

Scottish Animal Welfare Commission

Interim report on exotic pets in Scotland

September 2021

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1. Introduction

This is an interim report from the Scottish Animal Welfare Commission (“SAWC”) on the welfare of exotic pets.

2. Scope

This interim report considers animal welfare issues surrounding the keeping of “exotic pets” in Scotland and the potential need for further regulation.

3. Background

The Scottish Government announced in 2015 that it intended to review the trade and importation of exotic pets, citing potential threats to animal health and welfare, human health and native species in Scotland (Scottish Government, 2015). This followed the raising of concerns by a number of animal welfare groups, including OneKind, Scottish SPCA, Blue Cross, Born Free Foundation and others at UK and European level, about the welfare of essentially non-domesticated animals being kept in domestic households, and associated issues such as breeding, capture, rearing and trade.

The European Convention for the Protection of Pet Animals discourages the keeping of specimens of wild fauna as pets and requires that “pet animals shall be provided with accommodation, care and attention taking into account the ethological needs of the animal in accordance with its species and breed, and that an animal which cannot adapt itself to captivity in spite of these conditions being met, shall not be kept as a pet animal.” In 1995, the parties to the Convention, which is an instrument of the Council of Europe, adopted a specific resolution on regulating the keeping of wild animals as pets.

As part of its year 1 work plan, SAWC formed a work group to look into issues surrounding the keeping of “exotic pets” in Scotland and to consider whether any further regulation is required.

SAWC is aware that other domestic legislatures, particularly in the EU, have sought to regulate the keeping of exotic pets using legislation, such as the positive list system, and that there are also calls for pan-European legislation (Eurogroup for Animals, 2020). SAWC also appreciates that private keepers of exotic pets and industry representatives have concerns about the potential impact of legislative change on their hobby and business interests and takes these concerns into account.

This document is based on a report presented by the work group to the SAWC plenary meeting on 15 June 2021. It is being published in line with the timetable for SAWC’s year 1 work plan and to share the submitted stakeholder views while they are still up to date. The document is for information only at this stage and should not be taken as representing the final views of SAWC.

4. Evidence gathered

SAWC’s exotic pets work group consulted a number of different sectors during its enquiries.

- Scottish local authorities and other enforcement authorities, including Scottish Government, Animal and Plant Health Authority (APHA), Scottish SPCA, Heathrow Animal Reception Centre, National Wildlife Crime Unit
- Pet trade and industry stakeholders, including pet industry representative bodies and individual keepers/traders
- Scottish/UK animal welfare NGOs and stakeholders
- EU stakeholders and officials
- UK veterinary schools
- The Pet Advertising Advisory Group (PAAG)

Questions were tailored to be relevant to the different sectors, although there was some overlap. These questions are set out in full at Appendix II.

This report is based on the submissions received by SAWC in response to these questions.

The academic sources cited in this report have been derived, directly or indirectly, from the submissions received. **SAWC is aware that this may not represent a comprehensive survey of the available sources and for that reason has recommended that a full literature review be undertaken before it publishes a final Opinion.** Options for commissioning such a review are currently being explored.

The report reproduces a good deal of evidence verbatim and the use of terminology is not always consistent. An appendix of scientific names is in preparation.

Further information is awaited regarding the proportion of veterinary undergraduate teaching time allocated to exotic animals, which SAWC believes to be disproportionately low.

Further information is also being sought about small mammals.

5. Definition of exotic pets/non-domesticated animals in private keeping

A number of terms, including “exotic pets”, are used interchangeably throughout this interim report.

In its enquiries to stakeholders, SAWC did not specifically define the term “exotic pet”. This was to allow the widest possible range of interpretations from respondents. However, while useful as a shorthand term, the term “exotic pet” is potentially misleading and inappropriate.

The commonly used alternative “non-traditional companion animal” also has at least two weaknesses. Firstly, the word “traditional” is open to subjective interpretation, as has been seen in responses to our enquiries. For example, the European College of Zoological Medicine response defined “exotic pets” – much in the same way as SAWC has done – as “non-traditional companion animals such as rabbits, and other small mammal pets (such as ferrets, hedgehogs, guinea pigs, rats, degus, pocket rodents, etc), birds, reptiles, fish, and amphibians in addition to those animals that are less often seen as pets such as marmosets and meerkats.”

Conversely, at least two local authority responses referred to fish, small rodents and cage birds as non-exotic and some stakeholders (such as the National Fancy Rat Society) offered a firm view that the animals of interest to them were domesticated.

Secondly, there could be legitimate debate about the extent and nature of “companionship” received from, and provided for, an exotic pet and that in turn will vary according to the kind of animal kept.

World Animal Protection was sceptical about the use of the word “pet” with reference to non-traditional animals:

“The phrase ‘exotic pet’ is essentially a marketing term for the trade in wild animals as pets. By wild, or ‘exotic’, we mean a species that does not have a history of domestication. When bred in captivity, exotic pets remain wild animals, having similar traits (behaviours and psychological needs) as their counterparts living in situ.”

It might be more objective simply to describe all of the animals under consideration as “animals”, their evolutionary status as “non-domesticated”, and their circumstances, for the most part at least, as “in private keeping”. In other words: “non-domesticated animals in private keeping”.

To cover relevant retail, trade and collection scenarios, another option might be: “non-domesticated animals kept by humans”.

A further question then arises concerning the kinds of animals that are, or are not, domesticated.

While not an exact analogy, the issue of domestication was addressed in the context of the Wild Animals in Travelling Circuses (Scotland) Act 2018. Section 2(1) of that Act states that a wild animal is an animal other than one which is of a kind that is commonly domesticated in the British Islands. Section 2(2) states that for the purpose of that subsection, an animal is of a kind that is domesticated if the behaviour, life cycle or physiology of animals of that kind have been altered as a result of the breeding or living conditions of multiple generations of animals of that kind being under human control.

Paragraphs 16 and 17 of the statutory Guidance to the 2018 Act (Scottish Government, 2018) clarify that domestication is a genetic selection process across a significant population of animals, over “more than just a few” generations, and that individuals or groups of “tame” wild animals are still wild animals for the purposes of the Act.

The Guidance also clarifies that the word “kind” (rather than “species” or other more technical term) is consciously used in the Act to make it clear “that whether an animal is considered wild or domesticated is not decided at the level of an individual animal or group of animals; it is considered at the much wider level of the kind of animal. When considering whether or not an offence has been committed, it is necessary to consider what kind of animal is being used by a travelling circus.” (Paragraph 18).

The word “kind” is also used in the Schedule to the Dangerous Wild Animals Act 1976.

Alternatively, it might be clearer and more relevant to focus on a list devised on the basis of the welfare needs of the animals.

In cases of uncertainty or conflicting views, the 2018 Act allows the Scottish Ministers to specify, by regulations, whether a particular kind of animal is, or is not, wild (i.e. non-domesticated).

This may be relevant in adjudicating debates over the status of certain commonly kept animals. For example, the National Fancy Rat Society submission to SAWC stated:

“R. norvegicus have been bred as pets since the 18th Century in Japan, and since the 19th Century in Europe before being imported into the UK in the 1850s. The UK pet stocks originate both from rats imported from French showmen and possibly from colour mutations kept back from the rats caught for the common bloodsport of the Rat Pits. By the early 20th Century, rats were being shown and were available in a number of patterns and colours. They are now a common and popular pet for people of all ages.

“It’s been recognised that domestication of the rat has produced profound changes in them, as has been seen in other domesticated species. The neophobia seen in wild rats is not present in domestic ones, presumably as part of the process of selection for tameness.”

The Ornamental Aquatic Trade Association made a similar point in its response, saying that while fish are the largest sector in numbers, they are not always seen as “exotic”. The Parrot Society UK stated that, perhaps unlike some other elements of exotic pet keeping, “the care, maintenance and breeding of birds (Aviculture) has a considerable lineage dating back thousands of years” and included an important social element.

“Cage & Aviary Bird Clubs were a feature of almost every Scottish town, notably those that gave homes to miners, shipbuilders & dock workers. These clubs focused upon Canaries (indeed Scotland has three of its own heritage breeds of Canary: the Border, Fife & Scots Fancy); Budgerigars and Foreign Finches, but also represented those keeping Parrots & Parakeets.”

6. Ethical analysis and critical issues

Based on the responses from the different sectors, SAWC has categorised the information received under the following headings:

6.1 Trade and supply of exotic pets – overview

- i. Global trade
- ii. Scotland/UK

6.2 Licensed suppliers in Scotland

6.3 Online, private and unlicensed sales

6.4 Extent of keeping of exotic pets in Scotland

6.5 Wild-caught animals

6.6 Captive-bred animals

6.7 Animal welfare issues surrounding the trade in and keeping of exotic pets

- i. Trade, transport and sourcing of animals
- ii. Conditions in breeding and selling operations
- iii. Ailments, disease and husbandry – impacts on welfare
- iv. Inability to meet welfare needs

- v. Premature mortality
- vi. Neglect, abandonment and re-homing

6.8 Other issues raised

- i. invasive species
- ii. local depletions
- iii. zoonoses

6.9 Ethical issues

- i. Benefits to humans of pet keeping
- ii. Benefits to animals of being kept as pets
- iii. Are we able to meet non-domesticated animals' needs?
- iv. Motivations for keeping exotic pets

6.10 Legislation in other countries

6.1 Trade and supply of exotic pets - overview

As will be seen later in this section, it has proven difficult to determine the extent of both trade and keeping of exotic pets in Scotland. This may be due to the varied species involved in the trade and the different breeding/capture operations involved, combined with a lack of specific regulation and monitoring. Even interrogating trade and import databases is complicated by the lack of clarity on which species are the most commonly traded and those whose welfare is most likely to be impacted by being kept as pets.

The Scottish situation with regard to lack of knowledge of the trade in and keeping of exotic pets appears to reflect the global picture. SAWC has therefore taken note of information submitted regarding international trade and keeping, seeking to read across from this where appropriate.

i. Global trade

The exotic pet trade is described as “an enormous global enterprise” (Bush et al., 2014) involving international trade in millions of individuals of thousands of species, only some of which is regulated.

It has been estimated that at least 13,000 species, including 10,000 vertebrates, are kept and traded as pets, on a worldwide basis (Warwick et al., 2018). Captive breeding of some species has overtaken wild capture for the most commonly kept animals (Valdez, 2021), but others are still obtained directly from the wild in source countries, commonly from the tropical and sub-tropical regions, although numbers remain obscure (Baker et al., 2012).

Vinke and Vinke (2012) describe the legal trade in wild animals, especially non-CITES-listed species as “routinely hushed up”, yet an “enormous” economic factor, citing research for TRAFFIC (Engler and Parry Jones, 2007) as valuing the worldwide market in living wild animals (pet market plus zoos) at around 406 million euros, including over 118 million euros generated by the European Union.

In a paper widely cited by respondents, Toland et al. (2020) state that the greatest portion of the global exotic pet trade is in ornamental fish, amphibians and reptiles, mostly destined for Europe and the USA. These authors contend that poor record keeping is commonplace, making it difficult to quantify the volume of wild animals being traded as pets.

The bulk of evidence received or cited in this context refers to reptiles. Valdez (2021) observes:

“Reptiles are one of the most popular exotic pets in the world, with over a third of all described species currently being traded. However, the most commonly available reptiles are typically non-threatened, captive-bred, and/or domestically obtained, which means they are also largely unregulated and unmonitored, resulting in a large portion of the reptile pet trade remaining unknown.”

[...]

“Although the reptile pet trade involves thousands of species, it tends to be dominated by a relatively small number of commonly traded and popular reptiles (Marshall et al., 2020; Herrel et al., 2014). These species are typically captive-bred, inexpensive, charismatic, simple to set up, and include species appealing to consumers, such as bearded dragons, leopard geckos, ball pythons, corn snakes, and crested geckos. Collector demand has consequently shifted from rare, wild caught species towards increasingly rare and expensive color and pattern variations, called morphs, of popular and easy-to-breed species (Collis et al., 2011).”

Toland et al (2020) agree that the trade is dominated by a relatively small number of popular species, concluding that “great species diversity is not necessary for a viable trade.”

While the vast majority of exotic species are not CITES-listed (see section 7) and therefore not declared, it has been estimated that more than 20 million reptiles were imported to EU member states between 2004 and 2014 (Auliya et al. (2016), cited in Toland et al. (2020)). Illicit trade is estimated to comprise at least a quarter of the entire exotic pet trade (Karesh et al., 2007 cited in Toland et al., 2020). Baker et al. (2012) noted that illegal wildlife trade was described more frequently (in 59% of legality reports, n = 301) than legal trade (41%) although pets and entertainment were a driver of trade in only 22% of these reports. The main focus in this study was on wild-caught (72% of provenance reports, n = 298) rather than on captive-bred animals (28%).

The Eurogroup for Animals response referred to the findings of Marshall et al. (2020) that, globally, a minimum of 36% of reptile species were traded online, three-quarters of this trade being in species that are not covered by international trade regulation.

Figures supplied to SAWC by Border Force on seizures of live animals of CITES species recorded relatively small numbers. For example, there were 11 seizures totalling 1,020 individual animals in 2019, and 12 seizures totalling 131 animals in 2018. Detail on species was not available.

From the industry perspective the Federation of British Herpetologists stated:

“The FBH does not have data which shows the number of animals imported or exported into the UK or EU. The CITES Trade Database (<https://trade.cites.org/>) provides species specific data. Looking at royal pythons (*Python regius*) shows that in 1990 2,724 royal pythons were imported into the UK from West Africa, numbers peaked around 2010 with just under 15,000 snakes being imported. Since then the numbers have steadily declined, with no imports of royal pythons from West Africa into the UK since 2017.

“The vast majority of reptile sales in the UK will be species that are almost exclusively captive bred in the UK and therefore require very few individuals to be imported to the UK.

“Even with importation information for the UK this may not be reliable given transport across the EU - since, in general, animals imported into the EU can be moved across the Eurozone and there are several European shows where animals can be easily purchased and moved between the UK and Europe, although as with UK shows these animals should be captive bred.”

ii. Scotland (UK)

SAWC found that there was a lack of clear, consistent data with regard to the trade in, and keeping of, exotic pets in Scotland. Much of the information provided by stakeholders was based on or extrapolated from UK figures.

The Animal Protection Agency commented:

“Although the scale of exotic pet trading and keeping in Scotland may be smaller than elsewhere in the UK and some other countries, we believe that there is no reason to regard the Scottish exotic pet trade to be significantly different in its nature to that of other countries, and that it is probably most similar to activities of England.”

In 2020, World Animal Protection reported on the UK live terrestrial wildlife import market not currently regulated under CITES (Green et al., 2020). Data were obtained using a Freedom of Information request to the APHA pertaining to all consignments of live non-domesticated animals (excluding CITES-listed species and all fish) imported into the UK and recorded on the TRACES database. World Animal Protection evaluated the type and volume of species entering the UK over a 5-year period, with additional focus on the country of export for all species. The aim was to provide an overview of the import data and to highlight some of the potential pathogens associated with taxa commonly imported into the UK.

Referring to this research, the World Animal Protection submission stated:

“Exotic pet ownership has grown increasingly common over the previous three decades, driven by globalisation and the development of the internet. However, little robust data is available about the scale and scope of the trade due to poor record keeping and limited regulation focused specifically on exotics. A World Animal Protection study found that between 2014-2018, over 3.4m wild animals were imported into the UK for commercial purposes, including 2,492,156 amphibians, 578,772 reptiles, 150,638 mammals, and 99,111 birds (Green et al., 2020). An unknown number specifically entered the UK exotic pet trade.

“At least 550 reptile species and over 170 amphibian species have been identified on sale in the UK (Warwick et al., 2018). Across the UK, an estimated 700,000 reptiles are kept as exotic pets, along with a further 200,000 amphibians, 500,000 indoor birds and an unknown number of exotic mammals (PFMA, 2020). An estimated 5,000 dangerous wild animals are kept in the UK under license [(Born Free, 2018). In Scotland, an estimated 975 amphibians, 999 birds, 248 mammals and 1379 reptiles may be available for sale in pet shops at any one time (Elwin et al., 2020). A study of online trade in Scotland found approximately 77 species and 1,043 individual animals available for sale on Gumtree, PreLoved, Pets4Homes and Facebook over a six-month period (OneKind, 2016).”

According to the World Animal Protection research, the top wildlife exporting countries to the UK (2014-18) were: USA (2,320,343 animals); Singapore (225,785); Czech Republic (163,491); Ghana (87,028); Vietnam (77,234); Indonesia (68,231); Spain (61,117); Uzbekistan (59,524); Italy (53,037), and Hong Kong (36,069).

Reptiles and amphibians

In the UK, the reptile sector of the pet industry is estimated to be worth £200 million, with approximately 250,000 reptiles and amphibians bred each year (EUARK, 2012).

Again, there was difficulty in establishing a definitive figure for the numbers of reptiles and amphibians traded (and kept) in Scotland on an annual or any other basis.

The Reptile and Exotic Pet Trade Association did not give Scottish figures but said that there were 3,000 pet shops across the UK as a whole and suggested that 50% of these sold reptiles.

The trade was dominated by seven popular species of reptile (49% of the market), while the remaining 51% was estimated to encompass 373 different species; some of these were said to be from wild-caught sources (approximately 87,000 individuals per annum). Again, these are UK figures. The Reptile and Exotic Pet Trade Association also suggested that around 19% of sales of herptiles (by animal) were wild caught (6% by value), the majority of which are anurans (frogs and toads), followed by lizards then snakes. 80% of pet shops were said to buy herptiles from private sources.

The Federation of British Herpetologists said that it was unclear how many reptiles are imported into the UK or Scotland but commented: “the vast majority of commonly available species are captive bred in the UK, which means that the need to import animals is minimal.”

Fish

The Ornamental Aquatic Trade Association provided detailed information, including a number of tables and graphs, which are reproduced at Appendix III.

The Ornamental Aquatic Trade Association said there were over 3,000 pet shops in the UK, of which two-thirds sold fish, and that this included around 100 pet shops in Scotland. The Ornamental Aquatic Trade Association has 47 members in Scotland, the majority of whom are retailers.

With regard to the number of species imported to Scotland, the Ornamental Aquatic Trade Association was unable to provide a specific figure, but noted that, in 2019, fish imports to the UK were valued at £16.2 million (1,244 tonnes live fish). These came mainly (70%) from Singapore, Israel, Indonesia, Sri Lanka and the Netherlands. Third-country imports were said to be diverse and include many countries in both Asia and south America.

The number of wild-caught fish was estimated at 5-10% of tropical freshwater fish and 90% of marine fish (around 17,000). There was thought to be no sizeable commercial breeding facility in Scotland, although there were some smaller scale coldwater fisheries. There is a domestic UK breeding market for these fish with some smaller scale coldwater fisheries in Scotland. Coldwater fish also arrive from third countries such as Israel, Japan and Poland.

Based on discussions with its Scottish members, the Ornamental Aquatic Trade Association stated that the most common coldwater ornamental fish species in trade and estimated numbers sold in Scotland in 2019 were: goldfish (410,000 individuals); koi (31,000); orfe (10,000); tench (10,000). Goldfish were by far the most popular type, amounting to 89% of the coldwater market.

The most common tropical freshwater ornamental fish species in trade and estimated numbers sold in Scotland in 2019 were: barbs (180,000 individuals); catfishes (250,000); cichlids (160,000); cyprinids (other) (140,000); danios (70,000) gourami (200,000); loaches (110,000); poeciliid livebearers (420,000); rainbow fishes (30,000); rasboras (70,000); tetras (550,000).

Within these families, the most common species traded were neon tetras (170,000 individuals), guppies (170,000) and zebra danios (70,000).

Tropical freshwater ornamental fish constituted 82% of sales in 2019, compared to coldwater fish, while tropical marine fish were a much smaller and more specialised market.

