Principles of Effective Wildlife Management in Emergencies

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Wildlife may be impacted by a range of emergencies, including disease outbreaks, natural disasters and pollution. These events can have serious impacts on the health and welfare of individual wild animals, the viability of wild populations, and biodiversity.

The One Health paradigm recognises the interdependencies of animal health (including wildlife) and the health of humans and ecosystems [1, 2]. Impacts of an emergency on wildlife can amplify the risks to these other sectors, for example by increasing exposure to infectious disease [3], damaging the trophic cascade [4], or causing people to risk their own safety while rescuing wildlife [5]. Effective management of wildlife in emergencies not only minimises impacts on wildlife welfare and population viability, but also promotes effective mitigation of human, domestic animal and ecosystem risks, some of which may also pose strategic risks to the effective management of the response itself.

The involvement of wildlife in emergencies may generate high levels of public interest. There may be a strong community expectation that ecosystems and wildlife, as well as human lives and property, will be considered within the overall response [6-8]. Effective integration of wildlife management into emergency planning by lead agencies demonstrates an understanding of these broader concerns and promotes community trust and engagement in the overall response [9].

This document identifies the principles, summarised in Figure 1, for effective management of wildlife in emergencies using a One Health approach. The document draws on current wildlife emergency response plans and reviews of emergency response principles relating to wildlife and animal management across all hazards. An approach that prioritises these features in all phases of the emergency cycle (prevention, preparedness, response and recovery) will achieve better outcomes for humans and ecosystems, as well as wildlife and the response itself [2, 10, 11].

Figure 1 Key principles for effective emergency management of wildlife within a One Health framework

1. Wildlife emergency management interventions are undertaken with consideration and mitigation of human safety risks.

Human safety is paramount in all emergency response. Wildlife emergency activities must be conducted within the human safety framework of an emergency incident [9, 12, 13]. Evaluation of wildlife activities within a broad risk framework should always be part of the emergency planning process.

2. Wildlife emergency management interventions are undertaken with consideration of the wider ecosystem impacts and constraints.

The One Health paradigm emphasises the interdependency of ecosystems, animals and humans [2]. Wildlife depend on the natural environment for nutrition, habitat, refugia and survival; and it is vital to consider ecosystem health when making decisions regarding wildlife during emergencies [14, 15]. For example, habitat that is polluted, burned or otherwise damaged during an emergency event must be evaluated for its capacity to sustain wildlife before rehabilitated animals are released [7, 12]. The perspective of ecologists, indigenous land managers and others responsible for environmental protection is essential to ensure that wildlife response efforts are undertaken within the broader context of ecosystem health, especially in those instances where an emergency has had detrimental impacts on ecosystems as well as wildlife.

3. Wildlife expertise is incorporated into emergency planning and operations.

Inclusion of personnel with wildlife expertise in emergency management planning means that wildlife risks, imperatives and interventions can be understood and incorporated before emergencies occur [6, 16-18]. Establishing trusted relationships with wildlife experts in the preparedness phase promotes mutual understanding and allows for the development of procedures and protocols that streamline the response process and anticipate the risks [7, 10, 18-21]. During a response, established relationships ensure that vital knowledge and networks are accessible and effectively incorporated into the overall response. Early situation assessment that incorporates wildlife expertise will ensure that the wildlife response is appropriate to the emergency and to achieving the best outcomes [18].

4. Wildlife responders have clearly defined roles that are integrated in the wider emergency response effort.

Wildlife responders should work in integration with the overall emergency response and be subject to the chain of command of the wider response effort [9, 12, 16, 22, 23]. This approach enables the most effective implementation of wildlife response activities and promotes human welfare and safety by providing a framework for the engagement of wildlife responders with the appropriate authorisation, expertise, training and equipment [5, 7, 10, 18, 22]. Plans should clearly document the notification processes and responsible persons or agencies for activating a wildlife response.

