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Summary

The keeping of non-traditional or 'exotic' pets has been growing in popularity worldwide. In addition to the typical welfare challenges of keeping more traditional pet species like dogs and cats, ensuring the welfare of non-traditional pets is complicated by factors such as lack of knowledge, difficulties meeting requirements in the home and where and how animals are obtained. This paper uses examples of different species to highlight three major welfare concerns: ensuring that pets under our care *i)* function well biologically, *ii)* are free from negative psychological states and able to experience normal pleasures, and *iii)* lead reasonably natural lives. The keeping of non-traditional pets also raises ethical concerns about whether the animal poses any danger to others (e.g. transmission of zoonotic diseases) and whether the animal might cause environmental damage (e.g. invading non-native habitats when released). The authors used these considerations to create a checklist, which identifies and organises the various concerns that may arise over keeping non-traditional species as pets. An inability to address these concerns raises questions about how to mitigate them or even whether or not certain species should be kept as pets at all. Thus, the authors propose five categories, which range from relatively unproblematic pet species to species whose keeping poses unacceptable risks to the animals, to humans, or to the environment. This approach to the evaluation and categorisation of species could provide a constructive basis for advocacy and regulatory actions.

Keywords

Animal welfare – Companion animal – Ethics – Exotic pet – Invasive species – Pet animal – Pet ownership – Pet trade – Suitability of pets – Zoonosis.

Introduction

Non-traditional or 'exotic' pets comprise a wide range of species. Given the variety in their biology and degrees of domestication, and given that veterinary knowledge about these species varies, this discussion will focus on general concepts of welfare with examples illustrated by specific species. The welfare of non-traditional pet species is complex. The most obvious considerations relate to the welfare of individual animals within the home: their health, psychological well-being and ability to live reasonably naturally. A large proportion of non-traditional pets are sourced through international trade. Hence, consideration of the effect of trade on animal welfare is important, especially with regard to procurement, transportation and markets. The keeping of non-traditional pets can also affect the welfare of people and other species. This discussion will draw together all three considerations of welfare based on a framework developed by Schuppli and Fraser (1).

Pet ownership and trade

In countries that collect relevant statistics, non-traditional pets make up 34% to 63% of all pets (Table I) (2, 3, 4, 5). The numbers of non-traditional animals kept as pets are likely to be underestimated because of illegal trade and because statistics do not include animals that are with breeders, traders or pet stores. Both regional and international trade in non-traditional animals for the pet industry have been

Table I
Estimated numbers of different species kept as pets in various countries or geographic regions between 2010 and 2012

Species	Europe [a]		United Kingdom [b]		Germany [c]		United States [d]	
	Population	% Total population	Population	% Total population	Population	% Total population	Population	% Total population
All pets	240,805,900		43,500,000		24,300,000		223,135,000	
Non-traditional pets	82,457,000	34.2	27,500,000	63.2	10,700,000	44.0	79,150,000	35.5
Dogs	73,643,400	30.6	8,000,000	18.4	5,400,000	22.2	69,926,000	31.3
Cats	84,705,500	35.2	8,000,000	18.4	8,200,000	33.7	74,059,000	33.2
Caged birds	42,592,000	17.7	1,100,000	2.5	3,000,000	13.6	8,300,000	3.7
Small mammals	30,644,000	12.7	2,900,000 [e]	6.7	5,100,000	21.0	7,802,000 [f]	3.5
Reptiles/amphibians	n/a	–	1,000,000	2.3	400,000	1.6	5,298,000	2.4
Indoor fish	9,221,000	3.8	22,500,000	51.7	1,900,000	7.8	57,750,000	25.9
Rabbits	n/a	–	1,000,000	2.3	n/a	–	3,210,000	1.4
Ferrets	n/a	–	n/a	–	n/a	–	748,000	0.33
Hamsters	n/a	–	500,000	1.1	n/a	–	1,146,000	0.51
Guinea pigs	n/a	–	1,000,000	2.3	n/a	–	1,362,000	0.61
Gerbils	n/a	–	100,000	0.2	n/a	–	468,000	0.21
Other rodents	n/a	–	300,000	0.7	n/a	–	868,000	0.39
Turtles/tortoises	n/a	–	200,000	0.5	n/a	–	2,297,000	1.02
Lizards	n/a	–	300,000	0.7	n/a	–	1,119,000	0.50
Snakes	n/a	–	200,000	0.5	n/a	–	1,150,000	0.51
Other reptiles/ amphibians	n/a	–	300,000	0.7	n/a	–	732,000	0.33