Following discussions with its Scottish members, the Ornamental Aquatic Trade Association indicated that the most common marine ornamental fish species in trade for domestic aquaria were: damselfishes(6,000 individuals); gobies/blennies/dragonettes (4,200); surgeonfishes (1,900); wrasses (1,900), angelfishes (1,100); gammas and bass (700); butterflyfishes (400); firefishes (400); triggerfishes (200); others (such as anthias, boxfishes and pufferfishes) (2,000).

The estimated total number of fish traded in 2019 in the three categories – coldwater, freshwater tropical and marine tropical – amounted to 2,658,800 individuals.

Small mammals

The National Fancy Rat Society informed SAWC that rats are rarely imported to the UK from outside the EU and that this would only be likely to occur in the case of a mutation producing a potentially valuable exhibition animal. Imports from the EU had been regular up to around three years ago, but it was thought that demand had declined as all the desired rat varieties were available domestically. The National Fancy Rat Society believed that some commercial imports continued, mainly from the Netherlands.

Domestically, the National Fancy Rat Society has 90 members in Scotland, with 14 registered breeders, and a total of 31 breeders in the wider region including northern England. Most registered breeders were said to breed around 12 -20 litters per year. As for non-registered breeders, the National Fancy Rat Society checked the Pets4Homes classified advertising site on 7 October 2020 and found 182 advertisements for rats for sale in Scotland and the north of England.

The National Fancy Rat Society told SAWC that most of its registered breeders sold rats either through websites or on Facebook, while others relied on the National Fancy Rat Society breeders' list and word of mouth. Stock is not sold to the general public at National Fancy Rat Society shows, although breeders commonly exchange stock.

Birds

According to the Parrot Society UK, the vast majority of sales, exchanges or breeding loans of psittacines were conducted between friends and associates across the UK. In Scotland, the Parrot Society UK said there were at least five small local sales, conducted on a monthly basis by a number of Bird Clubs selling canaries, budgerigars and foreign finches, and a handful of the commoner aviary-bred parakeets. Bird sales are regularly held in England for hobbyist breeders only. Sales were also made via specialist websites such as BirdTrek and through the Parrot Society UK magazine. Pet birds are generally bought from retail shops or online.

Up to 1 January 2021 there has been no requirement for a licence to import or export birds between EU member states. Approximately 500 individual aviary-bred parrots were said to have been brought into the UK from Continental Europe annually, with perhaps 50 of these destined for Scotland. Small numbers of hand-reared pet companion birds were said to move between the UK and other EU states. As from 1 January 2021 an Import and Export Certificate are required for transfers between the UK and the EU, and the Parrot Society UK thought it likely that this would reduce the traffic in psittacine species, possibly by as much as 80%.

Imports from outside the EU were said to be “incredibly rare”.

Domestically, Parrot Trust Scotland reported that there were several different means of acquiring parrots in Scotland, including from breeders (many advertising in specialist and membership magazines), pet shops, online platforms including classified advertising sites, friends and neighbours, and bird shows including larger shows in England.

Parrot Trust Scotland expressed concern that CITES-listed species were illegally sold without relevant paperwork and also that birds were sold covertly on platforms such as Facebook, using code words to establish contacts. The case of a scarlet macaw was cited: Having been signed over to the Parrot Trust Scotland, the bird died of avian bornavirus (ABV) despite receiving specialist care. The charity found that the parrot was bred in Germany, brought to England and then sold to a new owner in Scotland who had no knowledge or funds to care for the parrot appropriately. There was no appendix A paperwork for this CITES-listed species and no note of disease testing for ABV by the breeder. Parrot Trust Scotland believed that this might be an example of an illegal sale.

6.2 Licensed suppliers in Scotland

While there appear to be few or no data for licensed sales of exotic pets in Scotland, the study by Elwin et al. (2020) provides insight into the scope and scale of the licensed exotic pet market at UK level:

“Clearly, the exotic pet trade remains a prevalent business in the UK. In terms of trade volume, records show large numbers of individual wild animals across a wide range of species groups (2753 different descriptive terms) are being legally sold across England, Scotland, and Wales. Maximum numbers of exotic pets permitted for sale included 54,634 amphibians, 64,810 reptiles, 23,507 birds, and 6479 mammals. Moreover, nearly 2000 pet traders in 283 different local authority areas had permission to sell exotic pets between May and September 2019.”

SAWC has endeavoured to assess the size and scale of the trade in exotic species operating through licensed sellers in Scotland. In practice this category is almost

entirely confined to retail premises, even though internet sellers should also have licences.

SAWC is grateful to all the officers in Scottish local authorities who took the trouble to interrogate their own records and to make enquiries with individual pet shops about the nature and numbers of animals sold. This was undertaken despite additional COVID-19-related workload or staff absences as well as lockdown restrictions on retailers.

We sent two sets of questions to local authorities. Firstly, we asked about the numbers of exotic animals being sold in licensed premises, where they had come from and whether there were any welfare concerns.

It appeared from the information submitted that much of the data sought by SAWC was not consistently collected. In an effort to find out what should, in theory, be available, SAWC sent out a second question about standard licence conditions and whether these required the maintenance of records to show where livestock had come from. The majority of local authorities (20 out of 29 responses) did, at the time of responding, include a clause in their licensing conditions requiring licence holders to maintain a register of the animals acquired for sale, and in 15 authorities this included a specific requirement to document the source or origin of these animals.

Several authorities have offered to make further, more specific enquiries once restrictions ease and time allows.

One local authority, Falkirk, provided information at the level of detail that SAWC was seeking. For example, it gave statistics for seven months of sales in one specialist reptile store, along with the origins of the animals. These included:

- 23 ball pythons bred in the store
- 2 ball pythons described as “UK/previous pet”
- 1 python, unspecified, described as “UK/previous pet”
- 9 Hermann’s tortoises, origin Serbia/Monkfield Nutrition*
- 1 boa constrictor, origin Monkfield Nutrition¹
- 4 leopard geckos, origin Falkirk, Scotland
- 1 corn snake, origin Monkfield Nutrition*
- 1 bearded dragon, handed into the shop

The information received from shops indicated that the most commonly sold pets were fish (shops tending to sell between 200 -1,000 fish per week). The next most numerous taxa appeared to be small mammals (rats, mice, gerbils, rabbits, etc), followed by reptiles and amphibians. Therefore, while so much focus is on reptiles, it needs to be borne in mind that other species are kept and traded in greater numbers. Only a few shops were reported to be selling birds, and this ties in with the sales and supply pattern described by the Parrot Society UK in its response.

More than one local authority stated that, while they did not routinely monitor the types and numbers of animals sold through their licensed pet shops as part of the licensing process, they were prepared to consider this. Some, such as Renfrewshire, were already planning to review applications and licensing process for all animals. It

¹ * Monkfield Nutrition is a large wholesale supplier of reptiles and reptile food based in Cambridgeshire, with its own captive breeding facilities.

should also be noted that the Animal Welfare (Licensing of Activities Involving Animals) (Scotland) Regulations 2021 (see section 7), coming into force in September 2021, make it a statutory requirement for all licensed vendors of pets (including internet sellers) to maintain a register showing the origins of their livestock.

There appeared to be varying views among local authority officers as to what constitutes an “exotic pet”. Some retailers and officials did not regard fish, small rodents, such as gerbils, or cage birds as exotic. This may be because these are very widely kept despite being arguably less domesticated than other “traditional” pets such as dogs and cats. This reinforces the case for a clear definition of the term “exotic pet” (see section 5) and suggests that the commonly used alternative “non-traditional companion animal” (NTCA) may also be open to subjective interpretation.

6.3 Online, private and unlicensed sales

The internet is a common route for selling pets of all kinds, including exotic animals. In addition to well-known classified advertising sites, such as Pets4Homes, Gumtree and PreLoved, there are hundreds of hobbyist forums and closed Facebook groups.

Eurogroup for Animals referred SAWC to an official survey conducted by ProAnimal on behalf of the German Environmental Ministry and Federal Agency for Nature Conservation on the volume of online trade in reptiles, amphibians and non-domesticated mammals in Germany (Altherr et al., 2020). A total of 100,343 individual animals was recorded over the course of a six-month quantitative analysis of five online platforms and ten Facebook groups. Reptiles made up by far the vast majority of the animals for sale with 85,271 specimens (84.98 %), followed by 11,111 amphibians (11.07 %) and 3,961 mammals (3.95 %). Noting that the internet has become the primary sales channel for these animals, the survey also observed that actual handovers of animals often took place at animal trade shows.

SAWC has not received sufficient analogous information to make it possible to estimate the extent of internet sales and purchases of exotic pets in Scotland. The Federation of British Herpetologists response informed us that the main ways for private keepers and breeders to buy and sell reptiles in the UK were by way of organised events such as the International Herpetological Society show in Doncaster, informal local networks, including clubs and societies, and sales among friends, as well as by online sales where some, according to the Federation of British Herpetologists “may have no direct contact with the animal before the sale is completed and the animal is then collected or couriered”.

In 2014, the Born Free Foundation and Blue Cross carried out a three-month monitoring exercise covering a sample of 1,796 advertisements on general online classified sites (Born Free and Blue Cross, 2015). This found at least 53 different types (species, hybrids, etc.) of reptile, 37 types of exotic bird, 28 types of exotic mammal and 7 types of amphibian were advertised for sale. In terms of individuals, there were 934 reptiles, 478 birds, 322 mammals and 62 amphibians for sale. In addition to querying the general suitability of some animals for keeping as pets, the One Click Away report expressed concern for the welfare of the individual animals advertised, saying: “some individuals for sale were kept in inappropriate environments or were reported as being in ‘poor health’; ads also offered animals as ‘swaps’ or ‘quick sales’.”

This methodology was later reproduced by OneKind (OneKind, 2017), recording a total of 749 adverts on Scottish sites alone, amounting to at least 1,043 animals, of which 593 were reptiles, 381 birds and 69 exotic mammals. Approximately 79 species were advertised (although many advertisements did not specify the exact species). OneKind noted that many pet shops and smaller commercial breeders used Facebook to publicise animals for sale, while closed Facebook groups were also expanding rapidly and were well-nigh impossible to monitor. Monitoring the Facebook feeds of three established pet shops in Scotland over six months identified 447 adverts for animals from 77 species.

In May 2016, the advertising site Gumtree stated in evidence to an EFRA Committee enquiry that it had identified over 930 closed Facebook groups selling pets over a short period of time (UK Parliament, 2016).

Despite the existence of this patchwork of evidence, SAWC remains of the view that the data set on online and unlicensed sales is generally poor with few hard and fast figures and no indication of numbers of captive-bred versus wild-caught, or UK/Scottish-bred versus EU- versus third-country-bred. Similar conclusions have been reached with regard to licensed sales at a UK level. Elwin et al. (2020) highlighted a lack of sufficient detailed information in the schedules to current pet shop licences, for example regarding the specific types and numbers of animals permitted for sale.

The UK Centre for Animal Law pointed out the potential for rules in one UK administration to undermine others:

“Differences in regulatory rules within the U.K. relating to online sales inevitably create enforcement difficulties, since exotic animals can easily be traded between parts of the U.K. and between the U.K. and Ireland. Any new rules concerning the exotic animal trade in Scotland must consider how such rules may potentially be undermined by trade between the aforementioned routes as well as by virtue of the UK Internal Market Act 2020. Furthermore, in the interests of animal welfare, SAWC may wish to consider how Scotland might be contributing to the undermining of relevant rules in the 2018 Regulations in England if it does not adopt similar rules concerning online sales and advertising of exotic animals, with regard to the Internal Market Act. It is essential that any amendments to the licensing regime address the risks posed by unregulated or poorly enforced trade across online platforms.”

Some of this concern is now addressed by the Animals (Licensing of Activities) (Scotland) Regulations 2021, but the monitoring of online sales for enforcement purposes remains an unknown quantity.

6.4 Extent of keeping of exotic pets in Scotland

As with the extent of trade, the numbers of animals being kept remain difficult to establish.

Schuppli et al. (2014) estimated that “non-traditional” pets in the UK between 2010 and 2012 numbered 27,500,000 out of a total 43,500,000, but the figures provided by stakeholders were not sufficiently comprehensive to attempt a calculation for Scotland in 2021.

Reptiles

The Federation of British Herpetologists estimated that there were 0.7 million reptiles in Scotland: This was an estimate on the basis of its own calculation that as many as 8 million reptiles are now kept as pets in the UK.

The Reptile and Exotic Pet Trade Association cited a figure from 2004 of more than 7 million reptiles kept as pets in the UK, with the majority (49%) of reptiles being one of seven species/groups (approximately 42,000 individuals per annum).

- Bearded dragons (*Pogona* spp.)
- Leopard geckos (*Eublepharis macularius*)
- Mediterranean tortoises, *Testudo* spp.
- Crested geckos (*Correlophus ciliatus*)
- Corn snakes (*Pantherophis guttatus*)
- Yemen chameleons (*Chamaeleo calyptratus*)
- Ball (Royal) pythons (*Python regius*)

Fish

The Ornamental Aquatic Trade Association Ltd informed us that 14% of the UK population kept fish, amounting to over 100 million fish. The different taxa sold in Scotland were:

- Coldwater fish – around 460,000 mainly goldfish (*Carassius auratus*), then Koi carp (*Cyprinus rubrofuscus*)
- Tropical freshwater fish – around 2.18 million, the most common being tetras
- Tropical marine fish – around 18,800, mostly damselfishes

Coldwater fish like goldfish and Koi are typically kept in garden ponds (with the exception of fancy goldfish varieties which need to be kept in indoor aquariums).

The Ornamental Aquatic Trade Association said that tropical freshwater fish such as tetras, guppies and danios form the largest section of fishkeeping. They are the category most popular for beginners and most commonly kept in general because they are hardy in nature, adapting well to the varying water types across the UK, and because of their ability to live well together in 'community' tanks. As these are often shoaling fish they need to be sold/kept in small groups, which means people will often have quite a number of pet fish, unlike most other types of pet. Within this category there are more specialised species such as cichlids or discus fishes, which require more targeted knowledge and aquarium set ups.

Small mammals

Rabbits: The PDSA extracted Scottish data from its most recent PAW report (2019), which indicates that there are 0.9 million rabbits kept in the UK. The most popular source for obtaining a rabbit in Scotland was a rescue or rehoming centre / shelter (32%) – significantly higher than the overall UK figure (16%). Rabbits were also acquired from pet shops / garden centres (32%) and from family members, friends or neighbours (19%).

Large mammals (primates)

World Animal Protection stated:

“Estimates of the pet primate populations in the UK range from the hundreds up to 9,000 (DEFRA, 2020). Whilst the exotic pet trade claims that almost all are kept by

specialist keepers to high welfare standards, Defra received evidence of widespread domestic keeping and sale, primarily online but also in licensed pet shops.”

DEFRA is a UK department, and it is not necessarily possible to extrapolate to the Scottish situation. The Born Free Foundation, which regularly analyses the numbers of animals kept in the UK under Dangerous Wild Animals Act licence, reported that there were 16 DWA-licensed primates in Scotland in 2020, including black-and-white ruffed lemurs (*Varecia variegata*) and ring-tailed lemurs (*Lemur catta*).

Birds

According to the Parrot Society UK, psittacine ownership in Scotland can be broadly separated into hobbyist breeders and companion pet owners. Some hobbyist breeders were said to hold extensive collections in specialist facilities and to focus on species considered endangered in the wild, often supplying zoos with birds and contributing to international conservation efforts. Others have a simple garden aviary with a few pairs of parrots or parakeets, possibly mixed with canaries or foreign finches.

The Parrot Society UK currently has 69 Scottish members and the Society estimates that there are around 500 hobbyist breeders across Scotland, keeping perhaps 10,000 psittacines in total (this does not include budgerigar breeders).

There were said to be around 10,000 companion pet parrot owners in Scotland, with a total of perhaps 20,000 birds, chiefly the larger pet parrot types - macaws, cockatoos, Amazons and African grey parrots, as well as Green-cheeked conures, red-fronted kakarikis, peach-faced lovebirds, etc, as well as the “truly domesticated” species - budgerigars and cockatiels. The Parrot Society UK noted that companion pet psittacine owners regularly also keep other ‘exotic pets’, including reptiles, amphibians or small mammals in the home environment.

6.5 Wild-caught animals

While the extent of keeping of wild-caught animals in Scotland remains unknown, it is fair to assume that the number of such individuals is not insignificant. Each one of these animals is likely to have experienced stress due to removal from its natural environment, lengthy transport, confinement and exposure to humans (Baker et al., 2012).

Reptiles and amphibians

The Reptile and Exotic Pet Trade Association informed SAWC that 49% of reptiles being kept fell into one of seven commonly kept species/groups. Of the 51% of reptiles of other species sold (estimated at approximately 373 different species) some were said to be from wild-caught sources (approximately 87,000 individuals per annum). The Reptile and Exotic Pet Trade Association also suggested that around 19% of sales of herptiles (by animal) were wild-caught (6% by value), the majority of which were anurans (frogs and toads), followed by lizards then snakes. 80% of pet shops were said to buy herptiles from private sources.

At a global level, Marshall et al. (2020) suggest that approximately 90% of traded reptile species and half of traded individuals in web-based private commercial trade are captured from the wild.

Fish

The Ornamental Aquatic Trade Association told us that 90% of marine tropical fish sold in pet shops were wild-caught – a slightly lower proportion than the 99% reported at a global level (Biondo and Burki, 2020) – and that less than 5% of tropical freshwater fish sold in Scotland were wild caught.

The high proportion of wild-caught marine tropical fish was said to be due to the complexity of replicating conditions required for successful captive breeding, although recent advances in technology and breeding techniques had seen an increase in the number of species being bred in captivity. For example, the Ornamental Aquatic Trade Association said approximately 90% of clownfishes in trade were now captive bred.

Birds

According to the Parrot Society UK, the wild capture and import of psittacine species began to decline when Australia banned the export of native fauna in 1959, while the EU-wide ban on the import of wild-caught birds in 2005 ensured that “all new parrot populations in Europe have been entirely self-generated by captive breeding. Indeed, few Psittacines now kept across Europe will have been born in the wild, only those from the longer-lived species.”

6.6 Captive-bred animals

While captive breeding may produce animals able to tolerate life in a domestic setting, some respondents believed that their welfare could still not be guaranteed. Reference is made in Toland et al. (2020) to intensively managed operations involving restrictive conditions and inappropriate enclosures, where animals may be overcrowded or, conversely, kept in solitary confinement. More specific issues raised included the removal of parrot chicks prematurely from their parents, genetic disorders such as neurological disease, and stressful environments such as markets.

World Animal Protection submitted:

“Whilst the majority of exotic pets in the UK are captive bred, these systems also involve significant welfare harms. Intensive commercial breeding systems frequently involve restrictive and inappropriate enclosures, animals subjected to either stressful overcrowding or solitary confinement, and offered only minimal provisions of food and water (Toland et al., 2020). A World Animal Protection investigation into the global Ball python supply chain found significant welfare concerns with both ranching systems in West Africa (World Animal Protection, 2020) related to capture techniques for pregnant females and unhygienic and barren enclosures used to rear juvenile snakes, and captive breeding ‘rack-systems’ commonly employed in Western countries, which typically involve highly restrictive enclosures and conditions of deprivation (D’Cruze et al., 2020). Even supporters of the exotic pet trade highlight the welfare concerns with these types of systems used to breed a wide range of reptiles (Pasmans et al., 2017).

“Genetic disorders are also linked with exotic pet breeding. For example, artificial selection is associated with the neurological disease ‘wobble syndrome’, spinal deformities, skull deformities, and ‘bug eyes’ in royal python (*Python regius*) morphs (D’Cruze et al., 2020)”.

