

# 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

## ENGLAND



Written for the European coalition ENDCAP by the Born Free Foundation



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Country Report **ENGLAND**



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## ABBREVIATIONS USED

AHVLA .....	Animal Health and Veterinary Laboratories Agency (AHVLA)
AWA .....	Animal Welfare Act 2006
APOS .....	Animal Protection Ordinance of Switzerland, Tierschutzverordnung 2008
BIAZA .....	British and Irish Association of Zoos and Aquariums
CBD .....	Convention on Biodiversity (1992)
Defra .....	UK Government 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
GC2/2003 .....	Government Circular 2/2003
HSE .....	Health and Safety Executive
IAS .....	Invasive Alien Species
IUCN .....	International Union for Conservation of Nature
MHSZ .....	Health & Safety Executive Code Of Practice (Managing Health and Safety at Zoos)
NGO .....	Non-Governmental Organisation
OIE .....	World Organisation for Animal Health
SMZP .....	Standards of Modern Zoo Practice, Defra, 2004
SoS .....	Secretary of State
TAG .....	Taxon Advisory Group
WAZA .....	World Association of Zoos and Aquariums
ZLA .....	Zoo Licensing Act 1981 (as amended)

## 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. Dolphinarium, 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.

**Ex situ:** The conservation of components of biological diversity outside their natural habitats.

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

**Hazardous Animals:** Zoo animals are categorised on the basis of the animal's likely ferocity and ability to cause harm to people (SMZP).

**In situ:** The conservation of ecosystems and natural habitats and the maintenance and recovery of viable populations of species in their natural surroundings.

**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 England.

**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

A total of 25 randomly-selected zoos in England 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 1,084 species (including subspecies where appropriate) and 2,751 *species holdings* (the presence of a species in a single enclosure) were identified in 1,751 enclosures in the 25 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. This information was evaluated against the legal requirements of Directive 1999/22/EC, the Zoo Licensing Act 1981 (as amended) and the Health & Safety Executive Code Of Practice (Managing Health and Safety at Zoos), taking into consideration the Animal Welfare Act (2006) and the substantial guidance available to Competent Authorities. Key findings were:

- **Zoos in England are regulated through the Zoo Licensing Act 1981 (as amended) ('ZLA')** which requires all zoos (as defined) to be licensed and regularly inspected. It incorporates specific conservation measures (Section 1A, ZLA) and sets out requirements for the appropriate keeping and care of animals (Section 9, ZLA (Standards of Modern Zoo Practice (SMZP))), which are consistent with Article 3 of the Directive.
- **Defra is responsible for the effective implementation of the Zoo Licensing Act 1981 (as amended)** and, advised by the Zoo Experts Committee (formerly known as the Zoos Forum), provides guidance and assistance to Local Authorities, which are responsible for the inspection and licensing of zoos (ZLA).
- **The definition of a 'zoo', as specified by Sections 1(2) and 1(2A), ZLA, is similar to that stated by Article 2 of the Directive.** Definitions for specific terms used, such as 'animals', 'wild animals', 'circus' and 'pet shop', are explained in Section 21, ZLA.
- **Concerns over the accuracy of centrally-held information on zoos.** National authority records list 300 zoos in 168 Local Authorities in England, whilst the Born Free Foundation maintains an annually updated record of 500 zoos in 222 English Local Authorities.
- **The quality and regularity of zoo inspections needs further analysis by the national authorities.** Numerous investigations have identified that there is inconsistent and ineffective enforcement of the ZLA in England. Since 2003, there has been no official review of the structure and process of the formal inspection.
- **Despite a concerted effort by Defra to support and advise Local Authorities in the implementation and enforcement of the ZLA, it is questionable as to whether Local Authorities have the time, funding and expertise to ensure effective application of zoo legislation in England.**
- **Overall, the findings of this investigation indicate that licensed zoos in England are not fully compliant with the ZLA.** Individually, there is considerable variability between the zoos. Some meet the majority of requirements whilst others are substandard in many respects.

- **Despite some zoos from the representative sample keeping more globally, regionally and nationally Threatened species than others, overall, the zoos demonstrated a low level commitment to conservation of Threatened and 'conservation-sensitive' species (Annex D, SMZP).** Of the 1,084 species observed in the 25 zoos, 185 (17%) were Threatened species (IUCN), of which 3.41% were classified as *Critically Endangered*. Only 0.37% of the total number of species observed were classified as *Extinct in the Wild*.
- **Despite the requirement that zoos keeping relevant species must actively participate in recognised species management programmes, less than half of the identified Threatened species appeared to be involved in EEPs or ESBs.** In addition, 12 of the 25 zoos did not appear to participate in either of these European Species Management Programmes.
- **Despite the recommendation that zoos should be able to demonstrate that they encourage research (SMZP), 60% of the zoos investigated were not contributing to scientific research.** The majority of identified research relates to, or is aimed at, improving the welfare and longevity of wild animals in captivity rather than to benefit conservation.
- **SMZP requires zoos to provide information about their conservation measures on request. However only 5 of the 25 zoos completed and returned the Standard Zoo Questionnaire.**
- **The findings confirmed that 20 of the 25 zoos were implementing an educational strategy** although: 15% of *species holdings* lacked species information; 72% of species information signage and commentary in animal presentations across the 25 zoos did not include information about species conservation; and many of the animal presentations and advertised promotions at the zoos did not appear to provide a positive educational message, in accordance with the requirements of SMZP and the Zoos Forum Handbook.
- **Despite being discouraged by SMZP and MHSZ, 21 of the 25 zoos encouraged direct contact between the public and animals.** At no point during the observed animal handling sessions were the public informed of any associated risks nor were they encouraged to wash their hands either before or after animal handling.
- **Environmental enrichment was marginal in the majority of enclosures assessed within the 25 zoos.** Whilst the enclosures usually contained fixed furnishings, the provision of species-appropriate stimuli that promote behavioural and mental activities, such as occupational enrichment items or techniques such as toys or feeding devices, varied substrate and overall environmental complexity, were often absent.

## RECOMMENDATIONS

*The Department of Environment, Food and Rural Affairs (Defra) should take the necessary measures to:*

- 1) Review procedures relating to zoo inspections and develop a centralised system of reporting, recording and monitoring such inspections, to ensure that all information is held in such a form as to allow proper and transparent scrutiny and comparison.
- 2) Improve existing instruction relating to zoo inspection procedures, based on the size and type of the collection to ensure a more consistent application of standards by inspectors, and the effective and timely enforcement of any licensing Conditions.
- 3) Adopt the recommendations of the 'Review of Local Authorities Implementation of the Zoo Licensing Act 1981' (ADAS 2011) and issue an updated Government Circular to all Local Authorities in England to ensure they are sufficiently supported and resourced to guarantee effective implementation and enforcement of the ZLA.
- 4) Consult all Local Authorities in England to identify those that have licensed zoos and establishments exempted from the ZLA and, through the provision of improved guidance relating to the exemption and dispensation criteria, encourage Local Authorities to carry out a review of zoos previously granted either an exemption or dispensation (Section 14, ZLA), to ensure they are correctly licensed. This would also help ensure that the central zoo database is both accurate and complete.
- 5) Review and, where necessary, modify the exemption and dispensation criteria (Section 14, ZLA) to ensure all licensed zoos participate in both conservation and educational activities.
- 6) Ensure that all national and local enforcement personnel and veterinarians involved in the inspection and regulation of zoos are equipped with relevant, regular training and skills pertaining to the care and welfare of wild animals in captivity. Zoo inspectors should assess welfare outcomes as well as the provision of resources and advise zoo operators as to how to address any substandard conditions.
- 7) Encourage zoo operators, regardless of the type of zoo, to seek to increase their efforts in relation to species and habitat conservation, particularly by focusing their efforts on local, national or regional Biodiversity Action Plans (WZACS). Defra should consider establishing specific mandatory 'conservation' and 'educational' targets through the SMZP, together with a process of evaluation to assess the 'success' of activities undertaken by zoos to meet the requirements of Section 1A, ZLA.
- 8) Ensure zoos keep and conserve predominantly nationally protected and European Threatened species rather than non-European species. All Threatened species, particularly European species kept by zoos, should be included in cooperative Species Management Programmes.
- 9) Require zoo operators, irrespective of the type of zoo, to have an established education department, sufficiently resourced and staffed, in order to inspire and encourage local and regional initiatives to raise awareness about the importance of conservation and to publish an educational plan (WZACS).
- 10) Develop, through an independent, scientific body, species-specific standards for the keeping of animals in zoos based on their natural biology that will ensure appropriate animal husbandry, including guidance on environmental enrichment.
- 11) Ensure zoos are taking the necessary measures to prevent animal escapes and the intrusion into enclosures of indigenous wildlife. Furthermore, review the height and security of perimeter fencing to prevent escapes from zoo grounds and curtail the apparent surge in animal thefts from zoos.
- 12) Ensure that all zoo employees with responsibility for animals have the necessary training and experience in animal care and husbandry.
- 13) Encourage Local Authorities to discourage direct contact between the public and animals in zoos and, in particular, prohibit contact with Category 1 'Greater Risk' hazardous animals (SMZP) and those known to harbour zoonoses. Where animal contact is permitted, this should be constantly supervised, controlled, limited, provide

the animals with a significant rest period and must not be detrimental in any way to the welfare of the individual animals involved nor to the public understanding of these animals.

- 14) Encourage all zoos in England to meet the accreditation criteria of and join BIAZA.
- 15) Require all zoo operators to adopt and develop a continually evolving environmental enrichment programme, based on best practice that aims to provide an improved and stimulating captive environment for all animals in their care (WZACS). Further, to develop ethical codes and animal welfare policies to ensure that all activities, such as animal handling, do not cause the animals distress.

# 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) (CBD website). 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 randomly-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, Republic of 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<sup>\*</sup>, a variety of zoological collections was assessed including: traditional zoos, safari parks, aquaria, dolphinariums, aviaries and terraria. In some cases, national legislation did not use the Directive's definition, which may have led to inconsistencies in application. Where this was 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 ten 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 UK 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.

<sup>\*</sup> '... 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.euzoinquiry.eu](http://www.euzoinquiry.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, Republic of 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 2012.

# ENGLAND

## Country Report



## INTRODUCTION

The United Kingdom ('the UK') joined the European Union in 1973. By April 2002, the UK, along with 14 other EU Member States, was required to transpose the requirements of the Directive into national law. This was not fully adopted in the countries of the UK until 2003. The Directive was transposed into national law in England by means of The Zoo Licensing Act 1981 (Amendment) (England and Wales) Regulations 2002 (*Statutory Instrument No.3080 of 11.12.2002*); in Wales by means of The Zoo Licensing Act 1981 (Amendment) (Wales) Regulations 2003 (*Standing Order 11.5*); Scotland, The Zoo Licensing Act 1981 (Amendment) (Scotland) Regulations 2003 (*Statutory Instrument No.174/2003*); and Northern Ireland, The Zoo Licensing Regulations (Northern Ireland) 2003 (*Statutory Rules No.115/2003*).

Under the terms of devolution (Leeke *et al.*, 2003), the implementation of The Zoo Licensing Act 1981 in England is the responsibility of the Department of Environment, Food and Rural Affairs (Defra); the Welsh Assembly Government in Wales; and the Scottish Government in Scotland. While the Department of the Environment in Northern Ireland has responsibility for the Zoo Licensing Regulations (Northern Ireland) 2003. However, the overall responsibility for the licensing and inspection of zoos in the UK falls to the Local Government Authority for the area within which the whole or the major part of the zoo is situated (Section 1(1), ZLA). In England these include the District, Unitary and Metropolitan Councils, Councils of London Boroughs and the Common Council of the City of London; in Wales, the Councils of Counties and Country Boroughs; and in Scotland, Councils constituted under Section 2 of the Local Government (Scotland) Act 1994 (Section 1(3), Zoo Licensing Act 1981).

This investigation focuses on the implementation and enforcement of the Zoo Licensing Act 1981 (as amended) ('ZLA'), and therefore, **only** the regulation of zoos in England (Section 22A, ZLA). Although Defra was asked to complete and return the Standard Member State Questionnaire, the authors of this report were instead directed by Defra towards the Government Department's website, where comprehensive information and guidance pertaining to zoo regulation and operation in England is publically available (Defra website). This includes local government guidance and further documentation, for example Government Circular 2/2003 ('GC2/2003'), links to and explanation of the Standards of Modern Zoo Practice (SMZP) and the Zoos Forum Handbook, as well as minutes of relevant meetings and seminars.

The Animal Health and Veterinary Laboratories Agency (AHVLA) (formerly Animal Health) maintains a database of zoos currently operating in England, which is apparently updated every six months. The most recent published list includes 217 licensed zoos and 63 facilities with exemptions under Section 14(1)(a), ZLA (Animal Health 2011). This is compared to 20 licensed zoos and four Exemptions (Section 14(1)(a), ZLA) in Wales (Animal Welfare Branch, pers. comm., 28th October 2011); 24 licensed zoos and nine Exemptions in Scotland (Rural & Environment Directorate, pers. comm., 9th November 2011); and three licensed zoos, 14 with a dispensation and two in the process of applying in Northern Ireland (Department of Environment, pers. comm., 28th October 2011). The Born Free Foundation, which has been evaluating the performance of UK zoos since 1984, maintains its own list, which includes records of 630 zoos in the UK (facilities that appear to meet the relevant legal definition of a zoo) of which an estimated 500 zoos are found in England (including those Exempt under Section 14(1)(a), ZLA) (Born Free Foundation, unpublished data). This list is updated frequently, including through annual communication with all the licensing authorities.

New zoo licences are initially valid for a period of four years, and renewed licences for a period of six years. Following a pre-licensing inspection and the granting of a zoo licence, the Local Authority is required to administer inspections of zoos to ensure that conditions meet legal requirements, the timing of which is dependent upon the type of licence and subject to the conditions applied to the licence (ZLA; GC2/2003). In England, there are four types of zoo inspection: 'Licence', 'Periodical', 'Special' and 'Informal' (GC2/2003). 'Licence' and 'Periodical' inspections involve representatives from the local licensing authority ('Local Authority') accompanied by one or more Government-appointed Zoo Inspectors from the 'Secretary of State's ('SoS') list' (Section 8, ZLA) (GC2/2003). 'Special' and 'Informal' inspections are undertaken by competent persons nominated directly by the Local Authority.

**‘Licence’** inspections are necessary before the granting of a new zoo licence (or licence renewal), and following consultation with the persons and governing bodies listed in Section 3 of ZLA. This inspection seeks to ensure that the applicant is likely to meet the proposed conditions if the licence is granted (Section 9A(11), ZLA) and, in the case of a licence renewal, to be satisfied that the existing licensing conditions are met (Section 9A(10), ZLA) and will continue to be met after the licence renewal (Section 9A(12), ZLA). Based on the SoS Zoo Inspector’s report and consultation, the Local Authority shall grant, renew or refuse to grant each zoo a licence.

**‘Periodic’** inspections, in the case of an initial licence, must be undertaken during the first year and not later than six months before the end of the fourth year of the period of the licence. In the case of a renewed licence, an inspection is required during the third year and not later than six months before the end of the sixth year of the period of that licence (Article 10(3), ZLA). Inspections usually comprise of a team of inspectors including no more than three persons appointed by the Local Authority (usually from the Environmental Health Department), and two nominated SoS Zoo Inspectors: one a veterinarian and the other an individual competent in zoo management (Section 10, ZLA). However, the number of inspectors may be reduced if the zoo has a Dispensation under Section 14 of ZLA (Section 10(4)(a) and (b), ZLA; GC2/2003). Local authorities do have the authority to combine Section 9 (Licence) and Section 10 (Periodic) inspections if they occur in close succession to save on costs incurred (GC2/2003).

