Science-based Assessment of Animal Welfare:

Companion Animals

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Summary

Human history reveals that the way in which humans are treating animals is based on their views of themselves as well as of the living environment around them. It may vary from human superiority to equality between humans and animals. Recent trends affecting companion animal welfare are: modern philosophies on animal issues; specialised and varied roles that companion animals play in modern societies; new results from animal neuroscience; human-animal interaction studies; and the new profession of companion animal ethologists.

The conclusion was that applied ethology could provide science-based criteria to assess companion animal welfare. Due to the integral part that companion animals play in
human societies, assessment was divided into an animal component that deals with the animal’s basic needs and its ability to adapt; and a human component assessing the living environment of animals as provided by humans and responsible companion animal ownership. The greatest challenge for future research is to find methods on how to disseminate knowledge on companion animal ethology to companion animal owners.

**Keywords**

Companion animal welfare – Assessment – Applied Ethology

- Owner education


**Introduction**

There is no doubt that animal welfare is receiving growing recognition in the veterinary field, especially since the 1990s. The first Animal Welfare Session was held at the 26th World Veterinary Congress in 1992 (28); and the Royal College of Veterinary Surgeons and Universities Federation for Animal Welfare held an important Animal Welfare Symposium in 1998 (14). Between 1996 and 2004 the International Companion Animal
Conference (ICAWC) held five meetings at which among other things, veterinary involvement in welfare matters were discussed (11). However, it certainly does not mean that there exists any consistency regarding the definition or evaluation of this subject (2).

One of the reasons is that animal welfare is often dealt with from a value-judgement point of view. This implies that people form opinions inside certain paradigms or from specific departing points, which will lead to predictable outcomes. Such views are fine within particular circles, but every one of those views excludes all other opinions. A more universal approach dealing with animal welfare could be achieved by establishing a science-based assessment. Such an approach to companion animal welfare should attempt to accommodate most views in widely accepted guidelines. However, before discussing science-based assessment, it is appropriate to recap some general views on animals and their welfare. The reason is to attempt neither to leave anyone behind in the process nor to establish a divide between so-called scientists and non-scientists.

Views on animals

Since humans started to record history, animals have received contradictory standings in human societies. Animals enjoyed deity status, were used as pretexts for the Saviour who could free people from their sins. (In the Old Testament of the Bible animals were slaughtered as offerings for people's sins and this ritual was replaced in the New Testament with the Saviour who has sacrificed himself for all Christian
believers' sins.), were used in cultic sacrifices, were viewed as demons and were believed to be intermediate human forms during reincarnation.

Animals were killed mercilessly for food, products, sport including blood sports, and were exploited in various other ways for human entertainment. Sometimes animals have been tortured and 'murdered' by angry people who have displaced their anger onto animals, despite the fact that animals did them no harm or posed any threat. They were punished in public for 'wrong behaviour' and were 'imprisoned' (caged) as people deemed it necessary to do so. They also participated in human wars without choice (29).

Animals were killed to compete for safe living spaces or necessary resources for human dwellings. Animals were allowed to breed in an uncontrolled manner in unnatural environments, causing overpopulations and limiting survival resources. Solutions that followed often included eradicating 'animal pests' with traps and poison. Parents and offspring were separated at a very young age without consideration of the effects on any of the two parties. Animals were used extensively as suitable objects for experimentation and genetic manipulation.

Animals were also treated and viewed as humans with human characteristics (anthropomorphism) or humans took on some animal characteristics or have chosen animals in logos to represent teams, companies, institutions, tribes or countries. Animals are also depicted in all
human cultures by means of art, music and literature. In modern times, animals also help to sell our products as they are often used in commercial art (advertising).

These ambiguous approaches are related to the way humans see themselves and how humans perceive other creatures - not only animals, because all these views and treatments also apply to how people have viewed and treated other people. In a certain sense, the history of animal and human deities or demons is on equal footing. In certain instances this is a sad correlation, but in a crude way it does reflect the intimate nature of humans and animals.

Some people may either see themselves as completely superior to their environment and animals; or they may see themselves as equal parts or even lesser parts of our environment as a whole. The first view creates a certain hierarchical distance between humans and animals. Nature is serviceable to humans and human considerations are the only guidelines for using it. In the second instance, humans form such an integral part of nature that any decision regarding nature should profoundly consider environmental factors and animal existence.