A Scottish veterinary surgeon with an exotic animal practice commented from first-hand experience:

“I have run into multiple issues with breeding facilities and retail outlets. Most birds are kept in absolutely tiny cages in pet stores, with filthy conditions and barely any enrichment. Often conditions are overcrowded. I have also personally experienced difficulties with one particular pet shop in Glasgow which has sold several birds with psittacine beak and feather disease and still seems to have very poor biosecurity. With pet shops with the smaller birds, they are shipped in and out and no thought as to what diseases they may be carrying. Same with reptiles, I see many tortoises which are shipped from eastern Europe (this says on their CITES paperwork) and then brought into pet shops and kept in large clutches. A lot of these have mycoplasma or herpes virus.”

One consequence of captive breeding has been an increased focus on developing animals with specific genetic traits, known as morphs, which are seen as more unusual, attractive and desirable. This trend led the British Veterinary Zoological Society, while welcoming success in captive breeding of non-traditional companion animals, to encourage breeders to focus on “normal” forms rather than morphs. This was partly to optimise the private sector role in conserving scarcer species, but also because of the risks associated with hereditary defects and excessive interbreeding:

“The BVZS is concerned that selected breeding of NTCA species, predominately, but not isolated to, the avian and herpetological arenas, has produced a number of phenotypic variants (morphs) which, whilst seemingly desirable for the purposes of showing or commercial fashion, are associated with significant genetic disorders. These include neurological deficits in reptiles and birds with a reduced ability to fly. These would be expected to prevent the individual animal from exhibiting the five freedoms enshrined in the Animal Welfare Act 2006.”

The British Veterinary Zoological Society cautioned against the breeding, sale or exchange of morphs with hereditary defects known to be associated with welfare problems and advised consulting a suitable qualified veterinary surgeon before considering breeding.

6.7 Animal welfare issues surrounding the trade in and keeping of exotic pets

The procurement and transport of animals are intrinsically bound up with animal welfare in both trade and keeping (Baker et al., 2012; Schuppli et al., 2014). Many of the responses received by SAWC described concerns about the general welfare of non-domesticated animals in these settings.

i. Trade, transport and sourcing of animals

As noted above, the trade is said to be dominated by a relatively small number of popular species, leading several authors to comment that great species diversity is not necessary for a viable trade (Toland et al., 2020; Valdez, 2020). Even so, the number of species in scope amounts to several thousands, so that the observations in this section are of necessity extremely general.

World Animal Protection stated:

“Demand for exotic pets in the western world is a primary driver of the global trade in live wild animals, linked to biodiversity loss, threats to the conservation of wild species, ecological threats from invasive species and risks to human health from

zoonotic diseases (Toland et al., 2020) This global trade involves animal welfare impacts at every step. World Animal Protection recognises that wild animals suffer unnecessarily as a result of capture, transport, training, interactions with humans, breeding, and captivity.

“Wild capture can result in injury, stress, and death. Forced confinement and close proximity to other species and humans causes additional stress, and transport to market can involve conditions that are severely overcrowded and unhygienic contributing to high morbidity and, for some species, high mortality prior to export (Toland et al., 2020).

ii. Conditions in breeding and selling operations

The Animal Protection Agency stated that investigations had found animal welfare and other problems to be common in breeding, wholesale and retail operations:

“Cited examples frequently involve: 1. trauma—environmental overcrowding/injuries, crushing, intraspecific, interspecific, cannibalism; 2. infectious—infection, parasitism; 3. dehydration—nutritional, infection, parasitism, starvation; 4. emaciation—nutritional, infection, parasitism, starvation; 5. environmental—hypothermic stress; 6. indeterminate/idiopathic. A raft of common behavioural and clinical welfare signs are also highlighted, for example for inspectors, and include: invertebrates - lethargy, hyperactivity, release of urticating hairs (some tarantulas), aggression, anorexia/reduced response to food/refusal to feed; fishes - congregating at surface, ‘gaspings’ at surface, rapid opercular (‘gill-covers’) movement, Avoidance behaviour, hiding from light, ‘flashing’ (darting moves), rubbing against objects, anorexia/reduced response to food; amphibians - rapid body movements, such as jumping and climbing, body ‘flattened’ against cage floor, lethargy, closed eyes, lethargy/reduced responsiveness; reptiles - interaction with transparent boundaries, hyperactivity, hypoactivity/sedentarism behaviour, avoidance behaviour, hissing, inflation of the body, repeated inflation and deflation of the body, repeated inflation and deflation of the throat, open-mouth breathing, voluntary regurgitation of food, rapid pigmentation change, biting/cannibalism; birds - pacing; route-tracing of cage, head bobbing, spot-pecking, huddled with consistently ruffled feathers and drooping wings, self-plucking, fighting, vocalization/emitting distress calls repeatedly, lethargy, cowering, attempting to hide, attempts to dig/climb/escape from cage, mammals - compulsive i.e., repetitive, apparently functionless behaviours, withdrawal, reduced responses, lethargy, vocalization, aggression to humans or conspecifics, cowering, attempting to hide, attempts to dig/climb/escape from cage. Accordingly, in our view, conditions at wholesalers and retailers are frequently poor.”

A Scottish veterinary surgeon with an exotic animal practice commented that most reptiles were available online and cited the example of a pet shop in England that shipped tortoises by courier “with barely any heat provision (heat packs which go cold) and no food/water, in a cardboard box. This is also common practice with geckos etc.”

Parrot Trust Scotland commented:

“Conditions in breeding conditions vary widely as there are no regulations. There is no regulation to provide good husbandry or to disease test so this can lead to very poorly bred birds which have a miserable disabled life or even death. Facebook bird

sites also actively encourage breeding too with very inexperienced owners with no knowledge.

“We have had recent experience of this from a previous owner with no bird experience who tried to breed a pair of lovebirds which they had just owned for 2 months after acquiring them from a deceased family member. The birds were surrendered to the charity when the owner realised they were not able to give the required care. The charity is now trying to save the two chicks through intensive vet care and at a significant time and financial cost.

“Breeders do not tend to give new owners written advice and or any support. Unfortunately, birds seem to be just seen as a commodity. We also experience lack of engagement from breeders with avian vets due to cost.”

In pet shops, Parrot Trust Scotland found that many birds were kept in small or overcrowded cages, with no social or psychological enrichment, poor food and no biosecurity, which can lead to disease spread. Parrot Trust Scotland had experience of one Scottish pet shop selling birds with Psittacine Beak and Feather Disease (Pbfd), a highly contagious and often fatal disease.

iii. Ailments, disease and husbandry – impacts on welfare

Given the enormous range of species involved, it is beyond SAWC’s capacity to set out all of the relevant health and husbandry concerns and ascribe them to all potential victims. Respondents to our enquiries also found it necessary to summarise issues in fairly general terms. For example, the European College of Zoological Medicine said:

“Inadequate management and lack of veterinary care lead to: obesity, metabolic bone disease (MBD), dental disease, feather plucking, reproductive disease and infectious disease.”

Based on scientific evidence – albeit limited due to the small amount of available research – the opinion of the European College of Zoological Medicine was that “care and welfare standards of exotic pets are often not achieved, and are generally considered below the standards of other companion animals such as cats and dogs. Many welfare issues are still present when keeping exotic pets.”

The European College of Zoological Medicine considered that the majority of welfare and health issues of exotic pets were due to suboptimal husbandry and nutrition, and no access to veterinary care. This was said often to be due to pet owners and keepers being poorly informed on the needs of their exotic pets, despite such information being widely available and easily accessible. The European College of Zoological Medicine added:

“An informed and responsible keeper who provides correct husbandry and nutrition and has access to specialized veterinary care should be able to ensure (physical and mental) health of a large number of exotic species. Wild caught animals are especially challenging. Such animals should only be looked after by experienced keepers.”

The Animal Protection Agency also commented on the difficulty of summarising these issues in a succinct and meaningful way, given the wide range of animals

involved, but posited that ailments and disease were directly associated with trade and keeping practices:

“We feel that it is impractical to set out meaningful information in relation to this question due to the significant diversity of species (at least 13,000) that are present in pet trading and keeping. There are many frequently cited examples of common ailments (e.g. metabolic bone disease in iguanid lizards, gastrointestinal impactions in lizards; egg-binding in tortoises; egg-binding in birds; obesity in snakes; necrotic stomatitis in snakes, vitamin-A deficiency in turtles, opportunistic bacterial infections in fishes, reptiles, and birds; rickets in birds; and many more), but these are not truly specific to those animals and occur ubiquitously across species and classes, although some species are more susceptible than others. Perhaps more relevantly, all these and very many other examples of common ‘ailments and diseases’ are widely reported within the exotics veterinary community, and which are attributed to several common factors: acute and chronic stress effects on animals arising from both wild-capture and intensive captive-breeding conditions, handling and transport, commercial confinement and microbial cross-contamination at wholesalers; unknown parameters for basic care; failure by keepers to adhere to care guidance; misleading information from the pet and hobby industries; poor generalised biological adaptability to captivity and unsuitability of species for pet purposes; and other factors (Frye 1991a,b; Ashley et al., 2014; Pees et al., 2014; Warwick et al., 2014; Martinez-Silvestre, 2015; Whitehead and Vaughan-Jones, 2015; De Briyne and Iatridou, 2016; Grant et al., 2017; Howell and Bennett, 2017; Moorhouse et al., 2017; Warwick et al., 2018a; Whitehead, 2018; Dos Santos, 2020; Tedds et al., 2020). Consequently, premature mortality rates are high. For example: at wholesalers 70% mortality within six weeks across animal classes is industry standard (Ashley et al., 2014); for fish, wild-capture mortality is high (Biondo and Burki, 2020). Fish mortality in pet shops is so high that the Animal Welfare (Licensing of Activities Involving Animals) (England) Regulations 2018 allows for 100% losses within three weeks without the need to record any abnormalities (Defra, 2018), and fish mortality in the home is approximately 90% in one year (Toland et al., unpublished); for reptiles in the home mortality is over 75% in their first year (Toland et al., 2012); for birds, 75-90% of wild-caught animals die prior to sale (EFSA, 2006; Engebretson, 2006). These examples indicate that outcomes for exotic pets are catastrophic and would not be regarded as tolerable for dogs or cats.”

Reptiles and amphibians

World Animal Protection elected to provide detail for two taxa, as examples. The first of these was reptiles:

“Reptiles are among the most widely kept exotic pets but almost all are maladapted for UK conditions and have specific requirements for temperature, light levels (including UV), photoperiod, humidity and diet. These special requirements are not straightforward to meet and require knowledge and understanding of their ecology, physiology and husbandry requirements to be kept physically healthy.

“The mismanagement of these basic husbandry requirements commonly results in significant welfare issues, including: metabolic bone disease, resulting from imbalanced diet and/or nutritional deficiencies; respiratory diseases, resulting from inappropriate humidity and poor ventilation; conjunctivitis and/or keratitis from substrate or retained shed; keratoconjunctivitis from excessive UV light; thermal burns from heat lamps, rocks or mats; rostral abrasions from rubbing/banging on

glass; dermatoses and shell diseases due to humidity and hygiene problems; parasitic and infectious diseases due to immune suppression, stress, hygiene; and many more (Whitehead, 2016).”

The Federation of British Herpetologists stated that general husbandry recommendations for almost all reptile species had improved over the years with improvements in knowledge and understanding of the species and also improvements in technology. This included sharing of knowledge and experience on a peer-to-peer basis. In addition:

“In terms of technology there are companies pushing many aspects of reptile keeping with the use of new technology. For example, Arcadia is developing high performance UVB lights and supplement technologies for vitamin D3 synthesis. Of which, Arcadia have published a lot of their knowledge in very accessible books for reptile keepers to understand more about their animals’ needs.

“There are a number of known health issues associated with poor husbandry in reptiles - one of the most well known is metabolic bone disease (MBD). While this was considered a big issue in the past, with improved husbandry standards it is less common now. The National Centre for Reptile Welfare (NCRW) 2018 Interim Report states that very few cases of MBD are seen in animals brought to the Centre. Instead the main husbandry issue seen with animals at the NCRW is obesity, which they say is arguably due to too much love and affection.”

A different perspective was submitted by a veterinary surgeon in Scotland with an exotic animal practice:

“Almost all of the diseases we see with reptiles are as direct result of inadequate husbandry provision. Vitamin D/Calcium deficiency, metabolic bone disease, obesity, vitamin A deficiency (problems shedding), follicular stasis, etc etc. I would say some of the worst affected species we seem to see are the geckos (leopard geckos in particular) and bearded dragons, although these are the most common species bought by novice keepers. In particular, chameleons of all species seem to suffer terribly when kept in captive conditions, unless the husbandry is absolutely perfect which it basically never is. We regularly see females with follicular stasis and egg binding, who have fractures of several legs. Sometimes they have been like this for a number of weeks before veterinary treatment is sought. One of my main concerns is that owners of exotic pets seem to wait longer than normal pet owners before taking them to a vet, possibly due to interacting with them less or not realising the severity of symptoms.”

Eurogroup for Animals and World Animal Protection referred to research (Whitehead et al., 2017) in UK veterinary practices about owners’ reports of husbandry for some of the most commonly kept reptiles: Royal (ball) python, veiled (Yemen) chameleon, bearded dragon, and juvenile Mediterranean tortoise. It was reported that most vets believed that basic aspects of husbandry such as diet, UVB lighting, temperature and hibernation were being managed inadequately. Poor husbandry was implicated in 70% of reptile illnesses and around 20% of deaths. Out of more than 200 veterinary respondents to the survey, virtually none had ever made a home visit to a reptile.

The European College of Zoological Medicine response also stated that many exotic pets were often not seen by veterinary surgeons, reducing the possibility of owners

receiving guidance on the care of these animals and the chance to prevent common diseases.

The Animal Protection Agency commented that “husbandry standards and knowledge among both traders and keepers regarding exotic pets are poor and resistant to education (Warwick et al., 2014; Grant et al., 2017; Howell and Bennett, 2017; Moorhouse et al., 2017; Warwick et al., 2018 a,b; Alves et al., 2019; Benn et al., 2019; Howell et al., 2020; Tedds et al., 2020).”

Describing this phenomenon as “educational inertia”, the Animal Protection Agency associated it with “folklore husbandry” – guidance handed down from trader to keeper to the next generation, based on trial-and-error practices or habits and/or “pseudoscience”.

“Because folklore husbandry implies simple, basic, husbandry without need for scientific evidence, it is strongly favoured by both traders and keepers, and imparted as dogma. Accordingly, while educational inertia is an important and seemingly unresolvable factor, it is merely one among numerous other fundamental problems concerning exotic pets.”

In a similar vein, Warwick et al. (2021a) noted that snakes are the only vertebrates commonly housed in conditions that prevent them from adopting rectilinear behaviour. Having identified 65 publications referring to snake enclosure sizes, including peer-reviewed literature, grey literature and opaque literature (non-scientifically indexed reports, care sheets, articles, husbandry books, websites etc.), the authors found that recommendations for enclosure sizes shorter than the snakes themselves “were based entirely on decades-old ‘rule of thumb’ practices that were unsupported by scientific evidence. In contrast, recommendations suggesting enclosure sizes that allowed snakes to fully stretch utilized scientific evidence and considerations of animal welfare.”

Eurogroup for Animals referred to a survey of 316 pet lizard owners in Victoria, Australia (Howell and Bennet, 2017), the first study of its kind in Australia and possibly the world and which the authors suggested might “be representative of many other parts of the world in the behaviors that pet lizard owners engage in to manage their lizard’s welfare needs”. A licence is required to keep reptiles and amphibians in Victoria, and only native species are permitted. The authors found that many lizard owners were not meeting the care guidelines and welfare needs described in the state Code of Practice for reptiles. Enclosures were said to be too small and there was a lack of seasonal variation for the animals living in them. Owners also tended to underestimate the lifetime cost of keeping a lizard.

The authors cited Berghardt (2013):

“it is virtually impossible that a captive lizard would ever experience as positive an overall welfare state as that which it could potentially have in the wild.”

Welfare issues included: Only 59.5% of the lizards had a large enough enclosure for their needs; 39.2% of owners never sprayed mist in the enclosures (noting that not all reptiles require misting); some owners were unaware of the humidity levels in enclosures; 6% of owners fed live vertebrates to lizards; owners’ knowledge of climate requirements was patchy, as was knowledge of whether a lizard was arboreal, saxicolous, burrowing or aquatic, diurnal nocturnal or crepuscular.

Fish

Stakeholders have identified concerns with mortality in the supply chain and in retail outlets (OneKind, 2014). The Ornamental Aquatic Trade Association referred SAWC to its publication Wild caught ornamental fish: The trade, the benefits, the facts (OATA), where it acknowledged that inappropriate advice and sales harmed the reputation of the industry. In response, the publication stated:

“There continues to be huge improvements in the equipment and food available to fish-keepers to help them replicate reefs and riverbeds. There is also a wealth of information available, from care leaflets and books to videos and forums on the internet as well as specialist magazines.”

The Ornamental Aquatic Trade Association issues around 45 fish care sheets to advise owners on appropriate husbandry.

Small mammals

A Scottish veterinary surgeon with an exotic animal practice commented:

“Small mammals are again similarly affected with issues often related to husbandry. The most common problem we see with small mammals (chinchillas, guinea pigs, degus, rabbits) is dental disease. Often due to inadequate dietary fibre and inappropriate muesli style diets in rabbits. We also regularly see these animals kept as solitary pets when they are very social and shouldn't be kept alone. I don't think pet shops should sell them alone. Often they are bought as children's pets and then left outside in a hutch with very limited space and only brought to the vets when in dire condition. Many rabbits are unvaccinated and suffer sudden death from RHD/RHD2. Guinea pigs suffer from issues related to lack of vitamin C, excess dietary calcium and inadequate fibre causing dental disease.”

Specifically on rabbits, the PDSA Pet Animal Wellbeing (PAW) report (PDSA, 2020) data indicated that in Scotland:

- 28% of pet rabbits are kept in inadequate housing
- 17% of owners fed their rabbit muesli mix as part of their rabbit's main diet
- 24% did not provide any hay as one of the main foods for their rabbit
- 44% of owners want to change at least one of their rabbit's behaviours
- 49% of rabbits live alone
- 17% of rabbits receive no preventative healthcare

The PDSA said that these levels of concern were similar to those in the rest of the UK.

Large mammals

Primates were the second taxon discussed as a specific example by World Animal Protection:

“There is nearly universal agreement among veterinary, academic and NGO sectors that primates are unsuitable to be kept as pets due to their high levels of intelligence, need for stimulating environments, complex social structures and need for companionship (RSPCA, 2014). Despite this, the vast majority of primates owned in the UK belong to species, such as marmosets, squirrel monkeys and capuchins, which can be owned without the need for a Dangerous Wild Animal license.

“A recent Defra call for evidence in England found common physical health problems among case studies resulting from inappropriate housing, inadequate enrichment, poor diets and social isolation. This included: broken bones, nutritional bone disease (rickets), malnourishment, poor musculature, amputated tails, kidney and liver failure, soft tissue damage, poor dentition, bacterial and/or parasitic infections, underweight/emaciated or overweight/obese. In addition, psychological issues included: hyper-aggression; hyper-alertness; anxiety; agoraphobics; poor/non-existent social skills; stereotypic behaviour (e.g. rocking, pacing); abnormal behaviour; self-injurious behaviour (e.g. self-biting, head-banging and hair-plucking) (DEFRA, 2020).

Soulsbury et al. (2008) also identified increased stereotypical behaviour in individually housed primates and recommended that primate-keeping should be prohibited on welfare grounds.

Birds

The Parrot Society UK described hobbyists' keeping of psittacines as being primarily on a medium scale:

“...perhaps eight aviaries each containing a pair of psittacine species. Whatever the scale, Hobbyist Breeders keep their birds in sheds, outbuildings and aviaries, usually one pair of birds per aviary and with access to sunlight, rain, wind and natural stimuli, along with scope to fly and bathe whenever they wish. Breeders generally have very secure aviaries, cutting down on escapees and have little physical contact with their birds, handling them only irregularly, reducing the possibility of disease transmission.”

