ANIMAL WELFARE

CARD n° 1

WHAT IS ANIMAL WELFARE ?

The Animal Welfare Cards

Welcome to the Animal Welfare cards, a series of short documents on the basics essentials in animal welfare science and its implications in providing high standards of care for captive wild animals.

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Animal Welfare Science

Animal welfare science is used to define how an animal is coping with the conditions in which it lives. It can refer to actual feelings and sensations that the animal experiences within itself, just like humans.

The welfare of an animal is dependent on two factors. Its physical (health) and mental (feelings) affective state. Good animal welfare will work to minimise an animal's negative feeling states while promoting their positive feeling states. A good life in captivity for an animal, might be one where they can consistently experience good welfare throughout their entire life.

Ready for a great time learning with us ?

EMOTIONS & MOODS

What is a "Feeling" State ?

When talking about animal welfare, we refer to the state of the animal. The state of an animal can be considered to be an animal's emotional state. An animal's state can be **negative**, **neutral** or **positive**.

A negative state is an experience or feeling that an animal tries to avoid. For example, fear, hunger, pain. This is a state an animal is motivated to minimise. In very simple terms we can consider animals who are experiencing negative states as feeling sad or depressed.

A neutral state is an experience that is neither negative or positive. A neutral state can occur more commonly than we think and while it doesn't necessarily have a negative impact on an animal's life, it isn't promoting positive welfare for that animal either. A neutral state is experienced when most basic needs are met, but positive experiences are not promoted.

A positive state can occur when an animal's physical needs including nutritional, behavioural, health and environmental are met. This is a state that an animal is motivated to experience. In very simple terms we can consider animals who are experiencing positive states as feeling happy.

It is the combination of different states that are experienced throughout life that can make the difference between an

If I am free from pain, have interesting and nutritional food and can choose to carry out normal behaviours for my species, I will be happy ! It is your job to make sure I experience these positive feelings.

If I am fearful, hungry or in pain I will not be happy ! It is your job to make sure my environment does not make me have negative experiences.

animal that is simply **coping** with the environment it is in, or is actually **thriving** in the environment.

Animal Emotions and Moods

Can we really describe animals as having emotions and moods ? The short answer is **YES** !

Animals can have feelings just like you and I. Cognition (the mental state) is linked to sentience capacity, an ability to feel and experience emotions, either positive or negative. Understanding the range of emotions that animals can experience, can help us advance our understanding in husbandry and animal management techniques in order to ensure good animal welfare. Accepting that a wide range of animals have both sentient and cognitive abilities as well as pain perception reinforces the need to ensure that appropriate husbandry provisions are made for all captive animals

Where do emotions come from ?

The brain is the body part that controls how we feel and what actions we consequently take. One of the key areas controlling how we react to emotions is the limbic system. This contains the hypothalamus which controls basic emotions such as hunger or thirst, but also moods such as anger. It also contains the amygdala which processes functions such as memory and attention and is active during stress, anxiety and depression. Finally, the hippocampus serves our long-term memory.

The limbic system can be considered the emotional processing unit and the mammalian brain has the same structure throughout the animal kingdom. This means that many animals have the same biological structures as us to process emotions!

Emotions have a biological purpose !

They are designed to move you along a certain course of actions and help plan our lives. Emotional states are driven by personal experience and evolution. Pleasurable emotions are often derived from activities that increase survival and the opposite is true for unsatisfying or non-pleasurable emotions.
All individuals, including other animals, have their own intentions and preferences to survive and also thrive, seeking out those behaviours that are rewarded with positive feelings and emotions.

So what is an Emotion ? An animal's emotional state can be considered as the immediate response to particular stimuli. For example, excitement when anticipating a food treat.
What is a Mood ? An animal's mood can be considered to be the more long-term state (hours, days or even weeks) that an animal feels. For example, contentment through being provided a species appropriate environment.