n/a: data not available
a) Estimates exclude horses/ponies, livestock and outdoor fish. The report is not clear about poultry and pigeons. It is unclear whether fish are estimated by number of aquaria or number of fish (*Source*: European Pet Food Industry Federation, 2011) (2)
b) Estimates exclude horses/ponies and outdoor fish and livestock. Pigeons are included with caged birds (*Source*: Pet Food Manufacturers' Association, 2012) (5)
c) Estimates exclude horses/ponies, livestock and outdoor fish. The report is not clear about whether poultry and pigeons are included with caged birds. Fish are reported as 'aquaria', which is likely the number of fish tanks rather than the total number of fish. 'Vivaria' are not described, but likely include are reptiles and amphibians, thus 'vivaria' numbers were included in that group (*Source*: Industrieverband Heimtierbedarf e.V., 2011) (3)
d) Estimates exclude horses/ponies, livestock. The report is not clear about whether pigeons are included within caged birds (*Source*: American Veterinary Medical Association, 2012) (4)
e) Combines all small animals counted by the Pet Food Manufacturers' Association in 2012 (5). Estimates exclude ferrets
f) Combines all small animals counted by the American Veterinary Medical Association in 2012 (4). Estimates include ferrets

increasing in the last 25 years (6, 7, 8, 9, 10, 11, 12, 13) and represent high global economic value (14). Between 2000 and 2005, it is estimated that the European Union (EU) was responsible for 70% of legal live bird trade and 20% of legal live reptile trade, compared to 2% and 62%, respectively, in the United States (USA) (14).

There is also a large documented illegal trade in non-traditional pet species (10, 11, 14, 15, 16, 17, 18, 19) which has increasingly involved international wildlife smuggling syndicates (15, 16). Illegal trade in wildlife, including pets, is considered to be serious enough to involve multinational organisations such as INTERPOL (the world's largest international police organisation), which in 2010 initiated 'Operation RAMP' to combat illegal trade in endangered reptiles and amphibians (15). In the largest pet market in China, it is estimated that 50% of turtle species are traded illegally (7). In Indonesia, the estimate of illegal trade in amphibians and reptiles is 44% of the total traded (10).

Many species, such as rabbits, that have been kept as pets for some time have been bred in captivity. However, many non-traditional species are collected from their native habitat for sale or breeding. It is difficult to know how many animals are wild-caught because this often represents illicit activity. Moreover, it is difficult to distinguish captive-bred from wild-caught animals (10, 17) and many are laundered through legal breeding farms (10). In Brazil, where dealers are permitted to trade only captive-bred species, it has been estimated that only 5% of parrots are actually captive-bred (18). Data from the EU suggest that there has been an increase in the proportion of captive-bred reptiles since the 1990s (14, 17), but trade in wild-caught animals remains common for some species (14).

Use of the Internet for trading has increased in recent years and likely contributes to increased global trade (16, 20) and allows traders to avoid regulations (20). Over 1,500 red-eared sliders were offered for sale over the Internet in New Zealand between 2007 and 2009 (21) and 146 live primates were offered for sale in the United Kingdom during one week in 2005 (22).

Welfare of non-traditional species

Widely held ethical concerns about the welfare of animals can be captured by three broad and sometimes overlapping categories (23):

– 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.

The authors consider these in turn.

Functioning well

This category includes concerns about nutrition, disease and injury. The nutritional requirements of the species must be adequately known and suitable foods available to the owner. For example, in rabbits, lack of fibre and excess carbohydrate cause many common health problems, such as dental and gastrointestinal disease and obesity (24). Among reptiles and amphibians nutritional metabolic bone disease is one of the most frequently observed pathological and painful conditions (25, 26). Often, replicating the nutritional constituents of a wild diet may not be possible in captivity. For sugar gliders, natural diets consist primarily of plant and insect exudates (27), which are impractical for feeding. As a result, commonly fed diets are found to have excess protein and are likely to be imbalanced in amino acids, vitamins and minerals (28). It is hypothesised that natural exudates may be important to the gut health of gliders (27, 28).