The Parrot Society UK also maintained:

“Huge leaps have been made in psittacine welfare within the Hobbyist Breeder community over the last 20 years, not as a result of any form of legislation but rather a combination of education and the simple fact that the ban on wild caught birds meant that prices increased markedly. Therefore, parrots became more valuable in monetary terms, and also more difficult to replace. Many Hobbyist Breeders have impeccable facilities, of which they are rightly proud. Birds taken from spacious aviaries and placed in small travel cages can become stressed, this rarely happens other than at the point of sale or exchange, such as a bird show. Unfortunately, this is the very point where the general public may see these birds and assumptions that birds are permanently maintained in such cages are not uncommon. Either way, the hobby has done much to self-regulate: banning hand reared & Companion Pet birds at sales, having minimum cage sizes and appropriate designs, limiting cages to 2 birds, providing 'care sheets' with each bird sold & having both an RSPCA Inspector present to ensure high standards are maintained and a specialist Avian Veterinarian to deal with any problems (see above).

“There are possibly more welfare issues within the field of Companion Pet Parrots, owing to a lack of regulation, impulse-buying, internet availability, and generally lower levels of specialist knowledge. Parrots are sociable birds, but are often kept as single pets, with no access to natural light, an inappropriate diet, no support network for advice and guidance, and little understanding of their welfare needs. Many of the species kept as pets are potentially long-lived, having life spans of fifty years and more, such as African grey and Amazon parrots, Cockatoos and Macaws. Owners’

lifestyles change in this time, with such things as ill-health, divorce, redundancy or death impacting on the ability to keep a parrot. Re-homing and rescue centres for parrots are always busy, but once again the PSUK aims to improve education in this field of parrot welfare as far as possible.”

Parrot Trust Scotland expressed a wide range of welfare concerns:

“Companion birds and aviary birds are subject to many ailments and diseases. Almost all of the issues we see with parrots/cage birds are however related to inappropriate husbandry. People unfortunately take on these animals knowing very little about their required welfare and wellbeing as well as underestimating the complexity of their care, including the finance to support their needs.

“Many birds are kept in small cages, with unsuitable dowel perches and fed on a poor diet. They are also kept in unsuitable environments full of chemicals and with owners who smoke. Most people underestimate the intelligence of their companion parrot and do not provide them with anything in the way of stimulation/foraging opportunities and provision of toys. The foods which are sold in almost all pet shops are again on the whole inadequate (mostly seed based diets containing sunflower seeds and peanuts). Monkey nuts are commonly sold and these can harbour aspergillus spores.

“This poor husbandry leads to many issues, for example:

- pododermatitis (bumblefoot)
- obesity
- feather plucking/feather destructive behaviour
- stereotypic behaviour & self-mutilation
- vitamin A deficiency leading to respiratory infections, fungal infections
- Lack of calcium and UV-B lighting leading to seizures, weakness, difficulty laying eggs and even death.
- Liver disease
- Muscle wastage/inability to fly (this can also be from wing clipping which is emotionally and physically detrimental to a bird)

“The other concern we have is the general lack of disease knowledge and control/biosecurity. Birds are rehomed or put in aviaries without consideration to disease testing for example chlamydiosis, Psittacine Beak and Feather Disease (PBFD), and avian bornavirus”

Parrot Trust Scotland made detailed comments on the specific dietary needs of parrots, saying that many owners do not have knowledge of the nutritional requirements, such as a balance of fresh fruit/vegetables, proteins and fats, high nutritional value seed mixes, necessary mineral supplements and which foods are toxic or unhealthy. There was said to be a lack of understanding of the health need for boosted UV light exposure with an avian lamp and use of an air purifier in the home environment. The charity also found that owners tended to purchase cages, which were too small for their bird to be comfortably able to spread their wings, and did not allow sufficient time out of their cage to exercise freely.

There was also concern about wing clipping:

“... a form of mutilation of the bird, which has extremely damaging psychological as well as physical consequences. It is very unfortunate that owners seem to receive conflicting advice on this from pet shops and breeders.”

iv. Inability to meet welfare needs

Under the Animal Health and Welfare (Scotland) Act 2006, a person who is responsible for an animal must take steps to ensure that its needs are met. The relevant needs set down in the legislation include:

- the need for a suitable environment,
- the need for a suitable diet,
- the need to be able to exhibit normal behaviour patterns,
- any need to be housed with, or apart from, other animals,
- the need to be protected from suffering, injury and disease

This list refers to, but does not exactly replicate, the Five Domains Model for animal welfare assessment originally described over 25 years ago (Mellor and Reid, 1994) and which has been regularly updated to include developments in animal welfare science thinking. The domains of the most up-to-date model are: 1. Nutrition, 2. Physical Environment, 3. Health, 4. Behavioural Interactions and 5. Mental State (Mellor et al., 2020).

The BVZS and BVA joint statement on non-traditional companion animals (BVZS/BVA 2015) summarised concerns later expressed to SAWC by many stakeholders:

“There are some species whose five welfare needs are so specialised they could rarely or never be met in a domestic environment. Other species should only be kept under licence or for defined and authorised conservation purposes. These include, but are not necessarily limited to, those listed in the Schedule of the Dangerous Wild Animals Act 1976 (as amended 2007).

“We support the keeping of species as companion animals for which there is a reasonable expectation, based on published evidence and professional experience, that their five welfare needs can be met by suitably informed people. However, some NTCAs, such as reptiles, have exacting husbandry requirements, e.g. for humidity, lighting, nutrition and temperature, others such as birds have complex social, cognitive and nutritional needs, all of which must be fully researched and understood before acquisition. Owners should only take on these animals where they are able to meet their welfare needs.”

Eurogroup for Animals referred to the complex needs, including psychological and behavioural needs, of non-domesticated animals in private keeping. Noting that some species are mis-sold as easy to keep, Eurogroup for Animals cited research to the effect that:

“wild animals living in captivity endure insufferable boredom and psychological deprivation, as they are denied the companionship of conspecifics and access to their natural environments.”

[...]

“Even when knowledge is available, it can be difficult to satisfy the specialized needs of some exotic species in a household environment.” (Kennedy, 2002)

World Animal Protection also queried the general suitability of wild animals as pets:

“The existence of such a diversity and number of wild animals kept as exotic pets in Scotland raises significant animal welfare concerns. Keeping a companion animal should ideally enhance, rather than jeopardize, its welfare (Pasmans et al., 2017).

Under the Animal Health and Welfare (Scotland) Act 2006, owners are legally responsible for ensuring its five animal welfare needs are met (for a suitable environment, for a suitable diet, to be able to exhibit normal behaviour patterns, to be housed with, or apart from, other animals, to be protected from suffering, injury and disease).

“However, exotic pets are fundamentally unsuited to being kept as pets and it is doubtful whether their needs can ever be fully met in domestic environments. Domesticated species are, by definition, adapted to living in close proximity to humans, unlike exotic species. Exotic pets may have challenging biological needs (social, environmental, dietary, behavioural), face particular challenges of adjustment to artificial conditions in captivity or be confined to vivaria and other cages, which further restrict their opportunities for natural behaviour.

“Increasing scientific understanding of the welfare needs of animals also increases the challenge to humanely manage their welfare in captivity. For example, greater recognition of play in fish, frogs, and reptiles, spatial studies in reptiles, and understanding of mental states in animals including anxiety, fear, panic, frustration, anger, helplessness, loneliness, ‘boredom’, and depression have all been recognised as continuing to ‘raise the bar’ for meeting positive states and avoiding negative states to achieve ‘a life worth living’ (Warwick et al., 2018). Conditions for captive exotic animals have been described even in the best zoos as ‘controlled deprivation’ given the limitations in providing enrichment that allow normal behaviour to be expressed (Burghardt, 2013).

“The scientific community has developed various principles or tools to assess the suitability of non-domesticated species to pet ownership, including Schuppli and Fraser (2000), Koene et al. (2016), Warwick et al. (2014), Wensley et al. (2014) and Schuppli et al. (2014), Warwick et al. (2018) and most recently Warwick and Steedman (under review). These demonstrate a widespread recognition that the welfare needs of non-domesticated species cannot necessarily be met by a normal, competent pet owner.”

v. Premature mortality

Mortality rates have long been considered to be indicators of the welfare state of an animal population, particularly in livestock farming (e.g. Motus et al., 2020).

While there is no known, definitive rate of premature mortality among non-domesticated animals in private keeping – indeed it would be difficult to state this in such general terms, given the thousands of species involved and the apparent lack of veterinary oversight – anecdotal reports suggest that a disproportionate number of animals die prematurely. Opinions vary as to whether this can be ascribed primarily to neglect by keepers or to the mis-selling of species that are fundamentally unsuited to captivity, allied with information suggesting that species with complex needs are easy to keep.

The Animal Protection Agency, while pointing out the difficulty of making generalisations across such a wide range of species, nonetheless described premature mortality rates as high.

“For example: at wholesalers 70% mortality within six weeks across animal classes is industry standard (Ashley et al., 2014); for fish, wild-capture mortality is high

(Biondo and Burki, 2020). Fish mortality in pet shops is so high that the Animal Welfare (Licensing of Activities Involving Animals) (England) Regulations 2018 allows for 100% losses within three weeks without the need to record any abnormalities (Defra, 2018), and fish mortality in the home is approximately 90% in one year (Toland et al., unpublished); for reptiles in the home mortality is over 75% in their first year (Toland et al., 2012); for birds, 75-90% of wild-caught animals die prior to sale (EFSA, 2006; Engebretson, 2006). These examples indicate that outcomes for exotic pets are catastrophic and would not be regarded as tolerable for dogs or cats.”

The mortality rate for reptiles in the home (Toland et al., 2012) was calculated based on the difference between the estimated number of reptiles entering the UK and the number estimated to be in homes.

Robinson et al. (2015) noted that mortality of reptiles can occur at any stage of the trade chain from collector to consumer. In the home, the authors calculated that 3.6% of snakes, chelonians and lizards died within one year of acquisition. This included 1.9% of boas and constrictors and 28.2% of chameleons.

The Ornamental Aquatic Trade Association noted the concerns, albeit referring to less recent research:

“Like any trade that exports and imports live flora and fauna, the welfare and mortality rates of exported ornamental fish is a highly emotive issue, and rightly so. There is an oft quoted statistic of 73% cumulative mortality rates for exported fish, as used in Olivier 2001 for example. This figure however is not only over 20 years old, and unsubstantiated at that, but ignores the reality that no industry could survive with such a poor rate of return. Ours is a low volume, high value industry that relies on the provision of LIVE and HEALTHY stock.”

The Ornamental Aquatic Trade Association also stated that mortalities in trade were reducing:

“Where best practice is followed, mortalities at all stages along the supply chain have been reduced to very low levels, often achieving mortalities below 1% from exporters to importers, as confirmed by a Ministerial statement in the UK.”

vi. Neglect, abandonment and re-homing

The Scottish SPCA provided SAWC with figures for certain types of stray, abandoned, neglected and handed-in exotic animals from 2016 – 2020. Over the five years, the charity reported rescuing a total of 1,444 individuals of exotic species, of which the largest category was snakes (511) followed by turtles and terrapins (378), reptiles (mainly lizards) (278), tortoises (131), amphibians (51), arachnids (48), and gastropods (38).

Figures recorded for these animals, as they were described on receipt at the animal welfare centres, are shown at Appendix IV. Separately, the charity reported 2,126 rabbits or hares cared for at its centres over the five years (although some of these will have been wild animals).

Birds

Parrot Trust Scotland stressed that parrots given up for adoption frequently came from loving owners whose circumstances had changed. However:

“Often owners find that having taken on a parrot, they are unable to cope with the specific needs and behaviours of the bird or the costs of best care practices. On occasions, owners find they are unable to cope with the demands of providing sufficient enrichment and stimulation for their bird, whose behaviour is impacted as a result. Another common reason for surrendering their parrot is birth of children. Young children and parrots (which are classified as wild animals) do not mix well on the whole and this leads to challenging situations and dangerous bites.

...

“We have however had experience of extreme welfare situations where parrots have suffered from abuse whether intentional or unintentional. We have had situations where birds have been captive in tiny cages for 10-20 years, or where owners have not wanted to pay for vet treatment for treatable conditions and so want the animal euthanised. In these cases, the charity has been able to support the owners to sign over/surrender their animals to the charity who then takes over ownership and all care including vet treatment and associated costs.”

6.8 Other issues raised – invasive species, local depletions, zoonoses,

In addition to animal welfare, stakeholders raised a number of issues relating to conservation and human and animal health.

i. Invasive alien species

The pet trade has been described as a dominant pathway for the introduction of new invasive species to Europe (Genovesi et al., 2009, cited in Keller et al., 2011). The potential for exotic pets to establish populations in case of release in nature and to become invasive alien species has been evidenced in numerous cases. Non-native species can displace native species through predation, hybridisation, pathogen transmission or competition for resources (Schuppli et al., 2014). Examples cited included 45 established non-native reptile and amphibian species in Florida and 50 non-native species of pet birds in Spain. One-third of the world’s worst aquatic invasive species were said to have resulted from the release of pet fish into the wild.

Species of concern in the UK include parakeets, grey squirrels and red-eared slider turtles, with control efforts potentially having an impact on animal welfare.

The Parrot Society UK acknowledged the expanding population of naturalised Indian ring-necked parakeets in the UK, with viable populations now found in England, Wales and Scotland:

“Indian Ring-necked Parakeets were first recorded in Scotland between 1979 and 1981 in Glasgow, where they are now known to breed in the wild, with birds now recorded across the Borders and the Central Belt. Whilst these parakeets cause serious damage to both maize and sunflower crops in their native home, there has been no serious impact to agriculture or forestry in the UK despite huge numbers of birds living in fruit-growing areas such as Kent. As a hole nesting species, there has been much speculation over their impact upon native hole dwellers, although there is at present no incontrovertible evidence that they impact negatively on native species. It seems likely that the Indian Ring-necked parakeet is here to stay and will join the long list of non-native species in the UK.”

The Parrot Society UK was of the view that the majority of birds going missing from their owners are pet birds escaping through open windows or doors - African grey parrots, cockatoos, macaws, Amazon parrots, ring-necked parakeets, Alexandrine parakeets, conures, cockatiels and budgerigars – which would be unlikely to survive or breed in the wild.

The European College of Zoological Medicine stated:

“Abandoning or releasing exotic pets is likely to result in animal suffering but also holds distinct risks of establishing populations of invasive exotic species (several fish, amphibian, reptile, mammal and bird species), and pathogen pollution (spill over of infectious diseases to native wildlife). These can cause significant damage to the native ecosystems and have proven difficult and expensive to mitigate. Occasionally, abandoned exotic pets are dangerous (e.g. venomous snakes or large constrictors), with a risk of putting members of the public and professionals (e.g. police) in a dangerous situation.”

The European College of Zoological Medicine also raised the issue of animal “laundering”, such as animals that are protected in their country of origin but freely traded in Europe, and falsifying of CITES categories such as “code F” animals that have been wild-caught or reared for eggs collected from the wild for incubation, but have been listed as captive-bred.

The European College of Zoological Medicine noted that the abandoning of exotic pets is likely to result in disease and high mortality.

ii. Local depletions

Eurogroup for Animals referred SAWC to Marshall et al. (2020), whose findings suggest that thousands of reptile species are threatened by the under-regulated global online trade:

“a minimum of 36% of reptile species are being traded, many are coming from wild populations, newly discovered species can be swiftly exploited, and a minimum of 79% of traded species are not subject to CITES trade regulation. Particularly concerning is the convergence of vulnerability and desirability of newly described, small-ranged species. When presented together, our findings reveal a worrying situation where a huge number of reptile species are being exploited, with little international regulation, implying a lack of reliable a priori estimates of the impact on wild populations.”

Marshall et al. (2020) proposed that the burden of proof should be shifted to demonstrate sustainability before species or populations can be traded, concluding:

“If we fail to mitigate the impacts of unregulated, but legal trade, small-ranged and endemic species may be the next victims of the ongoing biodiversity crisis.”

Vinke and Vinke (2012) also highlighted the legal trade in non-CITES-listed species and the difficulty of obtaining accurate data regarding the extent of international trade, meaning that species are at risk of over-exploitation in the absence of preventative mechanisms. Trade in wild-caught animals is often described as a contributor to local economies and the authors acknowledge that it can be “an

enormous economic factor”, even though “the actual animal collectors get only a fraction of the real value generated through their efforts”.

Even where there is domestic legislation to protect species, once removed from that aegis, animals have been found in trade overseas, apparently in compliance with local legislation (OneKind, 2014).

A recent paper (Morton et al., 2021) reviewed the impact of several drivers of wildlife trafficking, including the pet industry, bushmeat trade, traditional medicine, ivory trade and laboratory use. Said to be the first analysis of both legal and illegal trade, the researchers identified a general lack of wildlife research (most of the studies found covered mammals). Information was gathered on individuals from 133 species: 452 mammals belonging to 99 species, 36 birds from 24 species, and 18 reptiles from 10 species. It was noted that where animals, such as songbirds, were being trapped for sale as pets, population declines could reach 73%.

Clearly, too, the decline or extinction of a species does not happen in isolation and removing large numbers of wild animals from their habitats is likely to have a wider ecosystem effect. Illegal wildlife trafficking (not only connected with the pet trade), involving “pervasive and uncontrolled capture”, has been described as having “grave consequences” for the biodiversity of Brazil, which currently contains over 13% of the world’s animal and plant life (Charity and Ferreira, 2020). Similarly, studies of the causes and consequences of biodiversity declines (Isbell, 2010) suggest that ecosystem functioning often depends on species richness, species composition, and functional group richness as well as species evenness and genetic diversity.

iii. Zoonoses

Pets are known to transmit diseases to their owners, handlers and to other species. Schuppli et al. (2014) provide a lengthy – yet doubtless non-exhaustive - list of examples:

“In the USA, an outbreak of *Salmonella typhimurium*, linked to contact with pet frogs, sickened 224 people from 42 states (Yaeger et al., 2011). Caged birds have been found to harbour at least 15 different zoonotic organisms (Jorn et al., 2009). Primates carry a number of zoonotic organisms (Wolfe et al., 1998; Taku et al., 2007). In Brazil, rabies was transmitted from pet marmosets to seven human patients (Favoretto et al., 2001). The first community-acquired cases of monkeypox in humans in the USA (47 confirmed cases) resulted from contact with infected pet prairie dogs that had been housed or transported with imported African rodents (Reynolds et al., 2006; Reynolds et al., 2007). In 1991, pet parrots were the source of an outbreak of Newcastle disease in other pet birds in several states of the USA (Bruning-Fann et al., 1992). There is also potential for transmission of diseases to food animals. For example, caged birds in Iran are thought to be responsible for the transmission of Newcastle disease to farmed poultry (Madadgar et al., 2013). Rabbits sold at a flea market were responsible for transmitting rabbit haemorrhagic disease to a rabbitry in Indiana, many rabbits died and many others had to be euthanised (APHIS, 2005). In most cases, proper care and management of pets can prevent transmission.”

These longstanding concerns have been amplified over the last year as fears grow over the potential import of disease from any source. The World Animal Protection survey referred to in section 6.1(ii) focused on what it saw as the risk of another public health crisis. The charity stated that 70% of all zoonotic emerging infections were thought to originate in wild animals and noted that many of the millions of wild animals, including African pygmy hedgehogs, snakes, lizards and tortoises, legally imported to the UK came from regions identified as emerging disease hotspots.

Animals imported into the UK with associated public health risks include reptiles, which the World Animal Protection report considered to have a “high possibility” of carrying potentially dangerous pathogens such as Q fever and Lyme disease. Other examples include amphibians, which “have the potential to act as vectors for zoonotic disease transfer” of diseases such as salmonella, as well as bats, which have been implicated in the transmission of COVID-19, Ebola, Hendra and various rabies-related viruses.

