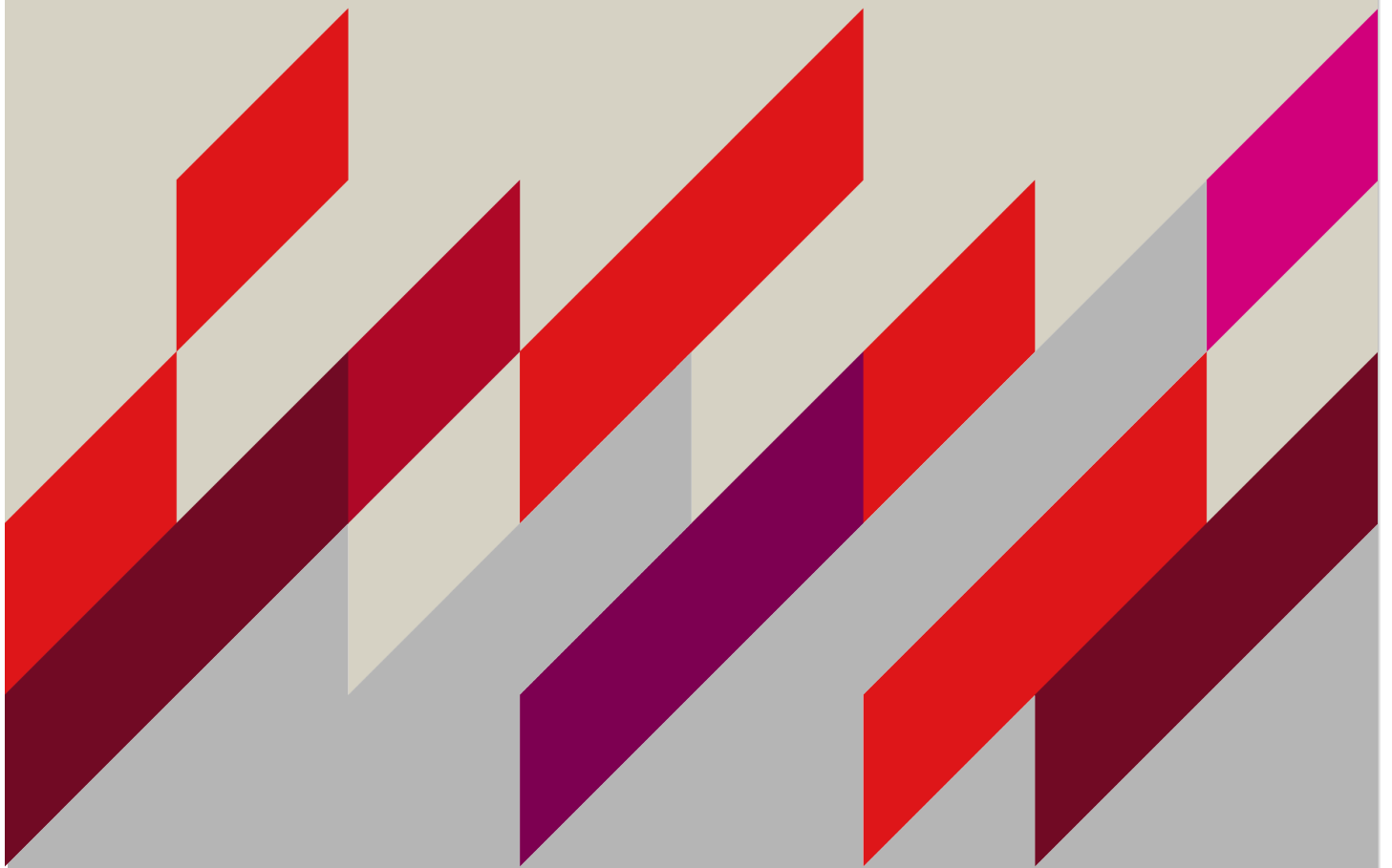# ANIMALS IN DISASTERS

AN UPDATED ASSESSMENT OF AUSTRALIA'S ANIMAL RELATED PLANNING FOR, AND RESPONSE TO, DISASTERS

Report prepared for World Animal Protection Australia

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Figure 1. Veterinary worker feeding community dogs as part of coordinated response for animals following evacuation in Tropical Cyclone Trevor, Northern Territory, 2019 (Photo courtesy of AMRRIC).

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PREFACE

Helping animals in emergencies has been a core part of World Animal Protection's mission for more than 50 years. The 2019/20 Australian bushfires tore through 19 million hectares killing billions of wild animals, along with 20,000 farm animals and many pets. With the carnage unfolding, we knew we needed to respond and help make sure that communities, governments, and animal carers were better prepared if such a disaster struck again.

As part of our long-term response to the bushfires, World Animal Protection commissioned Macquarie University to review the 2014 National Planning Principles for Animals in Disasters. World Animal Protection led the National Advisory Committee for Animals in Emergencies which developed the Principles. The committee was made up of industry members, humanitarian and animal welfare organisations, government, and the veterinary community. The Principles were endorsed by heads of government responsible for emergency management and animal welfare authorities at the national, state and territory level.

A key driver of development of the Principles and the involvement of the emergency management community is that the human-animal bond means people sometimes put themselves in danger during disasters. That was a key finding of the royal commission into Black Saturday in Victoria. While animals are important in their own right and deserve to be protected, protecting animals through better planning means we are also protecting communities.

Macquarie University assessed the level of awareness and implementation of the Principles among key stakeholders responsible for disaster planning and emergency response. This report details what they found and makes recommendations for how the Principles can be more widely used and strengthened.

We hope that everyone responsible for looking after animals in disasters – from individuals through to government agencies – reads this report and acts on the recommendations in it. Importantly, we hope that the Federal Government leads a process to update the Principles, incorporating not only these recommendations, but other learnings and experience since the Principles were finalised, so that they enable best practise.

Animals are too often the forgotten victims of disasters. Proper planning and preparedness are key to ensuring that they are protected to the best extent possible. This report will help strengthen planning and preparation, so that animals are best looked after when disasters strike.

Simone Clarke

Executive Director, Australia and New Zealand
World Animal Protection

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EXECUTIVE SUMMARY

Background

In 2014 the Australian National Advisory Committee for Animals in Emergencies released the National Planning Principles for Animals in Disasters (NPPAD) which were subsequently endorsed by the Australia-New Zealand Emergency Management Committee. The NPPAD was designed as a non-prescriptive tool aimed at promoting best practice for integrating animals into disaster planning, and to support national consistency. The NPPAD comprises 24 Principles, eight relate to the planning process, and 16 to disaster plans.

Shortly after the release of the NPPAD the Commonwealth Government closed the national Australian Animal Welfare Advisory Committee and responsibility for animal welfare was delegated to individual states and territories. Since this time there has been no published information tracking the adoption of the NPPAD or assessing the utility of this guidance across state and territory disaster arrangements.

Project overview

This project was undertaken primarily to investigate uptake and application of the NPPAD. Specifically, awareness of the Principles, their incorporation and integration into planning, and views about their currency and the extent to which they still reflect best practice. In addition, a variety of documents were reviewed (e.g., inquiries, policies, disaster plans) to identify post-event recommendations and general references that relate to the NPPAD, or the specific areas addressed by NPPAD.

Whilst recognising the intrinsic value of all animals, and the need to support animal welfare in all phases of disasters, this project focusses on all forms of owned domesticated animals, principally pets or companions and farmed animals. The project does not focus on wildlife, although they are not excluded from the study.

Data collection for this project followed a staged four-part approach. First, a literature and documentation review was conducted to investigate use of the NPPAD and to inform the development of survey and interview questions, next an online questionnaire was developed and administered to collect information about animal planning and response, and targeted interviews were held on these topics for further information. Finally, selected case studies were described to provide richer context for findings.

Literature Review

A total of 259 documents were identified for consideration. This was achieved through systematic online searches initially and was later supplemented by documents supplied by survey respondents. Following initial screening and evaluation against a set of exclusion criteria, e.g., superseded documents and duplicate documents, 49 documents were reviewed in full for evidence that supported incorporation of individual principles in the NPPAD. Reflecting the structure of the NPPAD, content relating to the disaster planning *process* and the content of *disaster plans* was captured. These data were reviewed by two researchers and an overall assessment of coverage for each principle is presented. A brief discussion of coverage of the NPPAD at state/territory and national level is included in the body of the report.

Just over half the reviewed documents (53%) were released recently (2019/2020), and many documents (61%) were issued by state and territory government organisations. More than two-thirds (69%) applied to all animal types. Eight documents (16%) explicitly mentioned the NPPAD, but references to areas specifically covered by individual principles varied considerably across the full set of documents, from 12% to 86%.

In general, the need to use accessible language (86%), the identification of roles and responsibilities within command-and-control structures (84%), and recognition of the animal welfare benefits of integrating animals into disaster planning (76%) were principles more frequently covered in the planning process. In disaster plans, appropriately planning for animals for the disasters most likely to be encountered in the local context (82%) and situating plans within local and jurisdictional regulatory and legal frameworks (80%) were two principles more frequently included. Respecting the role of local government was the least represented principle in the planning process (53%) and the inclusion of vision statements that reference the importance of animal welfare outcomes (12%) was the least represented principle included in disaster plans, in the set of documents reviewed. As a consequence of the literature review four recommendations were formulated (see R1-R4, below).

Stakeholder Online Survey

An online stakeholder survey was undertaken from July to October 2020. A total of 137 stakeholders representing a broad selection of organisation types with state/territory and national responsibilities participated in the survey. Of these, 83 provided complete sets of data to both sections of the survey (organisational and planning questions and implementation of the individual NPPAD principles). Representation in the survey was at the organisational level and respondents from all states and territories are included in the sample. Approximately a quarter (26%) were from state and territory government bodies and a similar proportion (26%) were from non-profit organisations, with 21% from local government. A full demographic profile of the sample and a breakdown of their roles and responsibilities, as well as organisational-level data, are included in the main text of the report. However, to protect the confidentiality of individual participants and their organisations survey data are aggregated for presentation.

Initial questions related to roles and responsibilities. Many of those whose work relates to animal management in disasters have direct contact with animal owners (75%), and are likely to work in local government, non-profit organisations, and emergency services. Just under three-quarters (73%) reported awareness of the formal animal emergency planning, response, and recovery arrangement within their jurisdictions. Although just over half of stakeholders (55%) felt that their organisation should have responsibility for animals and the level of responsibility they had was appropriate, just under half the non-profits (43%), and around a quarter of emergency services and state/territory government body participants (24% and 22%, respectively) indicated they felt their organisation should have more responsibility for animals. Notably, 29% of emergency service respondents felt that their organisation should have no responsibility for animals.

In the second part of the survey respondents were asked about the NPPAD. Just over half (58%) were aware of the NPPAD and around a third (31%) were unaware. The remainder were unsure. Of those stakeholders aware of the NPPAD, just over half (54%) reported that their organisation had implemented the Principles, with most implementation

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being at the state and local planning levels (21% and 19%, respectively). To follow the structure of the NPPAD, stakeholders were first asked about implementation of principles 1 to 8 in the planning process, and then principles 9-24 in disaster plans.

Principles relating to the welfare outcome benefits for animals, and for human welfare from animal integration in planning, and clear identification of animal welfare roles and responsibilities were the most frequently represented in the planning process (with 52%, 51%, and 46% fully implementing these, respectively). Engagement with multiple animal welfare parties in planning (36%), engagement with local government expertise and resources (34%), effective integration of animal welfare in planning processes (31%), and effective communication with those involved or impacted (31%) were principles less likely to be fully implemented. However, lowest implementation related to communicating in language that is accessible to all stakeholders including the general public, with only 26% fully implementing this principle. Given that the general public is a key stakeholder in animal emergency management and the animal owner remains responsible for their animal in emergencies this finding suggests that better integration of the public in the disaster planning process is a priority.