Disease prevention requires that adequate veterinary knowledge of the species exists and is disseminated through veterinary education, and that the expertise is available to the owner. For many non-traditional pet species, little is known about disease prevention and treatment. For others, information may exist (e.g. reptiles [29]; birds [30]), but veterinarians with this knowledge are not readily available. In either case, animals may suffer because of inappropriate therapies. When choosing drug therapy, for example, extrapolation between species can result in morbidity or mortality. Within rodent species, there are many examples of drugs that are toxic for one species but not for another (31); a commonly used antibiotic, cephalexin, is fatal in hamsters but not in rats (31), and ivermectin can cause paralysis and death in some species of tortoises but not others (32).

Anatomy combined with inappropriate handling can also result in injury. In the case of Patagonian cavies (hares), the long thin legs and skittish nature of the species make them difficult to restrain and prone to traumatic leg fractures caused by handling (33). Improper handling of rabbits is a common cause of spinal cord injuries (34, 35).

The housing and environmental needs of the species must also be known and met by the owner. Many species require very specialised environments which can be difficult to provide in household settings. Reptiles and amphibians require a variety of temperature, lighting, moisture regimes and substrates. Many reptile patients presented to veterinarians are ill as a result of chronic hypothermia (36). During transport and sale of reptiles and amphibians, maintaining appropriate conditions is even more difficult and typically not achieved (37). Tropical bird species can have similar complex environmental requirements (38). Rats, being nocturnal, are extremely sensitive to light; at levels comfortable to humans their retinas are frequently damaged (39, 40).

Feeling well

This requires that animals must not be unduly upset by captivity and close proximity to humans and other pets. This also requires an ability to recognise negative psychological states in the given species, which is much

more challenging in unfamiliar species, and an ability to care for animals accordingly. However, our ability to recognise pain remains limited for many species (41). Not surprisingly, veterinarians vary in their knowledge and treatment of pain. For example, in New Zealand, 77% of veterinarians felt that their knowledge, recognition and treatment of pain in rabbits and guinea pigs were inadequate (42). In the USA, 98% of veterinarians believed that reptiles feel pain, but analgesics were used infrequently and 77% reported that their knowledge of analgesia was inadequate (43). Experts in exotic pet medicine are likely to be more effective at recognising and treating pain (44).

Inappropriate environments can affect psychological states. For example, behavioural indicators of stress were common in reptiles and amphibians at exotic pet markets in Europe (37). Garner (45) found that healthy orange-winged Amazon parrots located near doors in a research laboratory showed more feather pecking and aversive responses to caretakers entering, possibly reflecting increased fear.

Natural living

This requires knowledge of a species' natural behaviour and important features of their natural environment. 'Some species require high levels of exercise, social or psychological stimulation or key stimuli in the environment in order to live normal lives' (1). For example, gerbils in the wild dig burrows, but when they cannot create or access a burrow in captivity, they often carry out prolonged stereotypical digging around cage edges. This behaviour is eliminated by the provision of tunnels (46). Male Mozambique tilapia fish demonstrate a strong preference for soft substrates in their tanks, and in the absence of substrate they perform vacuum nest-building behaviours (47).

Other species are extremely social, and their normal behaviour requires sufficient interaction with conspecifics, unless humans can make appropriate substitutes. For example, most parrot species are highly social and lack of conspecific social stimulus has been linked to indicators of poor welfare, including psychogenic feather picking and behavioural stereotypies such as pacing, perch circles, corner flips, route tracing, wire chewing, sham chewing (repetitive chewing with nothing in the mouth), and dribbling (45, 48). These abnormal behaviours are common in captive parrots (49, 50, 51). In a survey of avian veterinarians and parrot owners in the USA, Meehan (50) found that feather picking was one of the most common problematic behaviours, with 6% of birds relinquished due to feather-destructive behaviour (50). Physical and social enrichment have been found to reduce or prevent stereotypy and feather picking in orange-winged Amazon parrots (48, 52, 53).

For many non-traditional species, little is known about the environmental features necessary to allow natural behaviour, or such features may be difficult to implement.

Other considerations

'Animal welfare may also be jeopardized if the owner loses interest in, or commitment to, the animal. In some instances, long-term commitment may be reduced if the animal grows too large and becomes difficult to house or costly to keep' (1). For example, the most common reason that aquarium fish are released into the wild is because owners tire of them or fish become too large or prolific for their aquaria (54).

Consistent care may also be jeopardised if animals are very long lived. Corn snakes and green iguanas can live for over 20 years, and red-eared slider turtles can survive for more than 40 years (36). Such species may outlive their owners, or owners may lose the interest or ability to provide care, resulting in the animal being relinquished to a shelter, being passed through a series of owners or being released into the wild.