World Animal Protection submitted:

“The COVID-19 pandemic has brought into sharp focus the threat to human health posed by the wildlife trade, which has been identified as the most likely pathway for SARS-Cov-2. It is estimated that 75% of emerging zoonotic infectious diseases are of wild animal origin and tackling the illegal and legal trade in wild animals has been identified as a high priority in terms of preventing future disease outbreaks (Toland et al., 2020). The UK is an active consumer of wildlife, which presents the risk of undesired pathogen pollution. A number of zoonotic diseases have been identified in taxa that are commonly imported for the UK exotic pet market (Green et al., 2020).”

6.9 Ethical issues

This section will be augmented in the final report with further consideration of the ethics of keeping a non-domesticated animal as a pet.

i. Benefits to humans of pet keeping

Many commentators, such as Pasmans et al. (2017), consider that pet keeping has benefits for human health and animal conservation:

“The keeping of companion animals provides clear benefits for human wellbeing. Indeed, keeping pets promotes psychological, physiological and social health and development. Beneficial effects are not limited to pets with high interactive value (e.g. dogs); even the keeping of non-interactive or poorly interactive animals, such as fish, has been shown to improve the keeper’s overall health.”

However, the UK Centre for Animal Law pointed out that:

“Ownership and trade in animals is not an unqualified right, and it may legitimately be balanced against other policy considerations.”

ii. Benefits to animals of being kept as pets

What do animals get out of being kept by humans? Is it a two-way relationship and, if not, should it be? Is it acceptable to keep any animal as a companion or hobby whose needs cannot be met in the circumstances in which it lives?

According to the UK Centre for Animal Law, there are “powerful animal welfare considerations” to be weighed in balance, as well as biodiversity loss, species extinction, danger to public safety and zoonotic disease risks.

Schuppli and Fraser (2000) recommended that decision-making about the suitability of different companion animal species should be based, among other things, on ethical criteria:

“As ethical criteria, we considered that keeping a companion animal should not jeopardize - and ideally should enhance - its welfare, as well as that of its owner; and that keeping a companion animal should not incur any appreciable harm or risk of harm to the community or the environment.”

The authors’ assessment framework, designed for use in creating policy and regulations, and to help prevent animals from being placed in unsuitable circumstances, includes welfare questions and has been adapted for compiling positive lists in Belgium and the Netherlands. See section 8 on approaches to regulation (Option 5).

iii. Are we able to meet non-domesticated animals’ needs?

The UK Centre for Animal Law submitted that:

“The ethics of keeping non-domesticated, non-native species as companions in people’s homes must be given serious consideration. For some species, it is questionable whether their needs are ever capable of being met in a domestic setting. To a large extent, it is local authorities who have responsibility for the regulation of this industry through the administration and enforcement of the licensing system. Given the current strain on local authority resources, it is right to ask if society can afford to implement the necessary measures to ensure the protection of the species’ welfare needs, even in the most basic sense.”

Schuppli et al. (2014), drawing on Fraser et al. (1997), identified three categories of ethical concerns which should be addressed when considering the welfare of non-traditional species:

“Widely held ethical concerns about the welfare of animals can be captured by three broad and sometimes overlapping categories (Fraser et al., 1997)

- animals should ‘function well’, in the sense of satisfactory health, growth and normal operation of physiological and behavioural systems
- animals should ‘feel well’ by being free from prolonged and intense fear, pain, and other negative states, and by experiencing normal pleasures
- animals should ‘lead reasonably natural lives’ through the development and use of their natural adaptations and capabilities.”

iv. Motivations for keeping exotic pets

Eurogroup for Animals discussed the motivation for purchasing what it described as a “risky” pet, citing studies by Wageningen University (Pompe et al., 2013):

“The results show that a majority of private keepers do not consult any source of information to learn about the needs of their animals, and remain incapable to fulfil the complex needs of an exotic pet. Social analysis shows that ‘familiarity with the animal’ and ‘the positive appreciation of others’ are relevant social factors that drive purchase of unsuitable high risk pets. 95% of the holders of ‘risky’ animals indicate that, despite awareness of the risks and the additional costs, they would purchase the same species again. More than 75% of respondents in this group indicate that they would recommend the ‘risky’ animal to others.”

Pasmans et al. (2017) saw reptile and amphibian keeping as emblematic of other forms of exotic pet keeping: “the keeping of reptiles and amphibians in captivity encompasses all the potential issues identified with keeping exotic pets, and many of those relating to traditional domestic pets.”

Pasmans et al. (2017) also saw the trend for reptile and amphibian keeping as a positive:

“A further positive aspect of keeping reptiles and amphibians lies in connecting people with these animals and the potential for public education, nurturing interest and dispelling prejudice.”

In some cases there is a commercial motivation as a growing number of people breed from their own pets for profit. This trend is not of course confined to exotics, but arguably there has been less focus on the welfare issues of exotics compared with, say, puppies and kittens.

6.10 Legislation in other countries

For a comprehensive survey of relevant legislation in the EU (including UK administrations) see Eurogroup for Animals (2020). A summary of measures is reproduced at Appendix V.

Links to positive lists around the world are included in Toland et al. (2020), reproduced at Appendix VI.

7. Current legal and regulatory position in Scotland

The welfare of all protected animals, including all vertebrate exotic pets, is provided for under the Animal Health and Welfare (Scotland) Act 2006. Abandonment of any protected animal is an offence under the 2006 Act.

The sale of animals as pets, including online sales where holding premises are within the UK, is currently covered by the Pet Animals Act 1951. The Act prohibits sales from unlicensed premises. In recent years the growth of internet sales, often from essentially domestic operations known as hobbyists or “back-room breeders”, has made enforcement difficult and complex.

The keeping of certain exotic animals, considered to be dangerous, is covered by the Dangerous Wild Animals Act 1976 (DWA), which requires a licence for keeping certain specified animals – a system often referred to as a negative list. Local authority licence data are regularly analysed by the Born Free Foundation (Born Free Foundation, 2021), which stated in March 2021 that DWA licences had been

issued for 3,951 animals in Great Britain in 2020. This included 255 animals in Scotland:

- 8 venomous lizards including beaded lizards (*Heloderma horridum*) and Gila monsters (*H. suspectum*).
- 8 venomous snakes including a taipan (*Oxyuranus* sp.), a mamba (*Dendroaspis* sp.), and a king cobra (*Ophiophagus hannah*)
- 100 Scorpions
- 54 cats including an Asian leopard cat (*Prionailurus bengalensis*), savannah cats (*Felis catus* X *Leptailurus serval*), and caracals (*Caracal caracal*)
- 18 Ostriches (*Struthio camelus*)
- 19 Bison (*Bison* sp.)
- 8 crocodylians including American alligators (*Alligator mississippiensis*), spectacled caimans (*Caiman crocodilus*), and broad-snouted caimans (*C. latirostris*)
- 19 Wild boar (*Sus scrofa*)
- 5 Przewalski's wild horse (*Equus przewalskii*)
- 16 primates including black-and-white ruffed lemurs (*Varecia variegata*) and ring-tailed lemurs (*Lemur catta*)

The transport of animals for commercial purposes, including pets, is covered by the Welfare of Animals Transport (Scotland) Regulations 2006, which implement EU requirements.

The Animal Welfare (Licensing of Activities Involving Animals) (Scotland) Regulations 2021, coming into force in September 2021, provide for the licensing of a range of activities involving animals. These include selling animals as pets (or with the expectation of their being later resold as pets) in the course of a business, including keeping animals in the course of a business with a view to their being sold or resold. Schedule 3 sets out conditions for selling animals as pets, and these are relevant to both exotic pets and internet sales, including a requirement for operators to maintain a register for all the animals on the premises (or groups of animals, such as fishes, where it is not practicable to keep individual records). The register must include the full name of the supplier as well as other details, such as the date the animal was born (or first acquired) and any past or current veterinary treatment. Any advertisement for the sale of an animal must, among other things, include the licence holder's number, specify the local authority that issued the licence, and state the country of origin of the animal.

As already noted, abandonment or escapes of exotic species can potentially impact on native species. In this regard Scotland is bound by EU conservation legislation, including the recent Regulation on Invasive Species (Regulation (EU) No 1143/2014), which forbids the possession, transport, selling or breeding of species deemed of Union Concern. Following the UK exit from the EU, this provision is retained under the Invasive Non-Native Species (EU Exit) (Scotland) (Amendment etc.) Regulations 2020.

Schedule 4 of the Wildlife and Countryside Act, 1981 requires keepers to register listed birds, which are required to be uniquely marked with a closed leg ring or microchip. All keepers and registered birds are listed on a Bird Registration database.

The trade in exotic pets can also have implications for the conservation of exotic animals in their home territories and is subject to the Convention of International Trade in Endangered Species of Wild Flora and Fauna (CITES), an international agreement between governments around the world that aims to ensure that international trade in specimens of wild animals and plants does not threaten their survival.

Annex A to the CITES Regulations lists those species threatened with extinction and which are subject to the strictest control. Commercial trade is not permitted in wild-taken Annex A species, and imports, exports and re-exports are only permitted for 'primarily non-commercial' purposes. For commercial use in the UK, including buying or selling, offering for sale or displaying for commercial purposes, an Annex A specimen requires an Article 10 certificate.

Annex B lists those species not immediately threatened with extinction, but which may become so unless trade is regulated.

Annex C species are listed on request from individual CITES parties when assistance is required to control trade in a particular species.

All imports, exports and re-exports of Annex A, B and C specimens, including movements between Great Britain and the EU, and Great Britain and Northern Ireland, require full CITES import and export licences.

8. Options for further regulation

SAWC has considered a number of options based on recommendations from respondents.

Option 1

Do nothing

The evidence received by SAWC suggests that there are important animal welfare issues to address and that further regulation would be beneficial.

Option 2

Improved self-regulation

This was advocated by a number of trade and industry stakeholders. For example, the Federation of British Herpetologists said:

“The FBH would much rather see welfare standards maintained and improved by self-regulation, development of best practice guidance, and shared research of optimal conditions. Regulations and restrictions in species that may be kept may stop the progress of improved husbandry by preventing people keeping species.”

The Federation of British Herpetologists referred to the International Herpetological Society rules for its own shows, which include:

- Animals that are sold are surplus breeding stock from private keepers and not from any trade or professional bodies.
- Only members of the IHS may sell livestock.
- Vets assess the general health of animals and the transport/show enclosures.
- Certain colour morphs are not allowed to be sold at the shows. The morphs on this list can have genetic issues and the aim of the ban is to discourage the breeding of these morphs.

By contrast, the UK Centre for Animal Law expressed concern about permitting unregulated trade, subject only to the Dangerous Wild Animals Act 1976. Eurogroup for Animals submitted that:

“Attempts by the pet trade to self-regulate have comprehensively failed.”

The difficulty with self-regulation is that industry stakeholders inevitably have a conflict between their aim of making a profit from breeding and dealing in animals, which is a legal activity, and the welfare of the individual animals involved, even though many industry stakeholders recognise the ethical and practical implications of providing good welfare. While trade associations may be able to regulate their members, they seldom cover the entirety of their sector. In addition, rules and codes of practice are unlikely to carry any sanction beyond removal of association membership, which places non-compliant traders outwith the aegis of even a voluntary regulatory regime.

Any self-regulation system would only be a partial solution as it can only apply to trade and industry and not to private keeping, as this would be impossible to enforce without any oversight body.

Option 3

Use of general or specific prohibitions

The Scottish Government has the power to ban the keeping of certain animals by way of regulations under section 28 of the Animal Health and Welfare (Scotland) Act 2006.

Examples of potential general prohibitions could include a wholesale ban on the keeping of non-domesticated animals, or a ban on private keeping.

The use of “large-scale and comprehensive bans” was advocated by the Animal Protection Agency as “the most effective measures to control the burgeoning problems associated with trading and keeping wildlife as pets”.

The UK Centre for Animal Law agreed that prohibitions should be considered, albeit with caveats:

“We suggest that a ban on the trade of exotic species should be given consideration in light of public health, environmental, and animal welfare concerns posed by the trade. However, we note that a relatively recent attempt to ban such trade in Norway did not prove effective.”

Any proposal for a large-scale prohibition, covering a broad category of animals, would require to be underpinned by robust evidence for changing what is, at present, a broadly permissive legislative regime and this approach may be disproportionate at this stage. Trade and hobbyist associations would be strongly opposed to such an approach and in the past have expressed robust views on any threat to their interest, for example in the “Hands Off My Hobby” campaign launched in 2014 by the Ornamental Aquatic Trade Association.

Examples of specific prohibitions could include a ban on the keeping of any wild-caught animals, or a ban on the keeping of certain classes of animal, such as primates. The UK government announced in May 2021 that it intended to ban the keeping of primates in England and Wales, stating:

“We will legislate to prohibit primates as pets and potentially other animals. Keepers that are able to provide welfare standards akin to those of licensed zoos will be able to keep their primates under a new licensing regime, subject to conditions and inspections. Ownership of these exotic animals with complex needs will be phased out for keepers unable to meet these standards. We are considering whether these restrictions should apply to other wild animals that are kept as pets.”

SAWC will seek further information as to the intended approach by the UK government, other wild animals kept as pets that may be in scope, and the views of the Scottish Government with regard to mirroring this legislation in Scotland.

There may be scope for the use of specific bans of this type as a potential short-term solution to address the most egregious issues, while longer-term work goes on in areas such as positive lists, if that should be the approach preferred by the Scottish Government.

Option 4 Use of licensing

As described in section 7 on the current legal and regulatory regime in Scotland, the sale of pets is already covered by the Pet Animals Act 1951 and the Animals (Licensing of Activities) (Scotland) Regulations 2021. It will be important to monitor the ability of the latter to enhance enforcement and monitoring of the commercial

trade in pets. In this context it is important to note that some individuals who sell animals do not apply for licences even when it appears that they should.

The 2021 Regulations do not apply to private keeping of animals, which remains unlicensed, except where dangerous wild animals are concerned.

Whitehead et al. (2015) differentiated between expert enthusiast reptile keepers and regular pet keepers, who cared for their pet as an individual, but were not particularly interested in the species and had not spent a lot of time finding out about its husbandry, light and temperature requirements, etc. Whitehead et al. (2015) favoured a graded licensing scheme for reptile owners, based on a combination of the owner's level of expertise and the complexity of husbandry requirements for the species in question.

A specialist reptile keeper in Scotland supported a national oversight body to monitor licensing and inspections:

“Licensing - Private and Business: at present there is no national standard of inspection levels for pet shops wishing to obtain a license and thus there is a wide scope for interpretation and abuse. This is also the case with the DWA licensing scheme - to take both under a national body where statistical data and governance can be observed is key to achieving these animal welfare standards.”

The Ornamental Aquatic Trade Association suggested that all facilities handling live animals across the UK, including online, home-based and rescue/rehoming centres, should be licensed with regular inspection.

The UK Centre for Animal Law proposed that, if trade in exotic species is permitted, it should be subject to a reformed and enhanced licensing regime covering the trade in exotic animals, supported by a positive-list system for the keeping of pets. A general licence could be created for keepers of the animals included on a positive list, while rescue centres and other parties, having good reason to keep unlisted species, could do so under an individual licence. Knowledgeable owners could also continue keeping exotics under individual licences, while others would be encouraged towards the species considered easier to keep, and therefore included on the positive list.

Option 5

A list approach

SAWC has taken a large amount of evidence from NGOs and industry on the possibility of a list approach to limit the animals kept by people in Scotland to those that are specifically assessed as suitable for such keeping. By “suitable”, we mean those animals whose welfare needs can readily be met. As suggested in the discussion of Option 2 above, it is possible to link lists and licences for a more nuanced approach to limiting or, indeed, permitting the keeping of different species.

Stakeholders largely agreed that some animals were more suitable for domestic keeping than others. The British Veterinary Zoological Society (BVZS) commented on non-traditional companion animals (NTCA):

“The views of BVZS members on the keeping of NTCAs are quite diverse. Some of our members work closely with the exotic pet ‘industry’ and believe that it is possible to keep many species more than adequately and legally in captivity with the correct management and nutrition. Other members would prefer not to see these animals in captivity at all. A compromise view would be that some species can be kept as pets

legally (fulfilling their Five Needs under the Animal Health and Welfare (Scotland) Act, 2006) and be provided with a good quality of life, whilst other species should never be considered appropriate for pets.”

This represents a slight adjustment to the previous BVZS position. A joint BVA/BVZS statement in 2015 recommended regulation of the trade:

“The pet trade should be regulated through:

- The introduction of new legislation to include licensing for all commercial importers of captive-bred NTCAs
- A ban on the importation of wild caught reptiles and amphibians into the EU except for legitimate and defined conservation reasons
- The regulation of all pet fairs, rehoming and rescue centres for all species
- Systems to monitor and limit internet advertising and sales of NTCAs, such as those promoted by the Pet Advertising Advisory Group (PAAG)

“Importers and those who trade animals should also be regulated in order to control the trade, increase traceability and improve animal health and welfare.”

i. The positive-list approach

SAWC is aware of arguments made by animal welfare NGOs, including Eurogroup for Animals, Animal Protection Agency, World Animal Protection, UK Centre for Animal Law, AAP Animal Advocacy and Protection, OneKind, Blue Cross and the RSPCA, in favour of the positive-list approach and of the Scottish Government’s previous interest in exploring this.

SAWC asked stakeholders for their views on positive lists, described as follows:

“The positive list approach involves the creation of a concise list or lists of animals that may be kept in different circumstances, based on an independent assessment of their suitability.

“Belgium, Luxembourg and the Netherlands have already legislated to introduce different versions of this system. The Belgian positive list for mammals entered into force on 1 October 2009 and contained 42 mammal species permitted for private keeping. A species can be added if there are sufficient scientific data to show that it can be kept without the need for specific knowledge and without jeopardising the welfare of the animal.

“There are usually derogations for zoological gardens, laboratories, individuals already in possession of non-listed animals, veterinary surgeons, circuses and traders under limited circumstances and under licence. Enforcement authorities have not found evidence of widespread illegal keeping and the number of unsuitable pets at rescue centres and sanctuaries has decreased.

“Criteria for inclusion vary from administration to administration but cover matters such as an individual animal’s behavioural, environmental and husbandry needs, human health, potential invasiveness of the species involved, and ease or difficulty of keeping. The selection of species is a key issue and has been undertaken with input from scientists, animal welfare groups and trade representatives.

“The positive list is only one of the possible regulatory approaches being considered by the work group, if it concludes that further regulation is necessary.”

Opinions in responses were clearly divided between animal welfare NGOs, which supported positive lists, and pet industry bodies, which did not. Veterinary organisations tended to see both advantages and disadvantages. For example, the European College of Zoological Medicine expressed reservations as to the ability of positive lists to provide sufficient protection for animals included on the list:

“In our opinion, the term positive list is often interpreted as a list of species that are ‘easy to keep’ in comparison to more difficult ones. However, from the point of view of welfare, such ‘easy to keep species’ still require species-specific husbandry and nutrition, and failure to do so will result in health and welfare problems (Rooney, EJ et al. 2014, Green, Coulthard et al. 2020). Most species listed on positive lists are widely available and they could end up in the hands of inexperienced keepers with limited knowledge of these species’ requirements, with a significant amount of avoidable health problems observed in these species.”

World Animal Protection agreed with the need to ensure that animals included on the list should still be accorded welfare protection:

“Species included on the list should be those domesticated species that can be competently kept by an average member of the public in a home environment, in a manner that meets all their five welfare needs, including the ability to express a full range of natural behaviours. However, we recognise that Positive Lists may result in the inclusion of some non-domesticated species, at least risk of welfare harms in captivity. For example, the Norwegian Positive List for reptiles includes 19 species (Toland et al., 2020). Nevertheless, implementing a Positive List in the UK should be a step towards alleviating the suffering of wild animals kept as exotic pets.”

