were not included.

The results (Fig. 10) demonstrate that while most enclosures appeared to provide the animals with sufficient light, temperature, humidity and ventilation at the time of assessment, lower values were recorded for the provision of: clean drinking water (on average, 37% of enclosures did not provided clean drinking water); a suitable area to allow the animals to properly exercise and express their natural locomotive behaviour (on average, 26% of the selected enclosures were inadequate); and an appropriate level of hygiene in the enclosures (on average, 13% of enclosures were unhygienic).

Many of the enclosures observed were devoid of species-specific furniture, apparatus and refuge areas to allow animals to exercise, rest, hide and express natural behaviours. In many cases, particularly in Tallinn Zoological Gardens, enclosures consisted of bare concrete floors and did not satisfy the biological needs of the animals, as required by the Directive, APA and R245/2004.



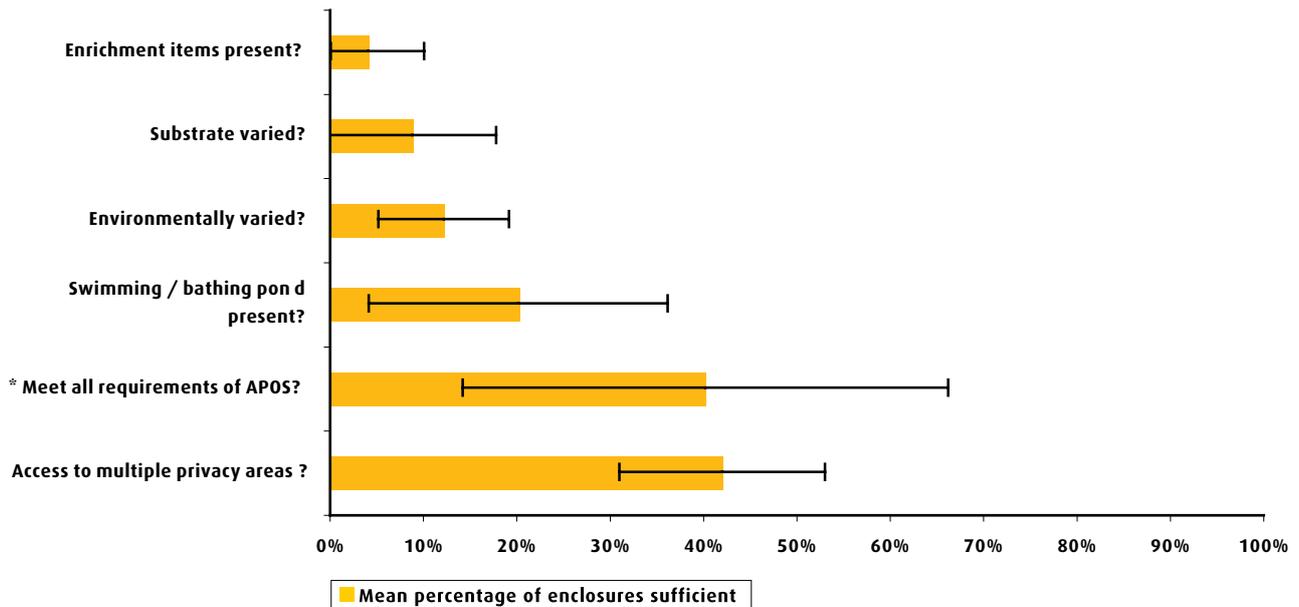
**Figure 11**

Tallinn Zoological Gardens. Although there were some newly constructed enclosures in Tallinn Zoological Gardens that provided greater environmental complexity, many of the animals were housed in inappropriate enclosures that appeared to compromise their welfare.

## EVALUATION OF ANIMAL WELFARE

Keeping an animal in a restrictive, predictable and barren captive environment is known to compromise welfare (Mallapur *et al.*, 2002; Lewis *et al.*, 2006) and may result in the development of abnormal behaviours, which can become increasingly more difficult to reverse, even with the application of environmental enrichment techniques (Swaigood & Sheperdson, 2006). The following graph represents the results of an evaluation into the suitability of those enclosures assessed to permit the expression of most natural behaviours. The results have been ranked, with the most severe issues indicated in the graph below.

**Issues requiring immediate attention** (where the percentage of enclosures complying is below 50%)



**Figure 12** Issues requiring immediate attention following assessment of 98 randomly-selected enclosures from the four Estonian zoos. \*refers to Animal Protection Ordinance of Switzerland *Tierschutzverordnung 2008*. Error bars are a visual representation of the standard deviation from the mean value, demonstrating the variation in performance (e.g. there was far more variability in enclosures that met all of the requirements of APOS than in the provision of enrichment items). Where the presence of a condition or factor could not be determined, data were not included.

The level of animal welfare was assessed in 98 randomly-selected enclosures in the four zoos (Fig. 12). Issues requiring immediate attention include: the lack of any behavioural or occupational enrichment items or techniques such as toys or feeding devices (in, on average, 96% of enclosures); the lack of environmental complexity (88%); and the inability for animals to access multiple privacy areas (58%).



**Figure 13**

Tallinn Zoological Gardens.

This enclosure exhibiting polar bears (*Ursus maritimus*) fails to adequately provide for the physical, physiological and behavioural needs of the species. Natural behaviour such as digging, swimming and roaming vast distances are severely compromised by this enclosure.

**Widely Represented Issues of Concern** (where the percentages of enclosures complying score between 51% and 70%)

- On average, 42% of enclosures did not appear to be large enough to allow the animals to sufficiently distance themselves from aggressive enclosure companions.
- On average, 41% of enclosures did not appear to be large enough to allow the animals to distance themselves from the viewing public.