Similarly, if species have qualities that reduce, or fail to enhance, the welfare of the owner, the animal's standard of care may suffer because of reduced owner commitment. In this respect, the animal's suitability as a pet depends greatly on the owner. 'Offensive qualities of animals (noise, odour, unruly or destructive behaviour) may also be undesirable to owners and possibly to other members of the community' (1). For example, in a study of 5,391 pet parrots relinquished by their owners in the USA, the top reasons reported for giving up their birds were biting or aggression (19%), noise (15%), incompatibility with family members (14%), and insufficient time to care for the parrot (13%) (50). Likewise, companionship is one of the most important reasons reported by owners for keeping a pet (55). Owners may find it unsatisfactory if an animal is solitary, inactive or nocturnal; hedgehogs, for example, are nocturnal and roll into a ball when handled inappropriately.

Additional welfare considerations arise for animals that are wild-caught. For example, in the Mexican trade of wild parrots, average estimates of mortality rate are 7% during capture, 25% during confinement by trappers, 31% during transportation to exporters and distribution sites and 50% during distribution and sale, with the result that only about one quarter survive (11). Mortality results from crowded transport and unhygienic conditions, together with poor nutrition, poor environmental control, lack of care and rough handling (11).

Harm to others

Harm due to disease transmission and injury

Pets can transmit diseases to their owners, handlers or to other species. In the USA, an outbreak of

Salmonella Typhimurium, linked to contact with pet frogs, sickened 224 people from 42 states (56). Caged birds have been found to harbour at least 15 different zoonotic organisms (57). Primates carry a number of zoonotic organisms (58, 59). In Brazil, rabies was transmitted from pet marmosets to seven human patients (60). 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 (61, 62). In 1991, pet parrots were the source of an outbreak of Newcastle disease in other pet birds in several states of the USA (63). 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 (64). 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 (65). In most cases, proper care and management of pets can prevent transmission.

Pets may also injure their owners or handlers. For example, in the USA between 1998 and 2001, pet tigers killed seven people and injured at least 27 (66). From 1996 to 2006 four poison centres in Germany and France reported 404 bites or stings by snakes (39% by rattlesnakes, cobras, mambas, and other venomous snakes), aquatic animals (30% by lionfish and stingrays) and arthropods (27% by tarantulas and scorpions) (67).

Harm to the environment

Concerns also arise over non-native species being released (deliberately or accidentally) into non-native habitats and damaging the ecosystem. Non-native species may displace native species through predation, hybridisation, pathogen transmission, or competition for resources. There are many examples of pet species being introduced into non-native environments. For example, in Florida, there are 45 established (i.e. reproducing) non-native species, including two frog, four turtle, one crocodilian, 34 lizard, and four snake species (68). In Spain, 50 non-native species of pet birds exist in the wild (69). In the aquarium trade, it is estimated that one-third of the world's worst aquatic invasive species resulted from the release of pet fish into the wild (70). Imported pet red-eared slider turtles have been released frequently and have invaded wetland habitats in Europe, Asia and Africa (71). On the Iberian Peninsula, this species has been displacing the native Spanish terrapin (72). Several models for performing risk assessments have been developed to prevent invasions (20).

Capture of pet species from the wild can also result in damage to local populations, ultimately threatening those populations. For example, cutting trees down to obtain parrot nestlings can reduce available future nesting sites for

Box 1
Checklist of questions to assess the suitability of species as companion animals

Welfare of the animal

1. Is there adequate knowledge of the species with respect to:
   1.1. nutritional requirements?
   1.2. health care?
   1.3. environmental requirements for physical and thermal comfort?
   1.4. recognising and preventing negative states such as fear, pain and distress?
   1.5. requirements for exercise, social interaction, and natural behaviour?

   If there is adequate knowledge of the species' requirements, might the owner still have practical difficulty in providing:
   1.6. suitable food?
   1.7. veterinary services?
   1.8. an environment that meets the animal's needs regarding comfort, psychological welfare, exercise, social interaction, and natural behaviour?
2. Is the animal's size:
   2.1. so large when mature that the owners may be unable to accommodate it?
   2.2. so small that the animal might easily be injured?
3. Is the animal's life expectancy so great that the owner may lose the commitment or ability to provide care throughout its life?
4. Is there any appreciable risk of suffering, injury, illness, or death arising from:
   4.1. procurement?
   4.2. transportation?