Industry stakeholders did not support listing approaches. For example, the Federation of British Herpetologists was opposed to either positive or negative lists on the basis of human rights, difficulty in identifying species and the potential to drive illegal trade underground, which could lead to poorer welfare for reptiles (for example due to no veterinary treatment, no sale of equipment for specialist species, etc).

The Federation of British Herpetologists stated that lists might have “a negative impact on welfare, including deliberate mis-identification of species, black market sales, and people not taking animals for medical care when needed” and recommended that the reptile community in the UK should continue to self-regulate. It was proposed that this should include improving welfare and husbandry standards by development of best practices, making use of new technology, sharing knowledge and research openly, and maintaining appropriate rules for shows.

In specific terms, the Federation of British Herpetologists expressed concerns regarding restrictive lists:

- Accurately registering species - a positive list may encourage people to falsely register an animal as a different species so that it can be sold (a possible example would be registering a Burmese python (*Python bivittatus bivittatus*) as a Dwarf Burmese python (*Python bivittatus progschai*) should larger python species not be included on a positive list.
- Keepers giving up animals that they currently have due to the inability to sell them in the future.
- Keepers not declaring species - any animals that are not allowed may not be declared.

- Keepers not taking restricted species to vets as needed - if a species is banned and not declared, it may be that the owner does not take the animal to a vet if needed
- Selling animals illegally - as mentioned above it is difficult to monitor some sales of reptiles. If there are species that are not allowed, then sale of these species will be pushed into the black market.
- Provision of equipment - if specific species groups are not allowed, then keepers may not buy equipment specific to those species - e.g. especially large enclosure or safety handling equipment - so that attention is not drawn to the animals in question.

The view of the Parrot Society UK was:

“Setting a specific ‘Scottish Permissive List’ for parrots would be unworkable and have no tangible benefit as psittacine species are moved between breeders across the UK and the EU. As the EU, along with Norway, Switzerland and the UK, is a closed environment for these species, only a ‘European Permissive List’ would make any sense. Currently, the vast majority of parrot species & sub-species being kept and bred by hobbyist breeders and pet-parrot owners comprise captive-bred birds with no negative impacts on wild populations. A very few longer-lived individuals originating from wild imports may still exist. All have proved themselves suitable for captivity through the very fact that they have bred under these conditions for successive generations.

“The Parrot Society UK supports the concept of psittaculture from an educational, conservationist, and human interest point of view, whilst agreeing that ongoing education into health, diet and husbandry of these fascinating parrot species is still essential. The PSUK invites further debate on the subject and is anxious to be at the forefront of the future of captive parrot management, breeding and welfare, both in the UK and internationally.”

Despite its opposition to the wider positive list concept, the Parrot Society UK agreed that:

“There is a potential case for listing certain parrot species on a ‘register’, that would require keepers of these birds to prove their knowledge and ability to maintain such species. Again, the PSUK would be available and willing to assist in identifying such species, and could provide the standards for diet and husbandry through a programme of education and certification.”

Unqualified support for the positive list approach came from Eurogroup for Animals, whose membership includes several groups with experience of formulating positive lists:

“At the moment of writing (December 2020), the Positive List system is in place in 7 European countries: Belgium (the first European country which adopted a Positive List system in 2001), the Netherlands, Luxembourg, Malta, Croatia, Lithuania and Norway. The Dutch government is currently finalizing a new Positive List for suitable pets. Although the process to establish such list has become rather lengthy and has had its setbacks in the past, the political support for such policy instrument remains high in the Netherlands. The Positive List has been accompanied with other provisions, mainly to receive the support from sector-organisations and hobby-associations of exotic pet keepers. These additional provisions include a grandfather

clause, a regime for specialist keepers, and a legal provision to request that species are added to or deleted from the list.”

Animal welfare NGOs, including Eurogroup for Animals, Animal Protection Agency, World Animal Protection and the UK Centre for Animal Law, referred us to the review by Toland et al. (2020) of positive and negative lists in Europe and North America. This includes a useful table summarising the approaches to positive listing taken in these countries and which is reproduced, with permission, at Appendix VI. The authors note the inconsistent criteria in different countries for the development of negative and positive lists, and also cite a number of key issues raised by civil servants whom they interviewed.

A specialist reptile keeper in Scotland suggested a “traffic light system”, an approach that has also previously been supported by some sectors of the veterinary profession. The specialist reptile keeper’s proposal was:

“Green Species: every other species not in the below categories.

Amber Species: problematic or invasive species such as Green Iguanas, Bosc Monitors and Red Eared Terrapins along with species which are considered rare or endangered and a level of experience must be attained before keeping.

Red Species: large Boids such as Burmese Pythons: *Python bivittatus*, Reticulated Pythons: *Malayopython reticulatus*, African Rock Pythons: *Python sebae* and Green Anaconda: *Eunectes murinus* which routinely grow 10ft and over and DWA Species.

“The above would be a 'living list' and reviews could be set on an annual basis to ensure it was current and correct. Anyone wishing to keep an Amber Species for example would have to provide proof that they could cater for the animal’s needs throughout its lifetime and some sort of database be maintained which would allow the Government to keep a tally of how many of these animals were being kept, bred and traded.”

ii. Principles for compiling positive lists

The UK Centre for Animal Law discussed a statutory positive-list system as part of a reformed licensing system, which should “ensure that all trade in exotic species is encapsulated and information in licences should enable authorities to monitor and assess any risks arising.”

The UK Centre for Animal Law also pointed out the importance of a robust scientific methodology for inclusion of animals on the list:

“The overriding principle is that species included on positive lists should be those that, according to the latest scientific evidence, can be competently kept by an average member of the public in an ordinary domestic setting, and consistent with modern understanding of animal welfare, environmental and public health and safety considerations.”

The UK Centre for Animal Law believed that reducing the number of species permitted to be kept would reduce the wider regulatory burden and add clarity and transparency. A further advantage of a positive list was said to be:

“The proactive decision (to include a species on the list) connotes consideration and attention, whereas pets allowed in negative list situations essentially come from a void of information.”

Warwick and Steedman (2021) suggest that negative list approaches should be replaced with objective positive list systems to regulate the sale and keeping of both “wild pet” and “domesticated pet” animals. Their approach aims “to produce a novel method for developing positive lists that meets several criteria that we considered to be fundamental to a robust decision-making protocol: operational objectivity; quantitative algorithm design; no or negligible consensus-based decision-making; binary results; independent repeatability; user-friendliness; resource efficiency; optional use alongside other methods.”

World Animal Protection referred to a number of pre-existing principles:

“Recommendations guiding the implementation of Positive Lists have been developed by leading experts (Toland et al., 2020). Key principles include:

- Species selection criteria should take into account animal welfare; public health and safety; risk of invasiveness; conservation status and provenance. Availability of good quality, impartial husbandry guidance; local enforcement and veterinary expertise; appropriate rescue facilities should also be considered.
- Positive lists should be developed by independent parties using scientific, evidence-based, and objective sources.
- In the interests of fairness, inclusivity, and transparency, species selection criteria should be published along with a description of the assessment processes and tools used.
- Where data on a species under assessment are conflicting, inconclusive or absent, the precautionary principle should apply, and the animal should not be listed.
- The addition of species to the Positive List should require new scientific evidence, and an application process should be in place.
- The burden of proof for adding species to a positive list should rest with the exploiter, using scientific, objective, and impartial evidence.
- Positive lists should be sufficiently concise for ease of enforcement and public compliance.

Transitional arrangements in the form of ‘grandfather provisions’ should be in place to allow prohibited animals already in private ownership to be kept until they die, but not bred or otherwise replaced.”

The European College for Zoological Medicine envisaged a number of challenges:

“1) It is (nearly) impossible to compile a positive list that is scientifically sound.

2) It is highly doubtful to which extent this results in increased welfare: most welfare issues (often husbandry / nutrition related) occur in species that will end up on such positive lists.

3) The only positive list that would address many of the issues listed and cannot be easily rejected (e.g. for being arbitrary, not scientifically sound) is a positive list that allows the keeping of captive bred offspring only (hence: no wild-caught animals). For notoriously difficult to keep species, a negative list could be compiled.”

The Dutch NGO AAP Animal Advocacy and Protection stressed that its focus was not on the methodology, but on the policy instrument:

“Our focus is on promoting the adoption of the positive list system, while the chosen methodology to draft the list often depends on the country situation. Or to phrase it differently: we suggest policy makers consider all the developed methodologies and see what fits their context best, which could result in policy makers to pick and choose elements from the current methodologies in order to design a new tailor-made approach.”

SAWC agrees that the priority for any listing approach must be the promotion of animal welfare. This means that – while agreeing with the need for any list to be based on scientifically robust assessment of animals’ overall suitability for life in private keeping or captivity – practical issues, such as enforceability, also have a bearing on the net benefit, or otherwise, for animals. Various approaches to assessing species suitability have already been developed, since the publication of the first tool in 2000 (Schuppli and Fraser, 2000). More recently, Koene et al. (2016) devised a model for devising dynamic suitability lists for mammal species, with input from scientists and stakeholders. Information about behavioural ecology, health, and welfare and human–animal relationships of 90 mammal species was collected by one team, while the strength of behavioural needs and risks was assessed by a second. Based on summaries of the first two elements, the suitability of the species was then assessed by a third team.

“Combining the individual and subjective assessments of the scientists using statistical methods makes the final assessment of a rank order of suitability as pet of those species less biased and more objective. The framework is dynamic and produces an initial rank ordered list of the pet suitability of 90 mammal species, methods to add new mammal species to the list or remove animals from the list and a method to incorporate stakeholder assessments. A model is developed that allows for provisional classification of pet suitability. Periodical update of the pet suitability framework is expected to produce an updated list with increased reliability and accuracy. Furthermore, the framework could be further developed to assess the pet suitability of additional species of other animal groups, e.g., birds, reptiles, and amphibians.”

Scotland has the advantage of being able to draw on the experience of other European countries that have been through the process of legislating for and compiling positive lists using frameworks of this type. Belgium has a positive list of mammals (42 species) and, more recently the region of Flanders has approved a positive list of reptiles.

Luxembourg also has a positive list for mammals (30 species) and the Netherlands has finalised a longer list prior to final adoption (see below).

Most recently, on 20 April 2021, the Italian Senate (Senato della Repubblica, 2021) passed legislation on animal health, including a provision to ban the importation and keeping of exotic and wild animals and restricting trade in domestic animals, to be made effective within twelve months.

In implementing any form of listing approach, it will be essential to avoid pitfalls such as inconsistency, over-complication and unenforceability.

Any proposed list or lists must aim only to include animals that, on the basis of scientific evidence and assessment, can be competently kept and experience acceptable standards of welfare in the care of suitable persons. It is unlikely that a

single list can encompass the range of suitability from a novice keeper to a specialist hobby breeder, or a zoological collection.

Legislative competence must also be taken into account, as the UK Centre for Animal Law noted, cautioning that a positive-list approach:

“would enable Scotland to regulate the keeping of animals within its territory, whereas it is harder to see how Scotland can unilaterally regulate the trade in exotic animals in a way that is effective, having regard to the legal and territorial limits of Scottish legislation.”

iii. Experience in Belgium and the Netherlands

Aiming to build on the longest-established European precedents, in February 2021 SAWC sent out a further request for information to government officials and closely involved NGOs in Belgium and the Netherlands, focussing specifically on the process and methodology of compiling their positive lists. The request is shown at Appendix II.

The legal basis for positive lists in Belgium is found in the Animal Welfare Law of 14 August 1986. The Belgian positive list for mammals, (42 species) originally introduced in 2001, is the oldest known European positive list and survived a legal challenge to the European Court of Justice, which ruled in 2007 that the approach was not in violation of EU free trade regulations as long as it was based on objective, non-discriminatory criteria (Case C-219/07). Legislation for the mammals list followed soon afterwards.

The Belgian assessment criteria require that the species: "must be easy to keep in terms of its basic physiological, ethological, and ecological needs; must not present an overt risk of becoming invasive in the natural environment; must not pose a disproportionate risk to human health; must have reliable husbandry guidance available." Where the evidence on these criteria is inconclusive, the benefit of the doubt is in favour of the animal not being listed.

The competence for the positive list now resides with Belgian regional authorities and each region is developing its own lists for non-mammals. The region of Flanders introduced a positive list for mammals in 2018 and more recently approved a positive list of reptiles, under legislation dating from 22 March 2019.

The Flemish legislation was preceded by an opinion from the region's Animal Welfare Council (Flemish Council for Animal Welfare, 2018), which sets out the criteria agreed by a working group comprising scientists and representatives from animal reception centres, animal fanciers' associations, traders, animal welfare organisations and nature protection associations. The criteria are broad and come under three headings: "Easy to keep", "Poses no danger to humans" and "Sufficient information available". The process produced a list of 422 reptile species and the Opinion ascribes the length of this list to the prevalence of reptile keeping in Flanders: "the number of reptile species that potentially conform with the documented criteria undoubtedly exceeds the number of species included on the list. As the number of reptiles in Flanders is estimated to be higher than in Wallonia, and since the number of reptile species is presumably also more varied, the proposed Flemish positive list is more extensive than the Walloon positive list."

A key aspect of the Flemish list is its dynamic nature, allowing applications to be made for accreditation of a species not already on the list, and also for species to be removed. Such applications are to be processed by an expert committee, including representatives of stakeholder groups and scientific and veterinary experts.

Some stakeholders, such as World Animal Protection, have commented that the lengthy positive list for reptiles in Flanders appears simply to endorse those species commonly found in the trade and indeed it may be argued that it would be better to start from the perspective of the animals (such as corn snakes and bearded dragons) that are already widely kept, although possibly not as many as 422 species. It is reasonable to assume that there is sufficient information and support (including knowledge in the wider veterinary profession) for these animals to be cared for in a competent manner. That is not to say that they are “easy” to keep or that inclusion on a list is an endorsement of keeping non-domesticated animals.

In 2016, Eurogroup for Animals conducted a study (di Silvestre and van der Hoeven, 2016) of the effectiveness of Belgium's regulation and the positive list for mammals. Their data showed that the positive list had reduced exotic mammal trade overall, and online trade in illegal species was low. Notably, the Belgian government widely publicised every confiscation of a non-listed species, leading to increased public knowledge and familiarity with the list.

In the Netherlands, the methodology for assessing mammal species has been finalised and published by a statutory committee advising the Ministry of Agriculture, Nature and Food Quality (Wetenschappelijke Adviescommissie Positieflijst, 2019). SAWC has received information on the process from AAP Animal Advocacy and Protection, one of the NGOs involved.

AAP Animal Advocacy and Protection advised SAWC that it was waiting for the methodology to be used to assess around 270 mammal species kept in the Netherlands, although the sources used for the assessment were not country specific. The National Enterprise Agency has published the full list of species to be assessed (Rijksdienst voor Ondernemend Nederland, 2019)

The assessment of species is expected to be finalised by the end of summer 2021 and will then be subject to public consultation, which may yield some changes in the assessment of species, although not in the methodology. AAP thought it likely that the new positive list would be legally challenged by opponents of exotic pet trade regulations.

AAP Animal Advocacy and Protection described the methodology as based on a binary risk-assessment of criteria based on the traits or characteristics of different animal species. Characteristics – as described in scientific literature – might include, for example, that a species is herbivorous with hypsodont dentition/ a species has a monogamous lifestyle/ a species hibernates. Risk classes are assessed according to the number of characteristics identified. The decision to include a particular risk class on a positive list or not will be a political one, made at Ministerial level.

iv. Negative lists

A negative list is a fixed list that proscribes the keeping of a limited number of species for a specific purpose.

An example closest to home is the Schedule to the Dangerous Wild Animals Act 1976, which prohibits the keeping of between 40 and 50 kinds of animals without a licence. Another UK example, in a different context, is the breed-specific approach taken in Part 1 of the Dangerous Dogs Act 1991. Both of these lists have been criticised for lack of flexibility and the possibility of circumvention by switching to a similar type of animal that is not specifically prohibited.

Negative lists to control the keeping of non-domesticated animals have been in place for some time in a number of countries. Toland et al. (2020) note that in the United States, where legislation is devolved to the individual states, most of the relevant statutes rely on negative lists, although positive lists have been identified in 21 states, largely alongside established negative lists. In Canada, approximately 45% of the country's 3,573 municipalities are either subject to or apply a positive list, based on a variety of criteria including health and safety (following reports of fatalities associated with exotic pets).

Toland et al. (2020) comment:

“Current and predominantly negative-list-based regulatory systems are manifestly failing to protect biodiversity, conserve wild animal populations, curb illegal wildlife trade, safeguard human health and animal health and welfare.”

And with regard to the inconsistency of approach:

“Negative and positive lists may include entire classes of animals or particular breeds of a single species, and any taxonomic category in between.”

It was also noted that most negative lists do not encompass fishes, amphibians and reptiles.

The UK Centre for Animal Law (A-LAW) suggested that negative lists are preferred by the pet industry, because they are less restrictive.

Submissions received from industry did not, by and large, comment in detail on negative lists, although some were opposed to any type of listing.

9. Interim conclusions

SAWC observes at this stage:

Need for further information

Evidence gathered for this report has highlighted, above all, the lack of consistent, objective information about the import, capture, breeding, trade, transport, keeping and regulatory monitoring of a wide variety of animals in Scotland in a wide variety of settings.

This interim report is based on information submitted by stakeholders and SAWC is aware that the sources referenced are neither comprehensive nor unanimous. For that reason, SAWC has requested that the Scottish Government facilitate the commissioning of a full independent literature review to inform its final conclusions and recommendations.

Definitions

The difficulty of formulating an all-encompassing, concise definition helps to illustrate the multi-faceted nature of the sector. The term “exotic pet” is likely to continue in

common usage as it is simple and most people believe they have an understanding of what it means.

Differentiation such as between wild-caught and captive-bred animals, and between “kinds” of animals that may competently be kept by hobbyist or private keepers, as opposed to professional or licensed keepers, may have more immediate utility. However, this should not be taken as indicating that all captive-bred animals necessarily enjoy good welfare simply as a consequence of their breeding circumstances or that even experienced keepers are able to fulfil their needs.

For regulatory purposes, while there is potential in the use of “non-domesticated”, it might be clearer and more relevant to focus on a list devised on the basis of the welfare needs of the animals.

Welfare needs

SAWC believes that there are significant concerns about the welfare of exotic pets at all stages including their sourcing, breeding, transport and keeping, and that these are supported by scientific and veterinary evidence, even though there are conflicting views in academic sources.

SAWC acknowledges that some keepers are more able to provide for animals’ welfare needs than others.

Objective criteria such as the Five Domains assessment model should be consistently used to assess the welfare of animals and their suitability as pets.

Meeting animals’ welfare needs almost invariably requires the provision of appropriate veterinary care for individual animals. This means:

- Keepers should ensure that they have access to a specialist practice and call on its services whenever an animal is failing to thrive
- Veterinary undergraduate education should include sufficient modules on exotic species medicine, husbandry and welfare.

Note should be taken of the British Veterinary Zoological Society warnings against the breeding, sale or exchange of phenotypic variants (so-called ‘colour morphs’) with hereditary defects known to be associated with welfare problems and this could be incorporated into future Scottish Government licensing regulations.

In the event that further regulation is proposed by the Scottish Government, any limitations on the keeping of different kinds of animal should be based on objective suitability criteria, with animal welfare as a priority.

Ethical issues

A number of ethical issues are raised in section 6.9 of this document and SAWC’s final report will be augmented by a section on wider questions surrounding the ethics of keeping non-domesticated animals as pets.

Regulatory issues

SAWC has identified inconsistency in the extent and nature of record-keeping by local authorities, customs, importers and sellers, etc.