**Less Widely Represented Issues of Concern** (where the percentages of enclosures complying score above 71%)

- On average, 27% of enclosures did not appear to meet the Estonian '*requirements for the keeping of zoo animals*'.
- On average, 27% of enclosures did not provide the animals with a suitable substrate that would allow species-specific natural movements and behaviours (i.e. burrowing, running, hoof wear).
- On average, 23% of enclosures did not appear large enough to permit the animals to express their full repertoire of normal locomotive movements.
- On average, 23% of enclosures did not contain a variety of usable, species-appropriate permanent features and furnishings.

Two national sets of minimum standards for the keeping of animals in zoos, which provide species-specific guidance, were used in this investigation to ascertain whether enclosures were suitable for the species contained. These were: the Animal Protection Ordinance of Switzerland, Tierschutzverordnung 2008 (APOS), chosen as an independent set of standards from a non-EU Member State, and the Estonian '*requirements for the keeping of zoo animals*' (Annex to Government Regulation R245/2004). All selected enclosures (Sections D and E analysis) were assessed against these standards. The results determined that, on average, **27% of the enclosures failed to meet the specified requirements described in the Estonian minimum standards in R245/2004** and 60% of enclosures that exhibited species listed on APOS did not meet the specified minimum requirements.

**CONCLUSION**



Overall, the investigation has identified some important discrepancies between the requirements of EC Directive 1999/22 and those of the Estonian zoo legislation. The Estonian zoo law has failed to adopt key objectives of the Directive and zoo inspection appears to be irregular and of poor quality. Furthermore, the zoo survey, which has covered two-thirds of the licensed zoos in Estonia, has revealed that overall standards are below those required by the Animal Protection Act and Government Regulations R237/2003 and R245/2004.

These Conclusions are divided into seven sections for ease of reading:

### **1. Implementation of the Directive**

The Directive was transposed into the Estonian Animal Protection Act in 2004 (APA), which established the means, through Government Regulations R237/2003, to license zoos, and R245/2004, to ensure that they meet specified requirements for the keeping of animals in zoos. The implementation of zoo legislation is undertaken at a regional level by the Environmental Board and licences are granted, following a review by and advice from the Ministerially-appointed zoo licensing Advisory Committee.

Although the implementation of the Directive by Member States is an issue for subsidiarity, it is important to note that the interpretation of the Directive by Member States lacks uniformity, which has led to inconsistencies in its application. This includes varying interpretations of important definitions, the failure by some Member States to specify licensing and inspection details (Article 4 of the Directive) and in some cases, failure to ensure that the overall objectives of the Directive are met in terms of the obligations set out under Article 9 of the *Convention on Biological Diversity* (CBD). Estonia is no exception. This investigation, which has included a review of Estonian zoo legislation, has identified a number of discrepancies in its interpretation of the Directive's requirements.

Unlike other EU Member States, **zoo legislation in Estonia is incorporated into the Animal Protection Act (APA) and not legislation dedicated to the conservation of biodiversity.** Therefore, instead of specifically seeking to meet their obligations under Article 9 of CBD, Estonian zoo regulations are implemented and enforced through a legal and administrative framework that aims to uphold animal welfare and best practice in animal husbandry.

**Estonian zoo legislation has failed to adopt the Directive's key objective to conserve biodiversity** (Article 1 of the Directive). In fact, **Estonian law not only fails to enforce the mandatory requirement that zoos should partake in conservation, education and/or research activities to benefit the conservation of biodiversity, but it also fails to specify that zoos must comply with all 'requirements applicable to zoos' as required by Article 3 of the Directive.** In the licensing application procedure, the applicant need only demonstrate that they have the knowledge and financial capability to undertake such activities (R237/2003), but there appears to be no legal requirement to undertake an inspection of the facility prior to opening. Requirements for zoos are restricted to providing information about the species on display (Article 28(4), APA), which may include its conservation status (Article 2(7), R245/2004), and the need to engage in '*animal research*' (Article 28(4), APA). **However, there is no obligation for zoos to: promote public education and awareness in relation to the conservation of biodiversity** (Article 3(2) of the Directive), **participate in activities that benefit species conservation** (Article 3(1) of the Directive), or **keep up-to-date records of species in the zoo's collection** (Article 3(5) of the Directive). Furthermore, no additional explanation or guidance is provided by the Competent Authority to assist in the interpretation of the largely ambiguous, '*species information*' or '*animal research*' requirements (Standard Member State Questionnaire).

Discrepancies have also been identified in requirements for the licensing and inspection of zoos. In Estonia, the definition of a zoo is different from that set out in the Directive, specifically in reference to the term '*animals of wild species*' included in Article 2 of the Directive which is simply referred to as '*animals*' in the Estonian Animal Protection Act (Article 28(1), APA). This definition is defended by the Ministry of Environment, which states that zoos also contain domesticated animals (Standard Member States Questionnaire) and that exemptions to the definition are limited to

animals kept in 'farms' and those kept as 'pets' (Articles 2(2) and 2(3), APA). While in theory this does not undermine the objectives of the Directive, in practice this may result in varying interpretations of what constitutes a 'zoo'. Similar problems have been identified across the EU, which has revealed possibly hundreds of unregulated zoos (EU Zoo Inquiry 2011). It would appear that Estonia is no exception. Despite claims by the Ministry of Environment that there are six zoos in Estonia, ESPA has identified two further potential zoos (which are both in Pärnu), which at the time of this investigation, were operational but unlicensed (ESPA, pers comm., November 2009). **It is therefore reasonable to suggest that there are more than six zoos (as defined) in Estonia.**

Further identified discrepancies, in relation to the licensing and inspection of zoos, include the specification by the Directive to undertake regular zoo inspections (Article 4(3) of the Directive). The Directive states that before '*granting, refusing, extending the period of, or significantly amending the license, an inspection by Member States' competent authorities shall be carried out in order to determine whether or not the licensing conditions or proposed licensing conditions are met*' (Article 4(3) of the Directive). It further specifies that '*Member States shall adopt measures for the licensing and inspection of existing and new zoos in order to ensure that the requirements of Article 3 [of the Directive] are met*' (Article 4(1)). **However, neither requirement appears to have been correctly transposed into Estonian zoo legislation.** The competent authorities have the right to check the correctness of the provided data at application, but it does not appear to have a legal obligation to do so (Standard Member State Questionnaire). Furthermore, neither the APA, nor the Government Regulations specify the regularity of inspections, which is of particular concern considering that zoo operating licences are granted for an indefinite period (Article 29(3), APA). The Ministry of Environment and the Environmental Inspectorate both state that regular inspections take place, but **the Environmental Inspectorate point out that inspectors lack the required training, and inspections only take place when the appropriate resources are available** (Standard Member State Questionnaire).

