

A Study of the Conservation Status of Species Held in Welsh Zoos



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A Study of the Conservation Status of Species Held in Welsh Zoos

Report by Craig Redmond

Commissioned by the Captive Animals' Protection Society

This report has been researched and written by Craig Redmond on behalf of the Captive Animals' Protection Society, a registered UK charity, number 1124436.

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The Captive Animals' Protection Society (CAPS) is a UK-based charity leading the campaign to end the captivity of animals, especially those used for entertaining the public in zoos, circuses and the media industry.

Our Mission

1. We take action to end the captivity of animals, especially those used for entertaining the public in zoos, circuses and the media industry.
2. We carry out investigations and research to provide a solid evidence base for our campaigns and political lobbying.
3. Our educational work and awareness raising promotes a more compassionate attitude and relationship between humans and other animals.
4. We undertake high level work to educate policy makers whilst continuing to support grassroots activism, the very foundations of CAPS.
5. We work in partnership with organisations that share our values and amplify our campaigns.

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Research conducted into zoos in Wales has found:

- There are 37 zoos in Wales
- Most are in the categories General Mixed (10), Falconry Centres (9) or Farm Parks (8)
- Six falconry centres are not licensed to operate as zoos but are still open to the public
- Only four zoos are members of the trade body BIAZA (the British and Irish Association of Zoos and Aquariums) and only two of EAZA (the European Association of Zoos and Aquaria)
- The 12 zoos studied in this report keep 2950 animals of 374 species
- Of these animals, only 17% of species are classed as threatened in the wild and just 9% as endangered
- Of the ten most common species in zoos in Wales, 19% of animals (individuals) are of domesticated species and 65% are classed as at 'least concern' in terms of conservation status
- The vast majority of species in zoos in Wales are not endangered: 84% of mammals; 95% of birds; 93% of reptiles; 79% of amphibians
- There is an inadequate application of the Zoo Licensing Act when it comes to falconry centres, resulting in zoos not being inspected and animal welfare potentially at risk
- This study is designed to raise discussion about zoos in Wales and form the basis for further research.





Although there have been several previous investigations into conservation and animal welfare implications of zoos in Europe (e.g. Casamitjana, 2004; Born Free 2011; Casamitjana, 2012; Redmond, 2013), these have focussed on the EU as a whole or England in particular; none have specifically looked at Wales.

The Captive Animals' Protection Society (CAPS) has often highlighted neglected areas of the zoo sector (such as aquariums or the welfare of birds) and recognised that a study of zoos in Wales would be a valuable addition to discussion about zoos generally. CAPS has raised concerns about zoos for several decades, highlighting animal welfare concerns about keeping wild animals in captivity as well as showing that zoos do little to aid real conservation despite their many claims.

This study is a short, preliminary piece of research investigating the number of species held in zoos that are threatened with extinction. One of the major reasons zoos claim to exist is to support conservation, particularly captive breeding (ex situ conservation). The British and Irish Association of Zoos and Aquariums (BIAZA), a trade organisation for zoos, claims:

“Conservation breeding involves the careful and coordinated population management of a range of animal species through specific breeding programmes. These programmes ensure that there is rarely need to take animals from the wild and secures genetically healthy populations. Captive populations can be used as advocates for conservation and environmental issues by raising awareness and generating funds for in situ conservation, and could one day be returned to their natural habitat, should this be appropriate.” (BIAZA, 2017a)

European Union law (the European Zoos’ Directive) requires that zoos undertake conservation measures. These can include, but are not restricted to, captive breeding and repopulation or reintroduction of species into the wild (DEFRA, 2012a).

With zoos having the captivity of animals as their core focus, this study assesses the conservation status of the species held by zoos in Wales, based on the records of species and individual animals compiled by the zoos themselves.

There are some limitations with this study:

- It assesses 21 of 37 (56.76%) known zoos in Wales, for reasons set out in Section 6
- It only assesses the conservation status of mammals, birds, reptiles and amphibians and not fish, arachnida, crustaceans or insects, for reasons set out in Section 7
- As visits to individual zoos was not part of this study, no attempt is made to discuss animal welfare conditions in zoos in Wales

However, this report provides a basis for discussion on the topics raised and a a grounding for further research into zoos in Wales.





The European Commission Zoos Directive (Directive 1999/22/EC) requires EU Member States to regulate zoos in accordance with its provisions. The Directive is transposed into national legislation in England by means of the Zoo Licensing Act 1981 (Amendment) (England and Wales) Regulations 2002. A zoo is defined under the Act as:

“An establishment where wild animals [...] are kept for exhibition to the public otherwise than for purposes of a circus [...] and otherwise than in a pet shop [...]. The 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 12 consecutive months. Under the EC Zoos Directive, zoos may be exempted from the requirements of the Directive on the grounds that they do not exhibit a significant number of animals or species to the public.” (DEFRA, 2012a)



European Council Directive 1999/22/EC of 29 March 1999 “relating to the keeping of wild animals in zoos” sets out conservation and animal welfare requirements for zoos in all Member States. Under devolution, the Directive is transposed into national legislation in Wales through the Zoo Licensing Act 1981 (Amendment) (Wales) Regulations 2003 and is the responsibility of the Welsh Government. As in England, Scotland and Northern Ireland, responsibility for licensing and inspecting individual zoos lies with the local government authority for the area in which the zoo is based.

The Welsh Government website (www.gov.wales) contains only four references to zoos. Only one of these pages provides information on zoo licensing and this links to the UK government website (Welsh Government, 2017). The Welsh Government website contains no Wales-specific information or guidance on zoo licensing.

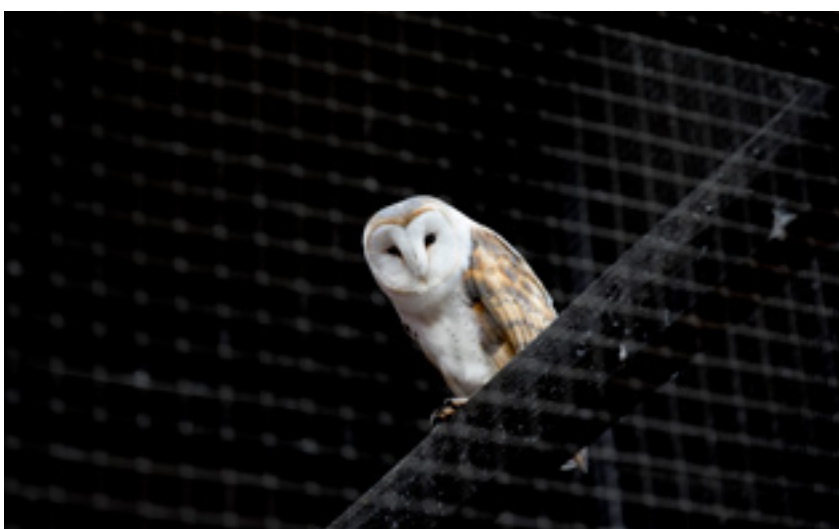
In the UK all zoos are licensed by the local authority in which they are based. A spreadsheet was compiled of all known zoos in Wales, along with the name of the local authority, using the following information:

- Response found online from the (UK government agency) Animal and Plant Health Agency to a Freedom of Information Act (FOI) request in August 2016 for a list of zoos in the UK
- Details of any additional zoos were obtained from CAPS' own sources and internet search engines

Using all these sources, a list was compiled of 39 known establishments that meet the definition of a zoo. On further examination, two appeared to have closed down and were removed from the list.

For reasons set out below (Section 6), 16 zoos were not included in this study. For the remaining 21, CAPS contacted the relevant local authorities to request, under Freedom of Information legislation, copies of the stocklists for each zoo. FoI requests were originally made in 2015 and were again made in 2016 to obtain, where available, 2016 stocklists. (Every licensed zoo is required to keep an updated list of all animals in their collection, listing species, number of individuals and other information such as births and deaths. Under the Zoo Licensing Act they are required to provide these to the local authority each year).

The way in which this data was used is set out on the next page.