Overall, findings suggest that stakeholder planning processes are strong regarding recognition of the benefits of integrating animals into disaster planning and identifying roles and responsibilities to enable effective implementation of animal welfare measures. However, accessible communication and broader engagement, especially with local government and the general public, are areas that could be improved.

Regarding disaster plans, although greater proportions of stakeholders indicated that their organisation had one, or multiple formal plans (31% and 22%, respectively) a sizeable proportion reported no written formal or informal plan (27%). In terms of the implementation of planning principles linked to the content of disaster plans, there was greater inclusion of processes for interagency co-operation (46%), specification that the individual in charge of an animal is responsible for its welfare in disasters (46%) and consideration of animals at all stages of the disaster cycle (47%). There was low reported implementation of rationale statements describing the welfare and safety benefits to animals and humans of animal integration in planning (11%) and low implementation of requirements and arrangements for regular testing and review of plans for animal welfare in disasters (18%).

Finally, stakeholders were asked about gaps and needs. Two-thirds indicated that they felt improvements were needed, with issues such as mental health support planning for those involved in emergency animal welfare management and clearer and more consistent guidance being two examples of suggestions provided.

Findings from the stakeholder survey resulted in seven recommendations (see R5 to R11 below).

Stakeholder interviews

To explore further insights and perspectives on where animals fit into emergency management planning from the viewpoint of different types of individuals and organisations, 23 stakeholder interviews were undertaken. The sample in this part of the study was diverse in location/jurisdiction, organisation type, and professional focus. Roles of interviewees primarily related to animal emergency management (n=14), animal

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welfare (n=4), emergency management (n=3), land management (n=1), and communication or education (n=1). In practice, however, these roles often crossed categories.

Some interviewees were selected directly from the survey, having consented to be interviewed, and others were initial project contacts from key organisations who were unable to take part in the survey but agreed to be interviewed. Interviews were conducted online, using a semi-structured interview format, and were recorded with consent. Interviews were then transcribed and coded by researchers.

The main report includes a thematic analysis of interview content across eight themes, with quotes to exemplify themes and key points. The eight themes were Need for National Planning Principles; Awareness barriers; Implementing National Planning Principles; All hazards, all species; Human-animal welfare link; Animal welfare consultation; Communicating animal integration and responsibility; and Gaps and needs.

Generally, interviewees expressed support for the Principles and although some had not been guided explicitly by the NPPAD, when they became aware of the Principles, they could see them reflected in their own approaches and felt they aligned with key values, e.g. One Welfare, and emergency management concepts such as 'shared responsibility' and 'all hazards'. Despite support, a range of barriers to awareness were identified, many related to positions in organisational structures, jurisdictional responsibilities, and communication across organisational boundaries. Discussions around implementation of the NPPAD frequently resulted in issues being raised about the lack of a nationally consistent approach to animal emergency management and working with legislation and differences within jurisdictions.

Constraints to an 'all hazards, all species' approach were noted, including the types of organisations applying the Principles having a more specific focus, e.g., on livestock, wildlife, or captive (zoo) animals, and a tendency to focus on hazards that were more likely to impact animals in a specific jurisdiction. This was noted especially for wildlife planning with a focus on bushfire.

Discussions around the theme of 'human-animal welfare link' were based on the explicit recognition of the connection between human and non-human animal welfare in the context of disaster. It was widely acknowledged that human safety was compromised if animals were not integrated into disaster planning. Issues of logistics, managing emotional situations and the positive power of emotional attachment to animals were expressed, along with tensions between the need to balance animal welfare and survival with the prioritisation of human life and safety that exists in emergency arrangements.

A broad range of issues was identified under the theme of 'animal welfare consultation', including differences in approaches across animal types, e.g., livestock, and hazards, and the roles of veterinarians. It was clear that some jurisdictions had well-established and embedded advisory groups and others had examples of good consultation but not the same supportive structures in place. In terms of 'communicating animal integration and responsibility' many interviewees considered there was work to be done in terms of accessible language, inclusive approaches, and engagement with industries and animal owners. In the 'gaps and needs' theme discussions included consideration of integrating animal management into the Australasian Inter-Service Incident Management System structure (AIIMS), more consistent approaches nationally, capturing (and remembering)

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lessons from events, and needs for better mental health support for those involved in animal emergency management – especially in light of the more recent and prolonged Australian 2019-20 summer bushfires.

Five further recommendations were generated from the stakeholder interviews (see R12 – R16 below).

The final project activity involved the identification and detailing of a series of five case studies. These showcased examples of current animal welfare management approaches and drew on direct interviews with stakeholder representatives and supporting source materials. The case studies were selected to represent a range of approaches, animal types, hazard types, locations, and organisational perspectives, e.g., local government, non-profit, industry, government agency. No specific recommendations were made based directly on this part of the project, although each is reviewed with reference to principles from the NPPAD that were illustrated in the case study. As such, they serve as evidence in support of the NPPAD and demonstrate the benefits for animal welfare and human safety and well-being that come from integrating animals into disaster planning arrangements.

Recommendations

Sixteen recommendations are offered from the findings of this multi-method research project. These recommendations are written to be stand alone, however, additional rationale underpinning each one is included in the Discussion and Recommendations section of the main report.

In addition, it is acknowledged that responsibility for animal welfare and animal emergency management is complex in Australia. At the national level it is assumed that a degree of oversight sits with the Department of Agriculture, Water, and the Environment (DAWE), and the Department of Home Affairs (DHA) or the new National Recovery and Resilience Agency (NRRA). In some of the following recommendations we have identified DAWE, DHA, DRRA or other organisations as responsible for leading action. We recognise that there may be different agencies or organisations that are responsible and should be tasked. In some situations national, inter-jurisdictional, or inter-organisational working groups or committees may be more appropriate to deliver improvements in specific areas.

The literature review considered a comprehensive snapshot of disaster planning and policy materials relevant to animal welfare across Australia. Based on analysis of this body of literature for uptake of the NPPAD and its constituent principles the following recommendations are made.

> **R1: To increase uptake of the NPPAD across Australia, it is recommended that representatives from organisations responsible for animal welfare planning in each State and Territory strategically share information about how they have integrated (or plan to further integrate) the tool into their emergency management planning for animals.**
>
> **R2: To help advocate for, and frame, local disaster planning arrangements, DAWE/DHA/DRRA or appropriate responsible agencies or organisations**

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should ensure that the NPPAD is more actively shared with State and Territory Local Government Associations across Australia.

R3: To emphasise the role and recognise the challenges for animal owners, statements addressing the owner's ultimate responsibility for animal welfare in disasters need to be more consistently stated in disaster plans. Statements should also consider the variable capacity of owners to meet this requirement and emphasise awareness of potential assistance needs.

R4: To strengthen and embed the case for effective emergency planning for animals, disaster plans should include vision and rationale statements that recognise that positive outcomes for animal welfare are linked to benefits for individual and community resilience, through improved human safety, well-being, and economic outcomes.

The online stakeholder survey included detailed exploration of the roles and responsibilities of stakeholders representing a broad range of organisation types, across all states and territories. Questions probed awareness and implementation of the NPPAD. Based on analysis of these data the following recommendations are made.

R5: To increase implementation, it is recommended that targeted NPPAD awareness and education campaigns be conducted by DAWE or other appropriate responsible agencies with stakeholders at both state and local levels.

R6: To improve animal welfare consultation in disaster planning, improved processes for identifying, engaging, and including parties with local or other relevant expertise should be implemented by any authority developing or updating a plan.

R7: To increase best practice communication in animal welfare planning, guidance should be made available to support those developing plans and materials to ensure that readability level and comprehension testing is undertaken with target audiences, and appropriate revisions are made as a result.

R8: To expand implementation of the NPPAD across all phases of the disaster cycle additional focus on prevention and recovery stages should be considered.

R9: To support animal welfare in response scaling, logistical planning, interagency cooperation, and formal welfare consultation, application of the NPPAD within national disaster incident response systems (e.g., AIIMS[1]) should be explored by DHA/DRRA and/or other relevant organisations, e.g., the Australasian Fire and Emergency Service Authorities Council (AFAC).

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[1] For a description of the Australasian Inter-Service Incident Management System (AIIMS) see: Introduction to AIIMS-CFA Training Materials (2019)

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R10: To support animal welfare planning, guidance should be created to support an 'all hazards' perspective being applied at different jurisdictional levels, from national down to local levels.

R11: To enable regular testing and review of plans for animal welfare in disasters, capacity and resources for testing and review should be assessed and incorporated at the outset of plan development.

Stakeholder interviews included broad and in-depth discussion of a range of themes related to the NPPAD and to the integration of animals into disaster planning. These interviews included experts from a broad selection of organisations and with varying perspectives. As a result of these interviews five further recommendations are made.

R12: To increase uptake, it is recommended that the NPPAD be provided by DAWE/DHA/DRRA or other appropriate responsible agencies and peak bodies in a format that can easily be shared by all stakeholder organisations, and that it is emphasised that human behaviour is shaped by the human–animal bond and that this has a powerful influence on decision-making in emergencies.

R13: To improve implementation, the NPPAD should be communicated via a State or Territory specific strategy that maps principles to examples of practical actions.

R14: To acknowledge the impact of the human-animal bond on owner decision-making and behaviour in emergencies, the NPPAD should address this aspect more directly and ensure that risk and safety behaviour motivated by attachment to animals is communicated to all users of planning information.

R15: To promote a consistent and optimised approach to disaster planning, consultation with animal welfare organisations and other stakeholders should be guided by a centralised or coordinated source and a common set of best available resources.

R16: To promote consistent integration of animals in disaster planning, the NPPAD should emphasise the need to maintain knowledge of emergency systems and resources available to support animal welfare in disasters.

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INTRODUCTION

Background

More than three billion animals, more than one billion of them in NSW, were estimated to have been killed or displaced in the fires, including some rare or threatened animal, plant, and insect species, with the complete loss of some species believed to be permanent.

—Australian Institute for Disaster Resilience [1]

Animals, both domestic pets and livestock, were often part of the evacuation process. Some submissions pointed to evacuation centres which were not able to accommodate animals. Some people did not use evacuation facilities if doing so required them to leave their animals elsewhere, such as in outdoor smoke-affected areas. (p. 280)

—Royal Commission into National Natural Disaster Arrangements [2]

In some states and territories, evacuation planning guidelines require or may provide guidance on the consideration of animals… [and] in others, local disaster management groups have their own policies about managing animals in evacuations. (p. 280)

—Royal Commission into National Natural Disaster Arrangements [2]

The Black Summer[2] bushfires of the 2019-2020 bushfire season [3] and unprecedented loss of animal life have brought into sharp focus the need to ensure disaster planning, preparation and response includes animals. This need is reflected in the recommendations of Australia's Royal Commission into National Natural Disaster Arrangements [2], where evacuation planning for animals, wildlife management and biodiversity were directly highlighted, and animals indirectly implicated across multiple other recommendations (e.g., jurisdictional cooperation).

Prior to this period, in 2014, the National Planning Principles for Animals in Disasters (NPPAD) [4][3] were released, after their creation by the National Advisory Committee for Animals in Emergencies, and endorsement by the Australia-New Zealand Emergency Management Committee [5]. Designed as a non-prescriptive tool and aimed at promoting best practice for integrating animals into disaster planning, the Principles were to varying extents incorporated into policies and plans at local and state level.

However, the 2019 Disaster Risk Reduction Framework is largely silent on animals [6], with further research and policy action needed to address the ongoing presence of animals in Australia's communities and disaster response approaches.

In 2020, World Animal Protection Australia commissioned Macquarie University to undertake research examining the relationship of the NPPAD to disaster planning and

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[2] 8.34 million hectares of forest were burnt, with New South Wales, South Australia, and Victoria heavily impacted. For a partial summary of the Black Summer 2019/2020 bushfire impacts, see Davey and Sarre (2020).
[3] The National Planning Principles for Animals in Disasters (referred to herein also as the 'Principles') are accessible at: https://www.ava.com.au/siteassets/advocacy/natural-disasters/final-national-planning-principles-for-animals-in-disasters.pdf

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response across multiple Australian contexts. This updated assessment was intended to focus on disasters defined as short onset, such as bushfire and flooding, and all forms of owned domesticated animals. This latter category includes animals specified as pets or companions, as well as farmed animals, and did not focus on Australian wildlife, or fauna under the responsibility of the Australian Government, a related and discrete concern for focused research.