Concerns are also warranted over the performance of zoos in Estonia, particularly regarding the apparent absence of safeguards to ensure zoos meet all the requirements of the Directive, the APA and the Government Regulations, in relation to providing the appropriate care for their animals. The Directive stipulates that if a zoo is not licensed in accordance with the Directive or if licensing conditions are not met, the zoo shall either close, or be granted a specific time period (not exceeding two years) to comply with requirements. While Estonia's APA states that a zoo licence *will* be suspended if the legal requirements are not met (Articles 31(2), APA), there is no mention of the provision of a specified time period during which a failing zoo is expected to meet the requirements. This investigation has identified that some of Estonia's zoos are substandard, but according to the Ministry of Environment, to date, no zoo in Estonia has been closed for failing to meet the legal requirements (Standard Member State Questionnaire). **This not only raises concerns over the possible misinterpretation of the requirements of APA, but casts doubt over the quality of the zoo inspection regime in Estonia.**

## **2. Ineffective enforcement**

By April 2005, all zoos in Estonia were required to be licensed and meet the specifications of the Directive, through APA, R237/2003 and R245/2004. At the time of the investigation (April 2009), the Ministry of Environment appears to have identified and licensed a total of six zoos. However, two identified, but unlicensed 'zoos' in Pärnu suggest that there could be more unregulated zoos in Estonia, possibly **as a result of a failure by the Competent Authority to correctly identify these establishments as 'zoos'**. According to Article 29(2) of APA, zoos (as defined) are required to have an operational licence (R237/2003).

Recognising that the Animal Protection Act and Government Regulations do not fully adopt the requirements of the Directive (as described above), it is therefore reasonable to assume that zoos in Estonia will only meet the specific requirements of the national zoo law and not necessarily those obligations conferred by Article 3 of the Directive (e.g. conservation measures). However, the findings demonstrated that despite fewer requirements, zoos in Estonia were still failing to fully comply. Identified problems include failure to: undertake meaningful animal research; provide sufficient information about all the species exhibited; and keep animals in an appropriate manner. Notably, Tallinn

Zoological Gardens (in particular) and Elistvere Animal Park both acknowledged, and partially demonstrated, a higher commitment to species conservation and public education despite the failures in transposition.

The findings suggest that not only are there shortfalls in legislative compliance with the Directive, but there appear to be inconsistencies in compliance with Estonian zoo law between the selected zoos, raising concerns about the enforcement of the law and, specifically, the quality and regularity of zoo inspection in Estonia.

Zoo inspections are undertaken by the Environmental Inspectorate, a state institution that oversees all nature and environmental protection in the 13 provinces of Estonia. Coordinated through the Environmental Board, the Inspectorate cooperates with the Veterinary and Food Board (VFB) and local police prefectures to inspect all animal facilities regulated under the APA and subsequent Government Regulations (e.g. R245/2004). According to the Environmental Inspectorate, inspections are carried out on a regular basis but governed by an annual work plan, and the numbers of inspections are dependent upon the availability of resources. A database is maintained that keeps record of the inspections and, according to the Inspectorate, *'some zoos have been inspected regularly each year, some zoos several times a year and there are some zoos that have not been inspected in the last couple of years'* (Standard Member State Questionnaire). **This suggests that there is no regular inspection process being applied to zoos in Estonia.**

The objective of the Estonian Animal Protection Act and subsequent Regulation for the keeping of zoo animals (R245/2004) is to ensure the health and welfare of animals. The Environmental Inspectorate, VFB and the police are expected to uphold these requirements. Article 4(1) of the Directive requires Member States to establish measures to inspect existing or new zoos. However, **neither R237/2003 (specific to the licensing of zoos) nor Article 66<sup>11</sup> APA (specific to the inspection of zoos) appear to include such measures.** It therefore appears that inspections are reliant on the knowledge and expertise of the inspectors to uphold the law and ensure consistency in application.

Consultation with the Environmental Inspectorate has revealed that inspectors lack the necessary knowledge and training in wild animal welfare and health. Moreover, when asked what further training is required, the Inspectorate indicated that *'training should introduce species-specific minimum requirements necessary for keeping of animals of different species in artificial conditions'* (Standard Member State Questionnaire). It appears from this that the Inspectorate is unaware of either the existence or the terms of Government Regulation R245/2004, which includes species-specific standards for the keeping of animals in zoos. Asked the same question, the VFB responded that knowledge of the welfare and health of wild animals is *'not in the competency of the VFB'* (Standard Member State Questionnaire). Perhaps recognising these apparent deficiencies, the Inspectorate explained that for specialist inspections, such as zoos, experts are invited to attend the inspection. However, records from the Inspection Database indicate that no experts have been involved in inspections conducted in the last couple of years (Standard Member State Questionnaire).