6 Number of Zoos



Our research identified 37 zoos in operation at the end of 2016:

Table 1: Number and types of zoos in Wales

Type of zoo	Number of zoos
General Mixed	10
Falconry Centres	9
Farm Park	8
Aquarium	3
Sanctuary	2
Other Bird Zoo	2
Deer Park	1
Butterfly Centre	1
Insect Centre	1
Total:	37

As this study is based primarily on analysis of stocklists, of the 37 zoos we discounted 16:

- *Aquariums, butterfly centre and insect centre [5]*: due to large numbers of animals held - potentially tens of thousands - accurate numbers of individuals are often not available
- *Deer park and farm parks [9]*: due to smaller numbers of wild animals being held, these establishments generally have dispensations that either exempt them from the Zoo Licensing Act or relinquish them from most of the zoo licensing standards. This means that stocklists are often not available
- *Sanctuaries [2]*: two wild animal sanctuaries were not included as data from these zoos are not comparable to other zoos as they take in animals based on a perceived recognition that these animals need rescuing, rather than their role in conservation, breeding or tourism

We contacted local authorities to request stocklists on 21 zoos, but received them for just 12 zoos. Reasons for not providing information on the other nine zoos are:

- a. One General Mixed zoo: the zoo has a 14.1.a dispensation*, which means it is not licensed and no inspections are carried out and no stocklist has to be submitted
- b. The status of one zoo (Other Bird) was unclear
- c. One council refused to release any information about one falconry centre on the grounds of confidentiality (we have appealed this, but a decision was not made by the time of publication of this report)
- d. Six falconry centres are all unlicensed. These six businesses are within three different council areas – three of them under the same council

* The Zoo Licensing Act 1981 provides for some zoos to be given a particular dispensation status if they have fewer individual animals of conservation sensitive or hazardous category status. This reduces the number of inspections, or stipulates that the zoo does not require a licence at all (the latter is a 14.1.a dispensation)

As a result, this study is based on stocklists of 12 zoos:

12 zoos of 37 known zoos currently operating in Wales = 32.4%

9 zoos: General Mixed

2 zoos: Falconry Centres

1 zoo: Other Bird

The Department of Environment, Food and Rural Affairs (DEFRA), the government body which oversees zoo licensing in England, produces a set of “standards with respect to the management of zoos and the animals in them”, known as the Secretary of State’s Standards of Modern Zoo Practice (DEFRA, 2012a). This document is also referred to as SSSMZP for brevity.

The SSSMZP requires all licensed zoos to keep and maintain records “of all individually recognisable animals and groups of animals in the zoo. Where possible, animals should be individually identifiable” (Section 9.1). Section 9.5 also requires “an annual stock record of all animals” to be kept and “a copy must be forwarded to the local authority no later than 1 April of the year following that to which it relates.”

For this study, stocklists were obtained from local authorities using Freedom of Information legislation. We then used this data to identify the conservation status of each species, using the International Union for the Conservation of Nature’s Red List of Threatened Species (also known as the IUCN Red List). This “is widely recognized as the most comprehensive, objective global approach for evaluating the conservation status of plant and animal species” (IUCN, 2016). The database is freely available online - www.iucnredlist.org - and can be searched using common or taxonomic names of species. All analysis for this study, using the IUCN Red List, was carried out in February 2017.

For this study we have only included mammals, birds, reptiles and amphibians and not included any fish, arachnida, crustaceans or insects who were on the stocklists. Fish and invertebrates were not included for two reasons:

- They are often kept in very large numbers compared to mammals, birds or reptiles so this can interfere with statistical analysis
- Stocklists often do not carry an accurate number of these animals, sometimes simply saying ‘many’. The stocklist for one zoo specialising in invertebrates lists, for dung beetles alone, “numbers of individuals kept at any one time” to be “20,000-50,000+”

With stocklist data compiled into Excel spreadsheets, in addition to the conservation status of each species, it was noted whether the species is wild or domesticated. This is based on the criteria provided by DEFRA for zoo licensing purposes (Annex A: ‘Normally domesticated’ / ‘not normally domesticated’ animals) (DEFRA, 2012b). This aids discussion of the conservation role of zoos with regards to species they choose to display and potentially breed.

Analysis of stocklists is discussed in Section 9.



All licensed zoos in Europe are required to meet the same basic level of standards for animal welfare and conservation due to the EC Zoos Directive.

Two main official zoo membership schemes exist for zoos in the UK:

1. BIAZA (the British and Irish Association of Zoos and Aquariums): "The professional body representing the best zoos and aquariums in Britain and Ireland", with over 100 members (BIAZA, 2017b)
2. EAZA (the European Association of Zoos and Aquaria): "EAZA's mission is to facilitate cooperation within the European zoo and aquarium community towards the goals of education, research and conservation." (EAZA, 2017)

Membership of one or both of these trade bodies suggests that the zoo has some desire to improve standards of animal welfare and education, as zoos which are members of BIAZA display signs declaring that

"As a member of BIAZA, we –

- Help people to conserve the natural world
- Participate in effective co-operative conservation programmes
- Deliver the highest quality environmental education, training and research
- Achieve the highest standards of animal care and welfare"

Whilst membership of such organisations certainly does not guarantee higher standards, the absence of many zoos in Wales being part of EAZA or BIAZA indicates a lack of willingness to adhere to the standards that they demand.

Welsh zoological collections and their official zoo membership

- Of 37 known zoos in Wales, only four are members of BIAZA (10.81%)
- Of 37 known zoos in Wales, only two are members of EAZA (5.41%)



As noted, the IUCN Red List of Threatened Species is a comprehensive evaluation of the conservation status of plant and animal species. It categorises species in the following ways:

- *Not Evaluated*: A taxon is Not Evaluated when it has not yet been evaluated against the criteria.
- *Data Deficient*: When there is inadequate information to make a direct, or indirect, assessment of its risk of extinction based on its distribution and/or population status.
- *Least Concern*: When the taxon has been evaluated against the criteria and does not qualify for Critically Endangered, Endangered, Vulnerable or Near Threatened. Widespread and abundant taxa are included in this category.
- *Near Threatened*: When it has been evaluated against the criteria but does not qualify for Critically Endangered, Endangered or Vulnerable now, but is close to qualifying for or is likely to qualify for a threatened category in the near future.

- *Vulnerable*: Considered to be facing a high risk of extinction in the wild.
- *Endangered*: Considered to be facing a very high risk of extinction in the wild.
- *Critically Endangered*: Considered to be facing an extremely high risk of extinction in the wild.
- *Extinct in the Wild*: When it is known only to survive in cultivation, in captivity or as a naturalized population (or populations) well outside the past range.
- *Extinct*: When there is no reasonable doubt that the last individual has died.

Data in stocklists recording the species in each of the 12 selected zoos in Wales were used to compile an Excel spreadsheet; the database on the Red List website was then used to confirm the conservation status of each species.

On occasion, information in zoos' stocklists was not clear enough to identify the correct species for the purpose of its IUCN status. Where this was the case, the species was listed as 'unclear' in the spreadsheet and in the tables and charts below.

Some stocklists only contained common names for the species, not the taxonomic name. At times the taxonomic name was included but misspelt. This sometimes made it difficult to correctly assess the IUCN status of the species. Where this occurred an attempt was made to obtain the correct scientific name (where necessary, using other sources such as the zoo's website).

Of the 12 zoos included in this study, ten of the stocklists were dated 2016 and two were dated 2015.

9.1 Wild and domestic species

When compiling the conservation status of each species for each zoo, it was noted whether the species was wild or domestic. For this we used the criteria established by DEFRA in its guide to the Zoo Licensing Act (Annex A: "Normally domesticated"/"not normally domesticated" animals) (DEFRA, 2012b).

In addition to the obvious – domestic cats (listed on the stocklist for one zoo), domestic equines and farmed animals (e.g. sheep and goats), other species classed as domesticated according to DEFRA's guidance include: guinea pig, budgerigar, canary, alpaca, llama.

Although the DEFRA document lists rats and mice as domestic, we have presumed ones in zoos (*Rattus rattus* and *Mus musculus*) to be wild species.

9.2 Conservation status of species in zoos in Wales

The analysis below is based on data compiled from stocklists of 12 zoos in Wales.

Table 2: Conservation status of all species and individuals in zoos in Wales

	Species	Individuals
Domesticated	21 (5.61%)	473 (16.03%)
Least Concern	228 (60.96%)	1675 (56.78%)
Near Threatened	25 (6.68%)	192 (6.51%)
Vulnerable	31 (8.29%)	279 (9.48%)
Endangered	19 (5.08%)	123 (4.17%)
Critically Endangered	12 (3.21%)	83 (2.81%)
Extinct in the Wild	1 (0.27%)	3 (0.10%)
Unclear from stocklist*	8	29
Data Deficient**	1	11
Crossbreed***	1	12
Not Evaluated****	27	70
Total:	374	2950