Aims and scope

The research presented in this report targeted the following key issues within the overall assessment of the current status of disaster plans and policies for animals in Australia:

- Is the NPPAD still current, and do the Principles represent best practise across Australian jurisdictions?
- Have the Principles been adequately included in state disaster plans, and have there been issues with implementation?
- Have other review materials, such as inquiries and commissions, included animal-related findings and recommendations that should be included in disaster principles, frameworks, and policies?
- How do animals feature in stakeholders' disaster preparation and response plans, and how is their implementation approached?
- Do relevant stakeholders have an awareness of existing disaster planning frameworks and policies?
- Are additional resources or inputs needed to be better prepared to manage animals in disaster contexts?

The research scope was not limited to a form of disaster or a particular animal species or 'class'. However, given that this research occurred in the context of the 2020 Royal Commission into National Natural Disaster arrangements, the scope of the report is mainly directed to bushfire. Additionally, despite the large impacts on Australian wildlife, this report focuses on non-wildlife animals, as other research efforts are addressing wildlife, and are not examining the 'owned' pet, companion, farmed and related classes of animals.

Research implementation

Research presented in this report came from the intention of World Animal Protection to follow-up the release of the NPPAD, by examining uptake and application of the Principles in Australia's disaster response arrangements. After government announcement of the end of the Australian Animal Welfare Advisory Committee[4] in 2013, there was considerable variability in implementation of the Principles within existing disaster arrangements.

Over time, new disaster response arrangements were created that either explicitly or indirectly supported the Principles. The absence of such a national coordinating body for animal welfare, and the jurisdictional specific considerations of state disaster

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[4] This committee operated withing the Australian Animal Welfare Strategy framework as a partnership of animal welfare and advocacy groups, industry, and government to coordinate change for animal welfare.

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arrangements for animals in Australia, meant that the Principles were interpreted at a higher level to inform differing disaster arrangements.

A key implementation consideration was the COVID-19 'overlay' present in both the conduct of the research, as well as in the operational tasks of the people and organisations informing this research. Primarily, in-person interviews and recruitment were substituted for online data collection via videoconference. This greatly benefited the research, in that a wider range of organisations from different Australian states and territories were able to participate. Online surveying was not impacted by this in any way, as during the pandemic, many participating organisations had adopted work-from-home policies, allowing personnel to continue to perform their job roles. Data collection windows were extended by one month to allow for pandemic-related disruptions.

A further consideration in this research was the concurrent Royal Commission into Natural Disaster Arrangements. Many participants were organising submission materials for this, in the wake of the Black Summer bushfires, which delayed recruitment response. Conversely, this also meant that organisations often had the required information at hand to contribute to this research.

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METHODS

Research design

Initial activities included detailed project planning with World Animal Protection, development of an ethics application, and access and review of written emergency plans and associated documents. Following planning, this research was conducted independently by Macquarie University. Ethical approval for this research was granted via the Macquarie University Human Research Ethics Committee (Project ID#: 6757).

Additionally, to support project planning and survey development, scoping conversations were conducted with representatives from a selection of state and territory primary industries/agriculture agencies who have primary responsibility for animal emergency management.

Data collection for this project followed a staged four-part approach. First, literature review was conducted to inform the development of online survey and interview questions, next an online questionnaire was developed and administered to collect information about animal planning and response, and targeted interviews were held on these topics for further information. Finally, selected case studies were described to provide context for findings.

Literature review

Strategic searches were made within relevant databases, search engines, and within documents retained by the research team from related projects, for materials published from 2015-2020. This included the Australian Institute for Disaster Resilience Knowledge Hub, Bushfire and Natural Hazards CRC Database, Prevention Web, as well as Google/Scholar and direct access of government department and organisation websites. An example search term string is 'Australia AND disaster OR emergency AND animal OR livestock AND planning OR preparedness OR response OR recovery.'

For inclusion in the review, literature needed to be relevant to domestic or non-domestic animals in the context of Australian disaster response. Studies from international sources were not included. Literature was not excluded where the primary focus was wildlife, however this was not explicitly sought.

Researchers reviewed literature titles and summaries for relevance to animal management in disasters, and to the NPPAD. Content from included literature was extracted to a summary spreadsheet for further analysis. Material supporting each of the principles was noted for those relating to the disaster planning *process* and disaster *plan*.[5] This material was then summarised by jurisdiction.

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[5] Principles for these aspects of disaster animal management are presented separately in the National Planning Principles for Animals in Disasters tool.

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Stakeholder online survey

To describe characteristics of animal management in disasters, as well as implementation of the Principles a national online survey was conducted from July to October 2020 using the Qualtrics survey platform.[6] Participants for the online survey were recruited via multiple channels including emergency services, animal industry, and disaster professional social media networks, using email and newsletter distribution lists, Facebook and Twitter, and the professional connections of researchers. Participants were also recruited via direct email using a recruitment message and a Research Information Statement (Appendix A).

The online questionnaire took approximately 40 minutes to complete, and asked participants about their organisations' perspectives on planning, policy, and response for animal management in disasters. Questions also asked about awareness of the NPPAD, as well as how they were using the Principles to support animal welfare in the context of disasters. Survey sections asked about their role and responsibilities for animals, the sector they worked in (e.g., emergency services, local government), awareness of planning arrangements for animals, and implementation of the Principles in the planning *process* and in disaster *plans.*

Respondents could also identify planning documents for animals that they referred to in their role. These documents were also used to supplement the documents included in the literature review just described. The full survey instrument can be found in Appendix B. Participants could also express interest in being contacted for a research interview at the end of the survey.

Stakeholder interviewing

Virtual interviews were conducted using a videoconference service[7] from September to November 2020. A broad sample of participants for stakeholder interviews were selected from those opting-in to be contacted for this purpose at the end of the survey. Participants were also recruited via responses to the Research Information Statement message sent out during initial recruitment for the stakeholder online survey, e.g., some key organisational representatives were unable to complete the survey at that time but were willing to be interviewed. The main inclusion criteria for participants were that they were a stakeholder in animal emergency management of any form, and that they had a professional interest in planning and/or policy for the management of animal in disasters, and that they operated in Australia.

Interviews were used to ask questions relating to challenges and successes in this space, planning for animals in disasters, written plans, response preparedness, organisational goals, and about how this was operationalised in recent emergencies. The semi-structured interview schedule can be found as Appendix C. After obtaining verbal recording consent, the researchers conducted a semi-structured interview lasting approximately one hour with each participant, which was later transcribed for analysis. Brief recommendations are made from this analysis.

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[6] See https://www.qualtrics.com/au/
[7] See: https://zoom.us/

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Case studies

Selected case studies, identified during surveying and interviews, were further described to provide context to findings from other sources in this project. A contact for each case study was emailed, as per stakeholder interviewing, to provide additional details about their experience of a specific emergency event (e.g., location of a bushfire or flood) and involving a stakeholder area (e.g., farming/commercial livestock production, boarding/agistment/animal shelters, companion/domestic animals).

An unstructured video interview was conducted with each contact and paired with additional information and imagery provided to the researchers via email. Originally, this was intended as in-person field site visits, however, travel and social restrictions associated with the COVID-19 pandemic required a shift to online case study data collection.

Data analysis

Quantitative data were analysed using IBM SPSS (v. 26) and qualitative data via QSR International NVivo (v.12). Stakeholder survey data were analysed descriptively and using Chi-square tests (χ^2). This tests for differences between categories and other variables. These tests for associations between different variables, however, were only conducted where there are more than 5 responses in a category.

Valid percentages (percentages with the number of missing cases eliminated from the denominator) are reported for all data. Test p-values were taken to indicate statistically significant differences when less than 0.05, unless otherwise noted, however, this should not be taken as the sole indicator of the meaningfulness of a particular finding.

Qualitative data were thematically coded using a scheme that initially drew from the structure of the online survey and interview guide, with new codes created as analysis continued. In qualitative research, data saturation is where there are sufficient interview—or other qualitative—data to reach a point in coding analysis where there is little change in the concepts described by the coding scheme. This was achieved with the current interview sample. Coding was also performed by Lisa Fountain, a social researcher with experience in work addressing disaster and emergency topics.

Highlights

In places throughout this report, there are highlighted textboxes designed to provide the reader with a brief summary derived from a section of findings. These highlight a takeaway point for a section.

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FINDINGS

The following sections of the report present findings from the literature review, the stakeholder online survey, and stakeholder interviewing. After summarising findings for each section, a brief set of recommendations is presented. These are further described in the discussion at the end of the report.

Literature review

Database and online searching returned 259 documents overall, with 49 (18.9%) documents eligible for inclusion, excluding 210 (81.1%) documents that that did not meet the search criteria (see Methods). Following screening by two researchers, documents returned by searches were excluded for various reasons:

- Dated or superseded materials (n=83, 39.5%)
- Out of scope (e.g., psychological), or did not address planning and response arrangements for animals in disasters (n=93, 44.2%)
- Contact resource or low information fact sheet (n=13, 6.2%)
- Duplicate document (n=6, 2.9%)
- Disaster planning or response documents that focused on biosecurity controls (n=15, 7.1%)

Note, this integrative review is indicative of the place of the NPPAD in Australian emergency planning and response and is not an exhaustive audit of legal arrangements. Documents were also identified by respondents to the national survey, described later in this report. A summary of Australia's frameworks for natural disaster management can be accessed in a recent Royal Commission briefing paper.[8] The final set of included documents are described below, followed by brief recommendations.

Context

Most documents were published in 2019 (n=14, 28.6%) and 2020 (n=12, 24.5%), (Figure 2), and were categorised as planning documents (n=36, 73.5%), which included plans, sub-plans, frameworks, and guides, with the remainder classified as reviews and reports (n=13, 26.5%), including disaster event and literature reviews. Documents were mostly relevant to NSW (n=11, 22.4%), SA (n=11, 22.4%), and National (n=8, 16.3%) contexts, followed by VIC (n=6, 12.2%), QLD (n=5, 10.2%), TAS (n=3, 6.1%) and WA (n=2, 4.1%). Remaining contexts included NT (n=1, 2.0%), ACT (n=1, 2.0%), and Australia and NZ (n=1, 2.0%) (Figure 3).

