Basic Principles of Triage and First Aid in Wildlife Casualties

Introduction

British wildlife species will commonly be presented to veterinary surgeons for emergency care. Under the Royal College of Veterinary Surgeons Codes of Conduct and Supporting Guidance (RCVS, 2024) vets must provide *24-hour emergency cover, including the provision of emergency first aid and pain relief* (including euthanasia) to all animals regardless of species.

The basic principles of care for most wildlife casualties are no different to those for domestic animals and most vets have all the skills to deal with these animals. Providing even emergency care for unfamiliar species with can however, be a little daunting and this advice sheet aims to provide some additional information and support that vets and nurses might find useful.

Veterinary surgeons must be prepared to provide emergency first aid and pain relief, to all animals regardless of species.

The wildlife rehabilitation process

The aim of wildlife treatment and rehabilitation is to release an animal back to the wild in a condition that allows it a chance of survival equal to that of other healthy individuals of that species. The process of has several phases; initial examination, 'triage' and first aid, diagnosis and ongoing treatment, rehabilitation, release.

Animals usually present for one of three reasons; acute trauma, chronic disease, abandonment as neonates/juveniles (usually otherwise healthy). The nature of wildlife casualty work means that only around one third of all adult casualties will be suitable for eventual release. Where casualties have injuries or chronic disease making their return to the wild unlikely, then euthanasia, at the first available opportunity, is the preferred course of action in order to avoid unnecessary suffering.

Following initial examination, triage and first aid, if wild animals are suitable to be eventually returned to the wild then wildlife rehabilitation centres will usually be happy to have the animal referred to them for further diagnosis, treatment, rehabilitation and eventual release as appropriate.

Initial presentation

It is important to remember that the responsibility of the veterinary practice starts from the first point of contact with the finder of the animal. The **health and safety** of the finder (and employed staff) should be considered when giving assistance, especially if the casualty is to be brought to the practice by the finder.

It is useful to have the animal **signed over** to the practice, as this avoids any issues regarding 'ownership' and can help avoid problems if the animal dies or is euthanased. The RCVS has however made it clear that **consent** for wildlife is not required (RCVS, 2020)

It is essential to record details of **exactly where the animal was found**, as most adult casualties must be returned exactly to the place where they were found. The **full contact details of the finder** are also useful in this respect. Without this information release is often impossible.

Legal considerations (England and Wales)

Under the **Wildlife and Countryside Act** (WCA, 1981) and the species-specific Acts such as the Protection of Badgers Act (1992), removing an injured animal from the wild with the intention of tending to it and eventually releasing it back to the wild is generally exempt from 'taking and keeping' and therefore legal. Once in captivity, even for short periods of time, all animals fall under the **Animal Welfare Act** (2006) and their 'needs' under that Act must be satisfied.

Birds listed under **schedule 4 of the WCA** require registration and a licence to keep them in captivity even if the intention is to rehabilitate and release them. A 'General licence' allows keeping for rehabilitation without registration for up to 15 days (or 6 weeks if the keeper is a veterinary surgeon). A licence is also required to keep **schedule 9 species** (e.g. grey squirrels, coypu, mink and muskrat) in captivity. Some schedule 9 species (e.g. Canadian geese) may currently be released under licence in certain parts of the country.

A licence is required to keep grey squirrels in captivity. They cannot legally be released back to the wild.

Examination

A full veterinary clinical examination is essential to be able to 'triage' a wildlife casualty (see below) and prescribe any medication (BVZS, 2014). Careful examination is usually a much more useful tool than any auxiliary diagnostic tests.

A full standard clinical examination should be carried out, as would be the case for any other patient. Particular note should be taken of: body condition, behaviour, hearing, vision, jaw/beak, limbs/wings, feathering in birds.

Handling for examination

Most birds can be handled easily conscious, using a towel as appropriate, to allow full clinical examination.

Anaesthesia is often needed to fully examine mammalian casualties. Anaesthesia should be used appropriately once the animal is clinically stable. Small mammals (hedgehogs and smaller) can be 'gassed down', with sevofluorane or isofluorane, using an induction chamber or mask as appropriate.

Larger mammals (badgers, foxes, otters) are usually best anaethetised with intramuscular combinations of drugs such as medetomidine and ketamine. Doses of anaethetic drugs can be found in exotic animal formularies (e.g. Carpenter and Harms, 2022; Hedley, 2023) or extrapolated from those used in domestic species.

When handling wild animals remember that there are some potential zoonotic risks, as illustrated below. Always handle carefully and safely and wear gloves.