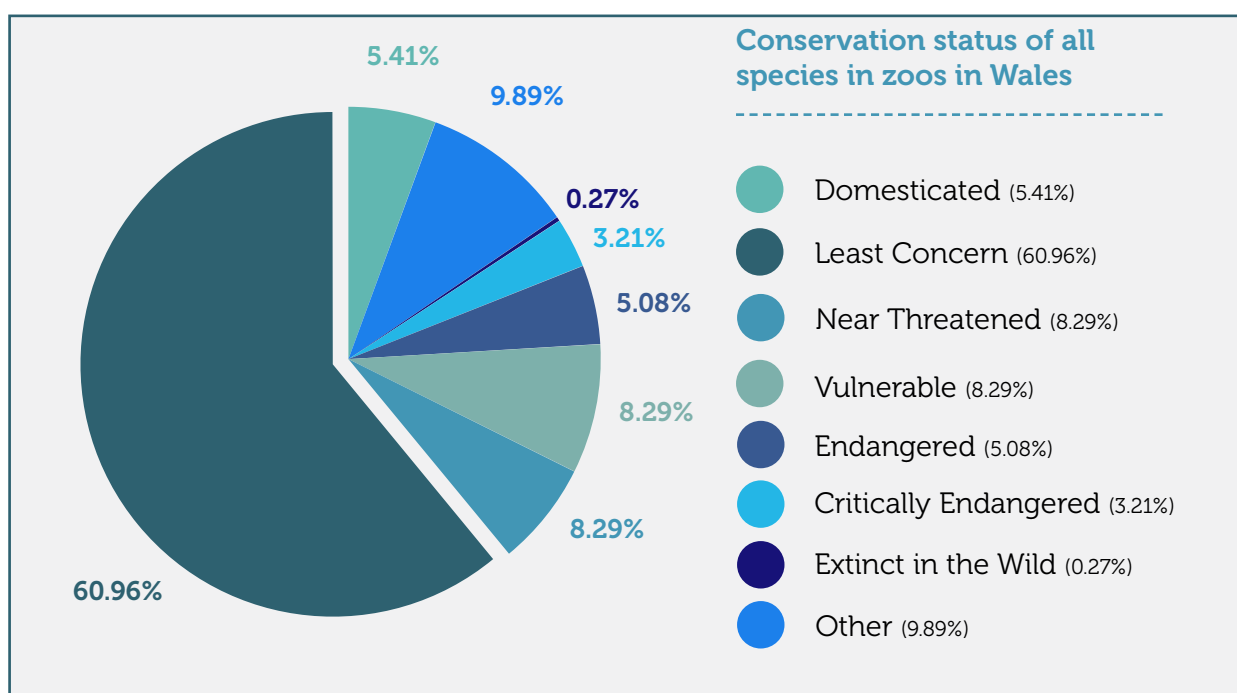
* Unclear from stocklist – some entries on stocklists do not provide a full species name (e.g. just Macaw) or contain no taxonomic name to clarify which species is held at the zoo. Updates in taxonomic names may not have been updated on stocklist entries, making it unclear which species the entry refers to when searching the IUCN Red List database

** Data Deficient is the IUCN term for any species for which there is inadequate information to make a direct, or indirect, assessment of its risk of extinction

*** Crossbreed generally refers to crossbreed (hybrid) falcons such as Peregrine/Saker cross

**** Not Evaluated is the IUCN term for any species which “has not yet been evaluated against the criteria”, so its conservation status is not known

Chart 3: Conservation status of all species in zoos in Wales



9.3 'Threatened' and 'Endangered' Species

The database used for analysing species in all selected zoos was further analysed to provide data on only those species classed as 'threatened'. 'Threatened species' refers to those assessed as Vulnerable, Endangered or Critically Endangered (IUCN 2009).

One species at a zoo in this study is classed as 'extinct in the wild' (Scimitar-horned oryx, *Oryx dammah*). Although this classification is not actually within the IUCN's 'threatened species' list we have included it here within that category.

Table 3: Threatened species in zoos in Wales

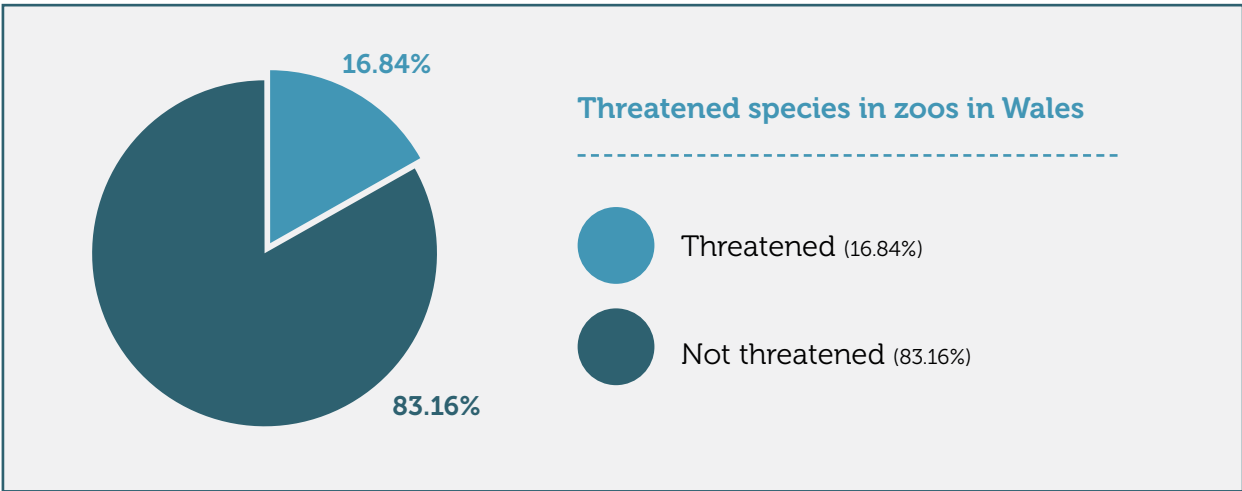
IUCN status	Class	Number of species	Number of individuals	Number of zoos holding them
Vulnerable	Amphibian	0	0	0
	Reptile	8	55	7
	Mammal	10	51	5
	Bird	13	173	7
Endangered	Amphibian	2	9	2
	Reptile	2	4	1
	Mammal	7	62	5
	Bird	8	48	7
Critically Endangered	Amphibian	2	7	3
	Reptile	2	13	2
	Mammal	6	45	6
	Bird	2	18	2
Extinct in the Wild	Mammal	1	3	1

11 of the 12 zoos have at least one species classed as ‘threatened’.

Table 4: Threatened species in zoos in Wales (species and individuals)

	Species	Individuals
Total number of animals in zoos	374	2950
Total number classed as threatened	63 (16.84%)	488 (16.54%)
Total number not classed as threatened	311 (83.16%)	2462 (83.46%)
Vulnerable	31 (8.29%)	279 (9.46%)
Endangered	19 (5.08%)	123 (4.17%)
Critically Endangered	12 (3.21%)	83 (2.81%)
Extinct in the Wild	1 (0.27%)	3 (0.10%)

Chart 4: Threatened species in zoos in Wales



The percentage of species held in zoos in Wales that are classed as threatened (16.84%) is similar to that found in another study of zoos in England (17.07%) in 2011 (Born Free, 2011, p23)

Table 5: Endangered species in zoos in Wales (species and individuals)

(Endangered categories are: Endangered, Critically Endangered, Extinct in the Wild)

	Species	Individuals
Total number of animals in zoos	374	2950
Total number of species classed as Endangered	32 (8.60%)	209 (7.08%)
Total number of species not classed as Endangered	342 (91.40%)	2741 (92.92%)

Chart 5: Endangered species in selected zoos in Wales

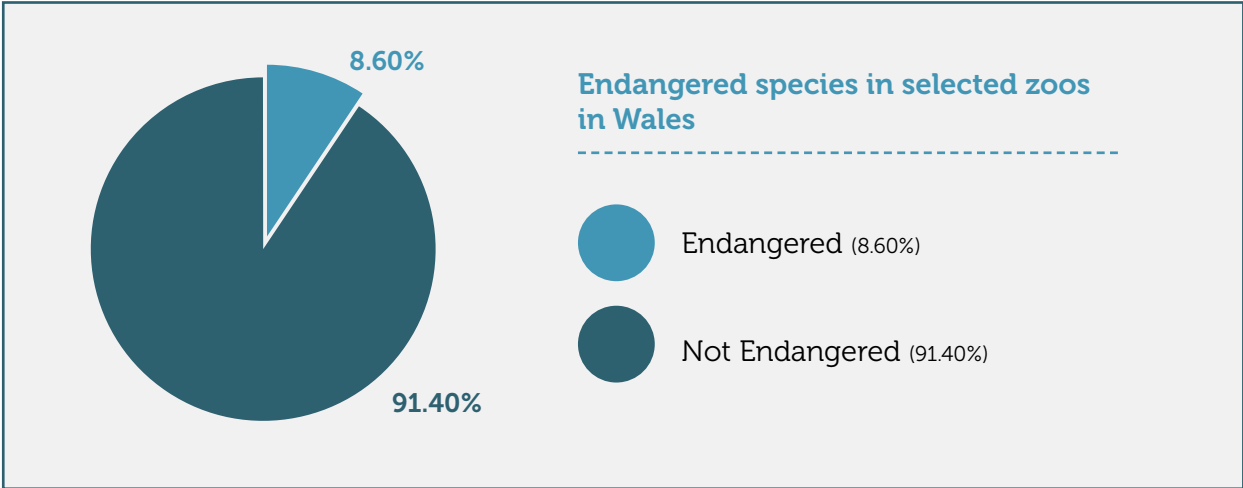


Table 6: Most common threatened species

Of the 63 species classed as threatened, 24 are mammals, 23 are birds, 12 are reptiles and 4 amphibians. Only seven species have 15 or more individuals:

Species (common name)	Species (scientific name)	Number of individuals	Number of zoos holding species	Conservation status
Hawaiian goose / Ne-ne	<i>Branta sandvicensis</i>	58	2	Vulnerable
Humboldt penguin	<i>Spheniscus humboldti</i>	51	2	Vulnerable
Ring-tailed Lemur	<i>Lemur catta</i>	35	5	Endangered
White-headed duck	<i>Oxyura leucocephala</i>	18	1	Endangered
Laysan Duck	<i>Anas laysanensis</i>	16	2	Critically Endangered
Red-breasted goose	<i>Branta ruficollis</i>	16	2	Vulnerable
Marbled teal	<i>Marmaronetta angustirostris</i>	15	3	Vulnerable