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[8] For a summary of this, see: Background paper: National natural disaster arrangements (RCNDA, 2020).
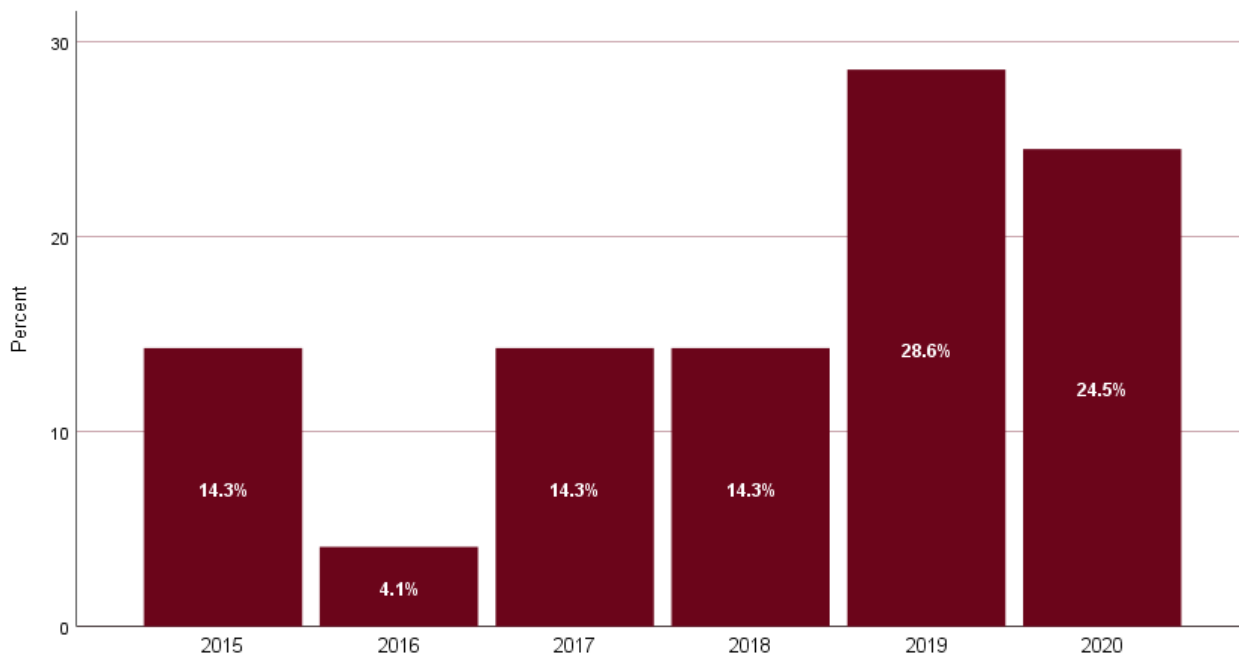
Figure 2. Document publication year (n=49).
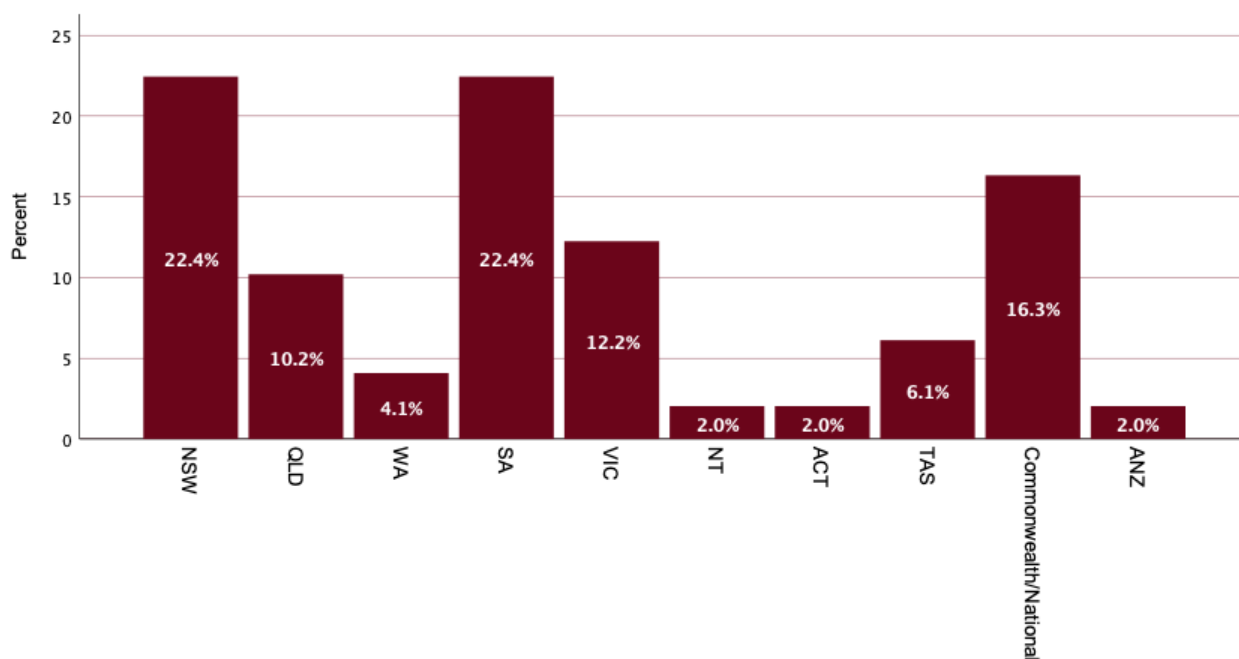
Figure 3. Document jurisdiction of use or relevance (n=49).

A range of animal types were addressed by reviewed documents, primarily all animal types broadly (*n*=34, 69.4%), farmed animals or agricultural livestock (*n*=6, 12.2%), and smaller domestic animals (*n*=5, 10.2%) (Figure 4).[9] Two documents focusing on wildlife

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[9] Note, although this latter category included one document that described assistance animals for simplicity, we acknowledge that these animals have distinct roles and access rights differ to companion animals during disasters.

were also included. Most of the reviewed materials were produced by state and territory government bodies (*n*=30, 61.2%), followed by institutes (*n*=6, 12.2%), including university and disaster research or policy groups, and local government (*n*=4, 8.2%) (Figure 5).
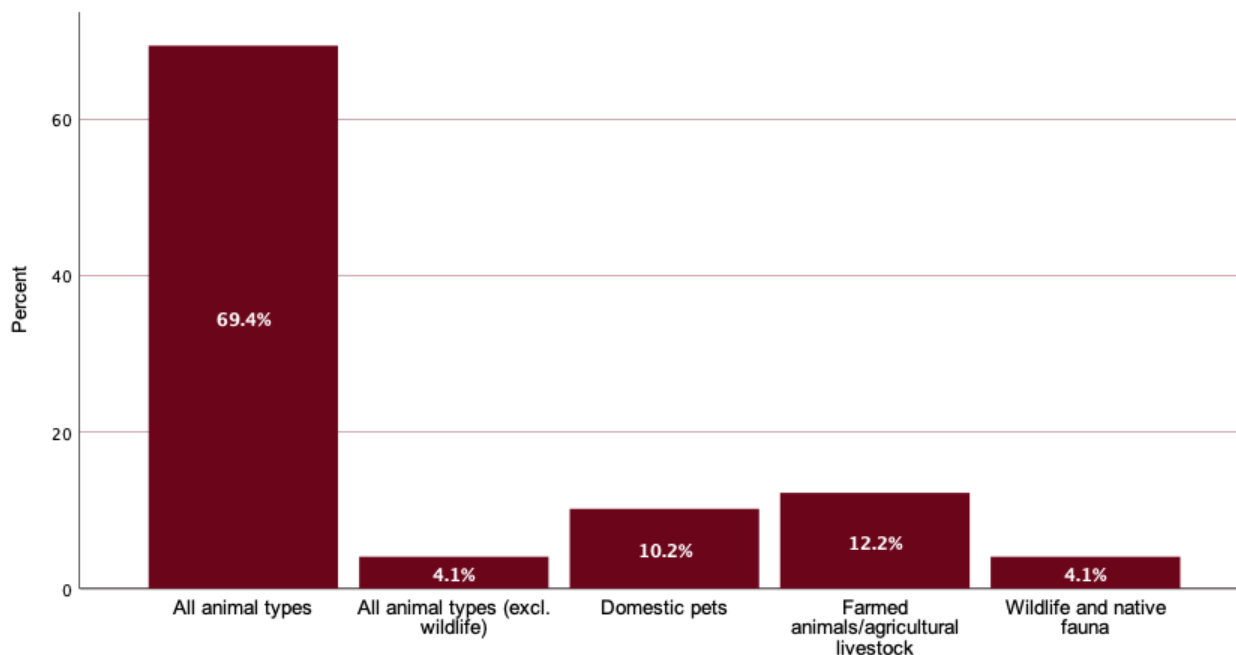
Figure 4. Animal type(s) addressed by document (n=49).
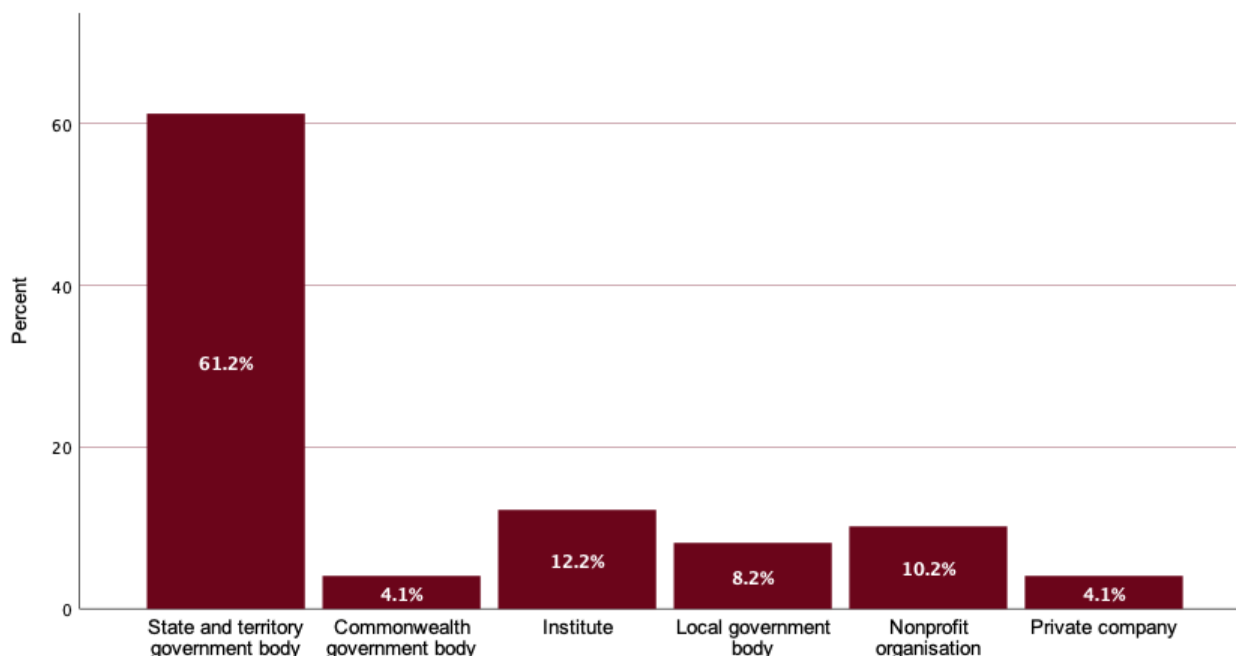
Figure 5. Organisation or body producing the document (n=49).

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The above shows that there was good coverage of relevant disaster, animal, and organisation types, with more coverage of materials from NSW, SA, and at national level. In the following sections, these materials are discussed in relation to the NPPAD, to provide context for the national survey and stakeholder interview findings.

To provide an overview of the degree to which the National Planning Principles for Animals in Disasters were represented across all documents, two researchers reviewed the materials for statements and processes that indicated reference to or support of each Principle. This analysis is summarised in Table 1, with some example reference documents in which the Principle in question was implemented, noted in text. This analysis should be interpreted with related content from the stakeholder online survey. In this analysis process, eight documents were identified that explicitly mentioned the Principles [15, 18-24], and these are discussed in later state-specific sections.

Table 1. Literature review coverage of the National Planning Principles for Animals in Disasters in Planning Processes (n=49).

Planning Process for Animals in Disasters	Yes (%)	No (%)	N/A (%)
The planning process should:			
1. Explicitly recognise that integrating animals into emergency management plans will improve animal welfare outcomes.	37 (75.5%)	11 (22.4%)	1 (2.0%)
2. Explicitly recognise that integration of animals into emergency management plans will help secure improved human welfare and safety during disasters.	29 (59.2%)	18 (36.7%)	2 (4.1%)
3. Aim, for the benefit of emergency managers and animal welfare managers, to clearly identify roles and responsibilities within command-and-control structures in sufficient detail to allow for effective implementation of animal welfare measures.	41 (83.7%)	7 (14.3%)	1 (2.0%)
4. Recognise the wide range of parties involved in animal welfare at each stage of the disaster cycle and ensure these organisations are consulted during writing or reviewing disaster plans.	31 (63.3%)	14 (28.6%)	4 (8.2%)
5. Respect the role of local government, especially with reference to animal welfare and animal management arrangements within the local area, as 'first responders' in disasters and acknowledge local government expertise in understanding local needs and resource availability.	26 (53.1%)	19 (38.8%)	4 (8.2%)
6. Consider how best to ensure effective integration and implementation of the plan by, for example, extensive consultation during the planning process or inclusion of an animal welfare element in requirements for disaster training exercises	28 (57.1%)	17 (34.7%)	4 (8.2%)
7. Include effective communication about plan implementation with those parties who may be involved as well as those who may be impacted by disasters.	34 (69.4%)	11 (22.4%)	4 (8.2%)
8. Be communicated in language that is accessible to all stakeholders including the general public.	42 (85.7%)	0 (0.0%)	7 (14.3%)

Note. Frequencies and valid percentages reported.