While many local authorities use standard model licensing conditions, these do vary in application and interpretation. In particular, the monitoring of livestock origin records appears inconsistent. SAWC expects that this will be addressed to some

extent by the implementation of the Animal Welfare (Licensing of Activities Involving Animals) Regulations 2021 and notes that Scottish Government guidance on these points will be particularly important.

Implementing a positive list would probably be likely to reduce the regulatory burden by reducing the number of species that could be kept.

There appears to be a lack of meaningful regulation of online sales. This is a major area which SAWC has not yet been able to explore in detail and further information is being sourced via the Pet Advertising Advisory Group.

More detailed monitoring of the numbers and species of animals being bought and sold by licensed operators, and of online sales, would appear to be necessary.

Positive lists

Negative lists are unlikely to be recommended due to their lack of flexibility, relative ease of circumvention and the consequent need for repeated updating.

The advantages of a positive-list approach include enforceability, simplicity, clarity and flexibility, all of which in turn help to provide animal welfare benefits. They have become established in a number of European countries and Scotland can benefit from their experience in both compiling lists and implementing their use.

The disadvantages include the complexity of drawing up scientifically robust lists and the misconception that the animals included on a positive list are easy to keep. This is allied to the risk of drawing up a list that is too long.

The “dynamic” approach to listing may assuage some of the above concerns and, importantly, help to ensure that listing is non-discriminatory.

Transitional arrangements in the form of “grandfather provisions” could be agreed, to allow prohibited animals already in private ownership to be kept until they die, but not bred or otherwise replaced.

Listing could form part of a multi-tier licensing approach, with a type of general licence to cover those animals listed as suitable for private keeping, and more specific licences available, when appropriate, for more experienced keepers with the knowledge and facilities to provide adequately for animals with more complex needs.

While SAWC has not formed a final view on the positive-list approach, it believes that there is merit in exploring this further, in order to promote the welfare of non-domesticated species kept as pets in Scotland.

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Appendix I

List of stakeholder respondents

SAWC wishes to thank all the organisations and individuals who submitted statements or information for this report.

AAP Animal Advocacy and Protection	Lawrie Veterinary Group
Aberdeen City Council	Moray Council
Aberdeenshire Council	National Fancy Rat Society
Animal and Plant Health Agency	North Ayrshire Council
Animal Protection Association	North Lanarkshire Council
Argyll and Bute Council	Orkney Islands Council
Born Free Foundation	Ornamental Aquatic Trade Association
Border Force	Parrot Society UK
Bristol Veterinary School	Parrot Trust Scotland
British Veterinary Zoological Society	People's Dispensary for Sick Animals
Clackmannanshire Council	Perth and Kinross Council
Comhairle nan Eilean Siar	Pet Advertising Advisory Group
Companion Animal Sector Council	Renfrewshire Council
Dumfries and Galloway Council	Reptile and Exotic Pet Trade Association
Dundee City Council	Royal (Dick) School of Veterinary Studies
East Dunbartonshire Council	Royal Veterinary College
East Lothian Council	Scottish Borders Council
East Renfrewshire Council	Scottish Government
Edinburgh City Council	Scottish SPCA
Eurogroup for Animals	Shetland Islands Council
European College of Zoological Medicine	South Ayrshire Council
Falkirk Council	Stirling Council
Federation of British Herpetologists	UK Centre for Animal Law
Fife Council	Clifford Warwick
Flanders Regional Government	West Lothian Council
Fraser Gilchrist	World Animal Protection
Glasgow City Council	
Inverclyde Council	

Appendix II

Questions sent to stakeholders

Local authorities

Local authorities were asked to supply information about licensed pet suppliers in their areas, pet shop licence conditions and any issues identified by officials. They were also asked if they had any information on the questions below.

1. The different taxa kept and sold in Scotland and approximate numbers of each.
2. Number of species imported to Scotland (or UK if need be) from outside UK and also outside the EU.
3. Number of animals of each species imported to Scotland (or UK if need be) from outside the UK and also outside the EU, with information on the countries of origin and main routes to the UK.
4. How many of each species are captive-bred versus wild-caught?
5. Number of breeders of different species in Scotland, with information about the size of operations – e.g. domestic/hobby breeders or commercial breeders
6. What are the main methods of sale and transfer in Scotland (e.g. shops/retail outlets, wholesale supply/online classifieds, public/private social media (Facebook or specialist forums), specialist events?

In a second enquiry, local authorities were asked whether they used the Standard Model Licence Conditions for pet shops issued by CIEH/etc and whether their licence conditions included a clause requiring retailers to keep a register of animals including their origin. A typical clause reads:

Register of Animals

A purchase register must be maintained for all animals detailing their source and identification where appropriate.

Guidance: This can be by cross referenced to an invoice file. The purpose of the register is to ascertain the source of the animals, see Section ... below.

A sales register must be maintained for:

- Dogs
- Cats
- Psittacines
- Species contained in the Schedule to the Dangerous Wild Animals Act 1976

Guidance: The purpose of the register is for emergency contact of purchasers. The name, address and telephone number of the purchaser should be obtained. This is not required for other species.

Scottish Government

In April 2021 the Scottish Government supplied the work group with a discussion paper.

Animal and Plant Health Authority (APHA)

Officials were asked to supply figures for imports. SAWC has requested data for a limited list of animal classes and a reply is awaited. The orders listed in the request were: Lagomorpha; Rodentia; Carnivora; Primates; Psittaciformes; Passeriformes; Falconiformes; Strigiformes; Accipitriformes; Cypriniformes; Chelonia; Squamata; Anura; Caudata

Pet industry

Pet industry representatives were asked for any information they could supply on:

1. The different taxa and genera kept and sold in Scotland and approximate numbers of each.
2. Number of species imported to Scotland (or UK if need be) from outside UK and also outside the EU.
3. Number of animals of each species imported to Scotland (or UK if need be) from outside the UK and also outside the EU.
4. How many of each species/genus are captive-bred versus wild-caught?
5. What are the main methods of sale and transfer in Scotland (e.g. shops/retail outlets, online classifieds, public/private social media (Facebook or specialist forums), specialist events)?

Scottish/UK animal welfare NGOs and stakeholders

Animal welfare organisations were asked for any information they could supply on:

1. Common ailments and diseases of different species, welfare issues and outcomes
2. Animals abandoned or taken in for welfare reasons
3. Husbandry concerns and knowledge among keepers
4. Methods of acquisition (eg online sales, transport)
5. Conditions in breeding facilities, retail outlets (shops and online).

They were also asked if they had views on:

6. A statutory positive list system, where only certain species are permitted for private keeping (see Note below)?
7. A traffic light system allowing keepers with different levels of expertise and facilities to keep a wider range of animals under licence?
8. No specific regulation other than the requirements of the Dangerous Wild Animals Act 1976?
9. Another approach (please give details)?

EU stakeholders and officials

EU partners were asked about:

1. Concerns about the welfare, care and treatment of exotic pets that have led to domestic legislation, or consideration of such legislation
2. The nature of the legislative approach taken or planned, including views on a “positive list”.

If possible, more detail on domestic issues with:

3. Common ailments and diseases of different species, welfare issues and outcomes
4. Animals abandoned or taken in for welfare reasons
5. Husbandry concerns and knowledge among keepers
6. Methods of acquisition (eg online sales, transport) and whether you are aware if there are significant numbers of wild caught exotic pets (e.g. reptiles) for sale in your country
7. Conditions in breeding facilities, retail outlets (shops and online).

Belgium and the Netherlands

Officials and involved animal welfare contacts were asked about methods currently used to control the import and sale of “exotic pets” from an animal welfare perspective, including the listing approach, whether this be positive lists, negative lists, traffic-light systems or restrictions aimed specifically at the import of wild caught species. Information was also sought about developing and implementing a listing approach under domestic legislation.

In particular, SAWC asked for information regarding:

- the methodology used to compile the relevant species list/lists
- mechanisms adopted to ensure that lists are scientifically sound
- any measures included to optimise the husbandry and welfare of animals included in the lists
- any other relevant factors

Up-to-date versions of all current lists or links to online documents, were also requested.

Additional requests

In May 2021, SAWC contacted UK veterinary schools to enquire as to the proportion of the undergraduate curriculum devoted to exotic species.

SAWC also contacted the Pet Advertising Advisory Group to ask if it could assist with information regarding level and type of online small mammal and exotic pet sales in Scotland or the UK.

Appendix III

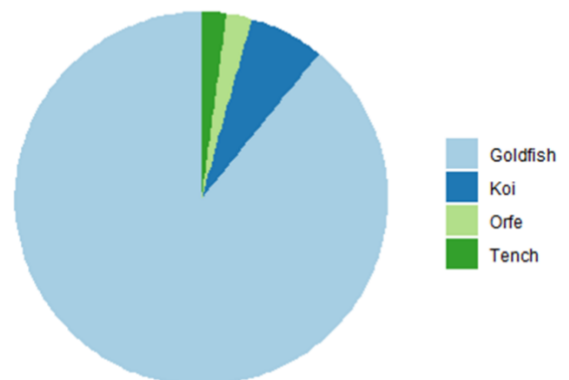
Ornamental fish trade in Scotland 2019

The Ornamental Aquatic Trade Association supplied detailed information for 2019, based on discussions with its Scottish members.

Coldwater ornamental fish species in trade and estimated numbers sold in Scotland in 2019 (Pie Chart 1):

Quantity Sold	Family / Species type
410000	Goldfish
30000	Koi
10000	Orfe
10000	Tench

Estimated sales of coldwater fish families sold in Scotland



Goldfish are by far the most popular species constituting 89% of the coldwater market.

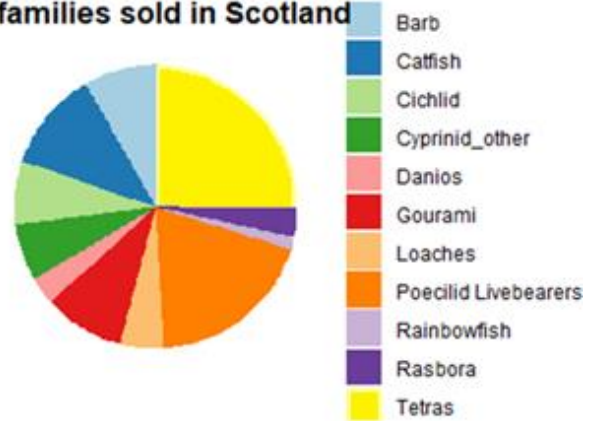
Tropical freshwater fish such as tetras, guppies and danios form the largest section of fishkeeping. They are the category most popular for beginners and most commonly kept in general because they are hardy in nature, adapting well to the varying water types across the UK, and because of their ability to live well together in 'community' tanks. They are often shoaling fish so need to be sold/kept in small groups which means people will often have quite a number of pet fish, unlike most other types of pet. Within this category there are more specialised species such as cichlids or discus which require more targeted knowledge and aquarium set ups. Across the UK, the vast majority (over 90%) of these fish species are captive reared and supplied mainly from Asia (Singapore and Malaysia) with some from the Czech Republic. We estimate that less than 5% of tropical freshwater fish sold in Scotland are wild caught.

Coldwater ornamental fish species in trade and estimated numbers sold in Scotland in 2019 (Pie Chart 1):

Tropical freshwater ornamental fish species in trade and estimated numbers sold in Scotland in 2019 (Pie Chart 2):

Quantity Sold	Family / Species type
180000	Barb
250000	Catfish
160000	Cichlid
140000	Cyprinid other
70000	Danios
200000	Gourami
110000	Loaches
420000	Poeciliid Livebearers
30000	Rainbowfish
70000	Rasbora
550000	Tetras

Estimated sales of tropical fish families sold in Scotland

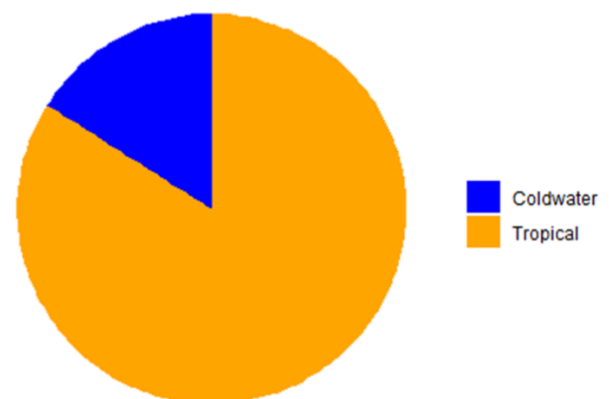


Within these families, the most common species traded are Neon tetras (170,000 individuals), guppies (170,000) and zebra danios (70,000).

Tropical freshwater ornamental fish species vs coldwater ornamental fish in trade and estimated numbers sold in Scotland in 2019 (Pie Chart 3):

Quantity Sold	Temperature Class
460000	Coldwater
2180000	Tropical

Estimated sales of tropical freshwater vs coldwater fish sold in Scotland



Tropical freshwater ornamental fish constitute 82% of sales compared to coldwater fish.

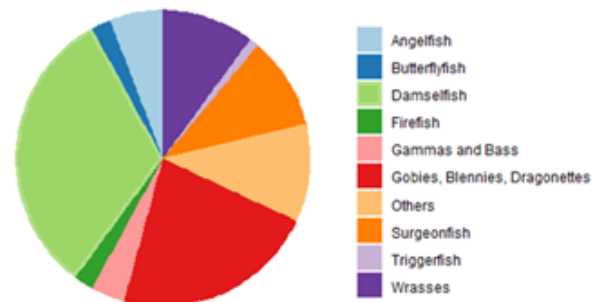
Tropical marine fish. This category represents the more specialised end of the hobby, requiring more knowledge and equipment. It is not common for people to start with a marine (saltwater) aquarium, unless it is set up and maintained by a specialist consultant business. There are estimated to be over 2000 species of marine ornamental fish in trade globally although the vast majority of the species are sold in small quantities and overall numbers in trade are much lower than tropical freshwater species, typically 20% of the UK ornamental fish trade by numbers of different species sold (though under 1% of volume (see below)).

Data on number of species in trade is difficult to ascertain (see response to question 2 below) but discussions with our Scottish members indicate that the most common marine ornamental fish species in trade suitable for domestic aquaria are:

Tropical marine fish species in trade and estimated numbers sold in Scotland in 2019 (Pie Chart 4):

Quantity Sold	Family
6000	Damselfish
4200	Gobies, Blennies, Dragonettes
2000	Others
1900	Surgeonfish
1900	Wrasses
1100	Angelfish
700	Gammas and Bass
400	Butterflyfish
400	Firefish
200	Triggerfish

Estimated sales of tropical marine fish families

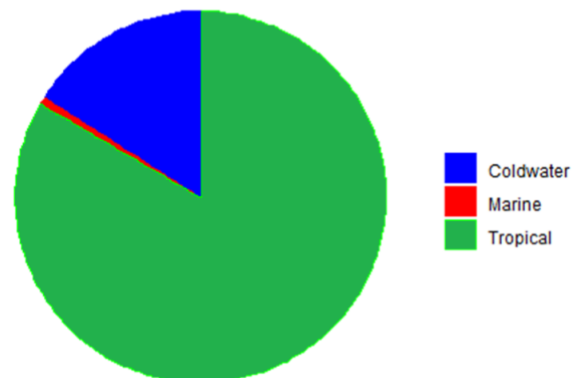


Included within the “Other” category are species that are individually popular in the trade, such as Anthias (1.3% of annual sales) and Boxfish and Pufferfish species (1.3%).

Tropical freshwater, tropical marine, and coldwater fish species in trade and estimated numbers sold in Scotland in 2019 (Pie Chart 5):

Estimated sales of tropical freshwater, tropical marine, and coldwater fish sold in Scotland

Quantity Sold	Trade Classification
460000	Coldwater
2180000	Tropical
18800	Marine



Although figures are indicative, as can be seen, marine ornamental fish constitute a very small proportion of the trade in Scotland.

Appendix IV

Exotic animals - Scottish SPCA welfare cases 2016-2020

This table shows numbers of animals received at Scottish SPCA animal welfare centres in the years 2016 – 2020, as described on receipt at the centres.

	2016	2017	2018	2019	2020	5yr total
Snake						
African House Snake	-	-	-	-	1	1
Boa Constrictor	11	8	6	6	8	39
Bullsnake	1	-	-	1	-	2
Burmese Python	-	1	2	-	1	4
Carpet Python	1	-	1	3	-	5
Colombian Rainbow Boa	-	-	-	-	1	1
Cornsnake	73	69	56	76	42	316
Garter	1	4	-	-	-	5
Hognose	-	-	-	1	2	3
Japanese Rat Snake	-	-	-	-	1	1
Kingsnake	7	8	6	3	1	25
Mandarin Rat Snake	-	-	-	1	1	2
Milk	3	3	5	7	-	18
Pine Snake	-	-	-	1	-	1
Python	-	-	3	4	2	9
Rat	1	5	3	3	-	12
Reticulated Python	3	-	-	10	-	13

Rosy Boa	-	-	1	-	-	1
Royal Python	12	11	6	9	11	49
Taiwanese Beauty Rat	-	-	-	-	1	1
Western Hognose	-	1	-	1	1	3
Total	113	110	90	126	72	511

Reptile

Bearded Dragon	36	27	30	32	20	113
Bosc Monitor Lizard	1	-	1	1	-	3
Chameleon	1	3	-	1	-	5
Common Lizard	1	1	1	1	-	4
Frilled Lizard	1	2	-	-	-	3
Gecko	23	24	18	15	4	84
Iguana	5	2	1	1	-	9
Lizard			1	7	1	9
Plated Lizard	1	-	-	-	-	1
Turtle	6	3	-	-	2	11
Uromastyx	-	1	-	-	-	1
Water Dragon	-	-	--	1	2	3
Total	75	63	52	59	29	278

Terrapin

Map Turtle	-	5	1	4	3	13
Mississippi Map Turtle	10	1	3	2	1	17
Musk Turtle	-	-	4	10	5	19
Red Eared Terrapin	4	3	2	3	1	13
Terrapin	51	34	39	17	9	150

Yellow Bellied Slider	69	36	17	25	19	166
Total	134	79	66	61	38	378

Tortoise

Hermann's	8	10	10	8	5	41
Horsfield	12	18	17	18	6	71
Leopard	1		2		1	4
Other Tortoise	-	-	1	2	-	3
Red-footed Tortoise	1	2	3	-	-	6
Spur Thighed	2	1	2	1	-	6
Total	24	32	36	27	12	131

Amphibians

African Clawed Frog	2	-	5	2	2	11
Axolotl	1	3	5	1	4	14
Common Frog	4	-	3	1	1	9
Common Lizard	1	-	-	-	1	2
Common Toad	4	1	1	-	-	6
Green Tree Frog	-	-	-	1	-	1
Newt	-	-	1	-	-	1
Oriental Fire Bellied Toad	2	-	-	-	-	2
Salamander	1	4	-	-	-	5
Total	15	8	15	5	8	51

Arachnid

Asian Chevron	-	-	-	1	-	1
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Earth Tiger Tarantula						
Bird Eating	-	-	-	-	1	1
Chilean Rose	1	-	1	2	1	5
Red Knee Tarantula	-	-	1	-	-	1
Scorpion	-	-	1	1	-	2
Socotra Island Blue Baboon Tarantula	-	-	-	-	1	1
Spider	2	2	6	1	1	12
Tarantula	3	3	16	-	3	25
Total	6	5	25	6	6	48

Gastropoda

Land Snail	2	4	-	24	8	38
Total	2	4		24	8	38

Pig

Kune Kune	-	-	-	1	-	1
Pig	1	-	4	-	2	7
Pot Bellied	1	-	-	-	-	1
Total	2		4	1	2	9
Grand Total	371	300	287	311	175	1,444

Appendix V

Summary of EU member states' domestic legislation

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https://www.eurogroupforanimals.org/sites/eurogroup/files/2020-07/Eurogroup%20for%20Animals%20Exotic%20pets%20reoprt_v5.pdf