Undoubtedly these revelations are of serious concern. The Estonian zoo inspectorate not only appears to be undertaking irregular inspections of the zoos but moreover, do not have the necessary knowledge and expertise to ensure zoos are meeting their obligations under APA, in particular Articles 28 and 29. **These findings call into question the ability and competence of the Environmental Inspectorate, Veterinary and Food Board and police to effectively enforce the law.**

**Further training in the effective inspection of zoos, identification of poor welfare and the care of wild animals should be considered. This should, in addition, include the development of national guidance for zoos which will encourage consistency in application of, and compliance with, the law.**

### 3. Prevention of animal escapes

There are two recognised barriers that prevent the escape of an animal from a zoo into the natural environment. The enclosure fencing, which prevents an animal from escaping into the zoo, and the perimeter fence, which prevents an escaped animal from leaving the zoo grounds. Both barriers should be secure and of an adequate height and strength to contain the animals.

Although Estonian law does not warn of the possible ecological threats posed by animals that have escaped from a zoo could pose to indigenous species, it does require zoos to ensure animals are housed securely and that measures should be taken to prevent escapes (Article 28(2), APA and Article 5(5), R245/2004) and control the invasion of pests (Article 2(5), R245/2004). All the selected zoos appear to comply with these requirements.

The DAISIE website identifies biological invasions by Invasive Alien Species (IAS) as one of the greatest threats to the ecological and economic well-being of the planet. **The Ministry of Environment has published a report on Invasive Alien Species in Estonia (Ministry of Environment, 2005) but this does not mention animals from zoos as a potential source.**

In 2001, the European Commission recognised the need to address IAS as an integral part of halting biodiversity decline and initiated the development of an EU strategy to substantially reduce their impacts (Shine *et al.*, 2009). **It has long been recognised that zoos pose a significant risk of presenting pathways for the introduction of alien species** - from the invasion of the ruddy duck (*Oxyura jamaicensis*) into Europe, which now threatens the indigenous white-headed duck (DAISIE website) to, more recently, an investigation of 63 zoos in Spain (2010), which found that 75% had enclosures that were 'non-secure'. In the Spanish investigation, 80% of these enclosures housed non-indigenous species, including 21 species listed by the European Inventory of IAS (Fábregas *et al.*, 2010).

### 4. Public placed at risk of injury and illness

Although none of the zoos actively encouraged members of the public to have direct contact with the animals, the frequently poor design, the lack of stand-off barriers and the lack of zoo staff created the opportunity for direct contact and in some cases, placed the public at significant risk. The public could easily come into direct contact with potentially dangerous wild animals, which included enclosures exhibiting Category 1 'Greater Risk' Hazardous Animals as categorised by the SMZP. **Few zoos correctly warned the public with appropriate signage of the potential risk of injury, a particular requirement of Article 2(6)1, R245/2004.**

An incident at Tallinn Zoological Gardens in 2007, when a polar bear escaped from its enclosure after the keeper forgot to lock the enclosure door, raises concern over the management of potentially dangerous animals at the zoo (Alas, 2007).

### 5. Poor record for conservation

The Directive requires all zoos in the European Community to contribute to the conservation of biodiversity in accordance with the Community's obligation to adopt measures for ex situ conservation under Article 9 of the Convention on Biological Diversity (1992). Zoos are given a number of options as to how they can contribute to this common goal:

- *'Research from which conservation benefits accrue to the species*
- *Training in relevant conservation skills*
- *The exchange of information relating to species conservation*
- *Where appropriate, captive breeding, repopulation or reintroduction of species into the wild'*

(Article 3 of the Directive)

In Estonia, however, zoos are not obligated to adopt any of the above conservation measures and, according to the Ministry of Environment, the adoption of conservation measures by zoos is not considered a national priority for the

conservation of biodiversity (Standard Member State Questionnaire). The Ministry indicated that involvement of zoos in conservation activities is left to the discretion of each zoo.

Where Estonian zoo legislation does specifically refer to conservation, is in relation to species information signage. However, the inclusion of information about the conservation of the species is a non-mandatory, but recommended requirement (Article 2(7), R245/2004). The findings of this investigation demonstrate that the vast majority of species signage (95%) did not include this information. In many cases, Articles within the Estonian APA and the Government Regulations lack explanation and clarity, undoubtedly causing confusion, and often resulting in non-compliance with the legal requirement. This is almost certainly the case for part of Article 28(4) in APA, which refers to the need for zoos to ‘engage in animal research’. No further explanation is provided. Recognising that this *could* be interpreted as a requirement to undertake conservation measures (although the Ministry of Environment claims this is not the case), the investigation considered the commitment made to species conservation by zoos in Estonia.

The findings of this investigation confirmed Ministry claims, and demonstrated that conservation of biodiversity, particularly threatened species, is not a priority in Estonian zoos. The great majority of species exhibited are either categorised as *Least Concern* (species of low conservation importance) or are Not Listed by the IUCN Red List of Threatened Species™. Threatened species (*Vulnerable*, *Endangered* and *Critically Endangered*) constituted only 14% of the total number of species observed in the four zoos. Moreover, only 15% of the species are listed on the register of EEPs or ESBs.

Tallinn Zoological Gardens demonstrated the greatest commitment to species conservation. This is probably as a result of their affiliation with EAZA, which requires its Members to meet higher standards than those required by national law. However, the long-term loan of six Pere David’s Deer (2003), a species *Extinct in the Wild*, from Tallinn Zoological Gardens to Alaveski Wild Animal Park (a non-EAZA zoo) does raise doubt about Tallinn Zoological Garden’s intentions for this species’ conservation. Of Tallinn Zoological Garden’s reported 588 species, 49 are apparently involved in species management programmes (Standard Zoo Questionnaire) (although during the investigation, only 32 were observed). Apart from the European mink project, few of the programmes were focused on conserving European Threatened species.

**This investigation indicated that none of the zoos evaluated are currently making a significant contribution to the conservation of biodiversity.**

## **6. Limited educational value**

In addition to a commitment to the conservation of biodiversity, zoos in the EU are required to promote public education and awareness in relation to the conservation of biodiversity, particularly by providing information about the species exhibited and their natural habitats (Article 3(2) of the Directive). The Estonian Animal Protection Act and R245/2004 both refer to the requirement for zoos to provide information about exhibited species and their natural habitats but, as discussed above, fail to make it an obligatory requirement to include information about species conservation.