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Regarding the planning process for animals in disasters, Table 1 shows that most documents explicitly recognised that planning for animals in disasters supports their welfare, with many noting the relevance of this to human safety. To provide examples, the importance of animal welfare in this sense was seen in state and territory plans [25-27], animal functional area plans [23, 28], and municipal animal emergency plans [29, 30], including by non-profits [31]. This was also clearly outlined in animal welfare specific state emergency plans [21, 22].

Importantly, in emergency response contexts, human life is broadly prioritised over animal welfare. Recognition that animal planning impacts human safety and recovery outcomes was less often noted, but was present in evacuation and location planning material [13, 22, 25], with this explicitly identified as a general need in some cases [21, 23, 26], and specifically for municipalities [29] and vulnerable groups [32] to enhance human safety.

Most documents used clear and accessible language in presenting animal planning material [e.g., 27], however fewer documents noted the need to communicate effectively about animal welfare planning with involved and impacted parties. This was described in the need for community and stakeholder education and outreach [13, 29], communication with specific social groups [e.g., 32], and for effectively including government and non-government stakeholders in discussion of animal planning processes [14, 33].

Planning processes frequently identified the relevant roles and responsibilities for animal welfare in the event of a disaster. This included animal relocation and triaging [24, 31], incident and recovery management by local government and functional support groups [21, 22, 26, 27, 33, 34]. Yet, there is a need to involve a wide range of parties with expertise in animal welfare planning across the disaster cycle, including veterinary groups, animal welfare non-profits, environmental bodies, agricultural organisations, and animal specific emergency services teams [21-23, 28]. As coordination of animal welfare response at the municipal level involves these multiple parties, clear identification and public communication of responsibilities is essential to support animal welfare outcomes [e.g., 24, 35].

Process principles that were not well represented in reviewed documents included low acknowledgement of the role of local government in providing animal welfare and animal management expertise in local area needs and resources. Although non-animal specific expertise might be generally acknowledged [36], planning processes more often addressed local responsibility and capacity regarding animals [26, 33]. Where local expertise was noted, this was in relation to meeting unique impacts and recovery needs [27, 37], roles across different disaster stages [22], and in relation to functional support expertise [23]. The use of extensive planning process consultation for animal welfare in disasters was also moderately represented compared to other principles. Often, planning documents referred to separate animal functional support plans that provided detail on animal welfare groups involved in planning processes [21, 22, 28, 33, 38, 39].

These findings suggest a need for greater advocacy in support of local government roles in promoting their local expertise, and in engaging multiple animal welfare parties in disaster planning processes that affect animal welfare. Coverage of principles relating to the disaster plan itself is summarised in Table 2.

Table 2. Literature review coverage of National Planning Principles for Animals in Disasters in Plans (n=49).

Disaster Plan for Animals in Disasters	Yes (%)	No (%)	N/A (%)
9. Specify that the individual in charge of an animal is ultimately responsible for its welfare in disasters.	25 (51.0%)	22 (44.9%)	2 (4.1%)
10. Make reference to, and situate the plan within, the local area and/or jurisdictional regulatory and legal frameworks.	39 (79.6%)	6 (12.2%)	4 (8.2%)
11. Take an 'all hazards' humane approach to all species and encompass a wide range of possible disaster-type situations that may impact upon the welfare of livestock, companion animals, wildlife and other categories of animals such as laboratory animals.	22 (44.9%)	25 (51.0%)	2 (4.1%)
12. Use a definition of disaster that aligns with the National Strategy for Disaster Resilience. *	19 (38.8%)	27 (55.1%)	3 (6.1%)
13. Appropriately plan for animals taking into consideration the types of disasters most likely to be experienced in the particular jurisdiction	40 (81.6%)	8 (16.3%)	1 (2.0%)
14. Include consideration of animals at all stages of the disaster cycle including preparedness, response, recovery, and mitigation.	18 (36.7%)	29 (59.2%)	2 (4.1%)
15. Include a statement of scope that excludes animal disease and biosecurity emergencies from the plan	12 (24.5%)	30 (61.2%)	7 (14.3%)
16. Emphasise that biosecurity requirements are of utmost importance in disasters and that quarantine and biosecurity protocols must be followed wherever practicable.	16 (32.7%)	27 (55.1%)	6 (12.2%)
17. Provide for a staggered scaling up of response and resources in line with the scale and severity of disasters and their impact on animal and human welfare.	16 (32.7%)	27 (55.1%)	6 (12.2%)
18. Include a vision statement that makes reference to the importance of securing animal welfare outcomes in disasters.	6 (12.2%)	36 (73.5%)	7 (14.3%)
19. Include a brief rationale statement that includes reference to the benefits of the plan for animal welfare, human safety and wellbeing, and for the economy.	22 (44.9%)	25 (51.0%)	2 (4.1%)
20. Outline command and control structures in language that is accessible to the general public.	34 (69.4%)	11 (22.4%)	4 (8.2%)
21. Outline the processes for interagency co-operation at all stages of the disaster cycle.	28 (57.1%)	18 (36.7%)	3 (6.1%)
22. Include a system for formalising arrangements with animal welfare support organisations.	24 (49.0%)	22 (44.9%)	3 (6.1%)
23. Take into consideration logistical challenges that may impact upon implementation of the plan during disasters, for example, in the event that key infrastructure or personnel are not able to be deployed, communication is affected, or shelters are destroyed or otherwise unavailable.	27 (55.1%)	19 (38.8%)	3 (6.1%)
24. Include requirements and arrangements for regular testing and review of the animal welfare in disasters plan.	28 (57.1%)	14 (28.6%)	7 (14.3%)

Note. Frequencies and valid percentages reported. Principle numbering continues from Table 1. *This notes whether a definition of disaster or a related concept was presented. Definitions for this principle are examined in the stakeholder survey findings.

Regarding the disaster plan for animals in disasters (Table 2), most reviewed plan materials clearly referenced relevant jurisdictional legal frameworks (i.e., specific acts and legislation), and considered the types of disaster impacts most likely to affect animals in a jurisdiction. These included hazards such as bushfire [23, 25], flooding [40, 41], agricultural impacts of animal disease [28, 33, 38], or extreme weather and evacuation in metropolitan centres [24, 42].

Over half of reviewed documents outlined processes for interagency cooperation for animal welfare across the disaster cycle [e.g., 25, 34, 39], though under half had described a system for formalising arrangements with animal welfare support organisations. These arrangements were most often apparent in animal services functional support materials, where responsibilities and activation of groups with specific animal welfare expertise were described [21-23, 26, 28, 35]. This was also reflected in municipal planning [e.g., 29, 30].

Just half of reviewed documents specified that the individual in charge of an animal holds ultimate responsibility for the animal's welfare [11, 13, 21-25, 29, 30, 35, 43-45], with this noted to some extent for veterinary response [e.g., 14, 31], and in broader animal welfare management planning [e.g., 46].

Consistent with the process principles above, most documents outlined command and control structures in publicly accessible language. However, approximately half presented a rationale statement addressing benefits of animal planning for animal welfare and human safety [21, 25, 26, 29, 30, 32, 33, 35, 47]. Vision statements about the importance of animal welfare in disasters were uncommon, although this was noted in some state plans and municipal plans [e.g., 21, 23, 29], regarding shared obligation towards humane treatment of animals, prioritising of animal health and welfare, and its role in community resilience. In one non-disaster animal welfare state strategy, sentience and inability to self-advocate were described [46], and for primary producer materials, food safety, welfare and biosecurity were identified as important [e.g., 11, 12].

One quarter of reviewed documents presented a scope statement that excluded animal disease and biosecurity [18, 21, 22, 25, 29, 30, 32, 33, 35, 43], or referred to planning documents that did [e.g., 48]. However, the importance of biosecurity considerations was emphasised slightly more often, in relation to primary production, agriculture and environmental health, and in identifying the coordinating state government bodies for biosecurity.

Adoption of an 'all hazards' approach to disaster response applicable to all species was seen in under half of reviewed documents [e.g., 21, 22, 25, 29, 30, 33, 35-37, 43]. Although few also explicitly stated applicability to 'all species,' plan relevance to different species and classes of animals was noted [e.g., 21, 22, 23]. Consideration of animal welfare at all disaster stages was described in multiple documents. However, as planning materials were often disaster-stage specific, and referred to other associated materials, this should be interpreted in relation to survey findings found later in this report.

Scaling up of response and resources relevant to animal welfare was described in a third of reviewed documents [e.g., 21, 25, 33, 35, 42], noting response frameworks such as AIIMS. Response scaling needs were also identified in the 2019-20 Victorian bushfires Inquiry regarding wildlife response [20]. Scalability generally, is a National Capability

focus in the Australian Disaster Preparedness Framework [9], and a local level need [30, 31, 40]. Related to this principle, over half of reviewed documents identified the need to plan for logistical disruption that may affect emergency animal welfare response. Key considerations here included access to additional organisational supports, funding and resources needed to support increased disaster response capacity. Lastly, over half of materials included arrangements for testing and review of animal planning, such as planning exercises [39], training needs [47], policy and procedure review [28], and continual expert committee contribution to these functions [22]. As emergency response arrangements relating to animals in natural disasters are largely enacted at the state, territory, and local level, this is briefly described following initial consideration of documents focused on at the national level.

National-level document review

Higher-order framing documents for the National Australian emergency response context should be noted at the outset, as not containing any direct reference to owned animals or animal welfare in the context of assets, vulnerabilities, or the environment. This includes the National Disaster Risk Reduction Framework [7], the National Strategy for Disaster Resilience [8],[10] and the Australian Disaster Preparedness Framework [9][11] However, Australia's Crisis Management Framework does note animals as a domestic biosecurity concern, and the role of Defence in preventing extensive loss of animal life [10]. In Australia, emergency response arrangements aim to coordinate approaches to disasters across government, non-government, and volunteer organisations to foster cooperation, yet some differences do exist.

At the state level, higher-order documents addressing animal welfare include AUSVETPLAN,[12] AQUAVETPLAN,[13] EADRA,[14] and AGAGINPLAN.[15] Each of these plans addresses specific animal management or welfare concerns in the event of a disaster. For natural short-onset disasters such as bushfires, the NPPAD have the most direct relevance to state emergency risk management frameworks, local emergency management plans, and non-government planning arrangements, such as for businesses and non-profits with a stake in animal welfare. These are the types of documents included in the literature review, along with publicly accessible information, education, and guide documents relating to animal management in disasters.

Representation of the NPPAD in national level documentation

A summary of the representation of individual principles from the NPPAD is provided below, initially for national level documentation and then by individual state/territory. The number of the principle, as shown in the preceding tables, is used in this first section, e.g. (P1), (P8), to show the mapping to the Principles, and the individual principles are considered in numeric order.

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[10] This framework does note emergency animal disease vulnerability.
[11] Animals as an environmental feature and biosecurity consideration are noted.
[12] Documents accessible at: https://www.animalhealthaustralia.com.au/our-publications/ausvetplan-manuals-and-documents/.
[13] Documents accessible at: https://www.agriculture.gov.au/animal/aquatic/aquavetplan.
[14] For Emergency Animal Disease Response Agreement, see: EAD Response Agreement and Schedules.
[15] Australian Government Agricultural Incident Plan.