Bats should always be handled using appropriate gloves and only by vaccinated staff, because of potential rabies virus risks.

Hedgehogs are often infected with ringworm, a common zoonosis – gloves should be worn.

'Triage'

The term 'triage' is used in wildlife medicine to differentiate between those casualties that will have a good chance of eventual release and those requiring immediate euthanasia. The outcomes following 'triage' of a casualty are euthanasia, first aid or treatment; rarely are casualties immediately released. Triage decisions should, for welfare reasons, be made within 24hrs of an animal being admitted.

From a veterinary perspective the main factor influencing the triage decision will be clinical examination (see above) and it is therefore essential that is is carried out thoroughly.

Although the greatest influence on a triage decision is the medical condition of the animal, other things need to be considered too. These include; the availability of specialist skills if needed (e.g. for an orthopaedic case), the availability of funding, suitable rehabilitation facilities, suitable release facilities, legal considerations (see earlier), time of year. Wildlife rehabilitators and veterinary specialists will be happy to discuss these things further with you, on a case-by-case basis, once initial medical triage and first aid has been provided.

The eye of birds of prey should be carefully examined. Any loss or compromise of vision in these species would be a reason for euthanasia.

Reasons for immediate euthanasia

Each casualty animal is very individual and it is difficult to give a precise list of reasons for immediate euthanasia. However, the following are common reasons for euthanasia:

- Unconscious or comatose animal
- Behavioural abnormalities
- Damage to jaw or beak likely to interfere with feeding and grooming
- Loss of hearing
- Permanent or long-term loss of vision*
- Loss of an eye or vision in an eye in predator or prey species
- Loss, or permanent loss of function, of a limb or wing
- Fracture of a limb or wing involving a joint
- Permanent feather damage or loss of waterproofing in birds
- Fracture of the pelvis with narrowing of pelvic canal
- Loss of reproductive function

*Note: traumatised deer often have temporary and reversible blindness.

Euthanasia can be carried out using pentobarbital intravenously in species in which a vein can be readily accessed (larger mammals, large birds). Where intravenous injection is not possible the animal should first be anaethetised (see 'Handling for examination') and pentobarbital then injected into a major organ or body cavity.

First aid

The principles of first aid are no different for wildlife casualties than for other species and should include appropriate; fluid therapy, analgesia, bandaging and wound care, provision of an appropriate ambient temperature, nursing care.

Crystalloid **fluids** such as Hartmann's solution can be used in all species. Shock rates, of typically 10-20ml/kg as a bolus repeated as necessary, should be followed by at least maintenance fluids (for example 50ml/kg/hr for animals >3kg, 100ml/kg/hr for those <3kg). In the large mammals (deer, fox, badger, otter) the jugular, cephalic and saphenous veins are readily accessible (see below). In smaller mammals (hedgehogs, rabbits, small mammals) it may be easier to use subcutaneous or intraosseous routes. Birds can be easily gavaged (crop tubed; see below) with a volume of around 50ml/kg. In larger birds the medial metatarsal vein is usually easily accessible for fluid therapy.

Analgesia should be provided to all animals with painful conditions. Opioid analgesics can be used in all wildlife species, with doses extrapolated from domestic animals or following a suitable reference source such as Carpenter and Harms, 2022 (2013) or the BSAVA Exotic Pets formulary (Hedley, 2023). Once hydrated adequately, a non-steroidal anti-inflammatory drug such as meloxicam is appropriate in most cases.

Appropriate **ambient temperatures** are 15-24°C for mammals and 15-35 °C for birds, with the smaller species requiring the higher end of this range.

The principles of **bandaging and wound care** are the same for wildlife as for domestic species. As well as being useful to stop haemorrhage, bandaging is essential first aid in wing trauma in birds (see below).

For more information on first aid in wildlife casualties see the *BSAVA Manual of Wildlife Casualties* (Mullineaux and Keeble, 2016).

Fluid therapy is an essential part of first aid in all wildlife casualties. Birds can be easily crop tubed (gavaged) using oral rehydration fluids (Left).

Superficial veins are easily accessible in the larger mammals, allowing intravenous fluid therapy (below left).

Bandaging of damaged wings in birds is important to prevent further trauma, as well as providing adequate support for some fractures to heal (below).

Neonatal animals

Many neonatal and juvenile animals are uninjured on presentation. It is still essential however, to fully clinically examine these animals. Identification of both species and age is key to providing the correct level of care and correct type of nutrition.