**‘Special’** (Section 11, ZLA) and **‘Informal’** (Section 12) inspections are undertaken at the discretion of the Local Authority. Special Inspections are executed by Local Authority-appointed individuals at any time (but require the advance notification of the zoo operator), where the authority believes there is good reason to undertake an inspection following a complaint or incident, or to verify compliance with the licence Conditions (No.69, GC2/2003). ‘Informal’ inspections may be undertaken in any calendar year when there is neither a Periodic, nor a Special Inspection and are carried out by a single inspector deemed appropriate by the Local Authority. These may take place without notifying the zoo operator in advance, with the inspector entering the zoo as a paying member of the public (No.76, GC2/2003).

The official Zoo Inspectors are drawn from the ‘Secretary of State’s list’ which is managed and maintained by the AHVLA consisting of two separate lists, one comprising veterinarians experienced in working with animals in zoos, and the other made up of individuals with experience in managing or operating a zoo (Section 8(1), ZLA). One or more of these individual Inspectors is nominated by the AHVLA on behalf of the Local Authority, which then contracts the SoS Zoo Inspector(s) to undertake the Licence or Periodic inspection. The SoS Zoo Inspectors usually charge the Local Authority fees (Section 10, ZLA), as set by AHVLA, and these costs are paid by the zoo operator.

Zoo inspections are required to evaluate all features and activities of the zoo including the health, welfare and safety of the public and the animals, the assessment of measures designed to prevent the escape of animals and the zoo’s compliance with conservation and education requirements. Inspectors are expected to refer to the provisions of the Secretary of State’s Standards of Modern Zoo Practice (SMZP), guidance in the Zoos Forum Handbook and, in the case of ‘Licence’ and ‘Periodical’ inspections, use the forms provided in Appendix 11 of SMZP. Since 2002, Defra and the Zoos Forum (re-established as the Zoos Expert Committee in 2011) have hosted four Zoo Licensing Training Seminars which usually involve SoS Zoo Inspectors, zoo operators, representatives from Local Authorities and National Governments.

### **Zoo licensing requirements**

In England, the definition of a ‘zoo’ is similar to that of Article 2 of the Directive: *‘an establishment where wild animals (as defined) are kept for exhibition to the public otherwise than for purposes of a circus (as so defined) and otherwise than in a pet shop (as so defined); and this Act applies to any zoo to which members of the public have access, with or without charge for admission, on seven days or more in any period of twelve consecutive months’* (Sections 1(2) and 1(2A), ZLA). Definitions for specific terms used such as ‘animals’, ‘wild animals’, ‘circus’ and ‘pet shop’ are explained in Section 21, ZLA. Furthermore, guidance in Annex E of GC2/2003 assists in the interpretation of which species commonly kept in zoos should be regarded as *‘normally domesticated or not normally domesticated for the purposes of the Zoo Licensing Act 1981’*. Today, licensed zoos include everything from farm parks with some wild animals, reptile centres, park aviaries, butterfly houses, bird of prey centres, to more traditional rural and metropolitan zoos and aquaria.

Exemptions to the Act may be applied when the zoo has a small number of species and/or individual animals (Annex D, GC2/2003) that are neither of conservation significance (species listed on Annex A of EC No.2307/97 and on the IUCN Red List of Threatened Species™ as ‘Near Threatened’, ‘Vulnerable’, ‘Endangered’, ‘Critically Endangered’ and ‘Extinct in the Wild’), nor of a ‘hazardous’ nature (as listed on Category 1 or 2 in Appendix 12, SMZP) (Annex D, GC2/2003). Exemptions and Dispensations to the Act, and applicable specifications, are described under Section 14 of the ZLA. Under this section, the Local Authority may seek a direction from the Secretary of State (‘SoS’) to exempt the establishment entirely from the provisions of the Act (referred to as an Exemption under Section 14(1)(a), ZLA), or exempt the zoo from the requirements of Section 10 (Periodic Inspection) and/or Section 11 (Special Inspection) (referred to as a Dispensation under Section 14(1)(b), ZLA). Section 14(2) of ZLA provides the zoo operator the option to seek a direction from the SoS to exempt the zoo from the requirements of Section 10(4) (a) and (b), and instead, appoint a reduced number of inspectors for any inspection to be carried out under Section 10, ZLA. In such a case, the SoS is required to take into consideration the size and nature of the zoo and the type and number of animals, and the advice of the Local Authority and SoS Zoo Inspectors, before granting a Dispensation.

Local Authorities are encouraged to review the Exemption status ‘from time to time’ to ensure that the circumstances have not changed and that the zoo collection has not increased (GC2/2003). Of the 280 zoos listed on the list of zoos in England, 63 have an Exemption under Section 14(1)(a), ZLA; three have a Dispensation under Section 14(1)(b), ZLA; and 170 zoos have a Dispensation under Section 14(2), ZLA. The remainder (n=44) are subject to the full inspection regime (Animal Health, 2011).

Irrespective of the categorisation above, other than those exempt from the Act under Section 14(1)(a) of ZLA, all zoos are required to guarantee the health, welfare and safety of the public and the animals under the ZLA and, in the relation to inspections covered by Section 9 of ZLA (Licence Inspection), ensure that zoos meet their licensing requirements as specified by Section 1A of ZLA (Conservation Measures) and Section 9 of ZLA (Standards of Modern Zoo Practice (SMZP)). These include:

### Conservation

Under Section 1A, ZLA, the Local Authority is required to ensure all zoos comply with the conservation measures consistent with Article 3 of the Directive by:

*‘Participating in at least one of the following activities:*

- i. Research from which conservation benefits accrue to the species of wild animals;*
- ii. training in relevant conservation skills;*
- iii. the exchange of information relating to the conservation of species of wild animals;*
- iv. where appropriate, breeding of wild animals in captivity; and/or*
- iv. where appropriate, repopulation of an area with, or reintroduction into the wild, of wild animals’*

(Section 1A(a), ZLA)

The Local Authority, on granting a licence is required to attach conditions to the licence regarding Section 1A requirements, taking into account the size and nature of the zoo (Section 5(2A), ZLA; Annex B, GC2/2003). GC2/2003 (no.9) states that ‘the extent of a zoo’s conservation and educational activities should be proportionate to its size and the diversity of its collection’, with further guidance provided by the Zoos Forum Handbook (Defra website).

In addition to the requirements in Section 1A, the Local Authority and the zoo operator must be aware of and apply the ‘Standards of Modern Zoo Practice’ (SMZP) (Defra, 2004), which include the following specifications:

- *‘Where relevant species are held, a zoo must be an active participant in recognised species management programmes.’*
- *‘Zoos should be able to demonstrate their conservation measures, including research if undertaken. Areas to be examined will include overall conservation policy, and how this relates to the World Zoo and Aquarium Conservation Strategy, and type and level of input into international conservation programmes.’*

(Section 7.6, SMZP)

(Section 7.7, SMZP)

- *'Zoos should generally be able to demonstrate that they encourage research. Research can be developed through forging links with Higher Education Institutions. Full details of such projects should be available on request.'*  
(Section 7.8, SMZP)

## Education

Zoos in England 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.'*  
(Section 1A(b), ZLA)

In addition to the requirements in Section 1A, the Local Authority and the zoo operator must be aware of and apply the 'Standards of Modern Zoo Practice' (SMZP) (Defra, 2004), which include the following specifications:

- *'A zoo must have a written education strategy and an active education programme.'*  
(Section 7.11, SMZP)
- *'Suitable facilities, commensurate to the size of the zoo, should be available for education purposes.'*  
(Section 7.12, SMZP)
- *'Accurate information about the species exhibited must be available. Generally, this should include, as a minimum, the species name (both scientific and common), its natural habitat, some biological characteristics and details of its conservation status.'*  
(Section 7.13, SMZP)

Further guidance is available in the Zoos Forum Handbook (Defra website).

## Animal welfare

The ZLA specifies zoos must: *'Accommodate their animals under conditions which aim to satisfy the biological and conservation requirements of the species to which they belong, including:-*

- (i) providing each animal with an environment well adapted to meet the physical, psychological and social needs of the species to which it belongs; and*
- (ii) providing a high standard of animal husbandry with a developed programme of preventative and curative veterinary care and nutrition;'*

(Section 1A(c), ZLA)

Furthermore, under Section 9 of the ZLA, the SoS, following consultation with competent persons, may specify 'Standards of Modern Zoo Practice' (SMZP) which apply to the management of zoos and the animals within them. The last major review of the Standards was in 2004. These have been established on five principles, based on the 'Five Freedoms' (FAWC 1979), which provide guidance for general animal care and management, and furthermore, stipulate details of appropriate conservation, education and public safety measures. Species-specific guidance is limited to invertebrates, reptiles and amphibians, pinnipeds, marine birds, waterfowl and birds of prey (Appendix 8 – Specialist Exhibits, SMZP). Additional standards on the keeping of cetaceans in captivity were produced by Klinowska & Brown (1986), which resulted in the phasing-out of dolphinariums in UK (Born Free Foundation 2010; WDCS 2011). Further guidance on animal care is available in the Zoos Forum Handbook (Defra website).

While the ZLA and its amendments remains the primary legislation, vertebrate animals in zoos in England are subject to the provisions of the Animal Welfare Act 2006 ('AWA'). Under this legislation, a person commits an offence if they cause or allow an animal to suffer unnecessarily (S. 4), or if they do not ensure that the needs of an animal are met to the extent required by good practice (S. 9, AWA).

In addition to the SMZP, Section 1A of the ZLA also refers to the need for zoos to: prevent the escape of animals (Section 1A (d), ZLA); prevent the intrusion of pests and vermin into the zoo premises (Section 1A (e), ZLA); and to maintain an up-to-date stocklist of the zoo's collection (Section 1A (e), ZLA).

## The Zoos Forum

Formed in 1999 as an independent advisory body to the UK Government on zoo matters, the Forum comprised zoo professionals, veterinarians, educators, representatives from national NGOs and local licensing authorities. Together they developed the Secretary of State's Standards of Modern Zoo Practice (SMZP) and the Zoos Forum Handbook, a comprehensive, best practice guide on zoo operation, animal management and conservation (Defra, 2004; Defra 2008). The Zoos Forum was replaced by the Zoos Expert Committee in 2011.

## The Zoo Investigation

A total of 25 zoos in England were selected. Data were collected at the following zoos during July, August and September 2009 (Fig. 1):

- Amazon World Zoo Park
- Banham Zoo
- Blackbrook Zoological Park
- Blackpool Tower Aquarium
- Blue Reef Aquarium
- Bowland Wild Boar Park
- British Wildlife Centre
- Combe Martin Wildlife and Dinosaur Park
- Cotswold Wildlife Park and Gardens
- Dinosaur Adventure Park
- Drayton Manor Park
- Dudley Zoological Gardens
- Escot Park and Gardens
- Exmoor Falconry and Animal Park
- Exmoor Zoological Gardens
- Huxley's Bird of Prey Centre
- Noah's Ark Zoo Farm
- Paignton Zoo Environmental Park
- Porfell Wildlife Park and Sanctuary
- Seaview Wildlife Encounter
- The Jungle Zoo
- The Living Rainforest
- Tilgate Nature Centre
- Trotters World of Animals
- West Midlands Safari and Leisure Park



**Figure 1** Geographical locations of the 25 zoos investigated in England.

## RESULTS AND INTERPRETATION

### GENERAL ZOO INFORMATION

#### Overview

The investigation evaluated 25 zoos, randomly-selected from the 'Defra list of zoos operating in England' (Defra 2009). Each zoo was required to have a licence and to meet the specifications of Section 1A and Section 9 (ZLA). Of the 25 zoos, 17 had been granted a Dispensation under Section 14(2), ZLA and eight zoos had a full licence. The majority (n=21) were privately-owned zoos, whilst Dudley Zoological Gardens, Paignton Zoo Environment Park and The Living Rainforest were registered as, or run by, registered charities (Charity Commission) and Tilgate Nature Centre was owned and run by the Local Authority. Entrance fees for a single adult ranged from free of charge (Tilgate Nature Centre) to £16.95 (€19.34) at Banham Zoo.

Of the 25 zoos evaluated, 13 are members of a national and/or international zoo association. Amazon World, Banham Zoo, Drayton Manor Park, Dudley Zoological Gardens, Exmoor Zoological Park, Seaview Wildlife Encounter, The Living Rainforest, Paignton Zoo Environmental Park, Tilgate Nature Centre, Trotters World of Animals and West Midlands Safari Park (n=11) are members of the *British and Irish Association of Zoos and Aquariums* (BIAZA), whilst Amazon World, Banham Zoo, Blackbrook Zoological Park, Cotswold Wildlife Park, Dudley Zoological Gardens, Paignton Zoo Environmental Park and West Midlands Safari Park (n=7) are members of the *European Association of Zoos and Aquaria* (EAZA). At the time of this investigation, BIAZA had a total membership of 78 zoos in the UK (BIAZA website – Find a Zoo Database, 2011) and EAZA had a total membership of 264 zoos in the EU (EAZA website). Both organisations were established to serve the interests of their members and represent a minority of the total number of regional zoos (BIAZA represents 13% of the estimated total number of licensed zoos in England, and EAZA member zoos represent no more than 8% of an estimated total of 3,500 zoos in the EU). Member zoos in both associations are expected to do more than comply with national legislation: BIAZA members are required to undertake work in the field of animal welfare, conservation, education and research under the terms of its Constitution and Codes of Practice (BIAZA website) and EAZA member zoos are expected to comply with the *EAZA Minimum Standards for the Accommodation and Care of Animals in Zoos and Aquaria*. Three of the 25 selected zoos (Banham Zoo, Dudley Zoological Gardens and Paignton Zoo Environmental Park) were also members of *World Association of Zoos and Aquariums* (WAZA), which promotes and coordinates cooperation between national and regional associations, encouraging the highest standards in animal welfare and husbandry and promoting environmental education, wildlife conservation and environmental research (WAZA website).

A total of 1,084 species (including subspecies where appropriate) and 2,751 *species holdings* were identified in 1,751 enclosures in the 25 zoos. A total of 89 *species holdings* could not be identified (see online Methodology).

Despite all 25 zoos being sent the Standard Zoo Questionnaire, which provides an opportunity for each zoo to describe, amongst other things, its conservation and education activities, only five zoos (Blackpool Tower Aquarium, British Wildlife Centre, Escot Park and Gardens, Exmoor Zoological Park and The Living Rainforest) completed and returned the Questionnaire. The information received has been included in the analysis and in relevant sections of this report. Information concerning the performance and activities concerning the assessed zoos was also gathered from published materials produced by all 25 zoos, BIAZA, EAZA and information contained on the zoos' websites.

#### Prevention of animal escapes

English zoo law refers to and stipulates the need for all zoos to establish measures to prevent and respond to the escape of animals from, as well as the intrusion of pests and vermin into, the zoo (Section 1A(e) and (f), ZLA; SMZP; MHSZ). The Periodic Inspection (Section 10, ZLA) includes the requirement for inspectors to assess and ensure measures exist to prevent and respond to an animal escape (Section 10(4)(e), ZLA). These are likely to include a variety of measures further explained by Section 8 of SMZP (Public Safety in the Zoo), which not only stipulates that enclosure infrastructure should be designed, and made of suitable materials, in order to contain the exhibited animal(s) and that all doors to enclosures are locked securely (Section 8.6, SMZP), but further, that free-roaming species must not be able to leave the zoo grounds

through ensuring that the perimeter fence is sufficiently secure to prevent the possible ecological threats to indigenous species that an escape might represent (Sections 8.26 and 8.29, ZLA) (Article 3 of the Directive).