INTELLIGENCE

Animal Intelligence

Many species can be considered to have emotional intelligence. For example, primates and other animals too, ranging from monkeys and elephants to cows and birds, may express deep grief when a friend or relative dies. Fish are also highly evolved. They behave emotionally, showing fear, excitement, anger, pleasure and anxiety. Their brains produce the same compounds that accompany emotions in mammals. And birds and other species have been shown to have "theory of mind" meaning they can attribute certain mental states such as knowledge to other individuals.

Studies have shown that certain primates and birds behave differently in the presence of peers who might want to steal their food. We can use this knowledge that animals can have an emotional intelligence to ensure that their specific and complex needs are met through the care that we provide them.

Taking it Personally...

We feel hunger, pain, joy, contentment just like other animal species. Your own personal welfare can be negative or positive depending on your physical surroundings and your mental state.

Your own personal welfare will fluctuate throughout the day and on a daily basis. The same principles can be applied when considering an animal's welfare.

Anthropomorphism and Understanding Animal Welfare

Criticism towards the use of emotional language when talking about an animal's welfare is inevitable. The action of attributing human characteristics to an animal is called anthropomorphism.

However, knowing that there are similarities between all animal species, including humans, means we can use our own emotional understanding and intuition as a starting point for understanding animal cognition. Through this, we can make a more informed decision about what an animal is feeling and what care is needed to ensure it has positive welfare.

ANIMAL WELFARE MODELS

The Five Freedoms

The Five Freedoms animal welfare model outlines five aspects of animal welfare under human control, and it was specifically developed in regard to the livestock industry. These five freedoms focus on minimising negative states that an animal may occur.

1. **Freedom from hunger or thirst** by ready access to fresh water and a diet to maintain full health and vigour.
2. **Freedom from discomfort** by providing an appropriate environment including shelter and a comfortable resting area.
3. **Freedom from pain, injury or disease** by prevention or rapid diagnosis and treatment.
4. **Freedom to express (most) normal behaviour** by providing sufficient space, proper facilities and company of the animal's own kind.
5. **Freedom from fear and distress** by ensuring conditions and treatment which avoid mental suffering.

Ideas about animal welfare are evolving rapidly, and there is general agreement that there is an increased emphasis on promoting the positive affective states in animals, not just minimising negative states, to ensure an animal has good welfare.

The Five Domains - A more recent model

The **Five Domains model** of animal welfare compromise provides a comprehensive assessment of both an animal's physical and mental state. There are four physical domains, which are concerned with biological functioning, or physical well-being, and a fifth domain, the 'affective state' or psychological well-being. The fifth domain represents the animals overall subjective feelings and experiences and is significantly influenced by the four other domains, so it is therefore a key element of animal welfare.

Physical & Functional Domains

Nutrition

+
- Food available
- Water available
- Appropriate nutrition

-
- Deprivation of Food
- Deprivation of Water
- Malnutrition

Physical Health

+
- Good health
- No injury
- Good body condition

-
- Disease
- Injury
- Poor body condition
- Poisonning
- Bad fitness level

Environment

+
- Thermally OK
- Suitable substrate
- Fresh air
- Pleasant odours
- Noise levels OK
- Predictability

-
- Too hot / Too cold
- Unsuitable substrate
- Close confinement
- Loud noises
- Unpredictability
- Polluants

Behaviour

+
- Environmental challenges
- Engaging choices
- Free movement
- Exploration
- Playing
- Foraging / hunting

-
- Choices restricted
- Invariant environment
- No sexual activity
- No interactions
- No alone space

Affective Experience Domain

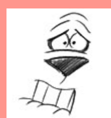
Good Experiences

- Safety
- Rewards
- Vitality
- Calmness
- Engagement
- Contentement
- Curiosity
- Playfulness
- Comfort
- Freedom of choice
- Chosen interactions
- Chosen Companionship
- Freedom to hide
- Sexual interactions
- Exercising
- etc…

Bad Experiences

- Unsafe
- Anger
- Frustration
- Depression
- Sexual inhibition
- Exhaustion
- Dizziness
- Panic
- Stress
- Thirst
- Hunger
- Distress
- Discomfort
- Denility
- Breathlessness
- Boredom
- Fear
- etc…

Welfare ? Status



The Difference between Animal Health and Animal Welfare

It can be easy to confuse animal health with animal welfare. An animal's health has often been considered a principle mechanism by which animal welfare can be measured and consequently safeguarded in captivity. But as we can see from the Five Domain Model of Animal Welfare, an animal's health is only one principle or domain of an animal's overall welfare state.

