

How should wild animal welfare be considered in conservation?

Aim

Animal welfare is of growing concern globally, and is increasingly considered in conservation policy. However, difficult choices often emerge when trying to balance welfare and conservation.

Decision-makers urgently need empirical data to help inform their choices, but currently these are largely lacking. Our aim here is to showcase an expert-based approach which enables ranking of the welfare costs of different types of wild animal deaths. This framework could be used widely to enable people to consider welfare within conservation, and to better inform these difficult trade-offs.



'Animal welfare' refers to the physical and mental state of an animal.

Methods

We adapted a welfare assessment model (Sharp and Saunders, 2011) to assess the relative humaneness of various forms of wild animal death. The model considers suffering 'before death', e.g. being pursued by a hunter before it is shot, and 'during death', e.g. between when it is hit by a bullet and when it reaches irreversible unconsciousness (i.e. death). Welfare scores are based on types and levels of impact, intensity of suffering, and duration. The 'before' and 'during' scores are combined to generate an overall score of the welfare impacts of that particular death scenario.

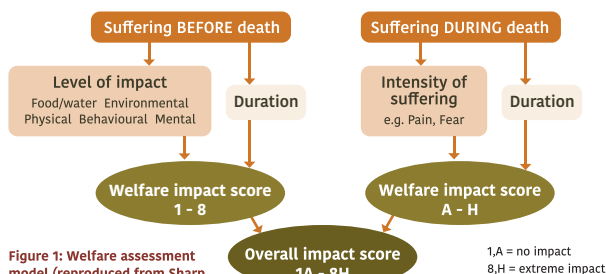


Figure 1: Welfare assessment model (reproduced from Sharp and Saunders 2011)

Scenarios

We asked welfare experts to assess five types of anthropogenic killing: shooting with a gun, shooting with a bow, spearing, snaring and poisoning, examining optimal and poor scenarios in each case. We compared the welfare score of those different deaths across one species (lion), and examined whether the shooting deaths were rated differently between four species (lion, buffalo, caracal and impala).

Results

Most of the scenarios examined had little welfare impact in the 'before death' phase, with the exception of spearing. During death, suffering intensity for lion scenarios ranged between moderate and extreme, with duration lasting from < 2 mins (for an 'optimal' shooting scenario) and several days (for snaring and poisoning).

'Optimal' shooting scenarios (with a gun or a bow) were deemed to cause the least overall suffering, while spearing, being caught in a foot snare (and then dying of dehydration, starvation, and infection) or poisoned caused the most suffering. Only minor differences were identified among species in shooting scenarios.

However, scores for different types of killing depended on the details of the scenario. For example, a 'poor' bow-shooting scenario (where the animal is accidentally shot in the stomach and followed up on 24 hours later) results in more suffering than an animal that is caught in a neck snare and dies within minutes of strangulation.

Scenario	Before death			During death			Overall
	Level of impact	Duration	Welfare impact score	Intensity of suffering	Duration	Welfare impact score	Welfare impact score
Lion shot with a bow	None-Mild	30 sec	1-2	Moderate-Extreme	< 2 mins	C - F	1C - 2F
Lion poisoned	None	NA	1	Extreme	2-4 days	H	1H

Table 1: Calculation of welfare impact scores (examples)

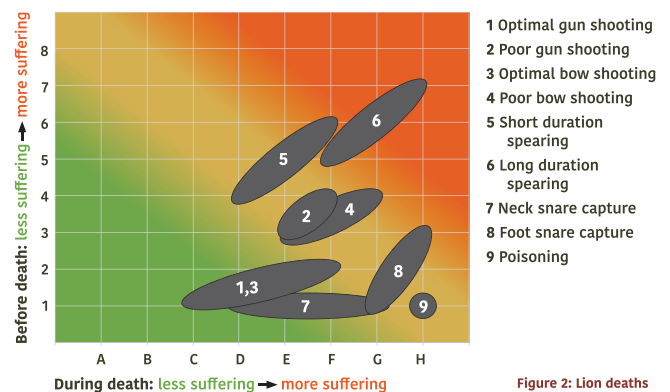
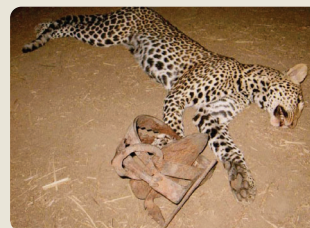


Figure 2: Lion deaths



All photos © Lion Landscapes

Conclusion

Although we know intuitively that all deaths are not equal in terms of suffering, this model provides a framework for conservationists to systematically assess the likely welfare impacts of different wild animal deaths. This should enable different interest groups to assess animal welfare using a unified approach, providing more transparency, clarity and cohesion where difficult decisions are needed.

Model outputs highlight which particular deaths (such as snaring and poisoning) should be of greatest concern regarding animal welfare, while the variability in likely welfare outcomes emphasises the importance of best practice in methods such as shooting. This is an initial demonstration based on preliminary interpretation of the assessments, but this approach could have wide applicability for informing management which best balances both conservation and animal welfare concerns.