Both opposing views of superiority and equality may contain elements of truth, despite the fact that extremism on both sides is seen as unacceptable to the mainstream of thought. The approach of human-animal/environment relationship will vary, depending on many factors
ranging between pure human interest and sensitive environmental ethical issues. On a continuum, these opposing views allow for many intermediate views between the extremes. Further, the fact that all these views may hold some part of reality makes a universal approach to animal welfare a major challenge. It is not simply a matter of cultural, geographical or temporal differences, but also that within cultural groups, at different places and during different times, attitudes vary between the extremes of the continuum. To complicate the matter further, views of an individual may even vary when considering different issues related to animal welfare. There is not necessarily a consistency in how humans view animals - or views may even change over time during an individual's own lifetime (1). During animal welfare debates the following popular philosophical views are often referred to.

Probably the mostly quoted idea to indicate a complete misunderstanding of animals as sentient beings is the one by René Descartes (1596 – 1650), when he declared that animals are *automata* – living machines or things. He did not think much more of the human body either, and therefore proposed a dualistic approach to human existence that separates body and spirit. However, this philosophy led to the belief that humans need not consider animals from a moral or ethical point of view, because such ‘mechanical’ animals are nothing more than instruments to be used and even abused according to the wishes of the human (spirit?) in charge (25).
Emmanuel Kant indicated that cruelty towards animals is not to be condoned, not because the standing of animals has improved, but because such behaviour would reflect negatively upon the human who inflicts the cruelty. Morality regarding animal welfare or rather absence of cruelty, relates to human behaviour and is not recognition of animals’ standing in the realm of life (7).

Albert Schweitzer believed that Life, in contrast to non-life, ought to be lived and it is intrinsically valuable, good and relevant, and his philosophy includes animal life. This approach may be linked to the so-called holism or an interconnectedness that is supported by traditional Eastern beliefs (5) as well as the modern Gaia theory of James Lovelock (13).

Another view of animals is contemporary utilitarianism. Peter Singer conferred some moral worth on animal existences by extending the basic moral ideas of equality and rights of humans to animals (30). Traditional utilitarianism weighed up cost-benefits of our interaction with animals and attempted to justify such interaction in a pragmatic way (7). Modern animal rights movements address issues such as speciesism, which is seen as similar to racism, slavery and sexism, as well as the moral standing of animals as sentient beings (24).

This birds-eye view on some aspects of the human-animal relationship indicates a progression from one side to the other on the continuum of animal welfare issues. In a survey among second-year veterinary
students, opinions on animal rights covered the continuum as follows: 18% were very positive; 67% had ‘balanced opinions’; and 15% were very negative (16). Among experienced veterinarians, the results were: 6% very positive; 92% had ‘balanced opinions’; and 2% were very negative (20).

The ‘simple’ building blocks of life, the four bases of the DNA molecule, are responsible for the commonality as well as the extremely complex variations and differences in biology. It is possible that many aspects that are recognised as distinctly human characteristics could be present, in at least some animals, sometimes in a more direct form and at other times at a rudimentary level. Hierarchies in the biological world have developed due to characteristics of the final outcome of organisms. This would be especially true in an evolutionary approach where commonality and differences are part and parcel of the recognition of Kingdoms, Orders, Classes, Families, Genuses and Species. One should be careful not to attend solely to similarities or differences, because both are consistently present. Another aspect to keep in mind is that similarities cannot be based only on exceptions or extreme examples, but rather on broad tendencies and detailed analysis of behavioural patterns and abilities of a species. Any modern philosophical approach should not only deal with many ambiguities among human views, but also how to meaningfully interpret existing similarities and differences in biology. Any one-sided view will certainly draw criticism from the other side (1).
New trends related to companion animal welfare

During the past thirty years five clearly distinctive trends developed that brought the welfare of companion animals more into focus. Companion animals are defined as those animals staying in the company of humans or providing company to humans (27). Every trend will be discussed, followed by an evaluation of possible constraints in its application of animal welfare assessment.

Philosophies
Modern philosophies on the standing of animals brought them closer to humans’ moral and ethical folds. Despite the inclusiveness of ‘animals’ in human morality, discrimination still exists regarding the level of development of an animal, and its consequent acceptance as part of human morality. However, ideas of how animals should be treated are more widespread than ever before. Animal activists are operating all over the world and they ensure that comprehensive media coverage make most people aware of animal welfare issues. Most of these awareness campaigns are driven by philosophical convictions (16). Companion animals are surely part of this awareness regarding animal issues (26).