Free-roaming animals were observed in numerous zoos. This included the DAISIE-listed Invasive Alien Species (IAS), Indian peafowl (*Pavo cristatus*) within eight of the 25 zoos; muscovy duck (*Cairina moschata*) and guinea fowl (*Numida meleagris*) in two zoos; red ruffed lemurs (*Varecia rubra*) in Combe Martin Wildlife Park and ring-tailed lemurs (*Lemur catta*) in Porfell Wildlife Park and Sanctuary. Other free-roaming, but not DAISIE-listed species, included domestic chickens (*Gallus gallus domesticus*) and other waterfowl species.

The majority of zoos in this investigation appeared to maintain a sufficiently effective perimeter fence, in compliance with the SMZP, and the majority of randomly-assessed enclosures appeared secure (see Sections D and E in the Methodology). However, during the investigations at two of the 25 zoos, Indian peafowl (*Pavo cristatus*), a DAISIE-listed species, was observed outside the zoo grounds. Furthermore, during the investigations, two of the zoos with walkthrough enclosures did not have a weighted gate system preventing animal escape, one of which exhibited the red-necked wallaby (*Macropus rufogriseus*), which is a DAISIE-listed species. Other factors of note included: an unlocked enclosure at Combe Martin Wildlife Park, exhibiting chipmunk (*Eutamias sibiricus*) (Section 8.6, SMZP); individual pink-backed pelicans (*Pelecanus rufescens*) and great white pelicans (*P. onocrotalus*), two DAISIE-listed species, were observed freely leaving their enclosure which was not sufficient to contain them at Blackbrook Zoological Park (we were unable to determine whether or not they were pinioned or wing-clipped); black-tail prairie dogs (*Cynomys ludovicianus*) had burrowed under the enclosure walls at Banham Zoo, which had subsequently been ineffectually blocked using loose bricks. Indigenous wild animals (e.g. squirrels, sparrows, etc.) were observed in enclosures in some zoos.

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

The ZLA does not include requirements relating to public health and safety. However, these are included in Section 8 of the SMZP and also in the Health & Safety Executive Code Of Practice on Zoos (MHSZ), which also specifies measures for the protection of zoo employees. The SMZP requires zoos to consider the implications of and take relevant measures when keeping animals categorised as 'hazardous' (see Appendix 12, SMZP). They are also required to keep records of all relevant risk assessments and have appropriate insurance cover. In addition to measures to prevent and effectively respond to animal escapes, which also has implications for public and employee welfare, zoos are also expected to ensure public areas are free from hazards, identify and clearly label any potential dangers, and to ensure suitable, well-maintained barriers are in place to guarantee an appropriate distance between the public and the animals to prevent contact, unless contact is permitted and controlled. Stand-off barriers are recommended for all enclosures, particularly those exhibiting 'hazardous' animal species (Section 8.24; Appendix 12, SMZP). Appendix 12 of SMZP lists commonly-kept animal species and categorises them by their ability to cause harm to humans. Category 1, 'Greater Risk', for example, lists animal species that are likely to cause serious injury or be a serious threat to life. It is advised that such animals are separated from the public by a barrier to prevent physical contact or, with the prior approval of the Local Authority, be provided with adequate supervision to allow the public and the animals to be in the same area without hazard. Public contact with Category 2 'Lesser Risk' is permitted, but at the discretion of the zoo and Local Authority.

Appendix 6, SMZP, focuses specifically on animal contact and stipulates, together with MHSZ, that zoo operators should exercise caution and discretion when permitting the public to have contact with hazardous and non-hazardous animals. Concerning Category 1 & 2 Hazardous species in particular, the use of a risk assessment procedure is encouraged to consider the likelihood of the animal causing injury or transmit disease. Where contact is permitted, zoos must ensure this is supervised and controlled to ensure animal welfare is not compromised (Section 5.1, SMZP), that it is not in the vicinity of food outlets, that the public are adequately informed of the risks of injury and disease transmission and that hand-washing is encouraged (No.100, MHSZ; Appendix 6, SMZP).

**Figure 2**

The Jungle Zoo.

It is a concern that some enclosures were unlocked, allowing the public easy access to the animals.



Of the 705 randomly selected enclosures across the 25 assessed zoos (see Sections D and E in the Methodology), the public could have unplanned, unsupervised contact with animals in 197 enclosures. This was mainly due to poor enclosure design, lack of stand-off barriers and in some cases, poorly-maintained enclosure fencing. Of the 197 enclosures, there were 18 enclosures exhibiting Category 1 'Greater Risk' Hazardous Animals and 56 enclosures that exhibited Category 2 'Lesser Risk' Hazardous Animals. Category 1 'Hazardous' animals that the public could come into direct contact with included red deer (*Cervus elaphus*), giraffe (*Giraffa camelopardalis*), white-throated capuchin (*Cebus capucinus*) and black-horned capuchin (*Cebus nigritus*). Category 2 'Lesser Risk' Hazardous Animals included red fox (*Vulpes vulpes*), Indian eagle owl (*Bubo bengalensis*), red-and-green macaw (*Ara chloroptera*), common stingray (*Dasyatis pastinaca*), white-naped crane (*Grus vipio*) and ring-tailed lemur (*Lemur catta*).

**Figure 3**

The Jungle Zoo.

A member of the public feeds a black-horned capuchin (*Cebus nigritus*), a Category 1 'Greater Risk' hazardous animal (SMZP). Non-human primates, being biologically and physiologically similar to humans, can spread serious and sometimes fatal viral, bacterial, fungal and parasitic diseases to humans.



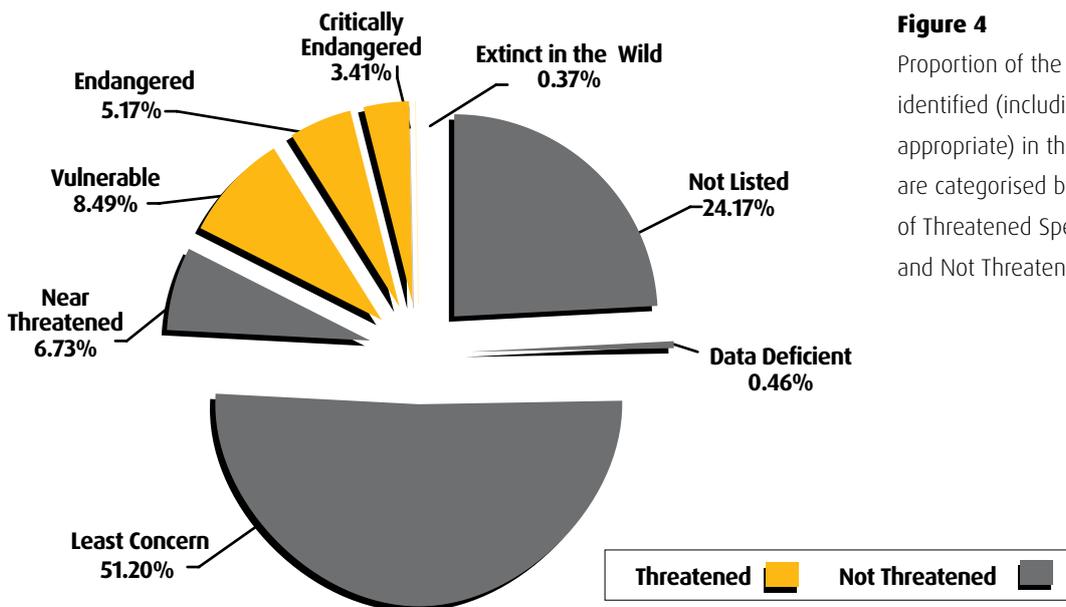
Direct animal contact was encouraged in 21 of the 25 zoos, of which supervised contact with wild animals occurred in 20. Unsupervised 'petting' of domestic animals was also possible in five zoos. In many cases, these activities were promoted as educational 'encounters' available during a day's visit to the zoo. In three of the zoos, the public could freely feed animals with food readily supplied from vending machines; and in four zoos, people had the option to pay an extra fee, in one case £25 for an hour, to have an exclusive 'experience' with animals. Promotions included: 'Zoo Keeper for the Day', 'Meerkat Feeding', 'Animal Creature Features', 'Close Encounters', 'Hawk Walk' and 'Lemur Encounter' and appeared to involve the handling of a variety of animals, such as giraffe, penguins, birds of prey, reptiles, tapir and ring-tailed lemurs. Where animal contact was permitted, hand-washing facilities were usually available, but in all the interactive sessions observed during this investigation, the public were not actively encouraged to wash their hands, either before or after contact with the animals.

## CONSERVATION

The conservation of biodiversity is the main objective of the Directive and it requires zoos in the EU to participate in at least one of four possible conservation activities (Article 3(1) of the Directive). Zoos in England, whether granted a full zoo licence or a Dispensation, are required to comply with Section 1A of ZLA, which sets out a framework of conservation measures consistent with those in the Directive. Zoos in England have to partake in a minimum of one of five optional measures, each expected to bring benefits to the conservation of wild animal species. These include: participation in scientific research; training in conservation skills; exchange of information relating to the conservation of species of wild animals; where appropriate, breeding of wild animals in captivity; and/or, where appropriate, the repopulation of an area with, or reintroduction into the wild of, wild animals. Larger zoos are expected to carry out more conservation measures than the smaller collections (GC2/2003).

The IUCN Red List catalogues and highlights those taxa facing a higher risk of global extinction. Keeping a greater number of these Threatened species (categorised as *Vulnerable*, *Endangered* and *Critically Endangered*) and/or those that are *Extinct in the Wild*, and further, including their participation in cooperative captive breeding programmes, would provide an indication as to whether or not a zoo is committed to conserving biodiversity. This investigation assessed the proportion of Threatened species to Non-threatened species in each zoo. Results indicate that there is a low level of commitment by England's zoos to the conservation of biodiversity, in particular to those species threatened with extinction.

### Percentage of Globally Threatened Species



**Figure 4**

Proportion of the 1,084 species identified (including subspecies where appropriate) in the 25 English zoos that are categorised by the IUCN Red List of Threatened Species™ as Threatened and Not Threatened.

### Percentage of Globally 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	15	14	83	96	1	53	262	24.17%
Data Deficient	1	1	0	3	0	0	5	0.46%
Least Concern	116	385	21	10	23	0	555	51.20%
Near Threatened	22	36	8	2	4	1	73	6.73%
Vulnerable	31	39	18	3	0	1	92	8.49%
Endangered	27	22	4	1	2	0	56	5.17%
Critically Endangered	21	8	4	2	2	0	37	3.41%
Extinct in Wild	2	1	0	1	0	0	4	0.37%
<b>Total No. Species</b>	<b>235</b>	<b>506</b>	<b>138</b>	<b>118</b>	<b>32</b>	<b>55</b>	<b>1084</b>	<b>100%</b>
<b>Proportion of total no. Species (%)</b>	<b>22%</b>	<b>47%</b>	<b>13%</b>	<b>11%</b>	<b>3%</b>	<b>5%</b>		

**Table 1** Proportion of the 1,084 species (including subspecies where appropriate) identified in 25 English zoos, categorised as Threatened and Not Threatened by the IUCN Red List of Threatened Species™ by taxa.

**The results indicate that 17.07% of the total number of species (n = 185 species) from the selected zoos can be described as Globally Threatened (Vulnerable (8.49%), Endangered (5.17%) and Critically Endangered (3.41%))** (Table 1). Of the 185 observed and identified Threatened species at the 25 zoos, 42.70% were mammals, 37.30% were birds, 14.05% were reptiles, 3.24% were fish, and 2.16% were amphibians and 0% were invertebrates. A total of 82.56% of species (n = 895) at the 25 zoos were not Threatened, and were either classified as being of *Least Concern* (51.20%), *Near Threatened* (6.73%) or *Data Deficient* (0.46%) by the IUCN Red List of Threatened Species™ categorisation, or they were *Not Listed* (24.17%) (Fig.4). Of the 1,084 total species observed and identified at the 25 zoos, 4 species (0.37%) were classified as *Extinct in the Wild*. **Findings indicate that the majority of species exhibited in the representative sample of UK zoos were of a low conservation priority.** Amphibians, for example, have the highest proportion of species threatened in the wild, yet Threatened amphibians are largely underrepresented in zoos (in this case, just 2.16% of the 185 Threatened species observed and identified). Of the 25 zoos, West Midlands Safari Park exhibited the highest proportion of Threatened species (32% of species (n=21) in the zoo's total observed collection), whilst Bowland Wild Boar Park, the British Wildlife Centre, and the Exmoor Falconry and Animal Park did not appear to keep any globally Threatened species at the time of the investigation. In the case of The British Wildlife Centre, this was admitted by the zoo (Standard Zoo Questionnaire).

Of the 578 species of mammals, reptiles, amphibians, invertebrates and fish observed at the 25 zoos, 8% (n=47) are listed on the IUCN European Red List of Threatened Species (which does not include birds). This included: 27 mammal species (2% of all 1,084 species in assessed English zoos), consisting of 26 *Least Concern* and one *Near Threatened* species (*Lutra lutra*); 9 fish (1% of all 1,084 species), consisting of 7 *Least Concern*, 1 *Vulnerable* and 1 *Critically Endangered* (*Anguilla anguilla*); 7 reptiles (1% of all 1,084 species), consisting of 4 *Least Concern*, 2 *Near Threatened* and 1 *Vulnerable* species (*Testudo graeca*); and 4 amphibians (0% of all 1,084 species), consisting of 3 *Least Concern* and 1 *Near Threatened* (*Pleurodeles waltl*). Furthermore, of a total of 506 bird species observed at the 25 zoos, 81 species (7% of all 1,084 species) are included on the BirdLife International status assessment for birds in the European Union (BirdLife International, 2004) (recommended for use to assess the conservation status of birds in the EU by IUCN (IUCN, pers comm., 21st July 2011)). Forty two of the identified 81 species are listed as 'Secure' (e.g. *Bubo bubo*, *Tadorna tadorna*); 2 as 'Localised' (*Branta ruficollis* and *Porphyrio porphyrio*); 3 as 'Depleted', (*Ciconia ciconia*, *Falco columbarius* and *Grus grus*), 9 are 'Rare' (e.g. *Mergus albellus*, *Pelecanus onocrotalus* and *Vanellus spinosus*); 11 are 'Declining' (e.g. *Anas acuta*, *Falco tinnunculus* and *Upupa epops*), 10 are 'Vulnerable' (e.g. *Oxyura leucocephala* and *Vanellus vanellus*); 2 are 'Endangered' (*Aythya marila* and *Marmaronetta angustirostris*), and 2 are 'Critically Endangered' (*Anser erythropus* and *Tadorna ferruginea*). Of the 25 zoos, one zoo did not keep any European Threatened species (The Living Rainforest). **These results indicate that although global and European Threatened species are kept by the majority of the selected zoos, particularly BIAZA Member zoos, they are in the minority, with Non-Threatened species predominating and an apparently greater focus on exotic species.** The exception was the British Wildlife Centre, where 76% of the collection was listed on the European Red List.