Summary of provisions covering exotic pets included in national laws

x = available on national level

(x) = available on regional level

x² = restrictions on the abandonment of exotic species, non - indigenous wild species, alien species

	POSITIVE LIST	NEGATIVE LIST/LIST OF SPECIES PROHIBITED FOR PRIVATE KEEPING	RESTRICTIONS ON PRIVATE KEEPING OF EXOTIC PETS	AUTHORISATION REQUIREMENTS (PERMIT, LICENCE, REGISTRATION)	HOUSING REQUIREMENTS FOR EXOTIC PETS IN PRIVATE HOMES	REGULATIONS ON THE SALE OF EXOTIC PETS (IN PET SHOPS)	HOUSING REQUIREMENTS FOR PETS IN PET SHOPS	TRAINING REQUIREMENTS FOR PET SHOP STAFF	REQUIREMENTS TO GIVE INFORMATION TO THE BUYER IN PET SHOPS	MINIMUM AGE FOR THE PURCHASE OF ANIMALS	RESTRICTIONS/ PENALTIES ON THE RELEASE OF ANIMALS
Austria		x (x)	x (x)	x	x		x	x	x	x	x ²
Belgium	x		x	x		x	x		x	x	x
Bulgaria		x	x	x		x	x	x	x	x	x
Croatia	x	x (x)	x (x)			x (x)	x	x	x	x	x ²
Cyprus		x	x	x							x ²
Czech Republic		x	x	x	x	x		x	x	x	x
Denmark		x	x	x		x	x	x	x	x	x
Estonia		x	x	x	x	x	x			x	x ²
Finland		x	x		x						x
France		x	x	x		x	x	x	x	x	x ²
Germany		x (x)	x (x)	(x)				x	x	x	x ²
Greece											x
Hungary		x	x	x	x	x	x	x	x		x
Ireland		x	x				x			x	x
Italy		x	x			(x)	(x)	(x)	(x)	x	x
Latvia		x	x	x		x		x	x	x	
Lithuania		x	x	x		x	x		x	x	x
Luxembourg	x		x	x		x				x	x
Malta	x	x	x	x		x	x	x	x	x	x
Netherlands	x	x	x	x		x	x		x	x	x
Norway	x		x		x	x	x	x	x	x	x
Poland		x	x	x							x
Portugal		x	x	x	x	x	x	x		x	x
Romania		x	x	x					x		x
Slovakia		x	x	x	x	x					x
Slovenia		x	x	x	x	x	x	x	x	x	x
Spain		x (x)	x (x)	x		(x)	(x)	(x)	(x)	(x)	x (x ²)
Sweden		x	x		x		x	x	x		x
Switzerland			x	x	x	x	x	x	x	x	x
UK - England		x	x	x	x	x	x	x	x	x	x
UK - Northern Ireland		x	x	x	x	x				x	x
UK - Scotland		x	x	x		x	x			x	x
UK - Wales		x	x	x		x	x			x	x

Analysis of national legislation related to the keeping and sale of exotic pets in Europe

Appendix VI
TABLE OF POSITIVE LIST LEGISLATION IN EUROPE, USA AND CANADA
 Reproduced by kind permission of Toland et al (2020)

<https://www.mdpi.com/2076-2615/10/12/2371>

Table 3. Positive Lists in Europe, the United States, and Canada.

Region		Legislation	Animals Covered (by Class)	Relevant Criteria
Europe	Belgium-Brussels	Art 3bis Dierenbescherming en-welzijnswet http://www.ejustice.just.fgov.be/cgi_loi/change_lg.pl?language=fr&la=F&cn=2009071608&table_name=loi	Mammals	Animal welfare, public health and safety, IAS risk, availability of husbandry guidance
	Belgium-Flanders	Art 3bis Dierenbescherming en-welzijnswet http://www.ejustice.just.fgov.be/cgi_loi/change_lg.pl?language=fr&la=F&cn=2009071608&table_name=loi Art 3bis of The Animal Protection and Welfare Act https://dierenwelzijn.vlaanderen.be/positieve-lijst-reptielen	Mammals Reptiles	Animal welfare, public health and safety, availability of husbandry advice
	Belgium-Wallonia	Art 3bis Dierenbescherming en—welzijnswet http://www.ejustice.just.fgov.be/cgi_loi/change_lg.pl?language=fr&la=F&table_name=loi&cn=2018072406	Mammals	Animal welfare, public health and safety, IAS risk, availability of husbandry guidance
	Croatia	Regulation NN 17/2017-404 of 2017 https://narodne-novine.nn.hr/clanci/sluzbeni/2017_02_17_404.html	Birds, Fishes, Invertebrates	IAS risk
	Luxembourg	Animal Protection Act: Grand Ducal Regulation of 2018 https://deiereschutzgesetz.lu/la-loi/chapitre-1-les-principes-generaux/	Mammals, Birds, Reptiles, Amphibians, Fishes, Invertebrates	Animal welfare, public health and safety, IAS risk, availability of husbandry guidance
	The Netherlands	Animals Act 2011 https://wetten.overheid.nl/BWBR0030250/2020-01-01#Hoofdstuk2	Mammals	Methodology to be agreed

	Norway	Regulation on foreign organisms 2018 Regulation prohibiting the import, trading and keeping of exotic animals 2017 https://lovdata.no/dokument/SF/forskrift/2017-05-11-597	Mammals Reptiles	Animal welfare, human and animal health, IAS risk
	Malta	Protection of animals offered in pet shops (minimum standards) regulations 2014. Restrictions apply only to sale of animals. https://legislation.mt/eli/si/439.16/eng/pdf	Mammals, Birds, Reptiles, Fishes, Invertebrates	Animal welfare, public safety
United States	Alaska	Alaska Admin. Code tit. 5, § 92.029 http://www.akleg.gov/basis/aac.asp#5.92.028	Mammals, Birds, Reptiles	Animal welfare, public health and safety, conservation, IAS risk
	Arkansas	Ark. Admin. Code § 002.00.1- https://apps.agfc.com/regulations/R1.01/	Mammals, Birds, Reptiles, Amphibians, Fishes	Undetermined
	Colorado	2 Colo. Code Regs. §406-11:1103 https://www.sos.state.co.us/CCR/GenerateRulePdf.do?ruleVersionId=6776&fileName=2%20CCR%20406-11	Mammals, Birds, Reptiles, Amphibians, Fishes	Public health and safety, conservation, IAS risk
United States	Delaware	Delaware Admin. Code tit. 3 903 Exotic Animal Regulations https://regulations.delaware.gov/AdminCode/title3/900/903.shtml#P2_29	Mammals, Reptiles	Animal and human health and safety
	Florida	Fla. Admin. Code r. 68A-6.001–68A-6.018 https://www.flrules.org/gateway/RuleNo.asp?title=CAPTIVE%20WILDLIFE&ID=68A-6.003	Mammals, Birds, Reptiles, Amphibians	Undetermined
	Kentucky	Kentucky Administrative Regulations 301 KY ADC 2:081(native wildlife) https://apps.legislature.ky.gov/Law/KAR/301/02/081.pdf 301 KY ADC 2:082(exotic wildlife) https://apps.legislature.ky.gov/Law/KAR/301/02/082.pdf	Mammals, Birds, Reptiles, Amphibians	Undetermined
	Maine	09-137 Me. Code R. § 7-06 https://www.maine.gov/ifw/docs/unrestrictedspecies.pdf https://legislature.maine.gov/statutes/12/title12sec12152.html https://www.maine.gov/ifw/docs/unrestrictedspecies.pdf	Mammals, Birds, Reptiles, Amphibians, Fishes, Invertebrates	Undetermined

Maryland	Md. Crim. Law § 18-219 http://mgaleg.maryland.gov/2020RS/Statute_Web/ghg/18-219.pdf Md. Code Regs. 08.03.11.04 http://www.dsd.state.md.us/comar/comarhtml/08/08.03.11.04.htm	Mammals Reptiles, Amphibians	Public health and safety
Massachusetts	321 Mass. Code Regs. 9.01-9.02 https://www.mass.gov/regulations/321-CMR-900-exemption-list#9-01-exemption-list%20%20https://www.mass.gov/regulations/321-CMR-900-exemption-list#9-02-list-of-domestic-animals	Mammals, Birds, Reptiles, Amphibians, Fishes	Public health and safety, conservation, IAS risk, animal welfare
Montana	Mont. Code § 87-5-706 https://leg.mt.gov/bills/mca/title_0870/chapter_0050/part_0070/section_0060/0870-0050-0070-0060.html	Mammals, Birds, Reptiles, Amphibians, Fishes, Invertebrates	Public health and safety, IAS risk
Nevada	Nev. Admin. Code 503.140 https://www.leg.state.nv.us/nac/nac-503.html#NAC503Sec140	Mammals, Birds, Reptiles, Amphibians, Fishes, Invertebrates	Undetermined
New Hampshire	N.H. Code Admin. R. Fis 804.02 http://www.gencourt.state.nh.us/rules/state_agencies/fis800.html	Mammals, Birds, Reptiles, Amphibians, Fishes	Undetermined
New Jersey	NJ ADC 7:25-4.4 Exempted species https://advance.lexis.com/documentpage/?pdmfid=1000516&crd=79b79961-6cda-42be-b8b1-57213a98386a&nodeid=AAKACQAAFAAF&nodepath=%2FROOT%2FAAK%2FAAKACQ%2FAAKACQAAF%2FAAKACQAAFAAF&level=4&haschildren=&populated=false&title=%C2%A7+7%3A25-4.4+Exempted+species&config=00JAA1YTg5OGJIYi04MTI4LTRINjQtYTc4Yi03NTQxN2E5NmE0ZjQKAFBvZENhdGFsb2ftaXPxZTR7bRPtX1Jok9kz&pddocfullpath=%2Fshared%2Fdocument%2Fadministrative-codes%2Furn%3AcontentItem%3A5XKV-PW41-JBDT-B0CP-00008-00&ecomp=c38_kkk&prid=e21ca592-d91e-4da8-8654-357c0ae29d60	Mammals, Birds, Reptiles, Amphibians	Undetermined

United States	North Dakota	N.D. Admin. Code. 48.1-09-01-02 https://www.legis.nd.gov/information/acdata/pdf/48.1-09-01.pdf	Mammals, Birds, Reptiles, Amphibians, Fishes, Invertebrates	Public health and safety, IAS risk
	Oklahoma	Okla. Admin. Code 800:25-25-3 http://www.oar.state.ok.us/oar/codedoc02.nsf/frmMain?OpenFrameSet&Frame=Main&Src=75tnm2shfcdnm8pb4dthj0chedppmcbq8dtmmak31ctijujrgcln50ob7ckj42tbkdt374obdcli00	Mammals, Birds, Reptiles, Amphibians, Fishes, Invertebrates	Undetermined
	Rhode Island	250-RICR-40-05-3 3.17 Appendix A: List of Exempt Exotic Animals and Native Wild Animals http://www.dem.ri.gov/pubs/regs/regs/agric/wildanml16.pdf	Mammals, Birds, Reptiles, Fishes, Invertebrates	IAS risk
	Tennessee	Tenn. Comp. R. & Regs. 1660-01-18-.02 Tenn. Code Ann. § 70-4-403 https://www.tn.gov/content/dam/tn/twra/documents/law-enforcement/TennCode_70_4_403.pdf	Mammals, Birds, Reptiles, Amphibians, Fishes	Undetermined
	Utah	Utah Admin. Code r. R657-3-2 https://rules.utah.gov/publicat/code/r657/r657-003.htm#T2	Mammals, Birds	Undetermined
	Vermont	16-4 Vt. Code R. § 116 Wild Bird and Animal Importation and Possession Unrestricted Wild Animal List. https://vtfishandwildlife.com/sites/fishandwildlife/files/documents/Learn%20More/Living%20with%20Wildlife/Importation/Domestic Species List.pdf Wild Bird and Animal Importation and Possession Domestic Species List https://vtfishandwildlife.com/sites/fishandwildlife/files/documents/Learn%20More/Living%20with%20Wildlife/Importation/Unrestricted Wild Animal List.pdf	Mammals, Birds, Reptiles, Amphibians, Invertebrates	Public health and safety, IAS risk, suitability as pets
	Wisconsin	Wis. Stat. Ann. §169.04 https://docs.legis.wisconsin.gov/statutes/statutes/169/04/4/a	Reptiles, Amphibians, Mammals, Birds, Invertebrates	Undetermined
	Wyoming	Wyo. Admin. Code 040.0001.10 § 3 https://rules.wyo.gov/Search.aspx?mode=1 (Search Game and Fish Commission, Chapter 10)	Mammals, Birds, Reptiles, Amphibians, Fishes, Invertebrates	Undetermined

Canada (Provinces and Territories)	Alberta	Wildlife Act RSA 2000, c W-10; Wildlife Regulation (Alta Reg 143/1997) https://www.canlii.org/en/ab/laws/regu/alta-reg-143-1997/latest/alta-reg-143-1997.html	Mammals, Birds, Amphibians	Undetermined
	New Brunswick	Exotic Wildlife Regulation—Fish and Wildlife Act https://www.canlii.org/en/nb/laws/regu/nb-reg-92-74/latest/nb-reg-92-74.html#document	Mammals, Birds, Reptiles, Amphibians	Animal welfare, species conservation, IAS risk, public safety
	Newfoundland and Labrador	Wild Life Act, RSNL 1990, c W-8 https://www.canlii.org/en/nl/laws/regu/cnlr-1156-96/latest/cnlr-1156-96.html#document	Mammals, Birds, Reptiles, Amphibians, Fishes, Invertebrates	IAS risk
	Saskatchewan	The Captive Wildlife Regulations, RRS c W-13.1 Reg 13 https://www.canlii.org/en/sk/laws/regu/rrs-c-w-13.1-reg-13/latest/rrs-c-w-13.1-reg-13.html	Mammals, Birds, Reptiles, Amphibians, Fishes	Undetermined
	Nunavut	Wildlife Act 2003 Wildlife Act 1988 (replaced) Wildlife Genera Regulations 1992 https://www.canlii.org/en/nu/laws/stat/snu-2003-c-26/latest/snu-2003-c-26.html	Reptiles, birds	Undetermined
	Town of Aurora Town of Newmarket Town of Newmarket	Town of Aurora, By-law Number 61 97-1 9, 2019 https://www.aurora.ca/en/your-government/resources/by-laws/6197-19-Animal-Services-By-law.pdf Town of Newmarket, By-law 2020-30 https://www.newmarket.ca/LivingHere/Documents/2020-30%20Animal%20Control%20By-law.pdf Town of Newmarket, By-law 2020-30 https://www.newmarket.ca/LivingHere/Documents/2020-30%20Animal%20Control%20By-law.pdf	Mammals, Birds, Reptiles, Amphibians, Fishes, Invertebrates Mammals, Birds, Reptiles, Amphibians, Fishes, Invertebrates Mammals, Birds, Reptiles, Amphibians, Fishes, Invertebrates	Undetermined Public health and safety Public health and safety
	Town of Newmarket	Town of Newmarket, By-law 2020-30 https://www.newmarket.ca/LivingHere/Documents/2020-30%20Animal%20Control%20By-law.pdf	Mammals, Birds, Reptiles, Amphibians, Fishes, Invertebrates	Public health and safety

	Brossard	Règlement 219 relatif au contrôle des animaux https://www.brossard.ca/in/rest/annotationSV/C/Attachment/attach_cmsUpload_65f94abb-63d1-419c-8d01-e5ca7bc759b1	Mammals, Birds, Reptiles, Amphibians, Fishes	Undetermined
	Chateauguay	Règlement G-018-17 relatif aux animaux et abrogeant le chapitre XIV du règlement G-2000 https://www.ville.chateauguay.qc.ca/sites/default/files/G_018-17_animaux_dangereux.pdf	Reptiles, Amphibians, Invertebrates	Public safety
	Chicoutimi/Saguenay	Règlement VS-R-2007-50 concernant les animaux sur le territoire de la ville de Saguenay https://ville.saguenay.ca/files/reglements_municipaux/animaux/ca_vs_r_2007_50.pdf	Mammals, Birds, Reptiles, Amphibians, Fishes	Undetermined
	Gatineau	Règlement numéro 183-2005 concernant la garde, le contrôle et le soin des animaux dans les limites de la ville de Gatineau http://www.tantelori.com/PDFs/PetLicense-FR-Gatineau-Regs-R-0183-2005-to-2012-04-23%20-Animaux%20(french-francais).pdf C-61.1, r. 5—Regulation respecting animals in captivity	Mammals, Birds, Reptiles, Amphibians, Fishes, Invertebrates	Public safety
	Laval	Règlement numéro I-12430 Concernant les animaux 2017 https://www.laval.ca/Documents/Pages/Fr/Citoyens/reglements/reglements-codifies/reglement-I-12430.pdf	Mammals, Birds, Reptiles, Amphibians	Public safety
Canada (Towns and municipalities)	Longueuil	Règlement co-2008-523 sur le Contrôle des Animaux 2008 https://www.longueuil.quebec/sites/longueuil/files/reglements/co-2008-523_original.pdf	Mammals, Birds, Reptiles, Fishes	Undetermined
	Montréal	Règlement sur le Contrôle des Animaux 16-060 2016 http://ville.montreal.qc.ca/sel/sypre-consultation/afficherpdf?idDoc=27628&typeDoc=1	Mammals, Birds, Reptiles, Amphibians	Public safety, species conservation, animal welfare
	Québec	Règlement sur les animaux domestiques (R.V.Q 1059) https://reglements.ville.quebec.qc.ca/fr/showdoc/cr/R.V.Q.1059	Mammals, Birds, Reptiles, Fishes	Public safety
	Rimouski	Règlement 44-2002 concernant les animaux https://rimouski.ca/storage/app/media/ville/administration/reglements-municipaux/Reglement_1094-2018.pdf	Mammals, Birds, Reptiles, Fishes	Undetermined
	Saint-Hyacinthe	Règlement numéro 30 relatif aux animaux https://www.ville.st-hyacinthe.qc.ca/medias/services-aux-citoyens/reglementations/Regl30.pdf	Mammals, Birds, Reptiles, Fishes	Undetermined

	Saint-Jean-Sur-Richelieu	Règlement no. 0771 concernant la garde des animaux et abrogeant les règlements nos. 0291 et 0441 https://sjsr.ca/wp-content/uploads/2019/06/codification-administrative-1742.pdf	Mammals, Birds, Reptiles, Fishes	Public safety
	Shawinigan	Règlement municipal, Titre 8: Garde et controle des animaux http://www.shawinigan.ca/Document/Fichiers%20PDF/Ville/Reglements/SH-1/Titre%208%20animaux%20(190107).pdf	Mammals, Birds, Reptiles, Amphibians, Fishes, Invertebrates	Undetermined
	Sherbrooke	Règlement no. 1, Titre 5, chap. 10, sec. 2 https://contenu.maruche.ca/Fichiers/3337a882-4a53-e611-80ea-00155d09650f/Sites/333dd3d3-915d-e611-80ea-00155d09650f/Documents/Reglements%20municipaux/reglement-1.pdf	Mammals, Birds, Reptiles, Amphibians, Fishes	Public safety
	Trois-Rivières	Règlement sur la garde d'animaux (2014, chapitre 158) https://contenu.maruche.ca/Fichiers/d477a882-4a53-e611-80ea-00155d09650f/Sites/742ceda8-915d-e611-80ea-00155d09650f/Documents/Règlements/Reglement sur la garde d animaux.pdf		



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This publication is available at www.gov.scot

Any enquiries regarding this publication should be sent to us at
The Scottish Government
St Andrew's House
Edinburgh
EH1 3DG

ISBN: 978-1-80201-329-0 (web only)

Published by The Scottish Government, September 2021

Produced for The Scottish Government by APS Group Scotland, 21 Tennant Street, Edinburgh EH6 5NA
PPDAS929226 (09/21)

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