9.4 Most common species in zoos in Wales

Table 7: Most common species in zoos in Wales

Species (common name)	Species (scientific name)	Number of individuals	Number of zoos holding species	Conservation status
House Mouse	<i>Mus musculus</i>	156	2	Least Concern
Guinea Pig	<i>Cavia porcellus</i>	88	4	Domesticated
Caribbean Flamingo	<i>Phoenicopterus ruber</i>	71	1	Least Concern
Zebra Finch	<i>Taeniopygia guttata</i>	59	2	Least Concern
Ne-ne / Hawaiian goose	<i>Branta sandvicensis</i>	58	2	Vulnerable
Egyptian Fruit Bat	<i>Rousettus aegyptiacus</i>	56	1	Least Concern
Slender-tailed meerkat	<i>Suricata suricatta</i>	56	7	Least Concern
Humboldt penguin	<i>Spheniscus humboldti</i>	51	2	Vulnerable
Red eared Slider	<i>Trachemys scripta elegans</i>	49	4	Least Concern
Domestic equines (horse, pony, donkey)		43	6	Domesticated

Table 8: Conservation status of top ten species in zoos in Wales (by number of individuals)

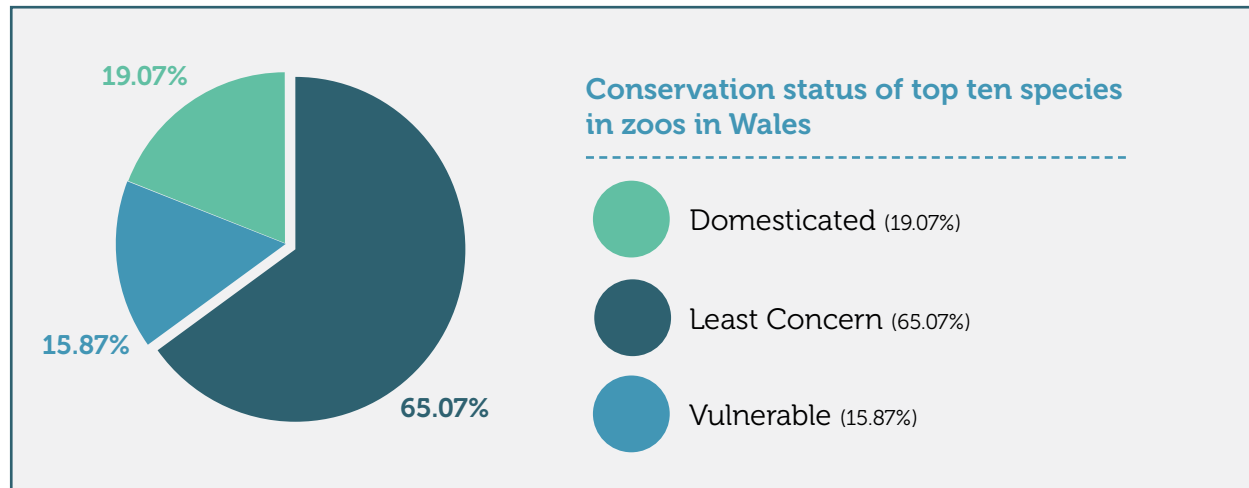
Total number of individuals in top ten species held by zoos in Wales = 687

Number of those classed as Domesticated = 131 (19.07%)

Number of those classed as Least Concern = 447 (65.07%)

Number of those classed as Vulnerable = 109 (15.87%)

Chart 6: Conservation status of top ten species in zoos in Wales (by number of individuals)



9.5 Mammals

Table 9: Ten most common species of mammals in zoos in Wales

Species (common name)	Species (scientific name)	Number of individuals	Number of zoos holding species	Conservation status
House Mouse	<i>Mus musculus</i>	156	2	Least Concern
Guinea Pig	<i>Cavia porcellus</i>	88	4	Domesticated
Slender-tailed meerkat	<i>Suricata suricatta</i>	56	7	Least Concern
Egyptian Fruit Bat	<i>Rousettus aegyptiacus</i>	56	1	Least Concern
Domestic rabbit		43	5	Domesticated
Domestic Equine (horse, pony, donkey)		43	6	Domesticated
Domestic goat		43	7	Domesticated
Domestic pig		39	5	Domesticated
Ring-tailed Lemur	<i>Lemur catta</i>	35	5	Endangered
Degu	<i>Octodon degus</i>	34	4	Least Concern

Table 10: Conservation status of top ten species of mammals in zoos in Wales (by number of individuals)

Total number of individuals in top ten species of mammals held by zoos in Wales = 593	
Number of those classed as Domesticated	= 256 (43.17%)
Number of those classed as Least Concern	= 302 (50.93%)
Number of those classed as Endangered	= 35 (5.90%)

Table 11: Conservation status of all mammals in zoos in Wales

	Species	Individuals
Total number	90	1067
Domesticated	11 (12.22%)	314 (29.43%)
Least Concern	44 (48.89%)	528 (49.48%)
Near Threatened	6 (6.67%)	35 (3.28%)
Vulnerable	10 (11.11%)	51 (4.78%)
Endangered	7 (7.78%)	62 (5.81%)
Critically Endangered	6 (6.67%)	45 (4.22%)
Extinct in the Wild	1 (1.11%)	3 (0.28%)
Other – Data Deficient and species details unclear	5 (5.56%)	29 (2.72%)

Chart 7: Conservation status of mammals in zoos in Wales

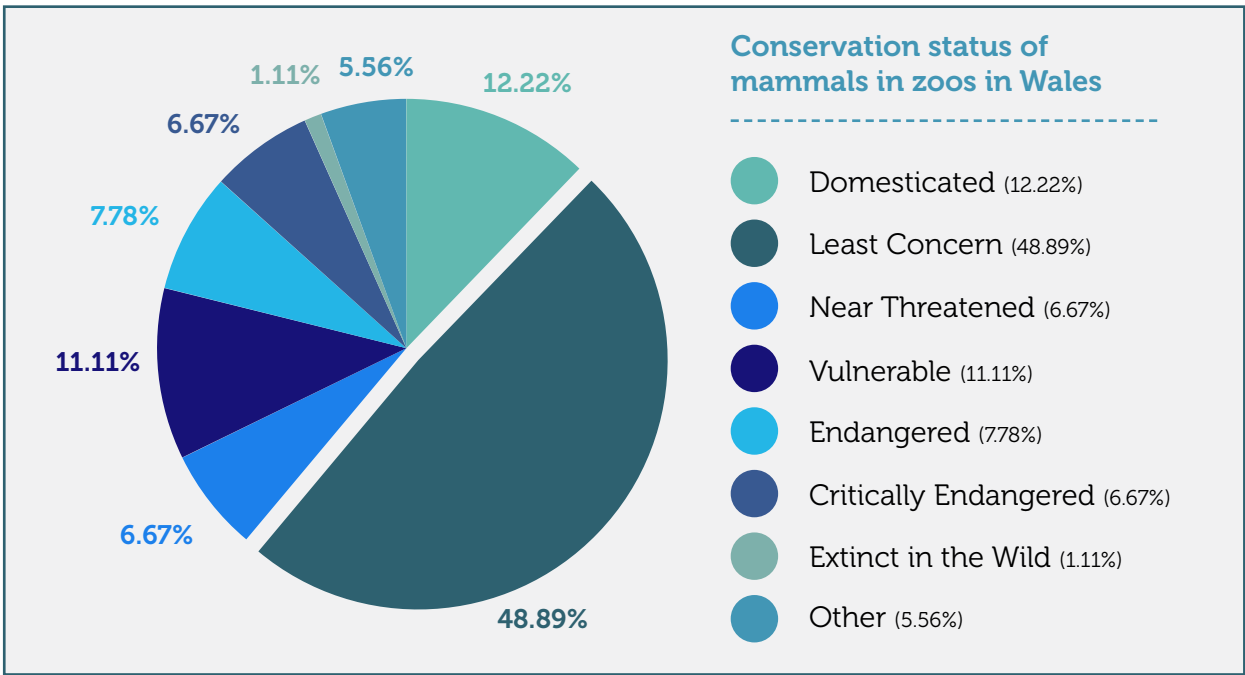


Table 12: Threatened species of mammals in zoos in Wales (species and individuals)
(Vulnerable, Endangered, Critically Endangered)

	Species	Individuals
Total number of mammals in zoos	90	1067
Total number of species classed as Threatened	24 (26.67%)	161 (15.09%)
Total number of species not classed as Threatened	66 (73.33%)	906 (84.91%)