Welfare of others

5. Is the animal poisonous or venomous?
6. Is there any appreciable risk of the animal attacking or injuring:
   6.1. humans?
   6.2. other animals?

   If a risk of injury exists, can it be made acceptably low by selecting safe individuals or by proper management?
7. Is there any appreciable risk of the animal transmitting disease to:
   7.1. humans?
   7.2. wild or domestic animals?

   If a risk of disease transmission exists, can it be made acceptably low by finding individuals free from the disease(s) or by proper management?
8. Does the animal have objectionable characteristics (e.g. noise, odour, uncleanliness, unruliness, destructive behaviour) that may prove unacceptable to:
   8.1. the owner?
   8.2. the community?
9. Does the animal have other characteristics (e.g. solitary, sedentary or nocturnal nature) that may cause the owner to lose interest and commitment?

Risks to the Environment

10. Is there any appreciable risk of the animal causing ecological damage if it escapes or is released?
11. For species that exist in the wild, are trade and transportation subject to adequate regulation and enforcement?
12. If there is ongoing wild capture, is there any appreciable risk that capture might have undesirable effects on native populations and ecosystems?

    If a risk exists, can it be avoided by use of captive breeding that does not depend on continued wild capture?

Source: Adapted from Schuppli and Fraser (2000) (1) with permission from the Universities Federation for Animal Welfare (UFAW), United Kingdom.

Table II
Categories of animal species classified according to their degree of suitability as companion animals

Category	Description
Category A	Species whose use for companionship is generally positive for the animal and the owner, whose needs are easily met, whose procurement and transportation raise no appreciable problems, and whose use involves no apparent risks to the community or the environment
Category B	Species that require significant commitment of time and/or resources in order that their use be positive for the animal and the owner, but where ownership is unproblematic with regard to procurement, transportation, and effects on the community and the environment. Substantial owner education may be needed for such species
Category C	Species that have complex or demanding requirements needing skilful and knowledgeable owners who are prepared to commit significant time and/or resources to animal ownership, but where ownership is unproblematic with regard to procurement, transportation, and effects on the community and the environment. Control of ownership (e.g. ownership only by qualified persons) may be appropriate for such species
Category D	Species about which there is insufficient knowledge (e.g. regarding procurement, transportation, environmental impact, or the animal's needs) to allow a confident assessment of its suitability as a companion animal. Use of these species might be acceptable in the future if knowledge becomes adequate and any necessary safeguards are in place
Category E	Species that are unsuitable as companion animals because of undue harm or risk of harm to one or more of the animal, the owner, the community, or the environment

Source: Table reproduced from Schuppli and Fraser (2000) (1) with permission from the Universities Federation for Animal Welfare (UFAW), United Kingdom. Copyright UFAW 2013

cavity-nesting parrots (11). In a Hong Kong market, 75% of 155 species of pet turtles sold were listed as threatened species by the International Union for Conservation of Nature or the Convention on International Trade in Endangered Species of Wild Fauna and Flora (8). Such over-harvesting of wild turtles is believed to be a major threat to wild turtle populations.

Assessing suitability

As described above, the keeping of non-traditional pets raises a wide range of issues. These are summarised as a checklist in Box 1 (1). By working through the questions in Box 1, we see that some species, such as certain fish and rodents, may be bred successfully in captivity and can have their needs met relatively easily by owners, whereas others require very specialised care or create major risks.

Table II (1) proposes five categories ranging from relatively unproblematic pet species to species whose keeping poses unacceptable risks to the animals, to others, or to the environment. This approach to evaluating and categorising species could provide a constructive basis for advocacy and regulatory actions.

Conclusions

Given the widespread popularity of keeping non-traditional species, it seems impractical to try to end the practice and the large illegal international trade will be difficult to control. One possibly helpful approach is for local jurisdictions to create knowledge-based regulations on acceptable and unacceptable pet species. In addition, there is a need for further research and education. Increasing our understanding of the natural history and biology of the various pet species and developing validated indicators of negative psychological states will be important. Ultimately, this information needs to be disseminated to veterinarians, owners and others responsible for the care of animals.