This trend relates to peoples’ thinking and is usually driven by leading philosophers – learned people who theorise on animal welfare issues. One
could also describe their contribution as the science of ideas. However, due to its exclusiveness of any other view on animal issues, it is not suitable for practical applications.

Sociology

Companion animals play more specialised and varied roles in human societies than ever before. Companion animals living in modern human communities could be described as pests, artefacts from Nature, ‘pet traps’ which means there is an initial ‘love or cute stage’, which is later replaced by the responsibilities of keeping a pet, ‘parasites’, environmental hazards, necessary evils; but also as pest controllers, biological security systems, recreational partners, contributors to our sanity, and equals to humans that share the same intimate life space. One thing about companion animals is certain, and that is that their different roles in modern societies cannot be ignored. Sociological studies even suggest that conclusions could be drawn on human behaviour by determining the behaviour and welfare of animals within a particular community (10). When estimated that almost one out of two households in western societies keep companion animals (some households keep multiple animals), the overall social role of companion animals is significant, especially due to the fact that most companion animal owners refer to their companions as members of the family (17). Such an impact has legal ramifications in terms of laws regulating companion animals and the responsibilities of their owners.
Further, the economic impact of the keeping of companion animals becomes more readily available in formal published reports from a number of countries. Although such surveys started with pet food manufacturers who wanted to determine their market potential, the market is much broader than the food aspect (19). People are also economically involved with companion animals’ welfare of ownerless animals, boarding kennels, breeding and the import and export of breeding stock, shows, sport and other types of competitions, utility animals, grooming parlours and the large variety of shops that sell items related to the keeping and use of animals. The companion animal health industry involves veterinarians, nurses, assistants as well as pet medical schemes. Dogs are playing a determining role in the public and private security services and dog trainers are an integral part of this industry.

Social, legal and economical factors are quite often associated with an emotional approach to companion animal welfare matters, and such feelings may at times override rationality. The social sciences approach, dealing with the feelings of groups of people, often contributes to more tension regarding welfare aspects than to be an objective norm for evaluation.

Empirical studies
A large body of new empirical evidence about the physiology of animal minds is becoming available. Such scientific studies mostly indicate similarities between humans and their animal companions. Studies also
include overt behavioural observations that evaluate ability and capability
testing for learning, problem-solving, the use of toys and tools as well as
animals’ social structures and relationships. Many of the studies are done
on primates, other higher order species such as dolphins and companion
animals, but some also involve birds. Many of these studies are
associated with controlled experiments within artificial environments or
laboratories, and results are often presented by findings from most
sophisticated apparatus (3) (6) (9) (15) (23) (31).

Results from animal mind studies could be useful in companion animal
welfare debates, mostly as proof of the closeness between humans and
companion animals, but such approaches are out of reach for companion
animal owners. The information is based on the basic sciences of neuro-
anatomy (form) and neuro-physiology (function) as well as applied
subjects such as evolutionary comparisons regarding behavioural
patterns. Although this approach is science-based it can only help in
understanding welfare issues, but it is unsuitable to provide practical
assessment parameters.

Human-animal interaction

The development of a relatively new academic discipline, known as
Human-Animal Interaction Studies, contributed much to the understanding
of modern human-companion animal relationships. Scientists in this field
approach the phenomenon in a systematic way and have to a great extent
departed from the purely philosophical and emotional approach to animals
as human companions. This field has progressed so far with its science that the World Health Organisation lent some support to animal-assisted therapy (12). However, when therapy animals are used in clinical situations, some people became concerned about their welfare. The question arises: when people feel comforted by positive animal interaction, does animals feel the same – or are they only ‘instruments’ in such a situation with no benefit to themselves? Recently, scientific support was found for animal-assisted therapy by determining the role of some neurotransmitters during positive interaction between humans and dogs. In a novel approach, the role of the same neurotransmitters in both humans and dogs were established during the same interaction. Results indicated that both parties experience the same positive effects, which means that the animals benefited as much as the humans, in other words their welfare was not compromised (22).

Human-companion animal interaction studies should certainly deal with the welfare of the animals involved, but despite that from time to time such concerns are brought to the surface in these studies; animal welfare is clearly not their main theme. It falls short in providing the necessary guidelines for companion animal welfare, unless ethology that is often incorporated in these studies, is used for such guidelines.

