Role of veterinarians in disaster preparedness: Focus on small ruminants and wildfire

F. Smith, DVM, DACVIM
University of California, Davis Davis, CA 95616

Abstract

Veterinarians can play a very important role in disaster preparedness for their clients, as well as providing veterinary care to animals that have been injured during natural disasters. Disaster preparedness needs will vary based on the risks and type of disaster in a particular location. Here I will focus on preparedness and response to wildfires. Veterinarians can play a very important role in developing emergency preparedness plans for their clients, including developing decision trees, evacuation planning, go-kit supplies, animal identification, facility setup and leaving animals behind. Additionally, veterinarians are needed on the frontlines to triage, treat and/or humanely euthanize burned or injured animals, as well as for longer term treatment and therapy of survivable injuries.

Introduction

Wildfire burned almost 9 million acres in the U.S. in 2020,[1] mostly in the western states. Many of these fires impacted rural communities where livestock farming is very common. Additionally, there seems to be an increase in the number of medium and small hobby/lifestyle farms typically near the urban-wildland interface.[8] These types of farms tend to have a mix of animals including mixed livestock.

The bond that people have with their animals, be they companions or production animals, results in higher likelihood of ignoring evacuation orders, putting first responders and themselves at risk, particularly if they do not have the means to evacuate their animals.[5,8,9] It has also been shown that disaster planning that includes plans for animals improves compliance of humans with evacuate orders.[5] Veterinarian can have a significant impact on preparedness of their clients by helping them to have emergency plans in place, particularly if you practice in a disaster-prone region. Training is important for veterinarians working in disaster response, understanding the incident command, as well as training and understanding in the treatment of animals.[6] In the face of an emergency, veterinarians can provide medical care, as well as make decisions about survivability and provide humane euthanasia.

Development of emergency plans for individual farms

Small ruminant farmers living in fire prone areas should develop emergency fire plans. Evacuation capabilities will depend on the amount of warning, the size of the herd/flock, the production/housing system, and the transport capacity of the farmer. As a veterinarian, you can help your clients to plan for both evacuation of animals, as well as leaving animals to shelter in place, as evacuation is not always possible or realistic.

For clients planning to evacuate animals, make sure they have a safe and effective way to load them. Have them make a hierarchy list of most important animals to least important – these are difficult decisions, but knowing ahead of time will speed evacuation time. During fire season, they should have an animal go-kit – essentials that they need to take care of their animals when evacuated, that they are unlikely to be able to get in the first 24 hrs of evacuation. This kit will be slightly different depending on species and production system. Encourage them to pre-identify likely evacuation sites: friends, family, fairgrounds.

For those who need to leave animals behind, outline measures to give them the best chance of survival: if possible, leave adequate feed and water, move them out of enclosed barns/shelters to low fuel paddocks or pastures. Ensuring permanent identification of all small ruminants not only brings farms into compliance with scrapie regulations, but also helps to ensure that animal taken to shelters or left behind can be reunited with their owners.

Triage of small ruminants during fire emergency

Veterinarians play a crucial role is assessing and triaging animals during wildfires. One of our most important roles is to help decide which animals should be treated on site, referred for further treatment at a veterinary clinic, or should be humanely euthanized. During the 2018 Camp fire in California, the UC Davis Veterinary Emergency Response Team treated more small ruminants than any other species at the fairgrounds evacuation site.[4] Burn injuries (32/58) and respiratory disease (6/58) were most common in goats, and treatment of respiratory disease (22/35) was most common in sheep. Treatment of burns includes debridement, topical and systemic antimicrobials, and pain relief. Respiratory diseases are common during wildfires, likely due to a combination of stress and weakened lung defenses from smoke inhalation. Animals with more severe injuries are often sent for hospitalization-level care. Small ruminants suffering significant burns to their distal limbs and feet have a poor prognosis and may warrant euthanasia in the field.[3] Animals with burns to their lips/mouth may have difficulty eating and may need more intensive medical/surgical management.[3] Large-scale triage may be needed in some cases, likely necessitating cooperation of multiple veterinarians and animal disaster relief workers.[7] For veterinarians involved in disaster response, knowing the AVMA guidelines for humane euthanasia of animals can be helpful to aid farmers in large-scale euthanasia where the use of drugs is not practical or financially possible.[2,7]

Conclusion

Veterinarians have a very significant role to play in wildfire and disaster preparedness and response. Disaster preparedness should be a regular discussion with any client with whom you have a veterinary-client-patient relationship (VCPR), particularly if you live in a disaster-prone region.

References

1. 2020 North American Wildfire Season - Center for Disaster Philanthropy. Accessed September 26, 2021. **https://disasterphilanthropy.org/disaster/2020-california-wildfires/**

2. AVMA Guidelines for the Euthanasia of Animals | American Veterinary Medical Association. Accessed September 26, 2021. **https://www.avma.org/resources-tools/avma-policies/avma-guidelines-euthanasia-animals**

3. Chigerwe M, Depenbrock SM, Heller MC, et al. Clinical management and outcomes for goats, sheep, and pigs hospitalized for treatment of burn injuries sustained in wildfires: 28 cases (2006, 2015, and 2018). **https://doi.org/102460/javma2020257111165. 2020;257(11):1165-1170. doi:10.2460/JAVMA.2020.257.11.1165**

4. Dieckmann HG, Costa LRR, Martínez-López B, Madigan JE. Disaster Medicine: Implementation of an animal health database in response to the 2018 California Camp Fire. **https://doi.org/102460/javma25691005. 2020;256(9):1005-1010. doi:10.2460/JAVMA.256.9.1005**

5. Heath SE, Linnabary RD. Challenges of Managing Animals in Disasters in the *U.S. Anim an Open Access J from MDPI*. 2015;5(2):173. doi:10.3390/ANI5020173

6. Madigan J, Dacre I. Preparing for veterinary emergencies: Disaster management and the incident command system. *OIE Rev Sci Tech*. 2009;28(2):627-633. doi:10.20506/RST.28.2.1898

7. Madigan J, Rowe J, Angelos J, et al. (A323) Wildfire Associated Burn Injury of 1400 Sheep in Northern California: A Coordinated Mass Casualty Veterinary Response. *Prehosp Disaster Med*. 2011;26(S1):s90-s91. doi:10.1017/S1049023X11003074

8. Mozumder P, Raheem N, Talberth J, Berrens RP. Investigating intended evacuation from wildfires in the wildland–urban interface: Application of a bivariate probit model. *For Policy Econ*. 2008;10(6):415-423. doi:10.1016/J.FORPOL.2008.02.002

9. Squance H, Johnston D, Riley C. An integrative review of the 2017 Port Hill fires' impact on animals, their owners and first responders' encounters with the human-animal interface. *Australas J Disaster Trauma Stud*. 2018;22:97-108.