The same is apparent for species listed on the National Red List for the UK (National Red Lists website). Overall, the assessed zoos kept just 39 listed species (4% of the total number of observed species). This consisted of 38 species of birds which were either listed under the 'Amber' criteria (this listing includes species with unfavourable conservation status in Europe, rare breeders (i.e. 1-300 breeding pairs in UK) or rare non-breeders (i.e. less than 900 individuals in the UK) or the species is of international importance (i.e. at least 20% of the European breeding or non-breeding population is found within the UK)), or under the 'Red' criteria (including species that are globally threatened, or experiencing a severe decline in either their UK breeding population or breeding range over the last 25 years). Amber-listed species include *Anas querquedula* and *Tringa totanus* and Red-listed species include *Burhinus oedipnemus*. **Based on this evidence, the representative sample of English zoos does not appear to be committed to conserving endemic species.**

**Despite some zoos from the representative sample keeping more globally, regionally and nationally Threatened species than others, overall, it appeared that the zoos kept a limited number of Threatened and 'conservation-sensitive' species (Annex D, SMZP). Zoos affiliated to national and European zoo associations, such as BIAZA and EAZA, often characterise themselves as progressive and seek to distance**

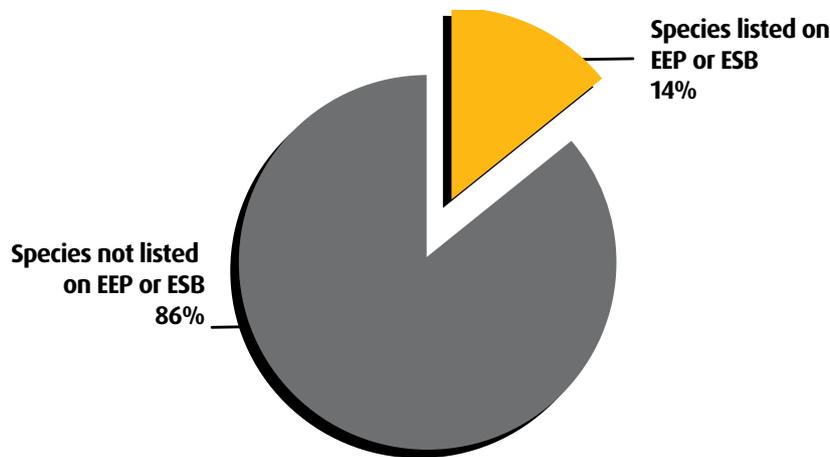
themselves from many other zoos by claiming a stronger commitment to conservation. However, even BIAZA and EAZA zoos only keep an average of 20% and 22% respectively of globally Threatened species (and an average of 12% and 11% respectively, of species on the European Red List), making this claim difficult to substantiate.

### Participation in European coordinated captive breeding programmes

Section 1A of ZLA, includes the option for zoos to take part in species captive breeding programmes. Furthermore, Section 7.6 of SMZP stipulates that if a zoo keeps 'relevant species' then it must actively participate in the recognised species management programmes, which includes captive breeding and scientific research aimed at bringing benefits to the conservation of the species.

The results of this investigation have identified that EEPs and ESBs exist for only 14% of the observed species kept by the selected zoos. Further investigation was required to identify whether the zoos were actually participating in the registered Programmes.

### Percentage of species in English Zoos that have coordinated captive breeding programmes (EEPs or ESBs)



**Figure 5**

The percentage of the 1,084 species (including subspecies where appropriate) identified in the 25 English zoos that are part of an ESB or EEP.

### The register of European Endangered Species Breeding Programmes (EEPs) and European Stud Books (ESBs) lists only 14% (n = 155) of the 1,084 species observed in the zoos (Fig 5).

All but six zoos (Blackpool Tower Aquarium, Bowland Wild Boar Park, Dinosaur Adventure Park, Escot Country Park and Gardens, Exmoor Falconry and Animal Park and Huxley's Bird of Prey Centre) kept at least one species listed on European Species Management Programmes. Paignton Zoo Environmental Park kept the highest number of registered species (66 species of a total of 240 species observed at the zoo), followed by the Cotswold Wildlife Park and Gardens (45 species) and Banham Zoo and Dudley Zoological Gardens (which both kept 34 registered EEP/ESB species). Banham Zoo had the highest proportion of listed species (29% of the total species observed at the zoo).

However, in order to identify whether the zoos were actively participating in these captive breeding programmes, further research was necessary, which included referral to the Standard Zoo Questionnaires received from five of the 25 zoos, together with information contained on the zoos' websites and in published literature. This indicated that three of the zoos (Blackbrook Zoological Park, Cotswold Wildlife Park and Gardens and Paignton Zoo Environmental Park) were participating in captive breeding programmes for all of their EEP/ESB registered species; EAZA Member, Dudley Zoological Gardens, appeared to participate in 25 programmes from its 34 EEP/ESB registered species (EAZA Yearbook 2007-2008); Drayton Manor Park, 5 of its 16 registered species; and Trotters World of Animals only appeared to participate in 2 programmes from its 11 EEP and ESB-listed species (EAZA Yearbook 2007-2008). Of the 25 zoos, it was not possible to confirm active participation in captive breeding programmes in 12 of the randomly selected zoos.

**The results indicate that whilst it is often assumed that relevant species kept in zoos are participating in captive breeding programmes, as is required under Section 7.6 of SMZP, this might not always be the case.**

Paignton Zoo Environmental Park appeared to contribute the most to European Species Management Programmes. Of the 240 observed species at the zoo, 67 were listed as Threatened by the IUCN Red List of Threatened Species™,

66 species were registered on either EEP or ESB and it was possible to confirm that all 66 species were actively participating in the cooperative captive breeding programmes (EAZA Yearbook, 2007-2008).

Overall, of the 185 Threatened Species observed and identified in the 25 zoos, 95 are listed on the register of European Endangered Species Breeding Programmes (EEP) or European Stud Books (ESBs). However, of the Threatened species, slightly fewer than half (91 species, or 49%) were identified as actually participating in the European Species Management Programmes.

### **Participation in scientific research**

A further optional conservation measure under Section 1A of ZLA is for a zoo to participate in scientific research where conservation benefits accrue to species of wild animals. SMZP indicates, however, that zoos should be able to demonstrate that they encourage research, particularly through collaboration with Higher Education Institutions (Section 7.8, SMZP). **Of the 25 selected zoos, 10 claimed to carry out scientific research** on their websites, in published literature, on the BIAZA Research Database and in the returned Standard Zoo Questionnaires. This included research into 'the best husbandry techniques for a number of animals' (Amazon World Zoo Park); captive breeding of cheetahs and tackling obesity in captive lemurs (Banham Zoo); whether inductive methods can play a part in assessing the welfare of captive wild animals (Blue Reef Aquarium); creating optimal conditions for breeding of captive Humboldt penguins (*Spheniscus humboldti*) (Cotswold Wildlife Park and Gardens); the funding of a 'Native Species Conservation Consultant' to undertake research into numerous native species (Dudley Zoological Gardens); reproduction in seahorses (Escot Park and Gardens); the diet of free-ranging and captive maned wolves (*Chrysocyon brachyurus*) (Exmoor Zoological Park); male/male interactions in western lowland gorillas and developing environmental enrichment for animals (Paignton Zoo Environmental Park); the funding of a researcher to investigate Canadian freshwater turtles (Porfell Wildlife Park and Sanctuary); and the reproductive biology of white rhinoceros (*Ceratotherium simum*) and African elephant (*Loxodonta africana*) (West Midlands Safari and Leisure Park). **The vast majority of research identified is related to, or is aimed at improving the welfare of wild animals in captivity which, although important from a welfare perspective, may or may not benefit the conservation of the species in the wild.**

Similar findings were identified using the BIAZA Research Database. Since 1980, there have been 752 entries relating to studies undertaken in 14 listed English zoos (13 of which are BIAZA Members). Of these studies, the majority focus on issues relating to, or investigating the implications of captivity. Few appear to benefit the conservation of the species. Furthermore, 35% of the 752 entries do not record any collaboration with a Higher Education Institution; 6% are recorded as part of a PhD, 14% as part of a MSc and 44% as part of a BSc; and 2% of the recorded studies were reportedly undertaken by 'Zoo Staff' and a further 2% as part of a TAG/EEP/Working Group. Of all the entries in the BIAZA database, 44% (n=331) were studies reportedly occurring within 2009 and 2010 (BIAZA Research Database). Of the 25 randomly selected zoos (which includes 11 BIAZA Members) in this investigation, only two zoos (Banham Zoo and Paignton Zoo Environmental Park) were listed on the Database. **On the whole, English zoos do not appear to be making a significant contribution to scientific research and of the research that is taking place, the majority is focused on improving the management of species in captivity as opposed to their conservation.**

### **Participation in *in situ* conservation**

**Of the 25 selected zoos, 18 either raise funds for *in situ* conservation programmes, or have been involved in species reintroduction projects.** These include 'donated funds' being sent to the European Association for the Study and Conservation of Lemurs (AEECL), Grevy's zebra conservation, West African Primate Conservation Action and the breeding and reintroduction of red squirrels (Banham Zoo), contributions to the Great Crane Project (Blackbrook Zoological Park), reintroduction of wild cat (*Felis silvestris*) into the wild (British Wildlife Centre), supporting wolves worldwide (Combe Martin Wildlife Park), supporting the Aloatran Biodiversity Project in Madagascar and the Atlantic Penguin Appeal (Cotswold Wildlife Park and Gardens), donating funds to the World Owl Trust and Borneo Orangutan Survival Foundation (BOS) (Drayton Manor Park), participating in local great crested newt (*Triturus cristatus*) reintroduction projects and supporting EAZA annual campaigns (Dudley Zoological Gardens), placing 98 boxes for dormice within the zoo grounds (Escot Park and Gardens), raising £2,000 in 2009 for the Somerset Wildlife Trust and Hawk and Owl Trust (Exmoor Falconry and Animal Park), contributing to field conservation in Regua Reserve in Brazil

and the World Land Trust as well as breeding and releasing Marsh Fritillary butterflies (*Euphydryas aurinia*) in the wild every year and maintaining natural meadow within its grounds (Exmoor Zoological Park), zoo staff working to protect South African coastal birds (Seaview Wildlife Encounter), releasing numerous native bird of prey species into the wild (Huxley Bird of Prey Centre), promotion of EAZA's conservation campaigns (Noah's Ark Zoo Farm), donating funds for black rhinoceros (*Diceros bicornis*) anti-poaching patrols, helping purchase rainforest in conjunction with the World Land Trust and BIAZA, the release of 118 dormice (*Muscardinus avellanarius*) into the wild and numerous other fund raising initiatives (Paignton Zoo Environmental Park), supporting the local Wildlife Trust (The Jungle Zoo), providing funds, staff and research support for a lion rehabilitation and reintroduction programme (ALERT) in Zambia and Zimbabwe (The Living Rainforest), supporting the Lemur Venture Project (Trotter's World of Animals) and, helping to conserve Atlantic Rainforests in Brazil and the Philippine spotted deer (*Rusa alfredi*) (West Midlands Safari and Leisure Park). **Of the 25 zoos, the majority are contributing to a variety of local and international *in situ* conservation programmes.** The larger collections (Banham Zoo, Exmoor Zoological Park, Paignton Zoo Environmental Park and West Midlands Safari and Leisure Park) appear to be contributing more than the smaller collections. **However, seven of the randomly selected zoos do not appear to be contributing to *in situ* conservation programmes.**

**The majority of these zoos appear to be participating in at least one of the options stipulated by Section 1A of ZLA. Larger collections, Paignton Zoo Environmental Park and other zoos affiliated to BIAZA appeared to make the greatest contribution. Of the 25 zoos, four do not appear to be significantly contributing to species conservation.**

## 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). Section 1A of ZLA has incorporated the same requirement, which is further illustrated by SMZP which states a zoo must have a written education strategy, an active education programme and suitable facilities (commensurate to the size of the zoo) for educational purposes, as well as provide accurate information about the species exhibited including '*the species name (both scientific and common), its natural habitat, some biological characteristics and details of its conservation status*' (Section 7.10 to 7.13, SMZP).

Of the 25 zoos, 21 appear to have one or more classroom facilities, 19 provide classes or seminars for pre-organised school visits, 20 provide a series of species-specific talks for the public during a day's visit to the zoo, 21 of the zoos provide the opportunity for people to interact, usually through direct contact, with the animals, and 13 zoos use their animals in performances. Some zoos offer guided tours. For example, The Living Rainforest charges £73.50 per school group tour (The Living Rainforest website). Recognising that all zoos in England are expected to have an education strategy (Section 7.11, SMZP), and that the Zoos Forum Handbook interprets this as an active education programme incorporating species information signage, a guidebook, a schools' programme and daily talks and demonstrations that inform the public about species, habitats and related conservation issues (Annex to Chapter 2, Zoos Forum Handbook), all but five of the 25 selected zoos appeared to offer an active education programme that largely met the criteria.

Of the 25 zoos, five reportedly take wild animals (i.e. reptiles, birds and small mammals) from the zoo into schools and other facilities as part of an outreach programme, which usually appears to encourage direct contact with the animals. Animal interaction involving direct animal contact appears to be a popular activity in the majority of English zoos, with 20 of the 25 zoos encouraging the public to hold, stroke and feed a variety of wild animals, such as reptiles, tapirs, meerkats, penguins and tarantulas. This was promoted as an educational experience.

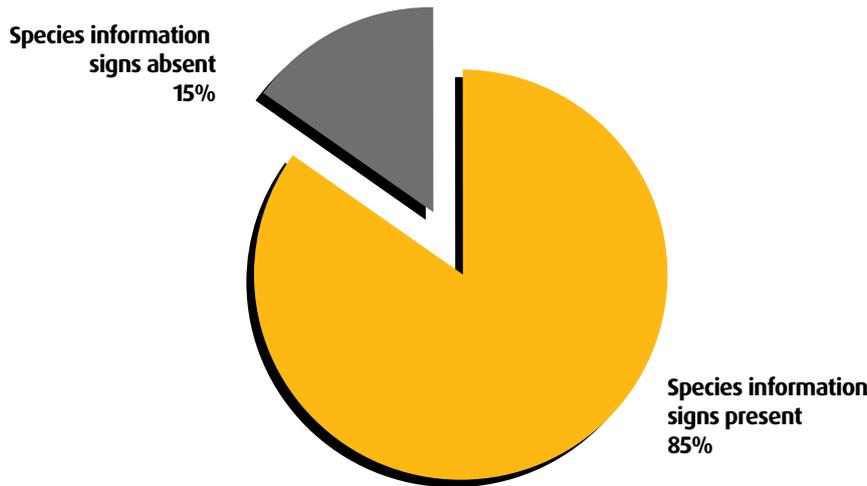
Animal shows or presentations were also popular, with 10 of the zoos hosting bird of prey demonstrations, and two zoos using sea lions (*Zalophus californianus* and *Arctocephalus pusillus*) for performances. One of the two sea lion shows was set to loud music and included numerous circus-style tricks. The majority of the shows were informative about the species, but minimal information was provided about the species conservation status and/or threats in the wild. The Zoos

Forum Handbook recommends that animal demonstrations should include positive conservation or educational messages and that the education programme should seek to do more than just inform people about the species but also provide a broader message about the environment and the need for sustainability (Appendix 5, Zoos Forum Handbook).