This first section reviews representation of the first portion of the NPPAD (P1-8), that relate to the *planning process*. National level documents largely supported that including animals in disaster planning benefited animal welfare (P1), particularly for primary producers in relation to animal safety, biosecurity, treatment and euthanasia of farmed animals (e.g., in bushfire) [11, 12]. This also extended to planning for animals in evacuation contexts [13], as well as wildlife response measures supporting animal welfare [14]. How this supports human welfare in disasters (P2), given the role of animals in risk to vulnerable communities [15], was not noted beyond evacuation complications due to animal management processes[13]. Roles and responsibilities for animal welfare in disasters (P3) are more appropriately described at state level. However, as noted above, there are higher-order documents that address this in command and control structures. Few national documents outlined how planning processes ensure consultation and integration of animal welfare support organisations in disaster planning (P4), however this need was highlighted in materials for primary producers [11] and in wildlife response [14].

Local government animal management and welfare expertise (P5) was not clearly acknowledged in national level documents, beyond catering plans to local jurisdictional requirements [13]. However, one guide for evacuation sheltering emphasised the role of local government in leading disaster management planning and evaluation of local needs, resources and capabilities [16]. Few national documents described processes for animal welfare integration in planning (P6), with brief mention of catering to animals at evacuation sites [13], and veterinary welfare guides for primary producers [11]. Communication of planning processes with those impacted in disasters (P7), and doing so using accessible language (P8), was well represented at the national level. Planning for animals requires effective communication with impacted agencies, organisations, and stakeholders in animal welfare in disasters [9, 13, 14].

When considering principles in the second portion of the NPPAD that relate to *disaster plans*, national documents emphasised animal owner responsibility (P9), for example in relation to farmed animals [11, 12], or during owner and animal presence at evacuation shelters [13, 16]. Reference to relevant legislation was made in most documents (P10), although endorsement of an all-hazards/all-species perspective (P11) was not common. In two cases, an all-hazards, but not all-species, perspective was noted [9, 14]. Two documents provided a definition of disaster (P12), as natural or man-made events that significantly disrupt sociotechnical systems [9, 17],[16] with most documents addressing high-likelihood disaster types that have impacts on animals (e.g., bushfire) (P13). This meant that most documents had a particular disaster type or stage focus and did not address animal welfare integration across stages (P14).

Scope statements that separately address animal disease and biosecurity, and emphasising of biosecurity importance (P15, P16), were not noted in most national planning documents. However, this was identified in capability requirements of the Australian Disaster Preparedness Framework [9]. Although scaling up of disaster arrangements (P17) was not noted in the Framework specifically in relation to animal welfare, scale-up has been noted for human evacuation sheltering [9, 16], and as a gap in wildlife welfare response connecting into standardised emergency management systems supportive of response scaling (e.g., AIIMS) [14]. Note, response scaling specific to animal welfare is activated at the state level, from animal welfare leads through local government and support organisations. Vision and rationale statements for the integration

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[16] More commonly, the term 'emergency' is used, as is shown in later survey findings.

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of animal welfare in disaster planning (P18, P19) were not described in documents at the national level.

Command and control structures relevant to animal welfare (P20) were generally referred to in clear and accessible language [9], including in industry [11] and non-profit examples [16]. However, this principle may require future assessment against measures of readability and public disaster literacy.[17] Processes for interagency cooperation specific to animal welfare (P21), and formalised arrangements with animal welfare organisations (P22), were not outlined at the national level in reviewed documents and were described at the state level. This was also the case for consideration of logistical challenges involving animals (P23), and requirements for regular testing and review of animal welfare specific planning (P24).

State-level document review

Victoria

In Victoria, state-level disaster response planning documents explicitly addressed the Principles within emergency animal welfare arrangements [21, 35], offering a good model for other states and organisations to refer to. Each of the principles are addressed in a separate plan designed to ensure that animal welfare is integrated into overall emergency response arrangements [21, p. 3]. This includes aspects that are infrequently addressed in this space, such as publication of a vision and rationale statement that connects this with individual and community resilience, animal suffering minimisation, and extensive animal welfare consultation.

Animal welfare responsibility structures are clearly summarised for the public [35], and are the result of early identified needs for improved collaboration and coordination between agencies on animal welfare in disaster response [18]. Functional roles of agricultural industry and animal welfare bodies are clearly noted while conveying that ultimate responsibility for animal welfare lies with the owner or carer of animals [35]. Importantly, this Principles-aligned planning directly informs local planning arrangements across municipalities [e.g., 29, 30]. Importantly, the Principles were noted in Victoria's 2019-2020 bushfire season inquiry [20], which referred to the state emergency animal welfare plan.

Western Australia

Western Australian animal emergency planning arrangements are explicitly informed by the NPPAD. State-level planning documents for animal welfare in emergencies incorporate several, though not all, key principles [22]. These included recognition of improved animal welfare and human safety outcomes by animal planning integration, identifying roles and responsibilities related to animal welfare, and the need for animal welfare consultation, across disaster stages, in managing disaster plans [22].

Reinforcing the connectedness of human and animal welfare, state emergency human welfare planning [43] refers to animal welfare as a preparedness concern, and presents the principle of owner/carer ultimate responsibility for animals, notes the coordinating

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[17] Readability can be measured various ways (e.g., Flesch-Kincaid scale). Public disaster literacy is "an individual's ability to read, understand, and use information to make informed decisions and follow instructions in the context of mitigating, preparing, responding, and recovering from a disaster." (Arthur W Page Centre-Public Relations Ethics).

government body, and integrates this with state emergency management policy [43, p. 10]. Importantly, the state animal emergency welfare plan acknowledges that owner/carer responsibility for animals is qualified by impacted ability or capacity to meet this obligation, as disaster impacts may require local assistance for owners [22, p. 1].

The role of local government as first responders with local needs and resources expertise in animal welfare is noted, and this is underpinned by engagement of a committee for animal welfare in emergencies with state and local government bodies to support local government animal welfare needs in emergency response [49]. State planning also described the need to ensure effective implementation of animal welfare planning, to effectively communicate about this with involved parties, and to use publicly accessible language. A scoping statement to exclude biosecurity matters is given, along with rationale context associating human-animal relationships with risk behaviour. This suggests good uptake of the Principles as a guiding tool.

South Australia

The emergency animal welfare planning framework in South Australia also directly draws on the Principles to inform disaster response arrangements. Guiding principles in state-level planning materials explicitly note that the NPPAD informs policy and plan development in South Australia [23]. They are identified as "providing the foundation for the South Australian framework for managing animals in emergencies" [23, p. 9]. Following vision and rationale statements that emphasise that effective animal welfare planning shapes human safety and animal welfare outcomes, the primacy of human life is emphasised. As with other state level plans, relevant acts and local laws are identified.

Most principles are implemented in the state framework, within description of emergency management goals, key messages, and support arrangements that connect each goal to operational organisations and responsibilities. Each of these is consistent with state emergency management plan arrangements [34, 50, 51], presenting animal owner/carer responsibility separate to government agency responsibility for each goal. Functional support responsibilities for animal management are clearly described across disaster stages at the end of the document (e.g., sheltering, veterinary care) [23]. Importantly, the state framework for animal welfare in disasters provides much practical information about how these goals, and in turn the Principles, translate into action for animal welfare. An example of this is seen in the acknowledgement that reuniting owners and animals entails safety and biosecurity risks related to control agency actions (e.g., police) [23, p. 19].

The state framework also emphasises owner/carer responsibility for animal welfare, the role of local government expertise, formalisation of animal welfare relationships, and roles and responsibilities for animal welfare. An all species approach is noted at the outset [23, p. 10], as 'all animals'. The importance of biosecurity protocols is described as part of emergency animal management [23], by the agency for biosecurity management [34], and a scope statement separating biosecurity arrangements is provided. There is a high level of implementation of the Principles in the state framework. However, animal impacts of disasters in South Australia, as noted via independent review into 2019-2020 bushfire season [52], and earlier bushfire research [19, 53], highlight the need to continue improving resources to support animal welfare planning.

New South Wales

Planning documents reviewed for New South Wales did not explicitly reference the NPPAD. However, a number of principles were represented in reviewed state planning [26, 33, 41, 54], and in animal specific functional support planning documents [28]. The importance of animal specific planning is noted as a strategic means of reducing the impacts of hazards on people and animals, with organisational responsibilities clearly identified for animal management and welfare [26, 28]. The role of local expertise and capability in emergency response is emphasised in reference to animal welfare functional support, and the integration of animal planning into response coordination is described [28, p. 8], based on extensive consultation with industry experts in animal welfare [e.g., 33].

Reviewed documents clearly communicated details of plan implementation for animal welfare, including command and control structures [28, 33], though individual animal owner/carer responsibility for animal welfare was not reinforced in most high-level planning and coordination documents. This was also seen in the New South Wales Bushfire Inquiry [55], where animal and owner co-evacuation and welfare support needs were identified, such as communicating about owner management of animal welfare (e.g., NSW SES 'Project Ohana') [55, p. 382]. An exception to this was in disaster assistance guidelines, where owner responsibility for animal welfare in feed provision and behaviour management was described [45].

Planning documents referred to local jurisdiction and laws, and although an 'all hazards' perspective was adopted [26, 33], affected animal categories were noted, rather than stating use of an 'all species' perspective in animal welfare planning [e.g., 33, 40]. Planning documents accounted for disaster types likely to impact animal welfare (e.g., bushfire, flood) [28], and accounted for animal welfare across disaster stages [26, 28, 33]. Animal welfare in incident response scaling was also addressed [33]. Biosecurity arrangements were identified in relation to agricultural operations [33], and were separately addressed (i.e., biosecurity sub-plan) to animal welfare functional planning [28, p. 5].

Although no vision statements for animal welfare were noted, rationale statements relating this to public health, economic concerns, community resilience, and human safety were given [26, 33, 54], concerns reflected in case studies [e.g., 56]. Interagency cooperation and formal arrangements with animal welfare organisations were well represented at state level, with animal welfare planning review and testing requirements in place.

Queensland

Documents reviewed for Queensland suggested the potential to more explicitly integrate the NPPAD, particularly as these have been referenced in a review of evacuation arrangements by RSPCA Queensland [24]. State-level bushfire planning referred to animals as environmental features vulnerable to disaster impacts, such as wildlife and farmed animals [57]. State-level disaster planning also specified that individual animal owners are responsible for the welfare of animals in their care [58, p. 43], and this was reiterated via publicly accessible guides [59]. One example of this is owner responsibility for purchasing aerial fodder drops for farmed animals [60]. The benefits of animal welfare planning to human and animal outcomes were briefly noted in state recovery planning as

part of recovery objectives [27, 37], though benefits to human safety were not explicitly described.

Responsibilities for animal welfare in disasters and interagency cooperation were described for strategies to prioritise animal welfare management in disasters [27], with biosecurity arrangements separately addressed (e.g., AUSVETPLAN) [58, p. 73] [60]. Consultation for animal welfare planning, recovery, and functional support responsibility is clearly outlined [58, p. 96], and an 'all hazards' approach adopted, though an 'all species' perspective was not described. State-level planning also noted that although animal management is a local government responsibility, state government does support welfare response in large-scale natural disasters impacting animal welfare [60, p. 52]. This was reflected in local government disaster plans specifying that agriculture departments address welfare concerns for farmed animals in the state [e.g., 44]. The need to harness local government expertise and identify unique needs and resources was a feature of state recovery planning [27, 37]. One document identified a need for clearer animal welfare planning and response communication with animal owners during disasters [24]. The general importance of clear communication methods was noted at the local government level [e.g., 27, p. 74]. Although animal welfare and biosecurity rationale for animal planning was provided in various documents, no reviewed state-level materials provided a vision statement addressing importance of animal welfare outcomes.