The findings of this investigation demonstrate that whilst two of the four zoos offer educational activities, particularly for pre-organised school groups, the educational value for the general public was minimal across all four zoos. Overall, almost half the signage for *species holdings* was absent and, where it was present, the majority did not contain all the best practice criteria (SMZP), with 21% failing to include information about the species natural habitat and 95% failing to include the conservation status of the species.

The claim by the Ministry of Environment that zoos in Estonia prioritise public education over species conservation, remains unsubstantiated (Standard Member State Questionnaire). At the time of the investigation, the majority of Estonia’s zoos are not meeting their legal obligations to public education, particularly in relation to the promotion of the conservation of biodiversity.

## 7. Unsuitable living conditions for animals

Incorporated into the Animal Protection Act (APA) and Government Regulation R245/2004 (*'requirements of the keeping of animals in zoos'*) are many detailed provisions which aim to guarantee the health and welfare of the animals in the zoos. The APA promotes and specifies principles relating to the appropriate keeping of animals (Article 3, APA); the importance of qualified or experienced zoo staff (Article 3(1), APA); and the need for appropriate veterinary care (Articles 8 and 18, APA). Regulation 245/2004, which is specific to animals in zoos, promotes and specifies the provision of a suitable captive environment (Article 4, R245/2004); provision of suitable environmental enrichment (Article 4(3), R245/2004); provision of adequate health care and hygienic conditions (Article 7, R245/2004) and; species-specific minimum standards for animal keeping (Annex to R245/2004). These are all compatible with the minimum requirements of the Directive, but place a lot more emphasis on the importance of maintaining high standards of animal health and welfare. It is therefore reasonable to expect zoos in Estonia to have higher standards of animal care than perhaps other EU countries that do not place such emphasis on animal welfare.

However, the findings of this investigation provide a different impression and, although the assessed sample is small, **standards of animal welfare and husbandry in many enclosures in the majority of the selected zoos were poor.** The analysis identified the following:

- little consideration appears to have been given to the essential biological and behavioural needs of the animals;
- many species were kept in small enclosures that did not attempt to meet their spatial needs;
- many of the enclosures were devoid of appropriate furniture, apparatus and materials to allow the species to exercise, rest and express natural behaviour;
- pool sizes for animals requiring bathing opportunities were often too restrictive or did not allow all animals access at the same time;
- enclosure designs that may encourage public contact with animals and close proximity between animals, together with the lack of privacy areas, could cause the animals distress and;
- some enclosures lacked clean, fresh drinking and bathing water.

It is widely recognised that the keeping of animals for prolonged periods in 'impoverished', cramped, captive conditions can compromise both their physical and mental health and their general welfare. Conditions that fail to provide an animal with its basic needs can cause abnormal behaviour, disease and early mortality. Zoos must therefore seek to provide all their animals with more suitable environments that encourage exercise and natural behaviour.

Regulation R245/2004 recognises these basic needs and specifies that the enclosures should take into account the spatial, physical and physiological needs of the species. This is regulated through the Annex to R245/2004, which identifies species-specific requirements and details, predominantly of enclosure size. These standards were apparently drafted by staff from Tallinn Zoological Gardens with reference to similar standards in Germany and Finland (Standard Member State Questionnaire).

Comparison between the German *'Minimum requirements for the keeping of mammals'* (Federal Ministry for Consumer Protection, Food and Agriculture, 1996), the Finnish *'Minimum Requirements for Zoo Animals'* (Agriculture and Forestry Department, 2003) and the Estonian requirements has identified some similarities between the Estonian and German requirements, particularly in relation to minimum enclosure sizes. However, **there appears to be little similarity to the Finnish standards, with their recommended minimum enclosure sizes being more than ten-times larger than those stipulated in Estonia or Germany.** Furthermore, both the German and the Finnish standards include additional requirements for appropriate furniture, apparatus, group composition, materials, etc., **but many of these details are omitted from the Estonian requirements.** This failure to include environmental enrichment is a concerning oversight as it is well-documented that in order to provide appropriate animal care in an artificial environment, mental and physical stimulation through an environmentally complex living space, is required (Line *et al.*, 1989; Chamove 1989; Hughes *et al.*, 1989).

This investigation came to a similar conclusion by assessing the *environmental quality* of selected enclosures using two different national standards: the Estonian '*requirements for the keeping of zoo animals*' (R245/2004) and the Animal Protection Ordinance of Switzerland, Tierschutzverordnung 2008 (APOS). Similar to the German and Finnish standards, APOS are species-specific requirements that recognise the physical, physiological and behavioural needs of animal species. The findings demonstrate that the *environmental quality* of enclosures in Estonian zoos often lack environmental complexity and the inclusion of appropriate furniture, apparatus and materials, with, on average, 60% of the selected enclosures failing to meet the APOS requirements, as opposed to 27% not meeting the Estonian minimum standards (R245/2004). A further concern is that not all the species exhibited by Estonian zoos are included in the Estonian standards (e.g. African buffalo (*Syncerus cafer*)).

It is widely recognised that the inclusion of a variety of environmental enrichment components is integral to reducing the negative impacts of confinement on animals in captivity (maintaining healthy animals in a captive environment) (Pruetz & Bloomsmith, 1992; Crockett *et al.*, 1989; Jordan, 2005) and without it animals are likely to develop abnormal repetitive behaviours, recognised as indicators of poor animal welfare (Mason and Rushen, 2006). Equally, a cramped and 'predictable' captive environment can lead to obesity and muscular atrophy, which may in turn lead to welfare impacts with secondary health consequences (Fowler & Mikota, 2006; Harris *et al.*, 2008).