**Minimal species information**

A basic requirement of a zoo is to inform its visitors about the animals exhibited. ZLA requires zoos to provide 'information about the species exhibited' and the Zoos Forum Handbook specifically requires zoos to label the enclosures accordingly, including accurate information as required by Section 7.13, SMZP. Despite this fact, species information signage was not present for each *species holding* or on all enclosures in all the selected zoos.

**Proportion of Species Information Signage Present**



**Figure 6**

The average percentage of species information signage present or absent (for all 2,751 species holdings) in the 25 English zoos.

On average, 15% of *species holdings* completely lacked any form of species information signage (Figs. 6 & 8). Species information signage was absent for 43% of all *species holdings* observed in Exmoor Falconry and Animal Park, 42% in Bowland Wild Boar Park, 39% in Amazon World Zoo Park, and 31% in Porfell Wildlife Park and Sanctuary. Signage for 6% of all *species holdings* assessed in the 25 zoos was incorrect (inaccurate species' scientific names). Figure 8 provides an overview of the content of the signage in the zoos.



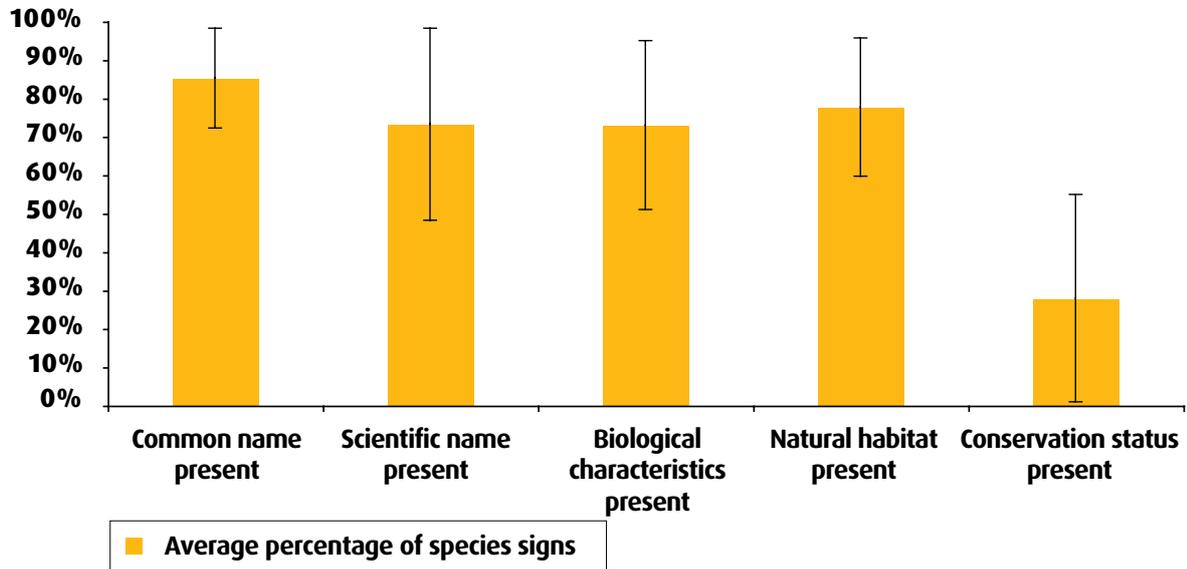
**Figure 7**

Exmoor Falconry and Animal Park and Amazon World Zoo Park. Overall, 15% of the signage in the 25 zoos did not include basic information about the species displayed to the public. Exmoor Falconry and Animal Park (43%) and Amazon World Zoo Park (39%) scored lowest in this regard. Failure to provide this information fails to meet the requirements of the ZLA, SMZP and the Directive.



## Quality of Species Information Signs

As mentioned above, Section 7.13, SMZP requires accurate information about the species exhibited, including ‘the species name (both scientific and common), its natural habitat, some biological characteristics and details of its conservation status.’



**Figure 8** Content of species information signage within the 25 English zoos. Each column represents specific information, as indicated by best practice criteria (SMZP). Each value (e.g. scientific name present, 73%) represents the average of the 871 species information signs observed in 705 randomly selected enclosures in the 25 zoos. 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 the species scientific name varied considerably between zoos in comparison to the presence of species common name).

The results (Figs. 6 & 8) show that of the signage present in the randomly-selected enclosures, on average, 69% did not contain all the required information, with 72% not including reference to the species conservation status and 27% not including reference to either the species’ scientific name and/or biological characteristics. However, it is important to note that this varied significantly between the zoos: Bowland Wild Boar Park did not provide information about the species’ conservation status or scientific name on 97% of the signage; whilst Exmoor Zoological Park provided all the required information on 86% of the signage in the zoo. The Living Rainforest displayed common name, scientific name and natural habitat information on 100% of its signage.



**Figure 9**

Amazon World Zoo Park and Porfell Wildlife Park. When species information signage was available it sometimes lacked all the legally required information (SMZP) or it was in a poor condition and illegible.



## EVALUATION OF ANIMAL ENCLOSURES

To evaluate the suitability and quality of each of the 705 randomly-selected enclosures, data relating to 12 criteria regarded as vital to the health and welfare of the wild animals in captivity were analysed using the evaluation method described in Sections D and E of the Methodology ([www.euzoo inquiry.com](http://www.euzoo inquiry.com)). The 'Five Freedoms' (FAWC 1979; *OIE Terrestrial Animal Health Code, 2010*) were referenced as the basis for minimum standards for the keeping of animals in general and the basis of the SMZP. 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**

*"Fresh, clean drinking water of sufficient quantity must be available at all times for all animals requiring it."*

*'Uncontrolled feeding of animals by visitors should not be permitted. Where controlled feeding occurs, it should be on a selective basis only, with suitable food sold, provided or approved by the operator.'*

(Section 1, Provision of Food and Water, SMZP)

The quality of drinking water in a quarter of the randomly selected enclosures appeared stagnant or dirty and generally unhygienic. Many species appeared to be served food from one receptacle in one location in the enclosure, irrespective of the number of animals in the enclosure. Uncontrolled feeding of animals by visitors was possible in three zoos with food readily supplied from vending machines.

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

*'The temperature, ventilation, lighting (both levels and spectral distribution) and noise levels of enclosures must be suitable for the comfort and well-being of the particular species of animal at all times.'*

*'Enclosures and barriers to enclosures must be maintained in a condition which presents no likelihood of harm to animals.'*

(Section 2, Provision of Suitable Environment, SMZP)

Living conditions often lacked sufficient space, environmental complexity and did not adequately take into account the locomotive and behavioural needs of individual species. Birds of prey, in particular, were often tethered. Sufficient shelter, to escape extreme temperature and weather conditions, was lacking in many of the assessed enclosures.

A few enclosures were found to be in a poor state of repair, particularly where the animals had caused significant damage to the fencing or infrastructure, which could cause them harm. Examples included; exposed wire in an enclosure exhibiting coati (*Nasua nasua*) and exposed polystyrene in an enclosure for African penguin (*Spheniscus demersus*) at Amazon World Zoo Park; exposed, protruding wires in various enclosures at Seaview Wildlife Experience; exposed nails in an enclosure at Cotswold Wildlife Park and Gardens; a glass panel precariously hanging by a screw over African spur-thighed tortoise (*Geochelone sulcata*) and Green iguana (*Iguana iguana*) at Jungle Zoo; and crumbling walls in an enclosure exhibiting meerkats (*Suricata suricatta*) at Dudley Zoological Gardens, which has been criticised in the past for its *'dilapidated and shabby'* enclosures (Daily Mail website, 2009).



**Figure 10**

Dudley Zoological Gardens. Accustomed to living in burrows during the day alongside the swamps and slow moving waterways of West African rainforests and grasslands, in captivity West African broad fronted crocodiles (*Osteolaemus tetraspis*) would require access to a burrow or shelter, appropriately heated water and safe, local sources of heat (e.g. heat lamp). This enclosure did not provide a suitable environment for the species.

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

*'The condition, health and behaviour of all animals should be checked at least twice daily by the person or persons in direct charge of their care.'*

*'... animals and enclosures must be so managed as to (...) prevent an uncontrolled build-up or spread of parasites and other pathogens;'*

(Section 3, Provision of Animal Health Care, SMZP)

There was a poor level of hygiene in numerous enclosures. This included an unacceptable build-up of faeces and stagnant drinking and bathing water. Areas in a few enclosures appeared flooded.

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

*'Accommodation should take account of the natural habitat of the species and seek to meet the physiological and psychological needs of animals.'*

*'Enclosures should be equipped in accordance with the needs of the animals with bedding material, branchwork, burrows, nesting boxes, pools, sub-strates and vegetation and other enrichment materials designed to aid and encourage normal behaviour patterns and minimise any abnormal behaviour.'*

(Section 4, Provision of Opportunity to Express Most Normal Behaviour, SMZP)

Many enclosures in 13 of the 25 selected zoos lacked the appropriate facilities, fixed furnishings, environmental complexity and enrichment that would permit and encourage the opportunity for the animals to rest, seek shelter or privacy, exercise and carry out natural behaviours. Species requiring adequate features to climb, bathe, dive, fly, or a suitable substrate to dig or burrow in were often housed in conditions where such natural behaviours were compromised or prevented. This included birds of prey which were usually tethered by means of leather anklets and a length of cord (jesses) by one leg to a fixed 'block' or 'bow'. This prevented flight and restricted movement. Species affected included several species of owl, which should not be tethered according to Appendix 8 of SMZP.

Furthermore, there were numerous observations of social primate species, such as Diana monkey (*Cercopithecus diana*), emperor tamarin (*Saguinus imperator subgriscens*), gold-handed tamarin (*Saguinus midas*), black-horned capuchin (*Cebus nigritus*) and white-headed capuchin (*Cebus capucinus*) that were kept alone. The black-horned capuchin and white-headed capuchin were housed in adjacent enclosures and had apparently been in conflict (Jungle Zoo, pers. comm., September 2009).



**Figure 11**

Huxley’s Bird of Prey Centre.

Although regarded as common practice, tethering a bird of prey, as opposed to housing it in an aviary, restricts movement and prevents the bird from expressing natural behaviour. Close proximity to other birds could cause them distress.

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

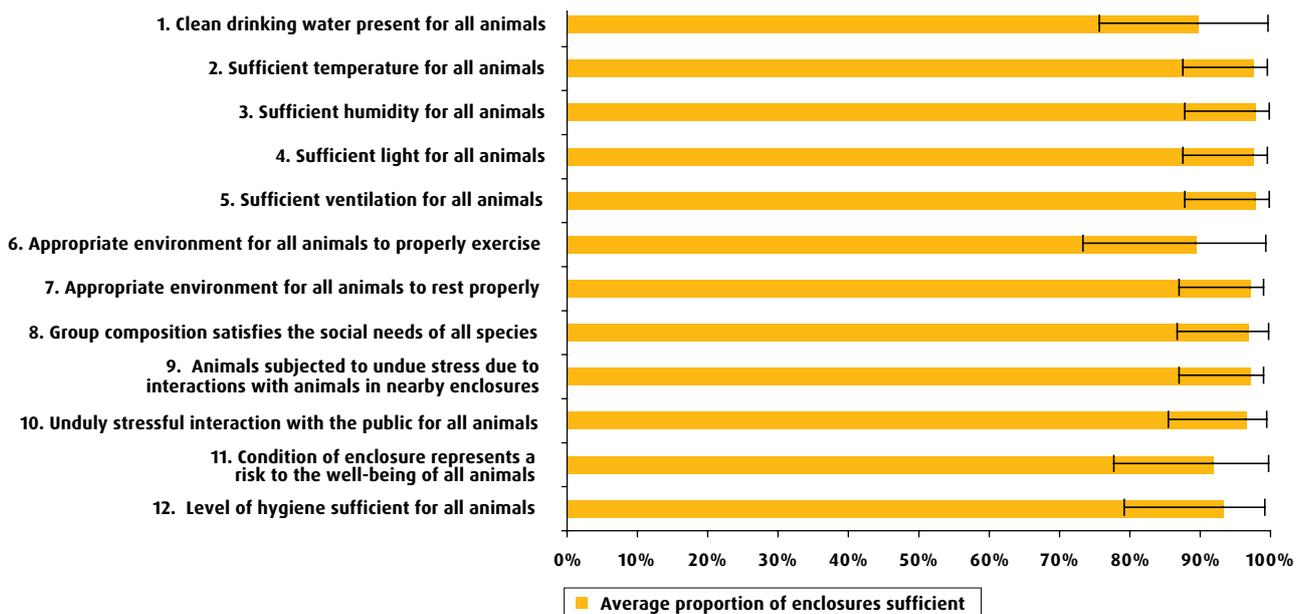
‘Any physical contact between animals and the visiting public must only be for restricted periods of time and under conditions consistent with animals’ welfare, and not likely to lead to their discomfort.’

(Section 5, Provision of Protection From Fear and Distress, SMZP)

Poorly-designed or maintained enclosures allowed for potential contact between the public and animals in 28% of the randomly selected enclosures. This situation was possibly further exacerbated by the fact that birds of prey were often tethered to a fixed position and frequently animals could not seek shelter or privacy from view. This is in addition to the direct or close contact between humans and wild animals identified in 21 of the 25 zoos, which could cause unnecessary distress to the animals concerned.

Numerous observations were recorded where animals appeared agitated or displayed abnormal, repetitive behaviour that may be associated with stress and/or poor welfare. In particular this included giraffe (*Giraffa camelopardalis*), Geoffroy’s cat (*Leopardus geoffroyi*), oriental fire-bellied toad (*Bombina orientalis*) and green peafowl (*Pavo muticus*). A number of individual animals appeared in a state of apathy, which included Bornean orangutan (*Pongo pygmaeus*), and Philippine spotted deer (*Rusa alfredi*).

**Environmental Quality of Enclosures**



**Figure 12** Environmental quality of the 705 randomly-selected enclosures from 25 English zoos. Each column represents a criterion 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 in enclosures varied considerably between zoos compared to the temperature which was more consistently adequate). Where the presence of a condition or factor could not be determined, data were not included.

The results (Fig. 12) demonstrate that while most enclosures appeared to provide the animals with adequate temperature, light and humidity at the time of assessment, lower values were recorded for: the availability of suitable facilities to allow the animal(s) to exercise (on average, 10% of the selected enclosures failed to provide appropriate structures or facilities to allow the animals to exercise properly); the availability of clean drinking water (on average, 10% of the selected enclosures did not provide clean drinking water for the animals exhibited); the condition of the enclosure (on average, conditions in 8% of the enclosures could represent a risk to the well-being of all animals exhibited inside); and the general cleanliness of the enclosures (on average, 7% of enclosures were considered unhygienic). **Assessment of 705 randomly-selected enclosures over the 25 zoos has indicated that the majority of the enclosures met the *Environmental Quality* criteria.**



**Figure 13**

Trotters World of Animals. Enclosures for many species lacked environmental complexity and the ability for the animals to express natural behaviour. Lowland tapir (*Tapirus terrestris*) are shy animals that live in swamps and forests of Central and South America. They are excellent swimmers.