Within the integrated response, wildlife responders should have clearly defined roles and responsibilities [13, 22, 24]. Preparedness plans should clearly articulate the reporting and operating structure for all wildlife responders, including the decision-making framework for key activities such as wildlife rescue and euthanasia of wildlife.

5. There is shared understanding of the rationale and objectives of response.

Animal welfare, biodiversity considerations, human safety, expertise and logistics will all influence the objectives of the wildlife response in an emergency. The rationale of the wildlife response should be determined in consultation with experts in wild animal management, ecology and health. Response objectives, and implications for wildlife intervention activities, should be clearly articulated and communicated to responders through effective briefing. All wildlife interventions (including rescue, euthanasia, or decisions not to intervene) should be aligned with the underpinning objectives and rationale of the specific wildlife [7, 12, 13] and overall response. 'Peace time' planning should include communications to help set community expectations regarding the nature of a wildlife response in an emergency [22].

6. Appropriate protocols and practices are used for all wildlife interventions.

The unique requirements of wildlife in terms of evaluation, capture, handling, husbandry, transport, veterinary care, rehabilitation and overarching animal welfare should be recognised through the use of standardised protocols that reflect best practice as determined by subject matter experts [6, 12, 16, 25]. The involvement of wildlife experts in emergency prevention and planning, and their inclusion in the planning and intelligence sections of the incident management team during a response, will enable rapid identification and dissemination of the most appropriate protocols [6, 13, 26].

7. Wildlife responders uphold legislative requirements for all wildlife interventions.

Emergency management of wildlife must comply with legislative frameworks of the relevant jurisdiction with regard to animal welfare, biodiversity, wildlife rehabilitation and veterinary activities [24, 27]. Incident managers should be aware of the relevant legislative frameworks in their jurisdiction through appropriate consultation with wildlife experts and reference to relevant guidelines, and should understand the implications for the capture, holding, marking, veterinary care, rehabilitation and release of wildlife. All wildlife responders must be appropriately briefed and understand their legislative obligations [22].

8. Systematic, objective data is collected and shared to enable ongoing improvement of wildlife emergency processes.

Where possible, wildlife emergency management systems should include processes for reliable, effective data collection for individual cases and for all wildlife activities. This includes surveillance data as well as data generated during an emergency event. Data collection during emergencies allows for robust scientific analysis of cases and outcomes which will improve wildlife emergency management over time. Data collection should be standardised, timely, and appropriate to the identified needs [18, 28]. Where resources are limited, priority should be given to data collection activities that directly support the response.