Chart 8: Threatened species of mammals in zoos in Wales

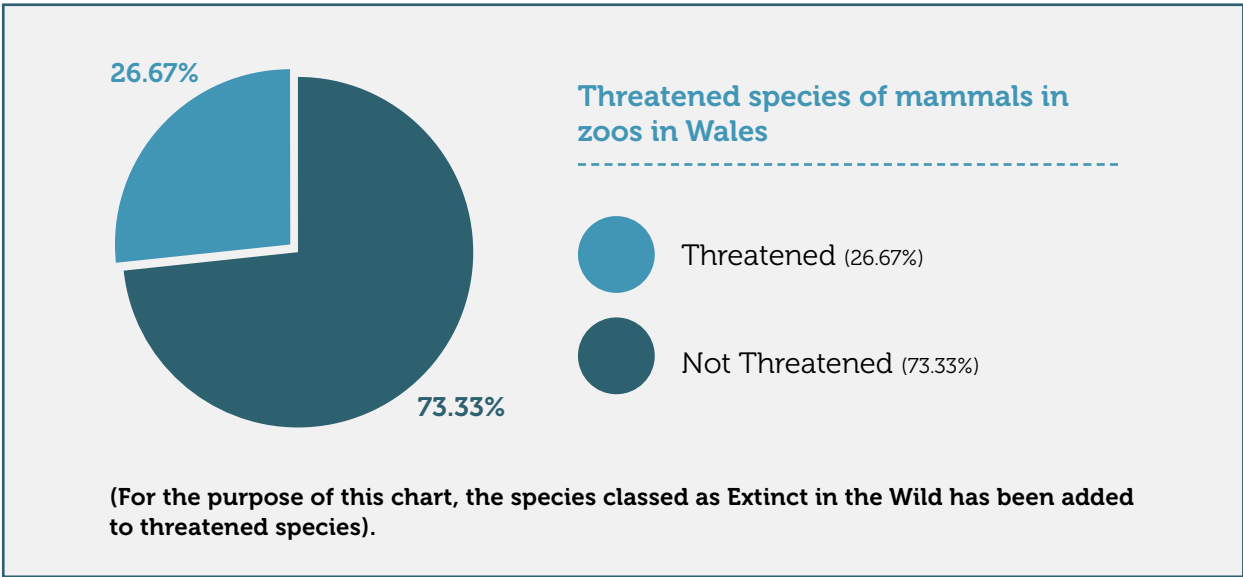
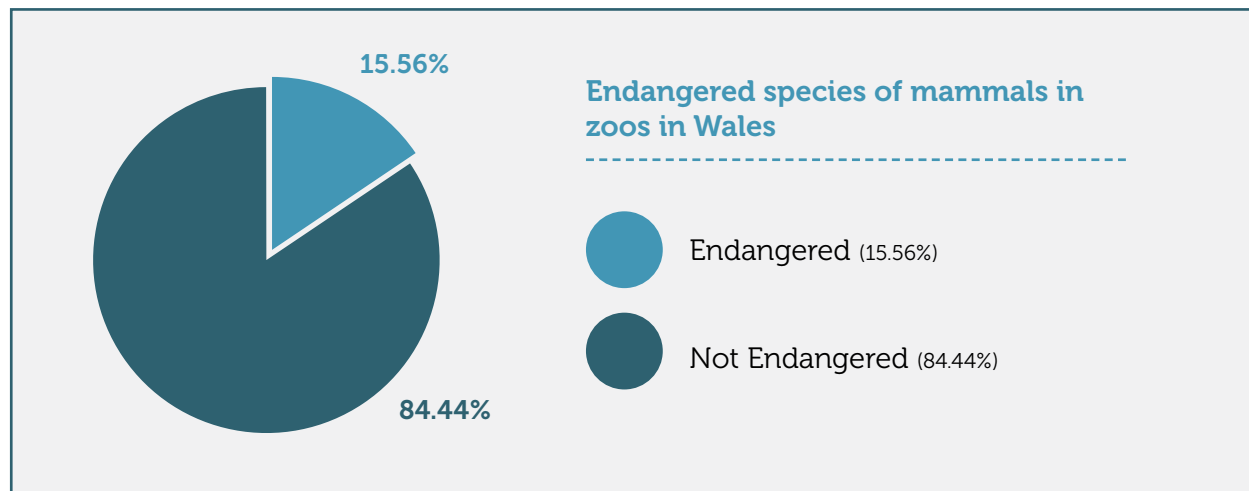


Table 13: Endangered species of mammals in zoos in Wales (species and individuals)
(Endangered, Critically Endangered, Extinct in the Wild)

	Species	Individuals
Total number of animals in zoos	90	1067
Total number of species classed as Endangered	14 (15.56%)	110 (10.31%)
Total number of species not classed as Endangered	76 (84.44%)	957 (89.69%)

Chart 9: Endangered species of mammals in zoos in Wales



9.6 Birds

Table 14: Ten most common species of birds in zoos in Wales

Species (common name)	Species (scientific name)	Number of individuals	Number of zoos holding species	Conservation status
Caribbean Flamingo	<i>Phoenicopterus ruber</i>	71	1	Least Concern
Zebra Finch	<i>Taeniopygia guttata</i>	59	2	Least Concern
Ne-ne / Hawaiian goose	<i>Branta sandvicensis</i>	58	2	Vulnerable
Humboldt penguin	<i>Spheniscus humboldti</i>	51	2	Vulnerable
Domestic chicken	<i>Gallus gallus domesticus</i>	40	6	Domesticated
Red-crested pochard	<i>Netta rufina</i>	39	3	Least Concern
Chilean Flamingo	<i>Phoenicopterus chilensis</i>	38	2	Near Threatened
Cockatiel	<i>Nymphicus hollandicus</i>	37	5	Least Concern
Bufflehead	<i>Bucephala albeola</i>	30	2	Least Concern
Common Barn Owl	<i>Tyto alba</i>	30	6	Least Concern

Table 15: Conservation status of top ten species of birds in zoos in Wales (by number of individuals)

Total number of individuals in top ten species of birds held by zoos in Wales = 453	
Number of those classed as Domesticated	= 40 (8.83%)
Number of those classed as Least Concern	= 266 (58.72%)
Number of those classed as Near Threatened	= 38 (8.39%)
Number of those classed as Vulnerable	= 109 (24.06%)

Table 16: Conservation status of birds in zoos in Wales

	Species	Individuals
Total number	210	1517
Domesticated	10 (4.76%)	159 (10.48%)
Least Concern	151 (71.90%)	948 (62.49%)
Near Threatened	15 (7.14%)	135 (8.90%)
Vulnerable	13 (6.19%)	173 (11.40%)
Endangered	8 (3.81%)	48 (3.16%)
Critically Endangered	2 (0.95%)	18 (1.19%)
Extinct in the Wild	0	0
Other – Not Evaluated, hybrid and species details unclear*	11 (5.24%)	36 (2.37%)

(*unclear status is usually due to the full species name not being listed on the stocklists – e.g. ‘Macaw’)

Chart 10: Conservation status of birds in zoos in Wales

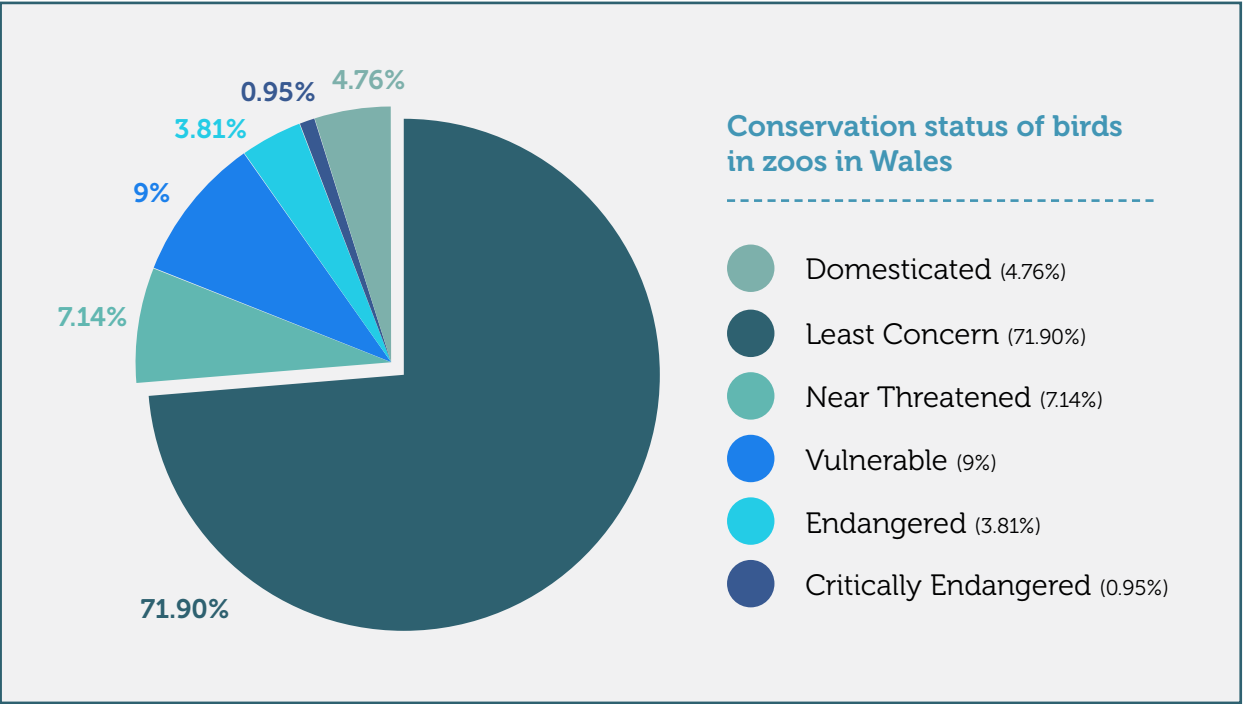


Table 17: Threatened species of birds in zoos in Wales (species and individuals)