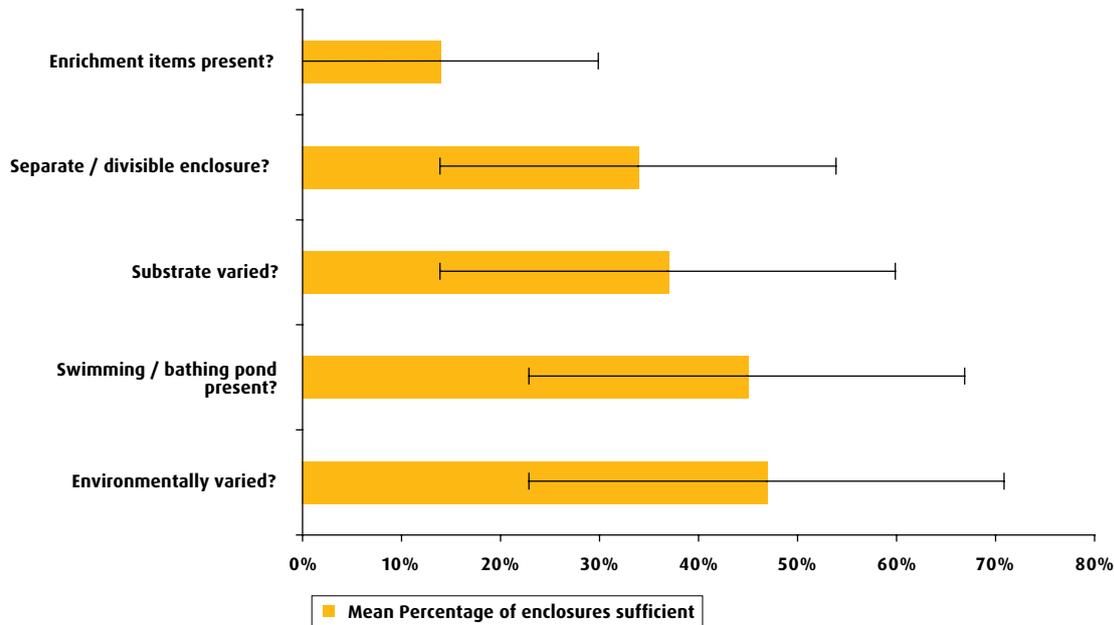
**Figure 14**

Cotswold Wildlife Park. Walk-through exhibits are popular in English zoos. Section 6.14 of SMZP states that public entry should be organised in groups; the number of group visits per day should be limited; when more than five people are admitted at one time, staff must ensure that the public are counted in and out; and that staff to visitor ratios should be adequate. This does not appear always to be the case.

## 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 represents the results of an assessment 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 15** Issues requiring immediate attention following assessment of 705 randomly selected enclosures from the twenty five English zoos. Error bars are a visual representation of the standard deviation from the mean value, demonstrating the variation in performance (e.g. the presence of a varied substrate and sufficient environmental variation in the enclosure considerably between zoos). Where the presence of a condition or factor could not be determined, data were not included.

Indicators of animal welfare were assessed in 705 randomly selected enclosures in the 25 zoos (Fig. 15). The majority of the enclosures assessed did not adequately provide for the species-specific needs of the animals exhibited. Specifically, on average 86% of the assessed enclosures did not include any behavioural or occupational enrichment items or techniques such as toys or feeding devices; 66% of the enclosures did not provide the opportunity to divide or separate the animals; 63% of enclosures did not contain a varied substrate; 55% of enclosures did not provide the animals with access to a swimming or bathing pond; and 53% of enclosures lacked a varied environment that would encourage natural behaviour.

### Widely Represented Issues of Concern (where the percentage of enclosures failing to comply was between 49% and 30%)

- On average, 36% of enclosures did not provide access to multiple privacy areas to accommodate all animals in the enclosure.
- On average, 35% of enclosures did not provide food in more than one place.

### Less Widely Represented Issues of Concern (where the percentages of enclosures failing to comply was less than 30%)

- On average, 16% of enclosures did not provide a suitable substrate for the animals.
- On average, 11% of enclosures were not considered to be large enough for the animals within.
- On average, 11% of enclosures did not provide enough distance to the back of the enclosure for the animal to retreat from the public.
- On average, 9% of enclosures did not provide the individual animals with enough room to get distance from their cage companions, if necessary.
- On average, 9% of enclosures did not contain shelters for the animals exhibited.

The Animal Protection Ordinance of Switzerland, Tierschutzverordnung 2008 (APOS), was used in the investigation to ascertain whether the enclosures were suitable for the species contained. APOS was selected as it represents an independent set of internationally-recognised, species-specific standards and environmental enrichment. All selected enclosures (from Sections D and E analysis) were assessed against the standards. **The results determined that, on average, 19% of enclosures that exhibited species listed on APOS did not meet these minimum requirements.**

# CONCLUSION



The Directive has been effectively transposed into the Zoo Licensing Act 1981 (Amendment) (England and Wales) Regulations 2002, which aims to ensure that all zoos (as defined) in England are licensed and regularly inspected. It incorporates specific conservation measures (Section 1A) and requirements for the appropriate keeping and care of animals (Section 9, ZLA), which are consistent with Article 3 of the Directive. All 25 zoos assessed as part of this investigation, each randomly selected from the 'Defra list of zoo operating in England' (Central Zoo Database, 2009), are licensed. Although there is significant variation in their performance, overall they meet the majority of the licensing requirements. Of concern however, are; the seemingly inconsistent application of the law by the Local Authorities; the untested zoo inspection regime; the level of commitment to the keeping and breeding of globally and European Threatened species; the limited deployment of environmental enrichment in the majority of zoo enclosures; and the implications that public animal handling, extensively promoted and encouraged by a number of English zoos, may have on animal welfare and public safety.

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

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

Zoo regulation in England is consistent with the requirements of the Directive. Defra's Executive Agency, Animal Health and Veterinary Laboratories Agency (AHVLA) is responsible for ensuring the Zoo Licensing Act 1981 is properly implemented throughout England, and provides guidance and substantial assistance to local authorities, which are responsible for the individual licensing of zoos. There are a total of 326 Local Authorities in England, with only 168 believed to have zoos in their area (Defra 2011). The department responsible for zoo licensing in each local authority varies, but it is usually Environmental Health, Trading Standards or Licensing (Defra 2011; Born Free Foundation, unpublished).

There are thought to be between 300 zoos (Animal Health 2011) and 500 zoos (Born Free Foundation, unpublished) in England, with exact total numbers unknown. Of the 326 Local Authorities in England, 222 are believed to have facilities that appear to meet the definition of a zoo (Born Free Foundation, unpublished). This is despite an indication by Defra that there are only 168 Local Authorities with zoos (Defra 2011).

All EU Member States (25) were required to have transposed and implemented the requirements of the Directive (1999/22/EC) by April 2005. The implementation of the Directive by Member States is an issue for subsidiarity and although transposition is overseen by the European Commission, it is the responsibility of the Member State to accurately transpose all the requirements of the Directive into the respective national law and apply it. Unlike many other EC Directives, Directive 1999/22/EC includes no guidance or explanatory notes and therefore effective application relies on the interpretation of the Directive and any guidance provided by, the EU Member State Competent Authority. This has led to inconsistencies in its application amongst EU Member States as a result of different interpretations of requirements, definitions and licensing and inspection procedures. In the UK, transposition of the Directive and its implementation at central government level has been largely effective due to previous experience in zoo regulation, existing knowledge and expertise and an established licensing system and related infrastructure at local authority level.

Unlike many other EU Member States, the UK (comprising England, Scotland and Wales) operated a zoo licensing and inspection system before the implementation of the Directive, administered through local licensing authorities, supported and guided by specific Standards of Modern Zoo Practice (implemented under Section 9 of the Zoo Licensing Act 1981). The UK's Zoo Licensing Act 1981 was implemented in 1984. Its provisions anticipated and formed the basis for many of the requirements of the Directive, including provisions relating to animal welfare, the prevention of animal escapes and record-keeping. On the implementation of the Directive, zoos were expected to adopt additional requirements, specifically relating to the conservation of biodiversity and public education, whilst the Local Authority had to adopt additional measures to administer pre-licensing zoo inspections and take responsibility for the welfare or disposal of animals in the event of zoo closure. The Zoo Licensing Act was amended accordingly, as too were the Standards of Modern Zoo Practice, under the guidance and multi-stakeholder expertise of the Zoos Forum. The Zoo Licensing Act 1981 (as amended) has not only accurately adopted the Directive's requirements, but specifically through the SMZP, imposed higher standards in zoo management, performance and animal care.

Defra and AHVLA have continued to provide support to the Local Authorities in an attempt to encourage the consistent application of the ZLA. This includes guidance, such as a number of Government Circulars (Circulars 5/84, 11/88 & 2/2003) and online support, the Government-appointed Zoo Inspectors, the Zoos Forum Handbook, training opportunities and the advice of the Zoos Expert Committee (formerly The Zoos Forum). Support far exceeds that provided by any other EU Member State. Local Authorities should have all the support necessary to effectively implement and enforce the requirements of the ZLA. However, the substantial evidence of inconsistent application of ZLA at the local level indicates that many Local Authorities appear to be failing to meet their obligations.

In 2000 and 2002, the Born Free Foundation carried out a series of investigations into the licensing of zoos and identified that up to 27% of the then estimated total number of UK zoos were operating without the required licence (Born Free Foundation, 2000/2001; The Sunday Mirror, 2001; The Sunday Times, 2001). Of these 110 zoological collections, 22% were known to the Local Authority, but the authorities had apparently failed to seek to license the establishments (Born Free Foundation, 2001). Three years later some local licensing authorities were still investigating the claims and seeking to ensure the identified unlicensed zoos were properly licensed or officially exempted from the Act (County Times Newspaper, 2004). At that time, all findings were presented to the Local Authorities, Defra and the Zoos Forum. These findings indicated that these failures to identify and license these establishments as 'zoos' had arisen as a result of the misinterpretation of key definitions within the overall definition of a 'zoo' (Sections 1(2) and 1(2A), ZLA), resulting in many smaller collections falling through the legislative net. In April 2002, Defra and the Zoos Forum established a list of commonly kept species in zoos, identifying them as either '*normally domesticated*' or '*not normally domesticated*' (and therefore 'wild animals') in the UK. The list is included in Annex E of GC2/2003. Many of the unlicensed zoos initially identified by the Born Free Foundation in 2001/2002 have now been licensed or granted an exemption to the Act (14(1)(a), ZLA). However, according to records managed by the Born Free Foundation, accurate identification of establishments that would warrant a zoo licence remains a problem, particularly because the system is so reliant upon a voluntary licence application (Defra 2011).

The conduct of Local Authorities was again under the spotlight in 2003 following a study of the performance of Secretary of State's Zoo Inspectors (Greenwood *et al.*, 2003). This identified ongoing inconsistencies in the implementation of the ZLA by Local Authorities including: the issuing of exemptions and dispensations to zoos when the number of animals in the collections did not match the given criteria; indications that the scheduled carrying out of periodic inspections had slipped or that these inspections had been missed; evidence that some informal inspections were not taking place; and that licensing Conditions (actions required to be taken by a zoo by the Local Authority), identified and recommended by the SoS Inspectors, had not been applied to the zoo licence, had taken longer to complete than required or were not undertaken at all. Local Authorities were seemingly not meeting their responsibilities. In 2008, the European Commission received a complaint from a British citizen, who raised concern about poor zoo licensing and inspection (ENV/A/SC/na/Ares(2008) 14376) and in that same year, the Minister for Climate Change, Biodiversity and Waste wrote to all Local Authorities in England to outline their responsibilities and urge their proper implementation of the ZLA (Joan Ruddock MP, 12th May 2008). The Minister raised concerns about the issuing of Exceptions and Dispensations under the Act; the regularity of informal inspections (Section 12, ZLA); the need for Local Authorities to ensure that the Conditions attached to zoo licenses are enforced; and the lack of action against substandard zoos. Further criticism of licensing authorities was again included in a report from the Zoo Licensing Training Seminar in 2009 (Defra, 2009), which identified the need for the AHVLA to identify the causes of seemingly widespread inconsistency, with an aim to improve the implementation of the ZLA throughout England.

In 2010, Defra commissioned a further study to review the implementation of the ZLA in England and Wales, which was undertaken in close collaboration with BIAZA (ADAS, 2011). Following a review of 130 returned questionnaires from Local Authorities, an evaluation of shortlisted case studies, a survey of exempt zoos and interviews with six Zoo Inspectors (three from each list - Section 8, ZLA), the findings revealed an improving situation with respect to the implementing the Act but, also identified areas where further improvements are still necessary (ADAS, 2011). These included the need for more guidance, updating the Government Circular (GC2/2003) and additional training for the licensing authorities; the need to establish reciprocal communication between Local Authorities and Defra,

Local Authorities and zoo operators; the need for greater efficiency in local government departments (i.e. automatic reminders, zoo databases, an appropriately qualified staff resource, etc.); and the need for persons dealing with the implementation of the ZLA to be fully knowledgeable on the issue. Discussions with Local Authorities had highlighted their wider responsibilities particularly when zoo licensing, for the majority of Local Authorities, represents such a small part of their workload (ADAS, 2011).

**Despite a concerted effort by Defra to support and advise the local licensing authorities on the implementation and enforcement of the ZLA, it is questionable as to whether Local Authorities are able to ensure effective application of zoo legislation in England. Whilst the recent ADAS report provided comprehensive conclusions and viable recommendations, the study failed to contact all Local Authorities in England; a significant oversight. The Born Free Foundation has identified that there are actually 222 Local Authorities with zoos in England, which then raises doubt as to whether the findings from the ADAS investigation are truly representative. Overall, however, while implementation appears to be improving, enforcement and inspection quality remain untested. Findings from this zoo assessment have indicated that some zoos are not meeting their obligations under the Act. Defra is urged to adopt the recommendations of the 'Review of Local Authorities' implementation of the Zoo Licensing Act 1981' but equally to understand, take into consideration and seek viable solutions to address the limitations that Local Authorities face with respect to time, funding and expertise.**

## **2. Ineffective enforcement**

In England, the ZLA is implemented and enforced by the local licensing authorities, in consultation with Defra and the AHVLA. Zoos are required to ensure the health, welfare and safety of the public and the animals, prevent the escape of animals and address requirements relating to conservation and education. These outcomes are assessed and enforced through an inspection regime (ZLA).

Local licensing authorities ('Local Authorities') are responsible for carrying out an interim periodical inspection during the first operational year for a new zoo (third year for an existing zoo) and a renewal inspection not later than six months before the end of the licence period. In other years, where Licensing and Periodic inspections are not taking place, Local Authorities are expected to undertake informal inspections. With regard to Licensing and Periodic inspections, Local Authorities are responsible for ensuring the correct composition of SoS Zoo Inspectors, the arrangement of inspection dates and the facilitation of the zoo inspection. Following inspection, the Local Authority is obliged to take on board the recommendations of the SoS inspectors and attach Conditions to the licence, which they must ensure are carried out. The Local Authority is directly responsible for the Informal inspections.

Indications show that previous, extensive failings of the Local Authorities to properly implement and enforce the ZLA are being addressed and that matters are improving. It is also recognised that Defra is likely to adopt the recommendations of the ADAS report and bring further support and guidance to Local Authorities (ADAS, 2011). However, as pointed out by the report, zoo licensing for the majority of departments in Local Authorities forms a very small part of their overall responsibilities and workload and, as a result, limited time to consult the extensive online guidance on the Defra website (notwithstanding the frequent migration of personnel between local government departments), has meant relevant people often lack the required knowledge. **Despite evidence that enforcement of the ZLA is improving, unless there is a dedicated department dealing with all animal-related licensing and enforcement in all Local Authorities (as there is in some Local Authorities), inconsistent application of the ZLA is unlikely to improve further.**

Of particular concern are inconsistencies relating to the issuing of zoo licenses and the granting of dispensations under Section 14 of the Act. Of the 17 zoos with dispensations included in the zoo assessment, many appear to have animal collections that exceed criteria relating to the number of 'conservation-sensitive' species and 'hazardous' animals (Appendix 12, SMZP) (Annex D, GC2/2003). Granting a zoo a dispensation not only ensures the administrative burden

of zoo inspections is reduced, but that fewer licensing conditions, for example concerning conservation measures, are required (Zoos Forum Handbook). The readiness of Local Authorities to grant dispensations under the Act and the apparent lack of regular monitoring of these collections were issues highlighted in both the Minister's letter to Local Authorities in 2008 and the recent Defra report (ADAS, 2011). This requires further investigation.