Good physical health is important to the welfare of an animal. However, an animal in good physical health, may still have poor mental health if other physical needs are not being met, and consequently it's overall welfare state will be compromised. Equally, an animal may be in an appropriate and mentally stimulating environment, but suffering an un-related health problem. When studying an animal's welfare, it is important to consider all aspects of that specific species needs and how these collectively impact on its welfare state.

ANIMAL WELFARE

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SHAPING ANIMAL'S BEHAVIOUR

The Internal and External Mechanisms that Shape Animal's Behaviour

Animal behaviour - how they act and react in their environment – is always meaningful and can often be a good indicator of an animal's welfare. Just like us, there are various mechanisms that determine an animal's behaviour.

The internal mechanisms are evolved, genetic needs that predetermine our anatomy and physiology. Our external behaviours are learned through our environment, or during development. An animal will seek out behaviours that are rewarding.

When understanding what those particular needs are, there are four behavioural descriptions we should consider :

- **Natural behaviours** that would be typically observed in the wild and allows an individual to survive more easily in a particular environment
- **Unnatural behaviours** that are not typically seen in the wild but not all unnatural behaviours are abnormal
- **Normal behaviours** that promote the success of an individual and is appropriate for a given situation
- **Abnormal behaviour** that are rarely seen in the wild, has no obvious function or goal and rarely promotes the success of an individual.

Behavioural Health (Wellbeing) in captivity

In captivity, we want to be promoting normal and natural behaviours and discouraging unnatural and abnormal behaviours. An animal should be allowed the choice of exhibiting a varied repertoire of behaviours over time, but while behaviours can become habituation or conditioned, no behaviour should be excessively exhibited.

An important point to consider when managing animals in captivity is that not all behaviours are equally as important as each other. To deliver peak welfare for animals, we must identify those behaviours that are most important to the individual's physical health and emotional well-being. A basic indicator for this, are those behaviours that use up the most energy and time for animals in the wild as these are most likely to be important to them.

For example, bears can spend 80% of the time when awake, using their extremely good olfactory senses to forage for food. This foraging behaviour can be replicated in captivity by scattering or hiding different foods at different times of the day around the enclosure. Bear will smell and discover this food. Hiding it in hard to reach places, such as logs, encourage the use of their powerful front paws, claws and long tongues. But remember to ensure it's not too hard to get at, to avoid frustration !

Behaviours we want to avoid are abnormal behaviours that result in physical and emotional damage to an animal. An example is a stereotypic behaviour. These can be defined as repetitive behaviours, often an extension of a natural behaviour and can sometimes result in self-inflicted injuries. For example, repetitive pacing, bar-biting, tongue flicking or nail-pulling. These are indications that an animal is not coping with its environment and is suffering.

ANIMAL WELFARE NEEDS IN CAPTIVITY

Duty of Care to Animals

Everyone who looks after animals has a duty of care to the animals it houses; meaning they have a responsibility to ensure the animals they care, for are well looked after and have a positive and healthy life. Their role is to uphold and maintain this duty of care to the highest standard so that the animals are well looked after and have a positive and healthy life.

A duty of care encompasses providing for animals in a way which meets their individual needs and allows them to consistently live in a state of good welfare throughout their entire life.

Animal Needs in Captivity

An animal's welfare, like us, is dependent on whether its specific needs (nutritional, behavioural, health, environmental and mental) are being met. But different species will have different needs. A species is often defined as a group of individuals that breed in nature and have evolved to have specific needs that are internally and externally driven, expressed through their behaviours.