Ethologists
Specialisation in ethology (study of animal behaviour) has established a new profession, known as companion animal ethologists or behaviourists.
Ethology deals with the needs of companion animals in their usual environments. Whether such needs are fulfilled, or whether there is a lack of fulfilling these needs, become apparent in the evaluation of the animals’ overt behaviour in relation to their specific environments. Animal behaviour science should thus form the basis for companion animal welfare assessment.

This trend, namely, the recognition of companion animal ethology practitioners, can provide not only a science-based assessment for companion animal welfare, but it is also practical and probably more inclusive than any other of the trends.

Science-based assessment criteria for companion animal welfare

This paper does not deal in the first instance with animals that are obviously neglected or abused and which will be cared for by animal welfare organisations. The emphasis is rather on companion animal welfare as in the context where animals are sharing companionship with humans. In other words, animals will be dealt with as an integral part of human society. For this reason, assessment criteria will be divided into an ‘animal component’ and a ‘human component’ of which each part will be again divided into two sections (18).
Assessment of animal component

The first section is based on companion animal ethology. It includes scientific knowledge of the basic needs of companion animals as indicated by their:

- Behavioural systems (ethogram)
- Social needs in an interspecific social structure
- Developmental needs that will consider different stages of development
- Learning needs in terms of what is expected of the animal in a human environment
- Specific or individual physiological needs that could be species, breed, gender or age related.

All such needs are well described in companion animal ethology and they are suitable for objective science-based welfare assessment. The criteria will be the expected or normal behaviour for a specific individual as related to its species, breed, gender and age. Any deviations could indicate that some needs, as indicated above, are not fulfilled. It is clear that when problems are encountered, that it is not always a case of intentional cruelty, but rather a lack of knowledge on the owner’s side. The “needs” approach to animal welfare replaces the “pain-and-fear” approach, because welfare could also be compromised by unfulfilled needs, which are not reflected by pain or fear. Behavioural scientists should also be able to distinguish between animals’:
o Normal or expected needs for a particular species, breed, gender and age of an animal

o Behaviour that is unacceptable to an owner, but which is normal for the animal

o Abnormal behaviour, which is characterised by behaviour that always occurs in the minority of an identified population; is harmful to the animal, other animals or humans; or that occurs at the extremes on the continuum of normal behavioural patterns

o Behaviour induced by humans, known as ‘wants’ opposed to basic ‘needs’.

The second section of the animal component deals with behaviour that could be quite confusing if non-scientists assess animal welfare. Apart from the possible confusion to discern between normal, unacceptable, abnormal and induced behaviour, non-scientists could apply the needs-approach-criteria in a mechanistic way. They do not consider other biological aspects of animals such their ability for habituation, socialisation, desensitisation and adaptation. When assessment is done only from a checklist of expected behaviours, without scientific insight in biology, assessors may draw wrong conclusions (2). Assessment of proper adaptation is often done by the “absent approach”, namely, the absence of:

o Problem behaviour

o Injuries
Disease

Superficial stress signs such as increased pulse, respiration and perspiration/salivation, poor appetite, lack of performance, lack of libido and an anxious or depressed appearance (4).

Although clinical/laboratory measurements for stress are available, an assessment by a companion animal ethologist could also come to a conclusion and state a prognosis, based on behavioural science criteria.

Assessments of human component

The first section deals with the environment that humans provide for their animal companions. Obviously, it will be a human environment, but a balance should be found between the provided environment and fulfilling the basic needs of companion animals. Correcting an artificial environment could have financial implication, however, sometimes needs are merely not met due to an owner who is not aware of what needs should be fulfilled or how it should be fulfilled (8). Enrichment of environments is a well-accepted behavioural principle whenever animals are kept, but many owners still think they can put their ‘Descartes-animal-toys’ away, till they need them again. The provision of basic life-spaces, including suitable exercise areas, is part of environmental needs. Other aspects to be considered are measures that should be taken for maintaining hygiene, transport ‘environments’ and where applicable, also specially provided facilities for housing, breeding or handling.
The second section of the human component deals with human responsibilities for guardianship or ownership. Here, humans and companion animals are not seen as “we and them”, because they form a complimentary dyad, which can be described as a social symbiotic system. Considering the large numbers of animals sharing humans’ company, it is of critical importance to also have assessment criteria for responsible companion animal ownership.