This investigation has also identified the need for a qualitative assessment of enforcement of the ZLA. Findings have identified that smaller zoos, especially those granted dispensations, are less likely to meet their obligations under Section 1(A) of the Act and the SMZP, ZLA. Concerns have long been raised by the Born Free Foundation regarding the competency of Local Authorities, particularly in respect to the nomination of 'a suitable person' to undertake informal zoo inspections and assess animal welfare (Draper, 2011). Furthermore, under Section 4(2A) of the ZLA, a Local Authority can refuse to grant a licence to a zoo if it is not satisfied that the conservation measures are likely to be implemented. Although reporting mechanisms, including information on the numbers of prosecutions under the ZLA or refusals of license is not readily available (Draper 2011; Defra, pers. comm., 28th February 2011), there is little evidence that any zoo has been closed by a Local Authority in the last five years for breach of license (Born Free Foundation records). Local Authorities are unlikely to penalise zoos that are important tourist attractions (Rees, 2006).

Similarly, **since 2003 there has been no official review of the structure and process of the formal zoo inspection.** SoS zoo inspectors are maintained on a list and administered by the AHVLA, but there is no indication that the knowledge and conduct of these individuals are regularly assessed and the list regularly reviewed. The guidance provided to zoo inspectors has been largely written by the SoS Zoo Inspectors, many of whom were also members of the Zoos Forum (or are members of the Zoos Expert Committee), some of whom are owners of zoos, or are employed by zoos. Defra needs to ensure there is no reason to warrant concern over a possible conflict of interest of these individuals.

**The quality and regularity of zoo inspections needs further investigation by the national authorities. Currently, inspections rarely appear to last more than one day, irrespective of the size and/or complexity of the zoo. National authorities should consider the development of a centralised system of reporting, recording and assessing, as well as enforcing conditions imposed by, zoo inspection.**

**In addition, the National Authority should continue to support the Local Authorities to help them effectively implement and enforce the ZLA. The limitations that Local Authorities face with respect to time, funding and expertise should be fully considered and additional support should be provided where necessary to ensure the proper functioning of the licensing system.**

### **3. Prevention of animal escapes**

Two types of barrier should be in place to prevent the escape of an animal from a zoo into the natural environment. The *enclosure fencing*, which maintains an animal within its enclosure 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.

The threat that an escaped non-indigenous animal might pose to the natural environment, to native species, or to human beings is well understood and stringent preventative measures are required under all zoo-related legislation in England (Section 1A(e) and (f), ZLA; SMZP; MHSZ). Despite previous documented animal escapes (see below), our investigation indicates that not all the zoos appear to take the necessary precautions to prevent animal escapes and keep their animals in secure enclosures.

News reports from 2009, reported the escape of a wolf from Combe Martin Wildlife Park that was found outside the perimeter fence (The Telegraph website, 2009); in 2007, Paignton Zoo Environment Park euthanased peacocks that had escaped from the zoo (Daily Mail website, 2007); in 2001, a Ruppell's griffon vulture flew off during the bird of prey demonstration at Banham Zoo and was recovered 110km away (The Record, 2001); and six of the selected zoos had reported instances in the last six years where animals had been stolen from the zoo, or harmed by intruders entering

the grounds outside opening hours (BBC News website, 2004; The Telegraph website, 2005; BBC News website, 2005; Daily Mail website, 2006; BBC News website, 2008; North-West Evening Mail website, 2009; Birmingham Mail website, 2010). These instances suggest that the perimeter fencing in some zoos is not as secure as legally required.

These findings are consistent with the conclusions of an investigation carried out in Spain which identified zoos as representing a significant risk by providing pathways for the introduction of Invasive Alien Species (IAS) (Fábregas *et al.*, 2010), particularly concerning the prevalence of DAISIE-listed species kept by zoos. In 2001, the European Commission recognised the need to address IAS as an integral part of strategies to halt biodiversity decline and initiated the development of an EU strategy to substantially reduce their impacts (Shine *et al.*, 2009, 2010).

**The Local Authorities and the SoS Zoo Inspectors should ensure zoos are taking the necessary measures to prevent animal escapes and intrusion into enclosures by indigenous wildlife by keeping all their animals in secure enclosures. Furthermore, there should be a review of the height and security of perimeter fencing to try to further prevent escapes from zoo grounds and curtail the apparent surge in animal thefts from zoos.**

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

Animal contact is encouraged in some areas of the majority of zoos assessed in this investigation, and is generally promoted as an 'educational experience'. These activities include animal 'encounter' sessions, supervised and unsupervised public feeding of animals, touch pools, extra promotions such as to become a 'Zoo Keeper for the Day' or opportunities to take part in animal presentations, where the public can have direct contact with animals. Some of the animals used during these activities pose significant risk of injury and/or disease transmission to zoo visitors.

In England there are reasonably detailed regulations and guidance regarding high standards of both public and animal health, welfare and safety. Both the Standards of Modern Zoo Practice (SMZP) and the Health & Safety Executive Code Of Practice on Zoos (MHSZ) warn against contact between the public and animals, particularly animals classed as 'hazardous', and further discourages any contact that is uncontrolled or unrestricted. Despite such requirements, animal contact appears to be a common activity in English zoos. The findings also indicate that there are many instances where the public could have unsupervised direct contact with potentially dangerous animals, mainly due to poorly-designed or maintained enclosures. This raises concerns not only about the health and safety of the public, but also the health and welfare of the animal(s) and requires further investigation by Defra and the Health and Safety Executive (HSE).

Whilst enclosures exhibiting 'hazardous' animals were usually labelled with appropriate warning signage, the public involved in the animal handling sessions were rarely notified of potential danger of injury and disease transmission. It is to be hoped that all the animals involved in the handling sessions are regularly screened for zoonoses nevertheless it is important to acknowledge that many species naturally harbour zoonoses but display no symptoms (Aiken *et al.*, 2010; No.148, MHSZ) and that preventative measures should be taken (Appendix 6, SMZP; No.100, MHSZ). At no point during the animal handling sessions observed as part of this investigation, were the public informed of these risks or encouraged to wash their hands either before or after animal handling. This contravenes the requirements of both the SMZP and MHSZ.

Animals, particularly wild animals, are thought to be the source of >70% of all emerging infections (Kuiken *et al.*, 2005). For example, both reptiles and birds can harbour *Salmonella* (Centres for Disease Control and Prevention website; Mermin *et al.*, 2004). The risk of infection for people who hold or stroke these animals is therefore highly probable (Warwick *et al.*, 2009; MHSZ). The risk of disease transmission, particularly zoonoses, is often overlooked in zoos.

**Defra and the HSE should investigate the apparent regular use of animals in direct contact sessions with the public in zoos.** The Animal Welfare Act 2006, ZLA and SMZP specify minimum animal welfare standards and should ensure that animal handling should not compromise the welfare of the animals. However, there is little evidence that full consideration has been given to the welfare of these animals or that the required risk assessments have been carried out. **The Competent Authorities should discourage direct contact between the public and animals, and**

**prohibit contact with dangerous animals and those known to harbour zoonoses. Zoos should be required to demonstrate that they have taken the safety of the visiting public and, indeed, the welfare of their animals fully into account.**

## **5. Commitment to conservation**

From 2003 and following the implementation of the Zoo Licensing Act (amended), all zoos in England have been required to adopt measures to help conserve biodiversity and educate the public; activities which are regularly promoted as being at the heart of the evolved role of the 21st Century zoo (BIAZA website; Paignton Zoo Environmental Park website). Underpinned by the priorities of the Convention on Biodiversity (CBD), the Directive requires zoos in the EU to adopt measures for the *ex situ* conservation of biodiversity, which should complement *in situ* measures (Rees, 2005). Section 1A of ZLA has adopted the minimum standards specified by Article 3(1) of the Directive, requiring zoo operators, in consultation with the Local Authority, to commit to at least one of five conservation measures. These include their participation in: scientific research from which conservation benefits accrue to species of wild animals; training of conservation skills; exchange of information relating to the conservation of species; where appropriate, the breeding of wild animals in captivity; and where appropriate, their reintroduction into the wild. These conservation measures are fairly ambiguous requirements which are only marginally explained in Section 7 of SMZP, but then interpreted in Chapter 2 of Zoos Forum Handbook.

Findings from this investigation have identified that the majority (76%) of the representative sample of zoos are taking part in at least one of the above minimum requirements, with Member zoos of BIAZA often contributing to more than one of the above listed conservation measures. However, as pointed out by a recent study commissioned by Defra (ADAS, 2010) which assessed the contribution of English zoos to conservation, it is often difficult to ascertain the effectiveness of these conservation activities, to ensure consistency in the assessment of such measures and to determine whether zoos are actually able to deliver tangible benefits to the conservation of animals in the wild (Rees, 2005; ADAS, 2010).

The EU Zoo Inquiry investigation recognises conservation as being the core focus of the Directive, but zoos need only contribute to one of the above listed conservation measures and therefore evaluation of the degree to which the representative sample of zoos contribute to conservation activities has included all conservation options. The findings have identified that for:

### **Scientific Research**

Up to 40% of the representative sample of zoos is contributing to scientific research. However, in line with previous indications, the majority of published and available literature to date is related to, or aimed at, improving the welfare and longevity of wild animals in captivity (Rees 2005). Furthermore, of the 752 entries in BIAZA Research Database, only 35% were in collaboration with a Higher Education Institution and the majority of these were undertaken at undergraduate level. As previously identified, scientific research in zoos is usually focused on experiencing and understanding research processes rather than aimed at advancing science (Thomas, 2005; SRI International, 2006). Furthermore, it is usually conducted in unnatural conditions and often with small samples of animals (Rees, 2005). It is therefore questionable as to the true value of this research.

Similar conclusions were reached in an earlier study which specifically reviewed the value of scientific research in zoos in relation to the requirements of the Directive (Rees, 2005). The study concluded that most of zoo research is concerned with [captive animal] behaviour, environmental enrichment, nutrition and reproduction, focused on maintaining a healthy population of captive wild animals, and is therefore largely irrelevant to *ex situ* conservation. This conclusion was acknowledged by Thomas (2005). Rees explains that zoo-bred animals are rarely used in reintroduction projects, as they are often ill-suited to the natural environment, although there are a few notable exceptions (Frankham *et al.*, 2002). Furthermore, recognising that the BIAZA Research Database has only 752 entries in 31 years, and only 13 of its 68 member zoos in England (BIAZA website – Find a Zoo Database) have seemingly participated in scientific research, zoos are unlikely to be contributors and, of the research that is produced, the majority is identified as being unsuitable for publication in academic journals (Rees, 2005).

### ***In situ* conservation, information exchange and species reintroduction projects**

It is generally accepted that *ex situ* conservation efforts in zoos should aim to support *in situ* conservation efforts in the wild (IUDZG & IUCN/SSC, 1993; Rees, 2003; Sukumar, 2003; WZACS, 2005; BIAZA website; SMZP) and that simply raising money to donate to *in situ* conservation is not sufficient (Zoos Forum Handbook).

Of the representative sample of zoos, 72% appears to be contributing to local and international *in situ* conservation projects. However, these efforts appear to be largely minimal, comprising fundraising and the donation of money to *in situ* conservation projects and the promotion of EAZA Campaigns, rather than the provision of technical assistance to field conservation, the exchange of information for conservation purposes or reintroduction of captive-bred native species into the wild. Furthermore, the majority of the zoos' *in situ* conservation efforts are supporting the work coordinated by other local or international NGOs, or an independent research institution, rather than a project run directly by the zoo itself.

In comparison, the BIAZA Database on '*Conservation specific projects*' lists 32 projects undertaken by 13 (>20%) of its 81 British and Irish member zoos between December 2007 and November 2010. Of the 32 projects, 23 appear to deliver direct conservation benefits to animals of wild species in the wild either through re-introduction programmes (seven), local community engagement projects (six), specific species or habitat conservation programmes (five); field-based research (four), or through the provision of technical support (one). Despite the fact that this analysis does appear to demonstrate that some of BIAZA's 81 members (BIAZA website – Find a Zoo Database) are '*embracing much needed conservation initiatives*', **overall, zoos do not appear to be making significant efforts, particularly with respect to those expected of them, towards *in situ* conservation programmes.**

It is recognised that smaller zoological collections with dispensations may not have the capacity to undertake or contribute to conservation activities to the same degree as the larger collections, and that it is the responsibility of the Local Authority, on the advice of the SoS Zoo Inspectors, to ensure the extent of the conservation activities of the zoo is proportionate and appropriate (GC2/2003; Zoos Forum Handbook). Recognising that this may be the reason behind the modest contribution to *in situ* conservation identified from the representative sample of zoos, individual, identified contributions were then assessed. Findings have revealed that whilst larger collections like Banham Zoo, Cotswold Wildlife Park, Paignton Zoo Environmental Park and West Midlands Safari and Leisure Park are seemingly contributing to a diverse number of projects, both by raising and donating funds to *in situ* conservation projects, through the provision of technical assistance and by contributing to species re-introduction programmes, the same degree of commitment is not apparent (in published material and documentation) in the other four large collections within the representative sample. Furthermore, of the 17 zoos with a dispensation, just five appear to be contributing to a diverse array of *in situ* projects and species reintroductions, in addition to the raising of funds.

**Despite an overall minimal contribution to *in situ* conservation, information exchange and species reintroduction projects that appears to benefit a small number of species, there appears to be little difference between the degree of commitment demonstrated by zoos with full licences and zoos with dispensations (Section 14, ZLA).**

### **Keeping and breeding of Threatened species**

The role of *ex situ* conservation ('*the conservation of components of biological diversity outside their natural habitats*' (CBD)), in the conservation of biodiversity is well-understood and documented (IUCN 2002; CBD; Conde *et al.*, 2011) and the potential contribution that zoos could make through the effective integration of *in situ* and *ex situ* approaches is also recognised and encouraged (CBD; Directive 1999/22; ZLA; Zoos Forum Handbook). However, the reasons given for *ex situ* conservation - Species Management Programmes in particular - vary significantly dependent upon who is providing the explanation. For example, the IUCN states that *ex situ* conservation programmes should be considered only as an alternative to the over-riding need for *in situ* management in exceptional circumstances, the programme is best-suited close to or within the ecogeographic range of the target taxa and that the primary objective is to help support the conservation of threatened taxa (and their habitat), utilising a variety of techniques including reproduction

propagation, applied research and re-introduction into the wild (IUCN 2002). The zoo community on the other hand state that Species Management Programmes concerning endangered or threatened species kept in captivity are aimed at maintaining viable captive populations, (including 90% genetic diversity for the next 100 years) are used as advocates for conservation and for raising money and awareness (de Boer, 1993; BIAZA website). The only similarity is that there is an agreement that the focus should be on endangered or threatened species. This investigation evaluated the commitment by the representative sample of zoos to both keep and breed Threatened species.