The findings demonstrate that many of the enclosures lacked an appropriate size and environmental complexity required by the different species to allow exercise, rest, escape conflict with cage companions and the opportunity to express natural behaviour. Far-ranging species (felids, canids, bears and elephants), for example, were often kept in restrictive enclosures that compromised their full repertoire of locomotive behaviour, whilst animals that require a bathing pool (R245/2004) were often provided with a pool of an inadequate size. Abnormal repetitive pacing behaviour, which often arises as a consequence of an impoverished environment, was observed in two zoos, with numerous European mink at Tallinn Zoological Gardens observed exhibiting stereotypical behaviour.

A further concern was the housing conditions for 'exotic' animals at Tallinn Zoological Gardens. In Estonia, between the months of December and March, outside temperatures struggle to exceed 0°C, with recorded temperatures falling to as low as -30°C (BBC website). This is an obvious concern when keeping species from warmer climates and calls into question whether such species should be kept in locations of such extreme temperatures. Tallinn Zoological Gardens appears to keep the majority of these species within their indoor enclosures during the winter. This was certainly the case during the investigation in April. The findings demonstrated that in the majority of circumstances indoor enclosures were far inferior to the outdoor enclosures. Compared to outdoor enclosures, indoor areas were generally much smaller and lacked suitable substrate, furniture, comfort, refuge and privacy. One particular example was the pygmy hippopotamus (*Choeropsis liberiensis*), a species endemic to the dense, swampy forests of West Africa (IUCN Red List of Threatened Species™ website) (Smithsonian National Zoo website). These animals were housed indoors in a bare concrete room no larger than 30m<sup>2</sup>. Their pool could not permit full submersion and could only accommodate one animal at a time (Fig. 14).

According to the Ministry of Environment, Tallinn Zoological Gardens has a '*qualified vet*' on its premises, but all other zoos in the country have '*the possibility to use the services of a local veterinarian*' (Standard Member State Questionnaire). Whilst only one individual animal from the 98-selected enclosures was observed with an open wound, legitimate concerns are raised about the competency of veterinarians in Estonia to properly assess the health and welfare of wild animals and apply effective treatment (Articles 8 and 18, APA). These concerns are reiterated in a study by the FVE which identified that veterinarians across the EU do not have sufficient education in animal welfare (FVE, 2009).

The Ministry of Environment is of the opinion that the standard of animal welfare is good in Estonia's zoos (Standard Member State Questionnaire). However, the findings of this investigation indicate that **zoos are generally not meeting their obligations with regard to appropriate animal care**. Furthermore, although the Estonian minimum



**Figure 14** Tallinn Zoological Gardens.

Both the indoor enclosure (left) and outdoor enclosure (right) for the pygmy hippopotamus (*Choeropsis liberiensis*) appear to meet the minimum enclosure sizes specified by the Estonian standards, however, neither enclosure meets the minimum enclosure sizes as recommended by the Finnish '*Minimum Requirements for Zoo Animals*', upon which, the Estonian standards are apparently based. The lack of appropriate furnishings appears to compromise the physical, physiological or behavioural needs of this species.

standards for the keeping of animals in zoos sets out minimum enclosure sizes, there is an urgent need to ensure they adopt **additional requirements that ensure that the spatial, physical, physiological and behavioural needs of all species kept in Estonian zoos are met.** These standards should be drafted by an independent, scientific body using reliable and scientifically-valid information.

**As a matter for immediate attention, the Environmental Inspectorate throughout Estonia must seek to ensure all zoos meet the required principles of animal welfare through the regular inspection of zoos by competent officials and veterinarians.** The drafting of, and subsequent compliance with, these requirements should never be the sole responsibility of the zoo.

**Initial and ongoing training of the Environmental Inspectorate and other enforcement personnel is necessary in order to ensure consistency in application of standards and improved compliance.**

### **In summary**

Estonian zoos are:

- **failing to make a significant contribution to the conservation of biodiversity**
- **failing to make a significant contribution to *ex situ* conservation**
- **failing to promote public education and awareness in relation to conservation of biodiversity**
- **failing to deliver activities or information of significant educational value to the general public**
- **failing to provide their animals with a suitable environment**
- **failing to recognise species-specific requirements that will allow animals to express natural behaviours**
- **compromising the health and welfare of the animals**
- **failing to meet all requirements as specified by the Animal Protection Act**
- **failing to meet the minimum requirements of the Directive 1999/22/EC**