Different species can have very different needs. It is very important that as animal carer, we understand an animal's biological needs in order to provide appropriate care for them. Once we understand what an animal needs from a

biological and behavioural perspective, we can start accommodating those needs in captivity. While different species will require specific different needs, all basic animal's needs will encompass the following Five Essentials:

1. **NUTRITIONAL NEEDS** - Provision of suitable food and water.
2. **ENVIRONMENTAL NEEDS** - Provision of suitable living environment that allows comfort, choice and creativity.
3. **BEHAVIOURAL NEEDS** - Provision of enrichment, stimulation and ability to express natural behaviours.
4. **HEALTH NEEDS** - Provision of suitable husbandry and veterinary care.
5. **MENTAL NEEDS** - Provision of all of the above whilst ensuring freedom from any negative experiences.

It is vital to know and understand the natural biology of each animal species, their physiological requirements and natural behaviours during all stages of their life. We can then ensure that animal housing and husbandry practices are based on a thorough knowledge of the animal's biology and behaviour in the wild.

Questions To Ask Yourself !

- How does this species normally behave in the wild ?
- How do we know what behaviours are important to this species?
- How do we know if this animal is in good health?
- How can I provide for those behaviours and good health in a captive environment ?

As an animal carer you must understand the animal you care for to properly care for it. You must aim to promote natural behaviours and positive health, while discourage abnormal behaviours and poor health.

This means providing them with appropriate food and water that meets their biological needs; presenting the food in a manner that satisfies normal feeding behaviours; providing appropriate, stimulating environment with suitable shelter and accommodation, and providing a high standard of husbandry and veterinary care, including rapid diagnosis and treatment of injury or ill health.

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EACH ANIMAL IS DIFFERENT

Every Animal as an Individual

Just like us, needs will vary between individuals as well as species. What one animal may enjoy or dislike, might be the opposite for another! Within a species there may be a particularly dominant individual or timid animal, and appropriate housing and husbandry practices must reflect this animal's nature and needs. As the animal carer, you should get to know each animal you care and provide for them according to what you observe from their behaviours and other needs.

Confident ?

Timid ?

Animal Habitats in Zoos & Aquariums

An animal's habitat in captivity should be designed to meet the biological and behavioural requirements of an animal at all times and throughout its entire lifetime. The habitat must be able to accommodate the Five Essential Needs; Nutrition, Environment, Behaviour, Health and Mental. This means ensuring that the whole space (including the indoor areas if there are any) allows for the animal to carry out natural and normal behaviours twenty-four hours a day, seven days a week.

Positive welfare states can be met in captivity by :

1. Meeting species specific physical and behavioural needs
2. Promotion of natural behaviours
3. Meeting Individual animal needs
4. Promotion of positive health
5. Promotion of positive stimuli and challenges that encourage positive natural behaviours

Negative welfare states can be reduced by:

1. Discouraging unnatural or abnormal behaviours
2. Lessening poor health
3. Reducing negative stimuli and challenges that result in fear, stress etc.
4. Minimising ethical choices that result in compromised animal welfare in captivity

Examples

A binturong is arboreal and will eat, bask and even sleep up in the trees. They have a prehensile tail that acts as an extra limb to help with climbing. They need an environment that offers multiple climbing opportunities, thermal gradients and is challenging enough to encourage continued exploration.

Elephants are intelligent and very social, forming friendships and life-long bonds with each other. They need an environment that appropriately challenges their intellect and allows them to express these complex social interactions.

ANIMAL WELFARE

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ANIMAL CARE IN CAPTIVITY

Every aspect of how we manage animals can influence their welfare. From their diet and their habitats to controlling parasites or safely moving an animal, our actions will have a direct impact on how an animal is feeling and coping with captivity. Below are some introductory considerations to some aspects of animal care and management!