To find perspective on companion animal ownership it should be linked to the definition of domestication, which is the process where humans take responsibility for the selection and care of their animals. The term ‘process’ indicates that domestication is an ongoing activity. The more we learn about our animal companions and the better we understand their basic needs, the greater progress is being made in the continuously refined process of domestication.

As in the case of assessing companion animal behavioural issues, assessment criteria for responsible ownership should be practical, logical (science-based), and attainable by the average owner. The implication is that when a companion animal displays unacceptable behaviour in a human community, (e.g. in the case of a dog bite), the blame should not automatically be transferred to the animal. Responsibility by the owner should always be considered as part of the assessment. The following five criteria are proposed to assess responsible companion animal ownership (18):
• Choice or selection of animals

Owners have the choice to keep a companion animal or to live without one. In case of the choice to obtain an animal, owners have the contingency choice of which animal to keep. Some owners try to avoid this responsibility by claiming that they have obtained the animal as a present or by some ‘accidental’ means. The fact is that they willingly made the decision to integrate the animal as part of their company. It is always a matter of choice, and not force or compulsion, to keep a companion animal, irrespective of the means of how the animal came into the care of the owner. It is therefore, a fair criterion to hold all companion owners responsible for the type of animal in their care. In many instances the welfare of the animal is assessed without considering the owner’s role as part of the ongoing domestication process of selection and care.

With regard to choice, owners have the luxury to choose from a wide variety of species and breeds with specific needs. Background knowledge of species’ and breeds’ characteristics is important, because that will indicate the purpose for what the animal is bred or selected for. There is also the choice of gender for those animals that are dimorphic in their gender characteristics. Choice includes the age at which the animal is obtained. Age has important care and development aspects that should be considered.
If a person chooses to become involved in the breeding of companion animals an even greater responsibility rests on such an owner’s shoulders. Selection of breeding pairs – not only with regard to external features, but also health aspects and behavioural characteristics – will affect future generations of animals that new owners have to choose their companions from. Selection for genetic traits is a critical part of the domestication process, and in the case of companion animals, it will have a determining affect on the animals' welfare in human societies.

- **Socialisation**

  When the welfare of companion animals is assessed, socialisation of the animals that are kept, or the lack of socialisation, is important. Dogs, cats, birds, ponies and horses need proper socialisation, but also exotic animals could either be scared of humans approaching them or being well socialised with human company.

Some owners may say that the concept of proper socialisation only applies to the very knowledgeable. However, veterinarians, behaviourists, breeders and trainers are informing new owners about the need for socialisation of animals on a regular basis. If people want to keep animals as part of a human social system they have to ensure that an acceptable level of tolerance and acceptance between the species exists. *Socialisation* is a learning
process that should involve contact with *people; other animals; and* different human *environments* from an early age onwards. If the necessary information on how to socialise animals is provided, socialisation of companion animals should be attainable by all owners.

Fortunately, socialisation classes for some companion animals are now formally applied and available in many countries, but if all companion animals have to feel comfortable in human societies, there are still many owners who need education on this matter.

- **Training**
  Training often has a negative connotation among animal welfare people due to certain methods used by some trainers. Therefore, it should be clear what is exactly referred to in the ownership assessment context. Training a companion animal does not mean teaching an animal to execute funny or complicated tricks. It means that social animals need to learn where their place should be in a social structure. Social animals use such ‘education’ among themselves and when they live in our social systems, they ‘expect’ that we also should teach them their place in our families. Many welfare issues are related to animals that simply do not know what is expected of them. The animals often get into trouble or get punished due to lack of training that could indicate to them where they fit into an interspecific social system. Although training is often
only associated with dogs as companion animals, training applies to all animals kept in the company of humans. It is not necessary to be an expert to achieve such a level of training, but one needs some basic knowledge of animal behaviour.

*Training* should, apart from teaching the *animal’s place* in a human environment, also help to establish basic *routines* in the animal’s life. This will not result in a boring life, but it is rather to let the animals know what to expect, when, from the owner. Establishing routines such as feeding, contact and play times will provide a feeling of comfort and safety for the animals. It will also help to match the animal needs with the owner’s lifestyle.

- **Care and welfare**
  Most people would start assessing responsible companion ownership at this point. However, before any care should be considered, the first three aspects should have been attended to, namely, the choice of animal; a pre-planned socialisation programme; and what level of training and routines will be taught to the animal.