(Vulnerable, Endangered, Critically Endangered)

	Species	Individuals
Total number of birds in zoos	210	1517
Total number of species classed as Threatened	23 (10.95%)	239 (15.75%)
Total number of species not classed as Threatened	187 (89.05%)	1278 (84.25%)

Chart 11: Threatened species of birds in zoos in Wales

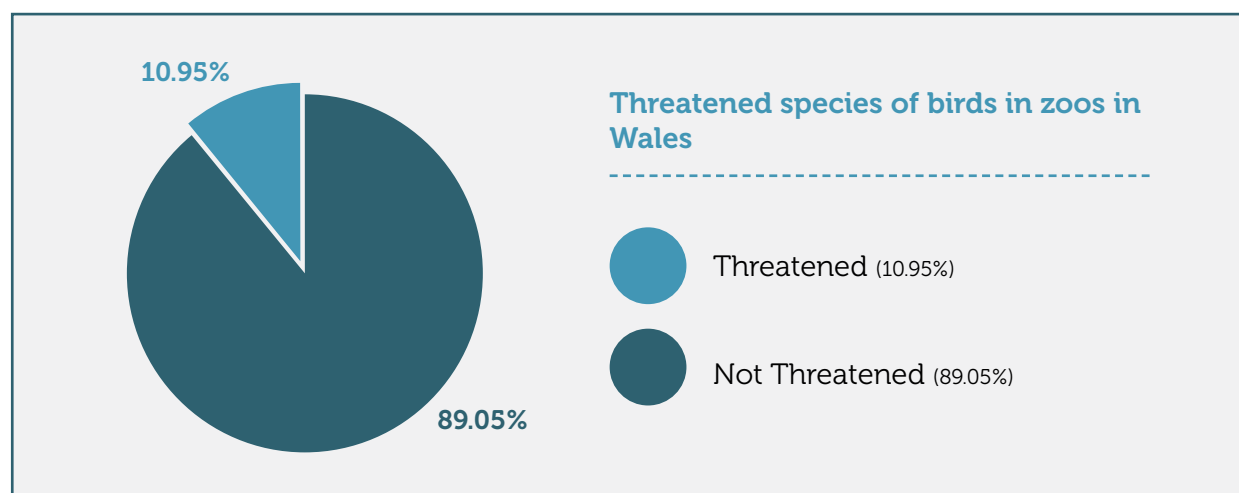
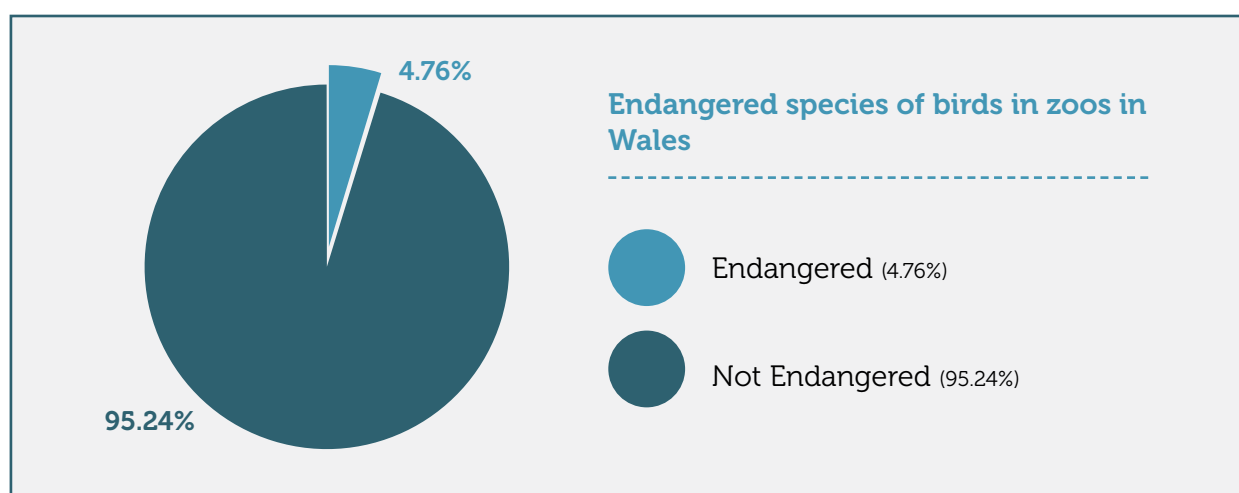


Table 18: Endangered species of birds in zoos in Wales (species and individuals)

(Endangered, Critically Endangered, Extinct in the Wild)

	Species	Individuals
Total number of birds in zoos	210	1517
Total number of species classed as Endangered	10 (4.76%)	66 (4.35%)
Total number of species not classed as Endangered	200 (95.24%)	1451 (95.65%)

Chart 12: Endangered species of birds in zoos in Wales



9.7 Reptiles

Table 19: Ten most common species of reptiles in zoos in Wales:

Species (common name)	Species (scientific name)	Number of individuals	Number of zoos holding species	Conservation status
Red-eared slider	<i>Trachemys scripta elegans</i>	49	4	Least Concern
Yellow-bellied slider	<i>Trachemys scripta scripta</i>	22	5	Least Concern
Royal python	<i>Python regius</i>	19	5	Least Concern
African spurred tortoise	<i>Centrochelys sulcata</i>	13	5	Vulnerable
Burmese python	<i>Python bivittatus</i>	12	6	Vulnerable
Eastern box turtle	<i>Terrapene carolina</i>	12	2	Vulnerable
Red cornsnake	<i>Pantherophis guttatus</i>	12	4	Least Concern
Egyptian tortoise	<i>Testudo kleinmanni</i>	11	1	Critically Endangered
Bearded dragon	<i>Pogona vitticeps</i>	10	4	Not Evaluated
Leopard tortoise	<i>Stigmochelys pardalis</i>	9	3	Least Concern

Table 20: Conservation status of top ten species of reptiles in zoos in Wales (by number of individuals)

Total number of individuals in top ten species of reptiles held by zoos in Wales = 169	
Number of those classed as Not Evaluated	= 10 (5.92%)
Number of those classed as Least Concern	= 111 (65.69%)
Number of those classed as Vulnerable	= 37 (21.89%)
Number of those classed as Critically Endangered	= 11 (6.51%)

Table 21: Conservation status of reptiles in zoos in Wales

	Species	Individuals
Total number	55	281
Domesticated	0	0
Least Concern	21 (38.18%)	144 (51.25%)
Near Threatened	1 (1.82%)	8 (2.85%)
Vulnerable	8 (14.55%)	55 (19.57%)
Endangered	2 (3.64%)	4 (1.42%)
Critically Endangered	2 (3.64%)	13 (4.63%)
Extinct in the Wild	0	0
Other – Not Evaluated and species details unclear	21 (38.18%)	57 (20.28%)

Chart 13: Conservation status of reptiles in zoos in Wales

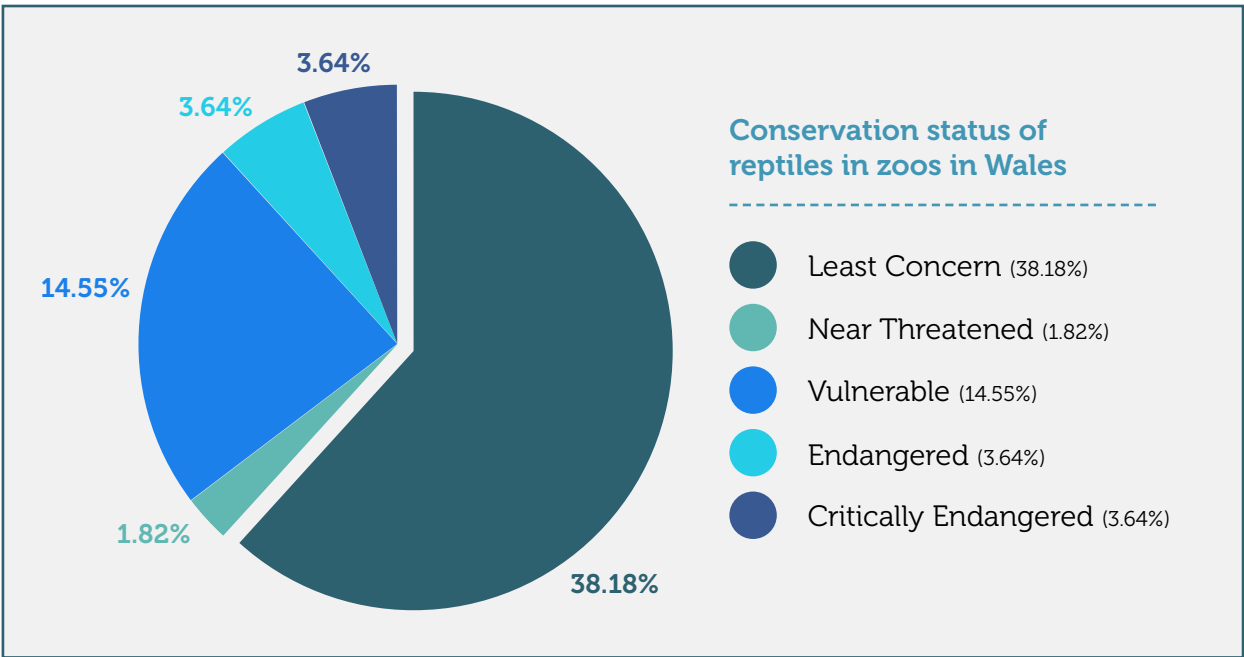


Table 22: Threatened species of reptiles in zoos in Wales (species and individuals)