Northern Territory

One key document was included for review from the Northern Territory: The Territory Emergency Plan [39]. This did not explicitly incorporate the NPPAD, although some were addressed. The Biosecurity and Animal Welfare Group are identified as responsible for coordinating animal welfare for domestic, commercial, and wildlife animals. This involves coordination with expert animal welfare groups for veterinary expertise (e.g., RSPCA, AMRRIC, PAWS), as well as agriculture industry peak bodies. The plan provides separate scope for biosecurity matters (e.g., animal disease), and specifies state government as the lead agency for animal welfare in disasters (i.e., DPIR). This plan also specifies an 'all hazards' approach, refers to farmed animals, companion animals and wildlife, and considers disaster types likely to impact animals (i.e., bushfire, cyclone, flood).

Local emergency management plans are publicly accessible via the Northern Territory Fire and Emergency Services website. These local plans include provisions for animal management and welfare,[18] and specify that owners/carers are expected to make arrangements for their animals, as co-sheltering may not be possible in their jurisdiction [e.g., 61]. Planning materials used accessible language and are subject to periodic review. This is evident in public guides and factsheets that reinforce owner responsibility for animals, and that this includes companion and farmed animals.[19]

Although not included in reviewed documents, it is worth noting that the Territory Emergency Management Council Strategic Plan presents aspirational high-level goals for disaster risk and community resilience management that are consistent with the intention of the Principles [62].

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[18] See: https://pfes.nt.gov.au/emergency-service/publications#
[19] Guides can be viewed here: https://securent.nt.gov.au/prepare-for-an-emergency/pets-in-emergencies

Australian Capital Territory

The ACT Emergency Management Plan [63] outlines the command and control, coordination, and communication functional areas for emergency response, including where health and safety of people and animals are impacted. Largely, the document addressed authority to declare emergency incidents and appoint coordinating agencies. The plan specifically notes disaster types likely to impact animal welfare (e.g., fire, flood, animal disease). Included after the review search, the ACT Strategic Bushfire Management Plan also notes the need to protect priority assets, including farmed animals [64, p. 33], though does not address the NPPAD. The ACT Emergency Management Plan specifies that biosecurity matters are separately addressed [63]. Outside of this document, several hazard specific sub plans are used (e.g., Elevated Fire Danger Sub Plan), though these were not publicly accessible.[20] An accessible non-disaster specific guide is the ACT Animal Welfare Management Strategy [46], which notes that animal welfare vulnerability arises in emergency situations, and does describe biosecurity matters as separately addressed. This separate document also contains introductory and vision statements with associated goals that may usefully inform disaster planning materials [46, pp. 5, 15]. Further ACT animal planning and policy materials should be reviewed against the Principles.

Tasmania

State-level animal planning materials from Tasmania did not explicitly reference the Principles, though did meet multiple of them. Reviewed state emergency management planning materials acknowledged that integrating animals benefits their welfare in this context [25, 48, 65], and currently connects this to human safety outcomes (e.g., evacuation capacity) [25]. Animal welfare responsibilities and consultation on animal welfare matters were clearly identified [25, 65], including functional support for animal welfare [25, p. 57].

The important role of local government expertise was noted broadly [25], with reference to animal welfare considerations in local emergency management guidelines [48]. Reviewed documents did not describe how to best integrate animal welfare into planning, though did note this as a significant issue, and that owners are ultimately responsible for their animals' welfare [25, p. 75]. Effective communication with owners about animal management and welfare was reinforced in local guidelines [48]. Likely disaster types were identified in all documents, and scope statements separately addressing biosecurity were included. State emergency management noted animal welfare across disaster stages [25], and referred to scale up as part of operational response.

No vision statements on the importance of animal welfare were identified, though planning does note the significance of animal welfare during disasters and as a key community relief and recovery consideration [25, p. 75, 112]. Command and control structures and interagency cooperation were outlined [25, 48, 65], with formal arrangements with animal welfare organisations referenced via functional support responsibilities (e.g., local council, environment department, community groups) [25]. Regular plan review and testing was noted in the materials.

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[20] See: https://esa.act.gov.au/cbr-be-emergency-ready/emergency-arrangements

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Conclusions (literature review)

The literature reviewed is an indicative, although not comprehensive snapshot of disaster planning and policy materials relevant to animal welfare. However, from this several tentative conclusions can be made. Despite the NPPAD being intended as higher-order planning tool, they are only partially utilised at the state and local levels within some Australian jurisdictions, notably in Victoria, Western Australia, and South Australia. Consequently, those who have implemented the Principles may be able to share their processes for achieving this with those yet to do so.

R1: To increase uptake of the NPPAD across Australia, it is recommended that representatives from organisations responsible for animal welfare planning in each State and Territory strategically share information about how they have integrated (or plan to further integrate) the tool into their emergency management planning for animals.

Many planning documents outlined their processes and relationships for animal welfare consultation. However, a lower proportion explicitly acknowledged the role of local government 'first responder' expertise in understanding needs and resources for supporting animal welfare.

R2: To help advocate for, and frame, local disaster planning arrangements, DAWE/DHA/DRRA or appropriate responsible agencies or organisations should ensure that the NPPAD is more actively shared with State and Territory Local Government Associations across Australia.

Planning processes for animals in disasters also more often need to state that animal welfare considerations are closely connected to the priority of securing human safety outcomes. This was noted in some cases in relation to evacuation processes and vulnerable populations. Roles and responsibilities for animal welfare management were often described, although there may be scope to include a wider range of parties with expertise in animal welfare, as is seen in animal welfare functional support arrangements at the State and Territory level. Reviewed documents also suggested a need to more consistently present a statement that the person in charge of an animal is responsible for the animal's welfare during disasters. An important qualifier to this is to further acknowledge that this is impacted by owners' ability or capacity to meet this responsibility.

R3: To emphasise the role and recognise the challenges for animal owners, statements addressing the owner's ultimate responsibility for animal welfare in disasters need to be more consistently stated in disaster plans. Statements should also consider the variable capacity of owners to meet this requirement and emphasise awareness of potential assistance needs.

As vision and rationale statements addressing the benefits of animal welfare planning were not consistently presented in planning documents. This is an area to consider in the design and revision of animal relevant planning materials, where animal welfare and associated wellbeing, safety, and economic impacts are often presented using in terms of risk, compared to individual and community resilience.

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R4: To strengthen and embed the case for effective emergency planning for animals, disaster plans should include vision and rationale statements that recognise that positive outcomes for animal welfare are linked to benefits for individual and community resilience, through improved human safety, well-being, and economic outcomes.

Although some planning materials stated an 'all hazards' perspective, this was not always paired with applicability to multiple animal types or species. As applicability to 'all species' is not always feasible, planning materials might consider include a statement describing the inclusion and exclusion limits for animal types covered in planning. Consideration of response scaling for animal welfare was noted as a need in this review. As this is consistent with scalability being a priority in the Australian Disaster Preparedness Framework [9], this should also be considered in planning arrangements for animal welfare specifically. The following section presents findings from online stakeholder surveying.

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Stakeholder online survey

Results of the national stakeholder survey are described in the following sections. Questions in the survey were designed to explicitly ask whether and how various aspects of the Principles were implemented by participants and their organisations. As involvement was anonymous, organisations, roles, and jurisdictions are described in aggregate. Findings of the national survey are covered in seven sections:

1. Participation
2. Organisations and roles
3. Emergency and disaster planning
4. Engagement with NPPAD
5. Implementation in planning process
6. Implementation in disaster plan
7. Further gaps and needs

Participation

The participation rate for the survey was 42.7%,[21] with 504 initial invitations sent via email to eligible representatives from government, industry, and other sectors. This is a typical rate for this type of survey. Of the 215 participants consenting to the survey, 137 progressed, giving a 63.7% completion rate. Of these 137 respondents, 83 provided data on both earlier organisational and planning questions, and regarding the NPPAD. As the survey was not promoted to the general public, and was directed to animal management stakeholders, this represents a significant degree of engagement with the project's target audience, with stakeholders from 78 different organisations.
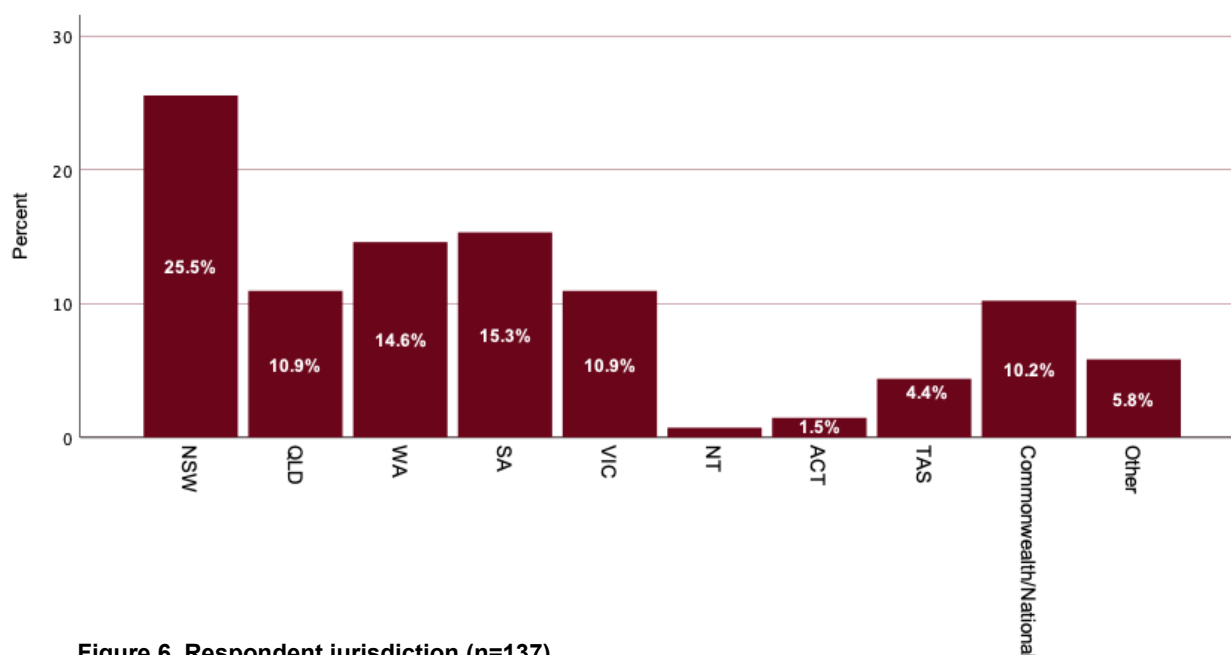

Figure 6. Respondent jurisdiction (n=137).

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[21] Participation rate: participated/contacted, 215/504. Completion rate: responded/participated, 137/215.

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Respondent organisations were primarily from NSW (25.5%), SA (15.3%), WA (14.6%), QLD (10.9%) and VIC (10.9%), with 10.2% reporting Commonwealth or National jurisdiction, 5.8% 'Other', 4.4% TAS, and 0.7% NT (Figure 6). 'Other' included respondents who had held roles in Australia and New Zealand.