## REFERENCES

- Agriculture and Forestry Department (2003). *Minimum requirements for zoo animals* no. 2/EE0/2003 (31.03.2003). Available from <http://wwwb.mmm.fi/el/laki/f/f30fi.pdf> (last accessed on 14th March 2011).
- Alas, J. (2007). Escaped polar bear killed at zoo. *The Baltic Times*, 12th September. Available from <http://www.baltictimes.com/news/articles/18772/> (last accessed on 11th March 2011).
- Animal Protection Act (13/12/2000) (amended 01/01/2011). Available from <https://www.riigiteataja.ee/akt/13331263> (last accessed on 11th March 2011).
- BBC Weather. <http://news.bbc.co.uk/weather/forecast/2965?&search=tallinn&itemsPerPage=10&region=world> (last accessed on 11th March 2011).
- Chamove, A. (1989). Environmental enrichment: a review. *Animal Technology* **40**(3): 155-178.
- Council Directive (EC) 1999/22/EC of 29 March 1999 relating to the keeping of wild animals in zoos.
- Crockett, C., Bielitzki, J., Carey, A. & Velex, A. (1989). Kong toys as enrichment devices for singly-caged macaques. *Laboratory Primate Newsletter*, **28**: 21-22.
- Delivering Alien Invasive Species Inventories for Europe (DAISIE): [www.alien-europe.org](http://www.alien-europe.org) (last accessed on 14th March 2011).
- Department for Environment, Food and Rural Affairs (2004). *Standards of Modern Zoo Practice 2004*. Available from <http://www.defra.gov.uk/wildlife-pets/zoos/zf-handbook.htm> (last accessed on 14th March 2011).
- Department for Environment, Food and Rural Affairs (2008). *Zoos Forum Handbook*. Available from <http://www.defra.gov.uk/wildlife-pets/zoos/zf-handbook.htm> (last accessed on 14th March 2011).
- EARAZA website. <http://www.earaza.ru/> (last accessed on 14th March 2011).
- Email from ESPA received on 26th November 2009.
- ENDCAP (2009). *Animal Welfare Excellence in Europe*. Available from [www.endcap.eu](http://www.endcap.eu) (last accessed on 14th January 2011).
- European Association of Zoos and Aquaria (EAZA) website. [www.eaza.net](http://www.eaza.net) (last accessed on 14th January 2011).
- Eurogroup for Animals (2008). *Report on the Implementation of the EU Zoo Directive*. Available from <http://www.eurogroupforanimals.org/pdf/reportzoos1208.pdf> (last accessed 14th January 2011).
- European Red List. [http://ec.europa.eu/environment/nature/conservation/species/redlist/index\\_en.htm](http://ec.europa.eu/environment/nature/conservation/species/redlist/index_en.htm) (last accessed on 14th March 2011).
- EU Zoo Inquiry 2011. [www.euzooinquiry.eu](http://www.euzooinquiry.eu) (last accessed on 14th March 2011).
- Fàbregas, M. C., Guillén-Salazar, F. & Garcés-Narro, C. (2010). The risk of zoological Parks as potential pathways for the introduction of non-indigenous species. *Biol Invasions*, DOI 10.1007/s10530-010-9755-2.
- Federal Ministry for Consumer Protection, Food and Agriculture (1996). *Minimum requirements for the keeping of mammals*. Available from [http://www.bmelv.de/SharedDocs/Downloads/Landwirtschaft/Tier/Tierschutz/GutachtenLeitlinien/HaltungSaeugetiere.pdf?\\_\\_blob=publicationFile](http://www.bmelv.de/SharedDocs/Downloads/Landwirtschaft/Tier/Tierschutz/GutachtenLeitlinien/HaltungSaeugetiere.pdf?__blob=publicationFile) (last accessed on 14th March 2011).
- Federation of Veterinarians of Europe (2009). *Animal Welfare Teaching in European Veterinary Facilities* (Poster). Available from [http://www.fve.org/education/docs\\_to\\_download/animal\\_welfare\\_poster.pdf](http://www.fve.org/education/docs_to_download/animal_welfare_poster.pdf) (last accessed on 24th February 2011).
- Fowler, M. E. & Mikota, S. K. (2006). *Biology, medicine, and surgery of elephants*. Oxford, Blackwell Publishing Ltd.
- Harris, M., Harris, S. & Sherwin, C. (2008). The welfare, housing and husbandry of elephants in UK zoos. Report to DEFRA. University of Bristol.
- Hughes, H. C., Campbell, S. & Kenney, C. (1989). The effects of cage size and pair housing on exercise of beagle dogs. *Laboratory Animal Science* **30**: 1696-1707.
- InfoZoos, (2006). *La salud de los zoos, adecuación de los parques zoológicos españoles a Ley 31/2003*.
- InfoZoos, (2008). *La salud de los zoos, adecuación de los parques zoológicos de las Islas Canarias al real decreto 31/2003*.
- International Union for Conservation of Nature (IUCN) Red List of Threatened Species™. [www.iucnredlist.org](http://www.iucnredlist.org) (last accessed on 14th March 2011).
- Jordan, B. (2005). Science-based assessment of animal welfare: wild and captive animals. *Rev. sci. tech. Off. int. Epiz.*, **24** (2), 515-528.