**The majority (82.56%) of observed species exhibited by the representative sample of English zoos were categorised as not Threatened by the IUCN Red List of Threatened Species™, species internationally recognised as being of a low conservation priority.** Of the total number of observed species at the 25 zoos, 17.07% were Threatened species, as recognised by IUCN, and 24% were ‘*conservation sensitive*’ species as described by Annex D, GC2/2003 (consisting of species listed on Annex A of Regulation (EC) 2307/97 and in the IUCN Red List as NT, VU, EN, or CR). Three of the 25 zoos did not keep any Threatened species. Mammals represented the highest proportion of Threatened species exhibited, whilst amphibians were the lowest despite the fact that numbers of Threatened amphibians far outnumber Threatened mammal species (IUCN Red List of Threatened Species™).

There were similarly poor records for the keeping of European and nationally threatened species. Of all the species observed in the representative sample of zoos in this investigation, 8% are listed as European threatened species of mammals, reptiles, amphibians, invertebrates and fish (IUCN European Red List) and 7% of all species are listed on the BirdLife International status assessment for birds in the European Union (BirdLife International, 2004) (although the majority of these were categorised as being of least conservation significance). Furthermore, of a total of 1,084 observed species in the 25 zoos, just 39 species (4%) were listed on the National Red List for the UK (National Red Lists website). **Regionally Threatened species are not a conservation priority of English zoos.**

English zoos which keep such ‘relevant species’ are required to participate in recognised species management programmes (Section 7.6, SMZP) and according to BIAZA, UK and Republic of Ireland zoos are encouraged to join the relevant European programmes, as most British and Irish programmes have become European-wide in their scope (BIAZA website). Of the total observed species over the 25 zoos, just 14% are listed on the register of the European Species Management Programmes (EEPs or ESBs), however, it was not possible to confirm active participation in captive breeding programmes in 12 of the 25 randomly-selected zoos. **Moreover, of the 185 Threatened Species of the 1,084 observed species in the 25 zoos, less than half (49%) were identified as actually participating in the European Species Management Programmes.** Paignton Zoo Environmental Park included the highest number of species in this regard with 67 of the 240 observed species at the zoo identified as Threatened by the IUCN Red List of Threatened Species™. Additionally, all 66 of their EEP/ESB-registered species were confirmed as participating in the Species Management Programme (EAZA Yearbook, 2007-2008).

In 1992, Groombridge pointed out that despite IUCN’s recognition of the potential role that captive breeding and zoos could play in species conservation, zoos were not delivering (Groombridge, 1992). The zoo community claims to have rectified this situation (BIAZA 2007; BIAZA website; EAZA website). However investigations into the species and taxa kept by English zoos by this, and other investigations suggest otherwise, with zoos only keeping and breeding a limited number of Threatened species (Born Free Foundation 2007; Born Free Foundation 2011). The Zoos Forum Handbook states that ‘*whilst zoos are not expected to only keep species included in Species Management Programmes (i.e. EEPs and ESBs), zoos are expected to achieve a ‘target percentage of such species’ that reflects the nature and focus of the zoo.*’ No further guidance is given as to what is the acceptable ‘*target percentage*’ for each ‘*type*’ of zoo. Of the 25 zoos, assessed in this investigation, the majority (n=18) are recognised as ‘General mixed’ collections, two are aquariums, two are farm parks, two are falconry centres and one is an aviary (Animal Health, 2011) and whilst the farm parks may have an alternative focus (i.e. keeping predominantly farmed/domestic species), the majority of zoos selected kept predominantly animal species ‘*not normally domesticated in the UK*’ (Annex E, GC2/2003). Therefore, all these zoos should be making every effort to keep and breed national, regional and globally threatened species, irrespective of their size.

Despite the evidence that the majority (76%) of English zoos are contributing to at least one conservation activity (Section 1(a) of ZLA), and that in some cases zoos are participating in more than one (ADAS, 2010), overall, English zoos are not achieving their potential in species conservation and scientific research as claimed by the zoo community (WZACS; BIAZA website; PAAZAB, 2006; Zoos Forum Handbook) and as required by the ZLA and the Directive. The ADAS 2010 study into the conservation contribution of zoos identified similar findings, although seemingly over-amplified, perhaps as a result of the 'voluntary' nature of the data collection and the lack of a robust method of verifying the claims made (ADAS, 2010). **Zoo operators, regardless of the type of zoo, should seek to increase their work in support of species and habitat conservation, particularly by focusing their efforts on local, national or regional Biodiversity Action Plans (WZACS). The National Authority should consider establishing specific 'conservation' targets through the SMZP, together with a process of evaluation to assess the 'success' of activities undertaken by zoos to meet the above requirements.**

## 6. Public education

In addition to a commitment to species conservation, zoos in the UK are required to deliver quality public education as part of an active education programme which not only seeks to inform the visitor about all the species exhibited, but also raises awareness about the conservation of biodiversity (ZLA; SMZP; Zoos Forum Handbook). The findings have confirmed that 20 of the 25 zoos assessed were implementing an educational strategy that delivers to several target audiences (schools and general public), which included species information signage, species talks and animal presentations, classes for school groups and available teaching aids, some of which may follow the National Curriculum. This would be consistent with the requirements of ZLA and SMZP if it was not for the fact that reference to species conservation and the related topics was often omitted from species talks, animal presentations and species information signage. This overall failure by the representative sample of zoos (although some zoos were better than others) to inform the public about the importance of conservation is at odds with the requirements of CBD, WZACS and the ZLA. Furthermore, **five of the 25 selected zoos participated in minimal educational activities.**

**Figure 16**

Blue Reef Aquarium.

Of the 25 assessed zoos, 20 were implementing an educational strategy, which included species talks and animal presentations. The authors expressed concern over the possible stress imposed on the animals during handling sessions.



Animal presentations (i.e. animal encounter sessions, sea lion show, bird flying, aquarium presentation, parrot show, etc.) are widely-represented in zoos in England. Guidance on the educational requirements for 'Animal presentations' was produced for Defra (Zoos Forum, 2008) following recognition that additional advice for Local Authorities and SoS Zoo Inspectors was necessary. Education in zoos apparently takes two forms: 'formal' with respects to schools; and 'informal' for a general public audience. Animal presentations are regarded as an informal educational function that, if undertaken, should provide accurate information about the species involved, raise awareness in relation to the conservation of biodiversity and meet animal welfare and public health and safety requirements (Zoos Forum 2008; Zoos Forum Handbook). **While the majority of the animal presentations observed included accurate species information, information about species conservation, or broader conservation / sustainability issues was often absent.**

Other concerns include the possible stress imposed on the animals; the loud music, in the case of the sea lion show; and, in relation to animal handling during the animal presentation, the stresses caused by the close proximity of people to animals, repeated handling, together with environmental stresses and artificial noise (Davey, 2007; Rajagopal *et al.*, 2011). **It is not known if zoos are taking the necessary measures to guarantee that animal welfare is not being compromised (AWA; SMZP).** As mentioned above, animal handling also poses a risk to the health and safety of the public. Stressed reptiles, for example, which are commonly used in the 'animal encounter' sessions, are known to excrete *Salmonella* (South East Regional Zoonosis Committee). The potential transmission of zoonoses is a particular concern, especially as participants were rarely encouraged to wash their hands.

Inspectors and licensing authorities are required to ensure the extent of educational activities are proportionate and appropriate for the type and nature of the zoo, but they are not expected to assess each element, only to exercise their judgment by taking account of the quality and diversity of activities (GC2/2003; Zoos Forum Handbook). Again, as with assessment of conservation activities, assessment of 'successful' delivery is open to individual opinion, which therefore cannot guarantee consistency in application (ADAS 2010). Zoos are encouraged to regularly evaluate their educational programmes to ensure delivery of a positive educational message. However, many of the animal presentations and advertised promotions, such as feeding animals as part of a birthday party (Banham Zoo website); animal encounters that involve '*access to your chosen animals and activities including feeding or grooming*' (Dudley Zoo website); and '*spectacular fireworks and bonfire, late-night rides, safari illuminations and themed music*', which includes '*Mark O'Shea's Reptile World, Twilight Cave, SeaQuarium, Creepy Crawlies, a sea lion show...and disco*' (West Midlands Safari and Leisure Park website) do not appear to provide a positive educational message that is in accordance with the requirements of SMZP and the Zoos Forum Handbook.

**Zoo operators, irrespective of the type of zoo, should have an established education department that is sufficiently resourced and staffed, in order to inspire and encourage local and regional initiatives to raise awareness about the importance of conservation (WZACS). The National Authority should seek to adopt recommendations made as part of the recent study into the conservation and education commitment of zoos in England (ADAS 2010):** to review the 'suggested benchmarks for education and conservation' guidance for inspectors; to establish guidelines for inclusion in the Zoos Forum Handbook for the evaluation of education activities; to establish means for more consistent application of standards by inspectors.

## 7. Unsuitable living conditions for animals

The assessment of zoo enclosures in England confirmed that overall, English zoos generally provide better conditions for their animals, compared to living conditions for captive wild animals in many zoos in many other EU Member States. Generally, enclosure design had taken into consideration the overall basic needs of the species exhibited and, where problems were identified, these were mainly limited to a small number of enclosures, or a small number of individual zoos, rather than identified as being a systemic problem across the 25 zoos. These included:

- Some wide-ranging species were in small enclosures that did not attempt to meet their spatial needs;
- Birds of prey, including owls, were observed tethered by one leg to a fixed 'block' or 'bow', preventing flight;
- Species requiring adequate features to climb, bathe, dive, fly, or a suitable substrate to dig or burrow in were sometimes housed in conditions where such natural behaviours were compromised or prevented;
- Poor levels of hygiene were observed in some enclosures, which had the potential for the build-up of harmful pathogens;
- Some enclosures were in a poor state of repair, which could potentially place the animal(s) exhibited at risk or permit their escape;
- The majority of randomly selected enclosures lacked environmental complexity, varied topography and suitable environmental enrichment to encourage natural behaviour;
- In all the zoos, there were situations or instances where the public could have direct contact with the animals, supervised and unsupervised, that potentially heightened levels of distress for the animals and posed risk to the public.

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 contribute to abnormal behaviour, disease and early mortality. Zoos must seek to provide all their animals with more suitable environments that encourage exercise and natural behaviour.

The SMZP stipulate detailed requirements for zoos to provide each animal with an environment that meets the physical, psychological and social needs of the species. Providing adequate welfare is dependent upon meeting animals' needs for factors such as: food; water; temperature; lighting; space; environmental features that encourage natural behaviours (including foraging, resting, sleeping, exercise, etc.); social interactions; and the maintenance of good health (Companion Animal Welfare Council 2003). These apply to all categories of animals dependent upon humans, regardless of their circumstance. Problems usually arise when there is a lack of knowledge or understanding of these provisions, or where there are insufficient resources to ensure their provision (Zoos Forum Handbook).

Findings, using the assessment criteria explained in the online Methodology, indicate that there is a degree of variance across the 25 zoos, with the larger, mixed collections providing the majority of their animals with a more suitable captive environment, whilst smaller mixed collections occasionally experiencing and imposing spatial and environmental limitations.

The tethering of birds of prey is a specific cause for concern, which was observed in a number of zoos. Although common practice, tethering of birds of prey by one leg to a fixed point is highly restrictive - subjecting any other group of animal species to such practice would be considered unacceptable. According to UK VET (Rees Davies, 2005) and Appendix 8.7 of SMZP, although free-flight aviaries are preferred (especially for owls and vultures), tethering does not usually compromise the welfare of some species providing the bird is well-trained, the jesses are in a good condition and the birds are flown at least four times a week. However, it is of concern that birds of prey can be purchased and that inexperienced people are keeping and flying these predators. Failure to keep these animals under suitable conditions, to ensure they are regularly flown and to provide other stimulation can lead to the development of abnormal behaviour, or cause the animal harm.

**Environmental enrichment was found to be lacking in the majority of enclosures assessed within the 25 zoos.** Whilst the enclosures usually contained fixed furnishings that may well have been deployed to encourage natural behaviour, the use of additional behavioural or occupational enrichment items or techniques such as toys or feeding devices, varied substrate and overall environmental complexity were often absent. It is widely recognised that the inclusion of varied environmental enrichment 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). Without such stimulation, animals may develop abnormal behaviours, recognised as indicators of poor animal welfare (Mason & 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). Zoo operators should be fully aware of the range of needs of the species they keep. **The SMZP provides limited guidance for 'specialist exhibits' (Appendix 8, SMZP) and species-specific, scientifically-validated animal husbandry guidance only exists for a few taxa (EAZA; BIAZA).** Greater efforts must be made to develop animal management guidelines for all commonly kept taxa to ensure animals are housed in appropriate conditions.

Although it can be difficult to assess the welfare of an animal (a process which often requires in-depth study), observations during on-site visits and documented reports have given rise to concerns about the quality of animal care at some of the selected zoos. Probable stereotypic behaviour, apathy and apparent agitated behaviour was observed in some animals. News reports about the overgrown hooves of a zebra at Trotters World of Animals (that forced the animal to walk 'pigeon-toed' according to the News & Star website, 2009), and the transfer of a giraffe with overgrown hooves from Dudley Zoological Gardens in October 2011 (Daily Mail website, 2011), raises concerns about the quality of

care given to some of the animals. Furthermore, poor levels of hygiene were observed in 7% of selected enclosures.

**Questions need to be asked about both the quality and regularity of the inspections by zoo staff and veterinarian (Section 3, SMZP; Zoos Forum Handbook), as well as the zoo inspections (ZLA).**

Zoos are subject to annual inspections, whether a Licence or Periodic inspection, undertaken by one or more SoS Zoo Inspectors, or an Informal or Special inspection undertaken by a suitable person nominated by the Local Authority (ZLA). All inspections require an assessment of animal welfare which may not be straightforward but is a process assisted by a 'toolkit' of methodology for welfare assessment which is available for Local Authorities and Zoo Inspectors in Chapter 4 (and Table 2.4.1) of the Zoos Forum Handbook. Recognising the concerns raised about the competency of the Local Authorities, the regularity of the inspections, the limited knowledge in applied animal welfare science of some veterinarians (FVE, 2009) and the fact that the reliability and consistency of the SoS Zoo Inspectors has yet to be evaluated and verified, concern about the quality of assessment of animal welfare in zoos is warranted.

**National authorities should seek to ensure that Local Authorities and SoS Zoo Inspectors are appropriately trained and knowledgeable in fundamental and applied animal welfare science, capable of identifying poor welfare and able to provide the necessary advice to zoo operators as to how to address substandard conditions.** Zoo operators should adopt and develop an environmental enrichment programme that continually evolves and is evaluated to ensure an improved and stimulating captive environment for all animals in their care (WZACS). **Zoos are also recommended to develop their own ethical codes and animal welfare policies and, through improved management techniques and self-evaluation, ensure that practiced activities, such as animal handling, do not cause the animals distress.**



**Figure 17**

Combe Martin Wildlife Park.

Enclosures for many species lacked environmental complexity and the ability for the animals to express natural behaviour. This enclosure, exhibiting African lions (*Panthera leo*), lacks sufficient space, opportunities to climb to reach a high elevation, seek privacy from view or to escape cage companions. No environmental enrichment was observed. It is understood that this enclosure may soon be improved.

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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 seek compliance with existing legislation and improve the welfare conditions for wild animals currently held in zoos. Via our Compassionate Conservation agenda, we 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)

### **EU Zoo Inquiry 2011**

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

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