Nutrition

Nutrition and Feeding

A good nutritional diet is essential for all animals. Remember some animals have evolved to have very specific nutritional needs to survive.

Did you know? Cats are obligate carnivores, meaning they have to eat meat to get essential vitamins and fatty acids as they cannot make these in their own bodies like herbivores or omnivores do!

You must always ensure you provide clean, fresh water and a nutritionally appropriate diet for your animals. A animal carer's role is also to present the food in a way that satisfies the animal's natural feeding behavioural requirements and motivations. Animals have physically evolved to feed in certain ways, and foraging/hunting or simply acquiring food can be a significant part of an animal's activity and food related enrichment strategies should form an important part of your daily care routine.

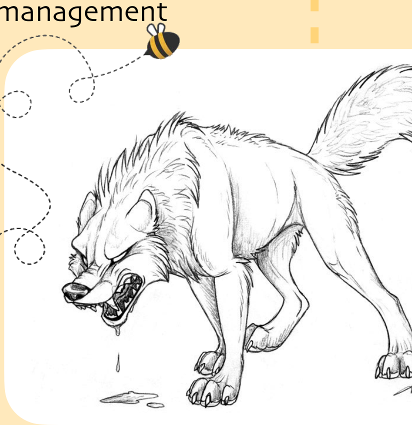
Did you know? Sun bears have powerful jaws and long, sickle shaped claws to aid with their natural foraging technique of digging through rotting logs for termites or other insects.

Food Hygiene

The preparation and storage of food for animals must be carried out in a dedicated area that is hygienic; where the food is protected from damp and contamination and perishable foods are kept refrigerated. It's important hat feeding and drinking receptacles in the enclosures are cleaned daily and uneaten food removed regularly.

Environment

Environmental enclosure design & management



The habitat or enclosure must meet both the physical and behavioural requirements of the animals at all times and throughout its entire lifetime. It should allow the animal to perform natural and normal behaviours and always have at least one place for refuge or to hide from the viewing public. The design should be of a sufficient space, shape and layout that allows for social species to be kept in compatible, non-aggressive groups, but it's important to avoid overcrowding which can cause stress and increase aggressive behaviours.

Important! Animal are often kept inside during the night for safety reasons. These indoor enclosures must offer the same physical and behavioural opportunities as the public facing spaces. Remember, lots of animals are more active at night than during the day!

Parasite and Predator Proof

An enclosure should protect animals from injury and an animal carer must be able to clean the enclosure everyday, ensuring it is predator proof, well maintained and prevent the spread of parasites.

Environmental Controls

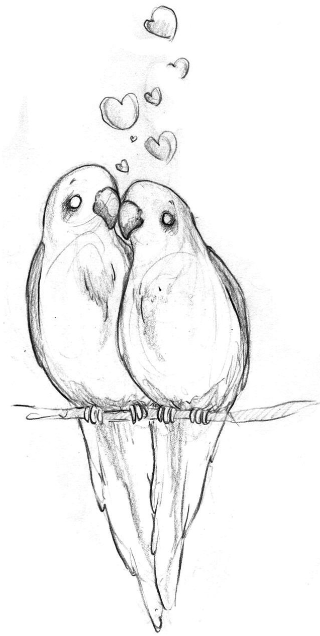
Many species of animals have evolved to live in very specific temperate environments. A good enclosure design should include appropriate control over temperature, lighting, ventilation and also noise control that meets the species physiological needs.

Movement of Animals

Sometimes animals need to be removed from their habitat or enclosure. Whether this is into another zoo, quarantine or simply for a veterinary procedure. The handling and transportation of wild animals can be an extremely stressful experience and it is very important the welfare of the animal is considered at all times, including during capture, handling and during transport, and carried out by experienced personnel only. It's down to the animal carer to ensure that they know how to carefully handle an animal so that it minimises the stress involved

Behaviour

Behavioural and environmental enrichment is an animal husbandry principle that seeks to enhance the quality of captive animal care. It identifies and provides the environmental stimuli necessary for optimal psychological and physiological well-being. That stimuli is determined by the species biological and behavioural needs. Animal Enrichment should always be part of the daily care routine, encouraging normal and positive behaviour patterns and minimising any abnormal behaviour. Enrichment can be provided through a number of means, including feeding, social, movement and sound stimuli.