- Lewis, M., Presti, M., Lewis, M. & Turner, C. (2006). The neurobiology of stereotypy I: environmental complexity. In Mason, G. & Rushen, J. *Stereotypic animal behaviour: fundamentals and applications to welfare 2nd edition*. Trowbridge, Cornwall, Cromwell Press.
- Line, S. W., Markowitz, H., Morgan, K. N., & Strong, S. (1989). Evaluation of attempts to enrich the environment of single caged non human primates. In: *Animal Care and Use in Behavioural Research: Regulation, Issues and Applications*. Driscoll, K. W. (ed);103-117. Beltsville, Maryland: United States Department of Agriculture/National Agricultural Library.
- Mallapur, A., Qureshi, Q. & Chellam, R. (2002). Enclosure design and space utilization by Indian leopards (*Panthera pardus*) in four zoos in southern India. *Journal of Applied Animal Welfare Science*, **5** (2), 111-12.
- Mason, G. & Rushen, J. (2006). *Stereotypic animal behaviour: fundamentals and applications to welfare 2nd edition*. Trowbridge, Cornwall, Cromwell Press.
- Ministry of Environment (2005). *Invasiivsed võõrliigid Eestis*. Available from <http://www.envir.ee/89801> (last accessed on 14th March 2011).
- Pruetz, J. D. & Bloomsmith, M. A. (1992). Comparing two manipulable objects as enrichment for captive chimpanzees. *Journal of Animal Welfare*, **1**: 127-137.
- Shine, C., Kettunen, M., ten Brink, P., Genovesi, P. & Gollasch, S. 2009. Technical support to EU strategy on invasive species (IAS) – Recommendations on policy options to control the negative impacts of IAS on biodiversity in Europe and the EU. Final report for the European Commission. Institute for European Environmental Policy (IEEP), Brussels, Belgium. 35 pp. Available from [http://ec.europa.eu/environment/nature/invasivealien/docs/Shine2009\\_IAS\\_Final%20report.pdf](http://ec.europa.eu/environment/nature/invasivealien/docs/Shine2009_IAS_Final%20report.pdf) (last accessed on 28th October 2010).
- Smithsonian National Zoo website. <http://nationalzoo.si.edu/> (last accessed on 16th March 2011).
- Standard Member State Questionnaires from the Ministry of Environment, Environmental Inspectorate (under the governance of the Ministry of Environment) and the Veterinary and Food Board received by email on 15th August 2009 by email.
- Standard Zoo Questionnaires from Tallinn Zoological Gardens, Polli Zoo and RMK Elistvere Wild Animal Park received by email on 8th December 2009, 7th January 2010 and 8th January 2010 respectively.
- Swaigood, R. & Sheperdson, D. (2006). Environmental enrichment as a strategy for mitigating stereotypies in zoo animals: a literature review and meta-analysis. In Mason, G. & Rushen, J. *Stereotypic animal behaviour: fundamentals and applications to welfare 2nd edition*. Trowbridge, Cornwall, Cromwell Press.
- Tallinn Zoological Gardens guidebook (2009).
- The Swiss Federal Council (2008). *Animal Protection Ordinance of Switzerland (Tierschutzverordnung)*. Available from <http://www.admin.ch/ch/d/sr/4/455.1.de.pdf> (last accessed on 14th March 2011).
- Regulation No. 245. Programming and facilities for zoo animals and zoo keeping requirements (08/07/2004) (amended 01/10/2007). Available from <https://www.riigiteataja.ee/akt/12866339> (last accessed on 14th March 2011).
- Regulation No. 237. The list of documents submitted when applying for a zoo license, the application procedure and permission procedures (19/09/2003) (amended 01/02/2009). Available from <https://www.riigiteataja.ee/akt/13136514> (last accessed on 14th March 2011).
- World Association of Zoos and Aquariums (WAZA) website: [www.waza.org](http://www.waza.org) (last accessed on 14th March 2011).
- World Organisation for Animal Health (2010). *Terrestrial Animal Health Code 2010*. Available from [http://www.oie.int/eng/normes/mcode/en\\_sommaire.htm](http://www.oie.int/eng/normes/mcode/en_sommaire.htm) (last accessed on 14th March 2011).



## **Born Free Foundation**

Born Free Foundation is an international wildlife charity, founded by Virginia McKenna and Bill Travers following their starring roles in the classic film *Born Free*. Today, led by their son Will Travers, Born Free is working worldwide for wild animal welfare and compassionate conservation.

Born Free supports and manages a diverse range of projects and campaigns. We embrace both compassion and science in setting an agenda that seeks to influence, inspire and encourage a change in public opinion away from keeping wild animals in captivity while, in the short term, working with governments, the travel industry and like minded organisations to deliver improved welfare conditions for wild animals currently held in zoos. Our Compassionate Conservation agenda ([www.compassionateconservation.org](http://www.compassionateconservation.org)), seeks to provide protection for threatened species and their habitats across the globe. Working with local communities, Born Free develops humane solutions to ensure that people and wildlife can live together without conflict. [www.bornfree.org.uk](http://www.bornfree.org.uk)

## **ENDCAP**

ENDCAP is a European coalition of 27 NGOs and wildlife professionals from 20 European countries that specialise in the welfare and protection of wild animals in captivity. Working with the European Institutions, national governments and experts, ENDCAP aims to improve knowledge and understanding of the needs of wild animals in captivity, uphold current legislation and seek higher standards, whilst challenging the concept of keeping wild animals in captivity. [www.endcap.eu](http://www.endcap.eu)

## **ESPA**

The Estonian Society for the Protection of Animals (ESPA) has been operating since spring 2000. ESPA is a non-profit association comprised of animal friends with a mission to assure and improve animal welfare standards and prevent animal abuse. The mission is carried out by helping the animals directly, raising public awareness, educating the public, animal protection control and involvement in the drafting of legislation.

The Society has about 700 members and 40 active volunteers all over Estonia. The objectives are the promotion, development and dissemination of the animal protection and compassion principles among the public and uniting animal friends. Additionally, the Society is combating cruel and wrong treatment of animals through public awareness. ESPA believes that animal welfare has to be guaranteed irrespectively of it's usefulness to humans. [www.loomakaitse.ee](http://www.loomakaitse.ee)

## **EU Zoo Inquiry 2011**

Project Manager: Daniel Turner Bsc (Hons) CBiol MSB. A biologist.

Daniel is Senior Operations Officer for the Born Free Foundation and has worked for the organisation since 2000, following two year's voluntary work in field conservation projects overseas. He is part of the team responsible for developing and managing Born Free's agenda for captive wild animal welfare, under the auspices for the organisation's core project, Zoo Check.

**Report Methodology:** For full details of methodology and to view the other Reports published as part of this project [www.euzooinquiry.eu](http://www.euzooinquiry.eu)

**Contact details:** To discuss the issues raised in this document, or for further information on ENDCAP and *Europe's Forgotten Animals initiative*, please contact Daniel Turner - [daniel@bornfree.org.uk](mailto:daniel@bornfree.org.uk) c/o Born Free Foundation, 3 Grove House, Foundry Lane, Horsham, W.Sussex RH13 5PL, UK. + 44 (0)1403 240 170

**Produced for the ENDCAP coalition [www.endcap.eu](http://www.endcap.eu) by international wildlife charity the Born Free Foundation**, Charity No: 1070906 [www.bornfree.org.uk](http://www.bornfree.org.uk)

The Born Free Foundation wishes to thank the following for their help and support in delivering the EU Zoo Inquiry 2011: ENDCAP Member Organisations; Bill Procter; Blas Cernuda; Marcos Garcia-Gasco Romeo, Mirjana Plavac, Tamara Miczki and Katrin Broks. Special thanks go to Thomas Brzostowski for his attention to detail, patience and determination to help complete this project.