(Vulnerable, Endangered, Critically Endangered)

	Species	Individuals
Total number of reptiles in zoos	55	281
Total number of species classed as Threatened	12 (21.82%)	80 (28.47%)
Total number of species not classed as Threatened	43 (78.18%)	201 (71.53%)

Chart 14: Threatened species of reptiles in zoos in Wales

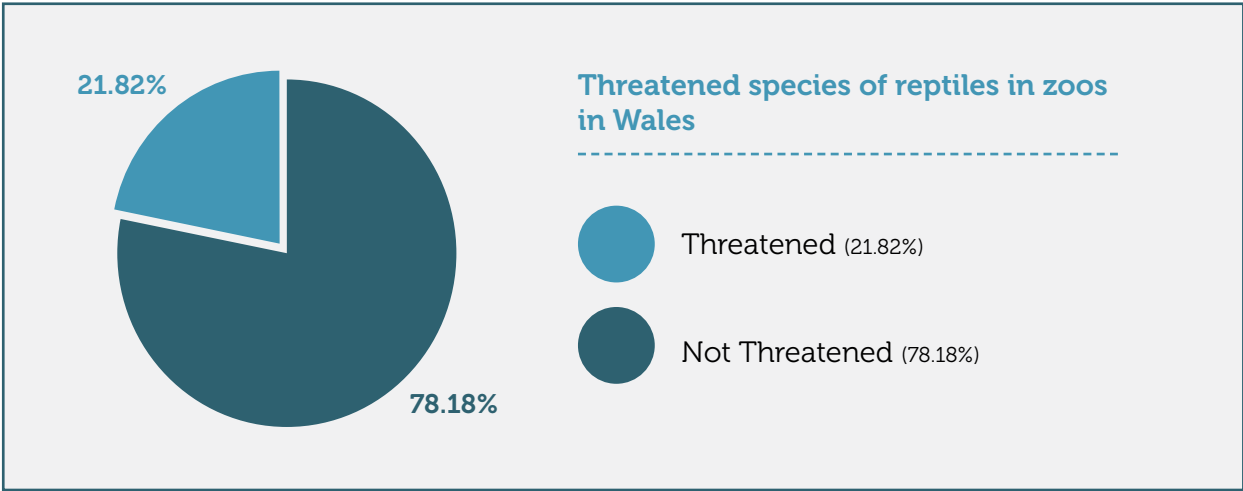
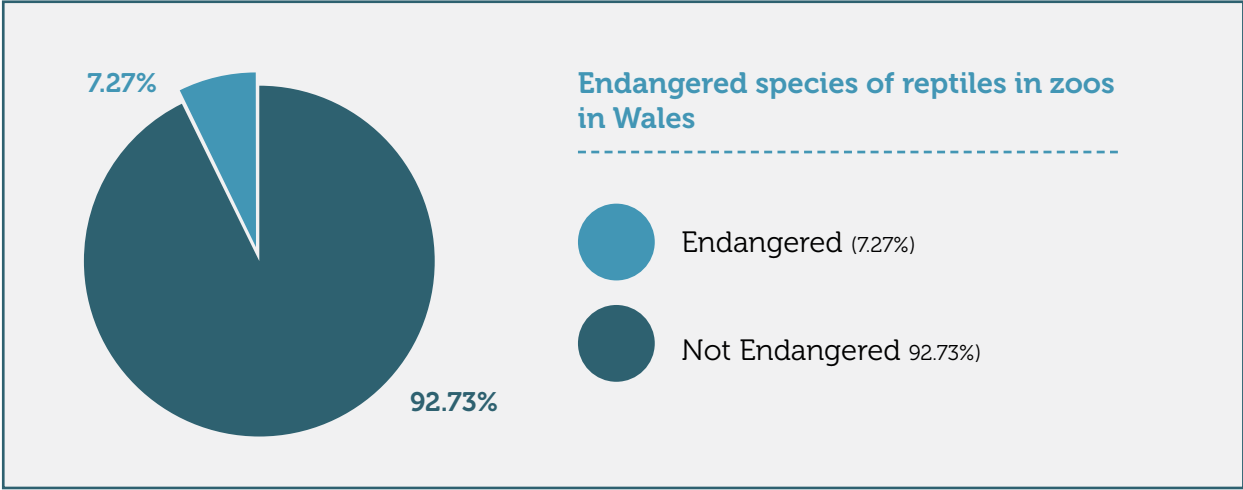


Table 23: Endangered species of reptiles in zoos in Wales (species and individuals)

(Endangered, Critically Endangered, Extinct in the Wild)

	Species	Individuals
Total number of reptiles in zoos	55	281
Total number of species classed as Endangered	4 (7.27%)	17 (6.05%)
Total number of species not classed as Endangered	51 (92.73%)	264 (93.95%)

Chart 15: Endangered species of reptiles in zoos in Wales



9.8 Amphibians

Table 24: Ten most common species of amphibians in zoos in Wales:

Species (common name)	Species (scientific name)	Number of individuals	Number of zoos holding species	Conservation status
Yellow headed poison frog	<i>Dendrobates leucomelas</i>	15	3	Least Concern
Green and black poison dart frog	<i>Dendrobates auratus</i>	9	1	Least Concern
Bicolored poison dart frog	<i>Phyllobates bicolor</i>	8	1	Near Threatened
Cane toad	<i>Rhinella marina</i>	6	2	Least Concern
Phantasmal banded poison dart frog	<i>Epipedobates tricolor</i>	5	1	Endangered
Japanese fire-bellied newt	<i>Cynops pyrrhogaster</i>	5	1	Least Concern
African clawed frog	<i>Xenopus laevis</i>	5	2	Least Concern
Anthony's poison dart frog	<i>Epipedobates anthonyi</i>	5	2	Near Threatened
Golden mantella	<i>Mantella Aurantiaca</i>	4	1	Critically Endangered
Golden poison dart frog	<i>Phyllobates terribilis</i>	4	1	Endangered

Table 25: Conservation status of top ten species of amphibians in zoos in Wales (by number of individuals)

Total number of individuals in top ten species of amphibians held by zoos in Wales = 66	
Number of those classed as Least Concern	= 40 (60.61%)
Number of those classed as Near Threatened	= 13 (19.70%)
Number of those classed as Endangered	= 9 (13.64%)
Number of those classed as Critically Endangered	= 4 (6.06%)

Chart 16: Conservation status of amphibians in zoos in Wales

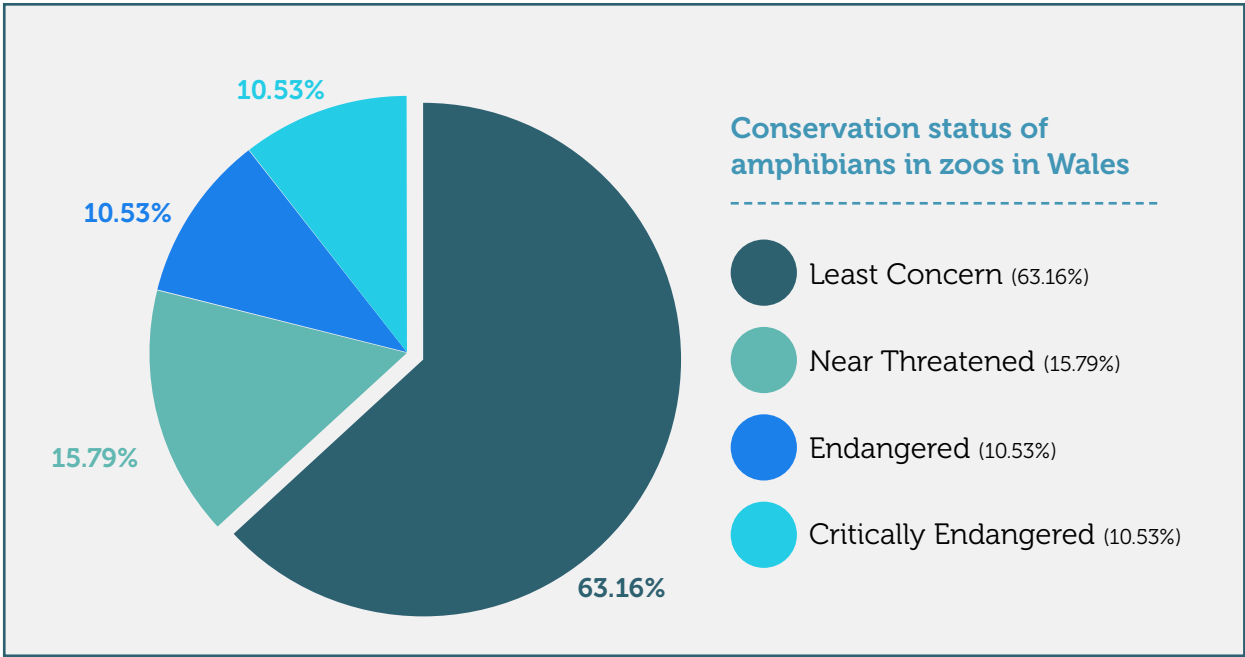


Table 26: Threatened species of amphibians in zoos in Wales (species and individuals)
(Vulnerable, Endangered, Critically Endangered)