Bien-être des animaux de compagnie d'espèces atypiques

C.A. Schuppli, D. Fraser & H.J. Bacon

Résumé

La possession d'animaux de compagnie atypiques ou « exotiques » est de plus en plus répandue dans le monde. Outre les défis classiques du bien-être animal chez les animaux de compagnie d'espèces plus traditionnelles comme les chiens et les chats, la protection du bien-être des espèces atypiques est plus difficile à assurer en raison de facteurs tels que le manque de connaissances et les difficultés d'adapter l'habitat aux exigences de ces animaux, en plus des problèmes liés à la manière dont ils ont été capturés et à leur origine. Les auteurs illustrent leurs propos de plusieurs exemples relatifs à différentes espèces, en soulignant trois problématique principales en matière de bien-être animal : il s'agit en effet de veiller à ce que les animaux de compagnie placés sous notre protection *i*) ne subissent pas d'entraves à leurs fonctions biologiques ; *ii*) ne soient pas dans un état psychologique négatif et soient libres d'éprouver normalement des sensations agréables ; *iii*) aient un mode de vie raisonnablement « naturel ». La possession d'animaux de compagnie atypiques soulève également des questions éthiques concernant l'éventuelle dangerosité de ces animaux pour des tiers (par exemple, transmission de maladies zoonotiques) et les dégâts qu'ils pourraient causer à l'environnement (par exemple, en envahissant l'habitat dans lequel ils pourraient être relâchés). Les auteurs ont établi une liste de vérification à partir de ces considérations, qui permet d'identifier et de hiérarchiser les difficultés liées à l'utilisation d'animaux d'espèces atypiques en tant qu'animaux de compagnie. L'incapacité à résoudre ces difficultés conduit à rechercher des moyens d'atténuation, mais aussi plus profondément à s'interroger sur le bien-fondé de l'utilisation de ces espèces en tant qu'animaux de compagnie. Ainsi, les auteurs proposent de classer les espèces d'animaux de compagnie en cinq catégories, allant des espèces posant relativement peu de problèmes à celles dont la possession entraîne des risques inacceptables pour les animaux, pour l'homme ou pour l'environnement. Cette méthode d'évaluation et de classification devrait fournir une base constructive en faveur des activités de promotion et de réglementation en la matière.

Mots-clés

Animal de compagnie – Bien-être animal – Commerce des animaux de compagnie – Espèce acceptable en tant qu'animal de compagnie – Espèce envahissante – Espèce exotique – Éthique – Mascotte – Possession d'animaux de compagnie – Zoonose.

Bienestar de mascotas no tradicionales

C.A. Schuppli, D. Fraser & H.J. Bacon

Resumen

En todo el mundo se está popularizando cada vez más la posesión de mascotas no tradicionales, o 'exóticas'. Además de los problemas típicos que plantea la posesión de especies más tradicionales, como perros o gatos, en el caso de especies no tradicionales hay otros factores (falta de conocimientos, dificultad de satisfacer en un domicilio los requisitos necesarios, lugar y manera de obtener

los animales, etc.) que dificultan aún más el objetivo de asegurar el bienestar de la mascota. Sirviéndose de ejemplos de distintas especies, los autores destacan tres grandes problemáticas, concretadas en lograr que nuestras mascotas: *i*) funcionen bien biológicamente; *ii*) no sufran estados psicológicos negativos y estén en condiciones de experimentar los placeres normales; y *iii*) lleven una vida razonablemente natural. La posesión de mascotas no tradicionales también plantea interrogantes éticos, como la posibilidad de que el animal entrañe algún peligro para otros (por ejemplo, la transmisión de enfermedades zoonóticas) o pueda resultar dañino para el medio ambiente (por ejemplo, invadiendo un hábitat del que no es nativo al hallarse en libertad). A partir de todas estas consideraciones, los autores establecen una lista de control con la que determinar y organizar los distintos problemas que pueden surgir respecto a la posesión de especies no tradicionales de mascota. La incapacidad de responder a esos problemas plantea interrogantes sobre la forma de mitigarlos, e incluso sobre la conveniencia de utilizar a ciertas especies como mascotas. A partir de ahí los autores proponen cinco categorías, que van desde las especies relativamente poco problemáticas hasta las especies cuya posesión trae consigo riesgos inaceptables para los animales, el ser humano o el medio ambiente. Este método de evaluación y clasificación de las especies podría sentar bases constructivas para instaurar medidas tanto reglamentarias como de sensibilización.

Palabras clave
Animal de compañía – Bienestar animal – Comercio de mascotas – Especie invasiva – Ética – Idoneidad de las mascotas – Mascota – Mascota exótica – Posesión de mascotas – Zoonosis.

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