For lovebirds, life is better when you are two !

Being Social !

Appropriate social needs of animals must always be considered. Social interactions are very important to many species, and a carer must always ensure that animals can interact appropriately for their species. This may mean they need to be in groups, paired or solitary, or even all of these at different times of its life.

As an animal carer, you may also be required to train animals to help with the safe care and handling of them. Training can help form positive relationships between the animal carer and the animal, it can help alleviate stressful situations such as veterinary procedures, and it can also provide positive welfare experiences. However, training must not cause the animal any pain, injury or distress and all methods of training should use positive reinforcement techniques. The deliberate infliction of injury, pain or fear is unacceptable and should not be practised.

Health

General Animal Health

A fundamental requirement for good welfare is the maintenance of good health, and an animal carer must be able to recognise ill-health in an animal. It is the carer's responsibility to keep their animal's in good physical condition, demonstrate normal, expected and positive behaviours, growth, reproduction and life expectancy. An animal demonstrating disease, trauma, pain, abnormal behaviours and stress should be attended too immediately by experienced veterinarian or personnel.

A good working relationship with your facility's veterinarian is important so concerns can be addressed effectively.

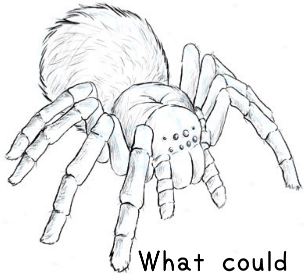
Record Keeping

Animal cares should help maintain records for all individually recognisable animals and groups of animals that provide information that relates to their management, veterinary care, health and welfare.

Where possible, all animals should be individually identified by a marking that causes the animal no long-term harm and does not affect their natural behaviour.

Managing Positive Experiences for Animals

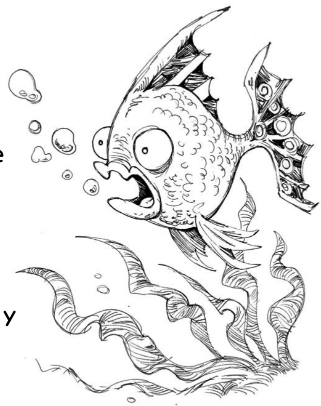
Negative experiences and environments that cause individual animals fear and distress or prevent positive experiences such as contentment, play and rest, must be avoided. These include unnecessary handling or direct physical



contact, inappropriate environmental design, fear through aggression or lack of refuge and isolation for social animals. Management and husbandry practices must consider the specific species requirements to promote positive experiences throughout the lifetime of all animals within their care.

Fish have feelings too !

The environment in an aquarium also requires careful management to safeguard the welfare of the animals within the aquarium. Water requirements will vary in accordance with the different species being accommodated and the Five Essential Needs still apply to aquatic and marine animals.



Additional to this, aquatic care must also consider :

- Temperature and water flow gradients that meet the species requirements.
- The depth, light spectrum, and water quality (ie pH, salinity and oxygenation, concentrations of carbon dioxide and ammonia, nitrite and nitrate levels) is regularly checked and appropriate for the species
- Contaminants in the water must be filtered regularly and checked for any harmful contaminants every day, especially if the water environments are provided outside and harmful products may have fallen in.

- Noise levels - Marine mammals and fish are sensitive to noise and a carer must ensure that visitors do not spook or provoke the animals.