	Species	Individuals
Total number of amphibians in zoos	19	85
Total number of species classed as Threatened	4 (21.05%)	16 (18.82%)
Total number of species not classed as Threatened	15 (78.95%)	69 (81.18%)

Chart 17: Threatened species of amphibians in zoos in Wales

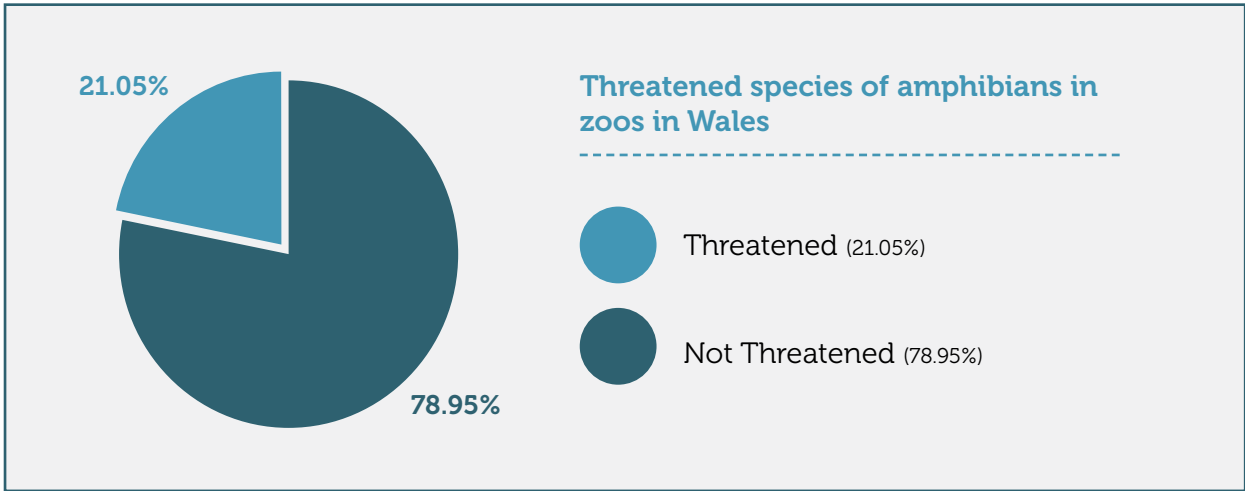
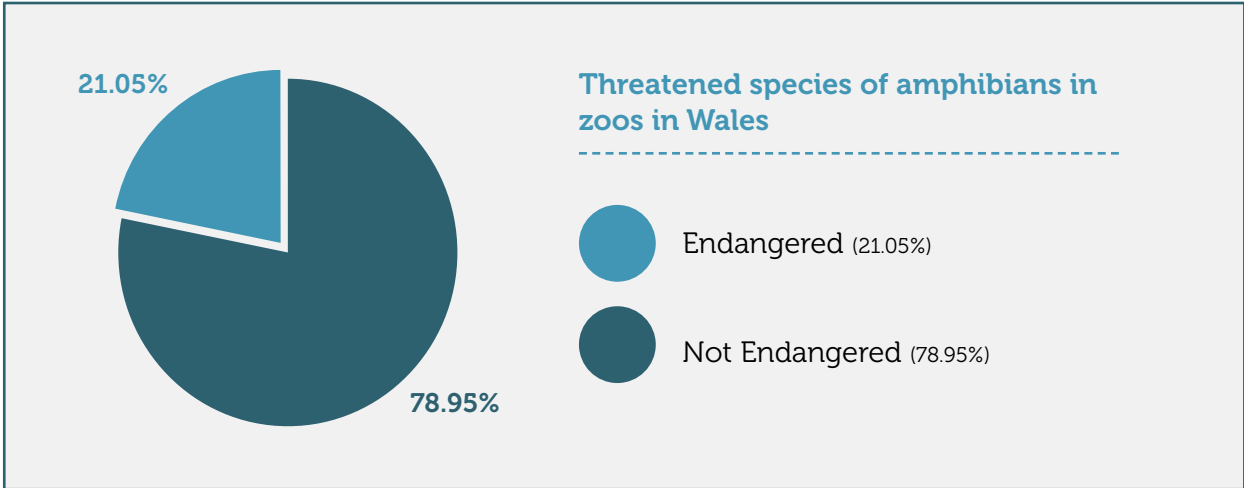


Table 27: Endangered species of amphibians in zoos in Wales
 (Endangered, Critically Endangered, Extinct in the Wild)

	Species	Individuals
Total number of amphibians in zoos	19	85
Total number of species classed as Endangered	4 (21.05%)	16 (18.82%)
Total number of species not classed as Endangered	15 (78.95%)	69 (81.18%)

Chart 18: Endangered species of amphibians in zoos in Wales



10 Licensing Issues

During the course of the research for this project, it became clear that there were some problems with the way in which zoos are licensed in Wales.

Across the UK, the licensing of individual zoos is the responsibility of individual local authorities. We contacted local authorities in all areas where we knew zoos to exist and asked them for copies of stocklists and other information. In the case of six zoos, the local authorities told us that the zoos – all falconry centres – were not licensed. These zoos were in three different council areas. Two of these councils had other zoos in their regions that did have licences; one council had no other zoos but did state that this one falconry centre was exempt from requiring a zoo licence (see discussion below, at Section 10.1). One of the local authorities recently (and correctly) licensed a zoo displaying solely invertebrates, but for some reason did not consider a zoo displaying birds as requiring a zoo licence.

It is no coincidence that all of the unlicensed zoos that we are aware of are falconry centres, as there seems to be particular confusion amongst local authorities with licensing of this type of zoo, despite the fact that they meet the definition of a zoo as set out by the Zoo Licensing Act.

Legal advice sought indicates that the reasoning for the falconry centres being unlicensed is invalid. CAPS will be following up these findings with the relevant local authorities to bring the falconry centres under the licensing system and will release further information when we are able to.



11 Discussion

There are 37 known zoos in Wales, ranging from small farm parks to larger zoos with several hundred animals (in fact, probably thousands in the case of aquariums).

We are often told that the primary reason zoos confine so many animals is for conservation purposes; that keeping and breeding animals in captivity in itself is conservation. It is a claim that all too often goes unchallenged. What actually is meant by conservation? Does keeping a species in captivity, even if there is a co-ordinated captive breeding programme, actually benefit conservation? Does this breeding, in the cases where it does take place, actually lead to the reintroduction of individuals to natural habitats? Do any reintroductions lead to self-sustaining populations? All too often these questions never get asked, and, if they do, rarely are they sufficiently answered.



This report is limited in nature to assessing the conservation status of animals in zoos in Wales, and identifying the number of threatened or endangered species. 2950 individuals of 374 species are held in the 12 zoos looked at and, of these, only 17% are classed as 'threatened' in the wild. This is the same percentage as found in a separate study for zoos in England and may come as a surprise to those who have always believed zoos to focus attention on endangered species – in fact, 91% of all species in zoos in Wales are not endangered.

Species, of course, are made up of individuals. Looking at the ten most commonly-held species in zoos in Wales, in terms of numbers of individuals, the conservation con becomes even more apparent. None are endangered and only two species are threatened (vulnerable) in the wild. A staggering 19% of animals in this 'top ten' are domesticated species (guinea pigs and domestic equines. We have been generous in classing house mice as wild, although DEFRA's zoo guidance classes them as domestic; if we had followed DEFRA's stance, then 42% of animals in the ten most common list would be



domestic). 65% of the 687 animals in the most common list are classed as 'least concern', hardly a sign that zoos are taking conservation seriously.

Holding threatened or endangered species in a zoo does not represent conservation. Even in the relatively rare situation where a zoo somewhere in the world releases captive-bred animals to natural habitats in a co-ordinated reintroduction plan, success levels (leading to self-sustaining populations) are not great. Jule, Leaver and Lea (2008), in their study on the reintroduction of carnivores, state: "This evidence suggests that captivity negatively influences animals' capabilities to survive, and can result in a lack of appropriate 'wild' type behaviours." Lack of immunity to diseases found in wild populations, unnatural confidence towards humans and susceptibility to starvation led Jule, Leaver and Lea to conclude "wild-caught carnivores are significantly more likely to survive than captive-born carnivores in reintroductions".

The numbers of threatened or endangered species confined in zoos is just one part of a very large picture, and this study should be seen as the basis of further research that could look at, for example, an analysis of conservation efforts by zoos in Wales (see, for example, the chapter Zoos and Conservation in Redmond, 2013).

The aim of this study is to begin to focus attention on zoos in Wales and encourage further research, similar to that already conducted elsewhere across the European Union.



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