Mammals that are clearly still dependent should be placed in an incubator at 28-30˚C. An oral rehydration solution is the preferred first oral feed, followed by a puppy milk replacer in the short-term. It will be necessary to stimulate urination and defecation in young mammals.

Unfeathered birds and those that are hypothermic should also be placed in an incubator at 28-30˚C. Feeding is species specific, but in the very short-term (overnight) Hill's a/d® and/or mashed cat food can be used in most species.

Neonatal mammals must be kept warm, fed an appropriate milk replacer, and stimulated to urinate and defecate.

Feathered juvenile birds can be kept at room temperature in a 'nest' made from towels. In the short-term mashed cat food, or veterinary diets such as Hill's a/d®, can be used to feed most species.

Further diagnosis and treatment

Diagnostic aids

When considering further diagnosis, consider the cost-benefits. Often a good clinical examination is all that is required to make a triage decision. Remember in-house blood machines will not usually be suitable for wildlife haematology, and biochemistry findings will only be of value if reference ranges are available.

Treatment

The range of potential diagnoses and treatment is huge and cannot be covered here. For more information on treatment of wildlife casualties see the *BSAVA Manual of Wildlife Casualties* (Mullineaux and Keeble, 2016).

When treating wildlife casualties remember basic 'good medicine'. Generally, avoid the use of corticosteroids and only use antimicrobials where there is clear, diagnosed, clinical need. The inappropriate use of these medications in wildlife can be especially counterproductive to both individuals and populations.

Short-term care in the practice

Accommodation

Careful attention should be given to the housing of wild animals in a veterinary practice. Individual animals should always be isolated. Predator and prey species should be segregated. Passing human (and animal) traffic and noise should be kept to a minimum. There should be easy access to the accommodation, remember that the quiet unwell animal will hopefully recover, and access must still be safe and appropriate.

Suitable kennels are ones that are insulated, secure, not easily damaged and easy to clean. Wild animals, especially the larger ones, will damage unsuitable kennels so beware. Suitable bedding can provide somewhere to hide, warmth, support and absorbency. It should be cheap, easily disposed of, or easily cleaned, and should not cause any digestive or mechanical problems. Cover the fronts of kennels with blankets to provide extra privacy. Remember birds may need to be on water, perches or suitable aviary floors.

Feeding

Small wildlife casualties usually have very high metabolic rates. Once dehydration and hypovolaemia have been corrected 'energy' must be provided, most easily as 'food'.

Short-term feeding for wildlife casualties can make use of domestic animal products such as commercial 'liquid' diets; (e.g. Vetark Critical Care Formula, EmerAid® products, Hill's a/d®). Cat and dog food can be used for carnivorous, insectivorous and omnivorous birds and mammals. Reliably sourced dead day-old chicks are suitable for birds of prey, badgers and foxes. Small fish (sprats) are suitable for seabirds and waders.It is useful to stock a variety of seeds for granivorous birds and bird pellets for gamebirds and waterfowl.

Appropriate bedding must be provided. Recumbent birds, especially larger species like swans (above), require adequate padding (e.g. old quilts) to prevent the development of keel sores.

Veterinary diets can be used for short-term feeding, or suitable foods (e.g. trout for otters; below) sourced from the local supermarket.

Subsequent care and rehabilitation

Veterinary practices are not suitable places for any wildlife species to be kept for protracted periods of time. Once the animal has received appropriate veterinary attention it should be moved as soon as is practical to a wildlife rescue centre with suitable facilities. It is useful to have a list of locally available centres, and the species that they are able to accommodate and care for, ahead of time and ideally visit these facilities. A good relationship between wildlife rehabilitation centres and veterinary practices is essential to ensure animal welfare.

Funding for treatment

The memorandum of understanding between the British Veterinary Association (BVA) and Royal Society for the Prevention of Cruelty to Animals (RSPCA) suggests that initial emergency treatment should be provided free of charge during practice hours. Out of practice hours, or if a larger wild animal is involved (e.g. a deer), the RSPCA may contribute to the cost of the initial emergency treatment or euthanasia if a vet rings the RSPCA before the treatment is undertaken. The vet needs to obtain an incident number and treatment will be agreed on a case-by-case basis. RSPCA also provide information for the public regarding handling wildlife (RSPCA, 2024).

References and further reading

British Veterinary Zoological Society (2014) Guidelines for the prescription, supply and control of prescription only veterinary medicines (POMs) in zoological collections and wildlife rescue centres. https://bvzs.co.uk/position-statements/wildlife-centre-guidelines-october-2016/ (accessed September 2024)

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