References

1. FAO, UNEP, WHO, WOAH (2022) 'One Health Joint Plan of Action (2022-2026): working together for the health of humans, animals, plants and the environment.' (Rome) Available at https://doi.org/10.4060/cc2289en) [Verified 15 June 2022]
2. Anthony R and De Paula Vieira A (2022) One Health animal disaster management: an ethics of care approach. *Journal of Applied Animal Welfare Science*, **25**(2): 180-194
3. Pardo-Roa C, Nelson MI, Ariyama N, Aguayo C, Almonacid LI, Munoz G, . . . Neira V (2023) Cross-species transmission and PB2 mammalian adaptations of highly pathogenic avian influenza A/H5N1 viruses in Chile. *bioRxiv*: 2023.06.30.547205
4. Hollings T, Jones M, Mooney N, and Mccallum H (2014) Trophic cascades following the disease-induced decline of an apex predator, the Tasmanian devil. *Conservation Biology*, **28**(1): 63-75
5. Glassey S (2021) Do no harm: A challenging conversation about how we prepare and respond to animal disasters. *The Australian Journal of Emergency Management*, **36**(3): 44-48
6. Parrott ML, Wicker LV, Lamont A, Banks C, Lang M, Lynch M, . . . Whiteford C (2021) Emergency Response to Australia's Black Summer 2019–2020: The Role of a Zoo-Based Conservation Organisation in Wildlife Triage, Rescue, and Resilience for the Future. *Animals*, **11**(6): 1515
7. Sherwen SL, Campbell-Ward M, and Woods R (2023) Wildlife welfare and the 2019-20 wildfires. In 'Australia's Megafires: biodiversity impacts and lessons from 2019-2020.' (Eds L. Rumpff, S. Legge, S. van Leeuwen, B.A. Wintle and J.C.Z. Woinarski) pp. 343-356. (CSIRO Publishing)
8. Browning H and Veit W (2023) Positive wild animal welfare. *Biology and Philosophy*, **38**(2): 14
9. National Advisory Committee for Animals in Emergencies (2014) National Planning Principles for Animals in Disasters; Australian Animal Welfare Strategy,. Sydney)
10. Glassey S (2023) Animal disaster management. In 'Routledge Handbook of Animal Welfare.' (Eds A. Knight, C. Phillips and P. Sparks) pp. 336-349. (Routledge: Oxon, United Kingdom)
11. Trigg J, Taylor M, Mills J, and Pearson B (2021) Examining national planning principles for animals in Australian disaster response. *The Australian Journal of Emergency Management*, **36**(3): 49-56
12. International Petroleum Industry Environmental Conservation Association (IPIECA) (2017) 'Key principles for the protection, care and rehabilitation of oiled wildlife.' (Available at https://www.ipieca.org/resources/key-principles-for-the-protection-care-and-rehabilitation-of-oiled-wildlife) [Verified 15 June 2022]
13. Department of Environment, Land, Water and Planning Victoria (2021) Victorian response plan for wildlife impacted by fire: Victoria, Australia. 40
14. Vitali SD, Reiss AE, Jakob-Hoff RM, Stephenson TL, Holz PH, and Higgins DP (2023) National Koala Disease Risk Analysis Report V 1.2. University of Sydney
15. Department of Environment and Heritage (2006) Threat abatement plan for infection of amphibians with chytrid fungus resulting in chytridiomycosis: Canberra
16. Wildlife Health Australia (2020) National preparedness for emergency response to wildlife affected by bushfire, in Submission to the Royal Commission into National Natural Disaster Arrangements
17. Donkin C (2021) Safeguarding Australia's wildlife: lessons from the'black summer'bushfires. *Wildlife Australia*, **58**(1): 20-21
18. Commonwealth of Australia (2020) Royal Commission into National Natural Disaster Arrangements Report: Canberra
19. Animal Health Australia (2023) Operational manual: wild animal response strategy (version 5.0), Australian Veterinary Emergency Plan (AUSVETPLAN), Editor: Canberra, ACT
20. Skerratt LF, Death C, Hufschmid J, Carver S, and Meredith A (2021) Guidelines for the treatment of Australian wildlife with sarcoptic mange, Part 1 - treatment guidelines. NESP Threatened Species Recovery Hub Project 1.4.4 report, in NESP Threatened Species Recovery Hub Project 1.4.4: Brisbane
21. Wildlife Health Australia (2023) Supplying water and food for free-living wildlife after natural disasters,
22. Department of Agriculture, Water and the Environment (2021) Wildlife Care in Australia Report: Canberra, ACT
23. Biosecurity Emergency Preparedness Working Group (2012) Biosecurity Emergency Management: Biosecurity Incident Management System, Department of Agriculture, Fisheries and Forestry Editor: Canberra, ACT
24. Callan T (2020) Emergency operations centres: models and core principles. *Revue Scientifique et Technique (International Office of Epizootics)*, **39**(2): 399-405
25. Government of Western Australia (2022) Western Australia Oiled Wildlife Response Manual, Department of Biodiversity, Conservation and Attractions, Editor: Perth
26. Government of Western Australia (2022) Western Australia Oiled Wildlife Response Plan, Department of Biodiversity, Conservation and Attractions, Editor. 30
27. Wildlife Health Australia (2023) Guidelines for Management of an Emergency Wildlife Disease Response. Wildlife Health Australia: Canberra
28. Ahmed I and Ledger K (2023) Lessons from the 2019/2020 'Black Summer bushfires' in Australia. *International Journal of Disaster Risk Reduction*, **96**: 103947