  There are two types of care. The one is basic care and the other specialised care. The first involves care provided directly by the owner; and the second by professionally trained people such as veterinarians and ethologists/behaviourists. Others who are
providing specialist care are those in occupations such as boarding kennel owners, welfare personnel, presenters of socialisation classes, professional trainers, dog walkers and pet groomers.

Care and welfare of animals was previously known as animal management or husbandry. However, it is more appropriate to use ethological compatible terminologies due to the close association between care, welfare and behavioural needs (21).

Care by owners should be based on the basic needs of the animal that is kept by their choice. The criteria are no different from the assessment of animal welfare in the animal component.

With regard to special care, owners should budget for an animal's special care if and when necessary. Apart from a lack of knowledge, finance might be the other major limiting factor in companion animal welfare issues. A shortage of funds should be a criterion for not keeping ‘high maintenance’ companion animals.

- Good neighbourliness

  Human societies tend to organise their social lives with customs and laws, and therefore, local authorities use rules, regulations or by-laws to keep order in society. Due to the fact that companion animals live in close contact with their owners as human companions, some of those rules, regulations or by-laws will also
pertain to the animals’ presence and behaviour in human communities. In most cases it is expected of companion animal owners:

- To keep the environment clean from animals’ excretions (hygienic aspects)
- To avoid disturbances to neighbours (especially incessant animal noises)
- To ensure that animals are not dangerous to people and other animals (dogs are still the No. 1 culprits)
- To be in control of a companion animal’s movements at all times (this applies during the presence and absence of the owners on their premises).

These aspects may vary from place to place, but in essence it boils down to good neighbourliness. To achieve such peace and goodwill between neighbours, it is important that every companion animal owner should be aware and informed of their local by-laws pertaining to animals.

Future research and its application

It is clear that practical or attainable, and possible universal, criteria for the assessment of companion animal welfare should be based on the science of Ethology. Although contributions from philosophical ideas, societal emotions, cutting-edge laboratory research on animal minds,
and human-animal interaction studies are not discarded or underestimated, they are all limited in their practical application of companion animal welfare assessment. Ethology can be congruent with all these approaches; use criteria that are scientifically sound; and apply those criteria for companion animal welfare assessment in practice. In a profound sense: applied companion animal ethology is companion animal welfare.

Future research should rely less on: creating more ideas (philosophies) on animal welfare; the significance or implications of emotional feelings by members or groups of people in society; a deeper understanding of neuro-physiology; or human-animal interaction studies on reasons for neglect and abuse of companion animals. Despite what future research in any of these areas may bring to improve animal welfare, currently, ethology already provides a corpus of knowledge that is sufficient to assess and enhance companion animal welfare. The biggest challenge is to disseminate such existing knowledge to the majority of companion animal owners and for the immediate future; research should rather be directed in answering questions such as the following:

How can basic ethological principles be introduced in schools or how else can the broad public be educated in companion animal welfare (animal needs)? How can members of organisations involved with companion animals be educated on this subject? Should breeders first pass a test before engaging in future generations of companion
animals? Should members worldwide, of the very large security industry, be formally educated in dog and horse behaviour? To what extent should animal welfare staff be educated in order to be able to assess companion animal welfare according to ethological guidelines? How could animal behaviourists or ethologists play a bigger role in the education process on all levels? Should Veterinary Schools not considering the teaching of Veterinary or Health Ethology as a greater priority (21)? Alternatively, should Ethology, that is mostly a non-clinical subject, rather be left in the hands of non-veterinary professional ethologists?

At this point and time, education regarding companion animal needs and how owners can fulfil these needs, will contribute more to companion animal welfare than any other available effort. The immediate challenge is how and by whom owner education could be achieved, in order to secure the welfare of companion animals among the largest possible number of owners. If we intend making a meaningful difference regarding companion animal welfare, owner education should be no less than our highest priority.

References


Assessments of animal welfare vary depending on the targeted species and goals of each assessment, but they often include the evaluation of several parameters in the areas of health, physiology, behavior, and environmental conditions. Although welfare assessment methods have been usually designed for captive animals, some attempts have been proposed to assess the welfare of animals living in the wild. Project results will provide key insights for drawing a path towards a welfare assessment framework for animals living in the wild. Results will also help us get a better picture of current animal welfare assessment methods. 2. Effects of oral rabies vaccination programs on wild animal welfare.