As an animal carer, consider creating a checklist using the following questions to understand if the habitat or enclosure is suitable for the animal. You might want to consider questions like these below :

1. Does the habitat allow for appropriate behaviours (including social, feeding and movement) of all of the animals at all times ?
2. Does the habitat allow for appropriate species movement, both vertical and horizontal ?
3. Is there suitable refuge from the viewing public ?
4. Does the habitat allow for appropriate human intervention that minimises stress to the animals, including capture, handling, cleaning and maintenance, and general husbandry and veterinary practices ?
5. Is the habitat of sufficient space, shape and layout that allows for social species to be kept in compatible, non-aggressive groups ?
6. Does the habitat and animal care practices meet all the individual animal's physical and behavioural needs in a group ?

Remember!
Autonomy is important for ALL animals. Providing different environmental choices allows an animal to have some control over their behaviours and can result in more positive experiences.

Offering different choices of substrate to rest on, such as straw, sand or shavings, gives animals an opportunity to choose, depending on their individual preferences at any given time, encouraging positive experiences.

ANIMAL WELFARE

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MEASURE ANIMAL WELFARE IN CAPTIVITY

Measuring Animal Welfare in Captivity

It's incredibly important to be able to measure an animal's welfare within your care. The best welfare assessments are a combination of techniques, that can be processed together and produce detailed individual animal records.

Measuring welfare allows for negative, neutral and positive welfare states to be detected and changes in them to be monitored and managed. The other benefit of regular welfare assessments is that a zoo can assure and demonstrate that it is making animal welfare a priority, and part of its operational planning.

Animal Carers and Animal Welfare

Animal carers can use simple non-invasive methods such as regular visual observations of an animal's physical health and behaviour to determine its welfare.

Below are some examples of what an animal carer can assess and record on a regular basis that will help support good animal care and welfare.

Nutrition

- Weight changes and body condition scoring – a measure using a visual assessment of an animal's muscle and fatty tissue definition – how healthy does the animal's skin/coat/weight look ?

WILD WELFARE

An aggressivity level rising can show a lack of food or a wound/sickness.

- Appropriateness of water or food intake – are the animal's eating too much/too little ?
- Is there a presence of unnecessary aggression at feeding time? – this can indicate hunger or some other unseen condition.

The Environment

- Are there any injuries as a result of the environment ? These can be due to physical restrictions or poor environmental conditions such as foot abrasions from a lack of appropriate substrate.
- Are there any temperature or pollutant concerns? These can cause abnormal or unnatural behaviours if left unchecked.
- Is the enclosure infrastructure appropriate for the species and regular checked? Limiting or inappropriate infrastructural environment can cause abnormal or unnatural behaviours such as boredom or stereotypes.

Behaviour

Even if it looks like it is dead or lethargic, this lion is simply displaying a normal lion behaviour : sleeping about 20 hours per day.

Behaviours change depending on the species. What will be normal for a lion will be abnormal for an owl.

This owl is not feeling well, a vet is required ASAP

- Are there any negative behaviours being expressed that are not normal for that individual animal, for example, apathy or lethargy ?
- Are there any negative behaviours that are stereotypes – abnormal behaviours and self-harming behaviours ?
- Are there any negative behaviours being expressed that are unnatural or extreme ?
- Are there positive behaviours such as alertness, play and interactions, foraging and investigating or exploring being expressed ?
- Assess when negative or positive behaviours happen and why they might be being expressed at that time – are they being effected by particular management practices ?

Health

- Check for any injuries such as cuts, bruises, abrasions – remember injured animals will often attempt to hide that they are injured, so always take your time!
- Check for changes in behaviour, such as lethargy that may indicate physical illness

Externally observable indices can be simply applied and are a good indicator of an animal's welfare state at that given time. If observed frequently, they can provide guidance on possible concerns and be used to identify the most appropriate action required from a husbandry and veterinary perspective.

Ethograms

An ethogram is also a useful tool to record behavioural observations in animals. An ethogram is a list of species-specific behaviours describing the elements and function of each behaviour. It will allow the animal carer to record how often certain behaviours are being observed and to what intensity, helping to identify possible abnormal behaviours.

An ethogram can be created that suites a specific institution, but it is important to also include details such as observer details, time of day and function.