Organisations and roles

To capture different types of organisations, respondents were asked what type of organisation they worked for (open text). When categorised, these mostly included local government and council (21.9%), emergency services (19.7%), non-government organisations focused on animals (13.1%), animal care and veterinary specific organisations (11.7%), and agricultural departments (10.9%) (Figure 7).
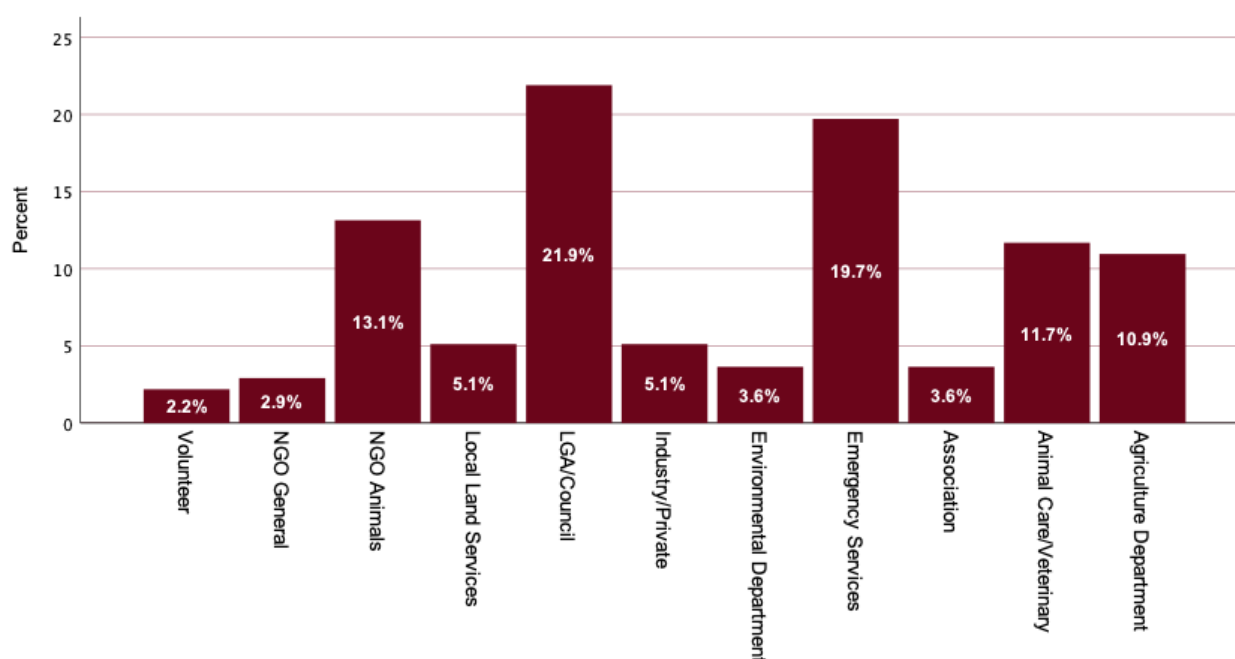
Figure 7. Respondent organisation type (categorised open response) (n=137).

Following this, respondents were also asked to identify their organisation type against a predefined list of organisation types, and gave responses that were consistent with their own earlier descriptions:
- State and territory government body (26.3%)
- Local government body (21.2%)
- Emergency services organisation (13.1%)
- Non-profit organisation (25.5%)
- Professional organisation (2.9%)
- Private company (2.9%)
- Other (8.0%)

Respondents' *roles* are separately categorised in Figure 8, with emergency management (35.3%), animal welfare management (26.5%), and veterinary specific roles (12.5%) most highly represented, while land services (2.2%) and community planning (1.5%) were least

represented. The majority of these respondents (74.5%) had direct interaction with animal owners as a part of their role. Most (89.1%) reported currently working in the role, with 10.9% having formerly worked in a role that had coverage of the 2013 to 2020 period when the Principles were accessible.
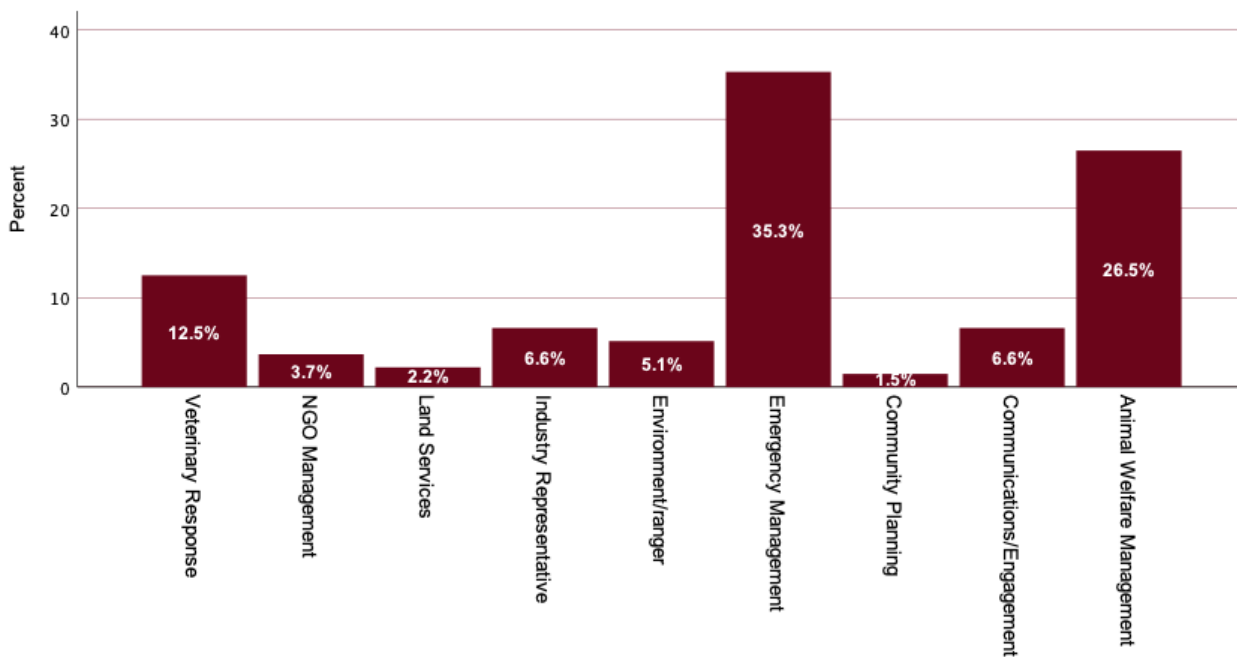
Figure 8. Respondent role type (n=137).

Figure 9. Relevance of role to planning or policy for animal management in disasters (n=136).

When directly asked, over half of stakeholders reported an emergency and disaster specific focus (50.4%), with the remainder commenting that their role focused on animal

welfare operations, policy, management, and enforcement, as well as industry or agricultural representation, wildlife and land care management, and animal welfare communication and rescue. Although broadly animal welfare focused these respondents also represented areas such as disease surveillance, biosecurity, sustainability, and animal production.
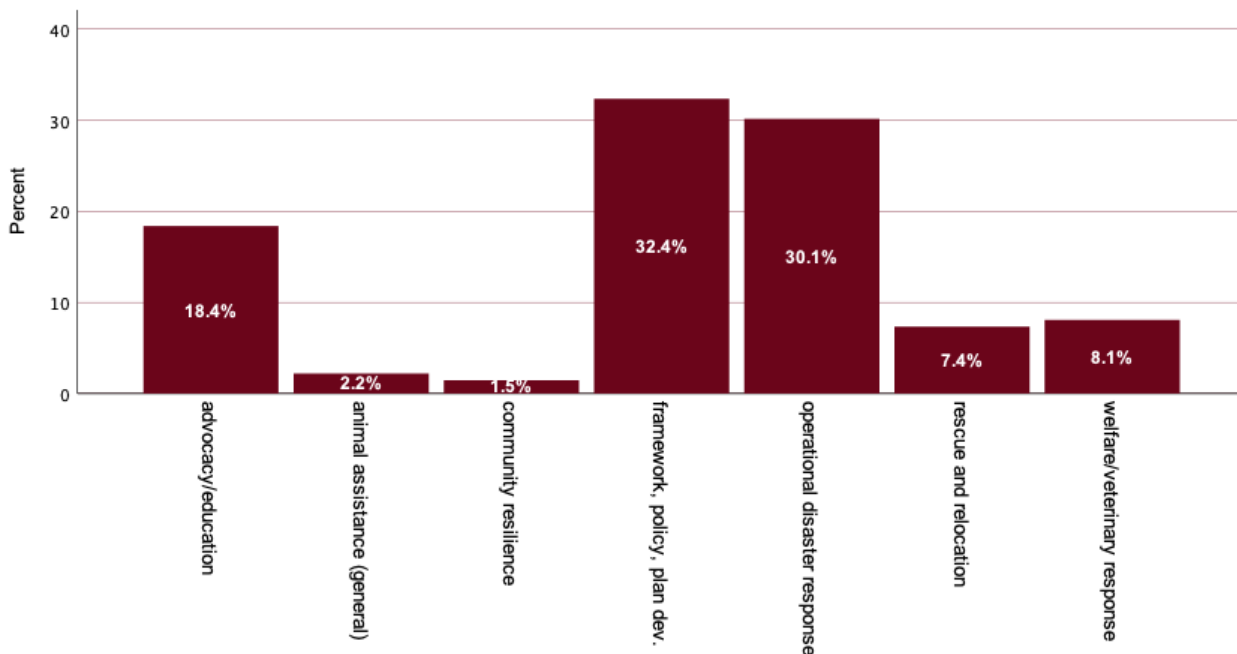
Respondents were asked whether their *own role had relevance* to planning or policy for animal management in disasters. These open responses were categorised according to the primary aspect described by stakeholders and are shown in Figure 9. The majority of respondents described their role as directly relevant to development of frameworks, policy or planning for animal welfare in disasters (32.4%) or noted that they were involved in disaster operational response activities that related to animal management (30.1%), and with some indicating animal welfare advocacy or education activities (18.4%).

Respondents were next asked if their *role within the organisation had oversight* for a list of areas of responsibility in disasters (Table 3). Most had oversight for community engagement and disaster preparedness (68.6%), operational disaster response (79.6%), animal management and welfare (78.1%), and emergency management or planning (73.7%). This indicates that that survey respondents' actions can have a direct impact on animal welfare and safety during disasters.

Table 3. Role area of oversight for disasters and emergencies (n=137).

Oversight area in disasters	Yes (%)	No (%)
Community engagement/disaster preparedness	94 (68.6%)	43 (31.4%)
Operational disaster response	109 (79.6%)	28 (20.4%)
Animal management/animal welfare	107 (78.1%)	30 (21.9%)
Community evacuation centres	57 (41.6%)	80 (58.4%)
Emergency management/planning	101 (73.7%)	36 (26.3%)
Community recovery	67 (48.9%)	70 (51.1%)
Other	4 (2.9%)	133 (97.1%)

Note. Frequencies and valid percentages reported.

For most respondents, the animal types that came under their responsibility included farmed animals (54.7%), smaller (52.6%) and larger (49.6%) domestic pets, as well as wildlife and native fauna (38.0%). This indicates that the sample primarily relates to 'owned' animals, as intended (Table 4).

Table 4. Organisation responsibility for animal types in disasters (n=137).

Animal type organisation is responsible for	Yes (%)	No (%)
All animal types	31 (22.6%)	106 (77.4%)
Farmed animals/agricultural livestock	75 (54.7%)	62 (45.3%)
Smaller domestic pets (e.g., dogs/cats)	72 (52.6%)	65 (47.4%)
Larger domestic pets (e.g., horses)	68 (49.6%)	69 (50.4%)
Aquatic species	23 (16.8%)	114 (83.2%)
Wildlife and native fauna	52 (38.0%)	85 (62.0%)
Invasive or pest species	22 (16.1%)	115 (83.9%)
No role in management, planning, policy	7 (5.1%)	130 (94.9%)
Other (e.g., threatened species, animal rescue)	11 (8.0%)	126 (92.0%)

Note. Frequencies and valid percentages reported.

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For context, having direct contact with animal owners was tested against organisation type (Table 5), suggesting that local government bodies may have the most contact with animal owners.

Table 5. Organisation type and direct contact with animal owners in emergencies and disasters (n=137).

Organisation type	Yes (%)	No (%)	χ^2	df	p	V
			13.48	6	.021	.056
State and territory government body	22 (68.8%)	10 (31.3%)				
Local government body	28 (96.6%)	1 (3.4%) *				
Emergency services organisation	15 (83.3%)	3 (16.7%)				
Non-profit organisation	28 (84.8%)	5 (15.2%)				
Professional association	2 (66.7%)	1 (33.3%)				
Private company	2 (66.7%)	1 (33.3%)				
Other	5 (55.6%)	4 (44.4%)				

Note. 'Organisation type' categories for this test used a set list of options shown to respondents. Frequencies and valid percentages reported. Significance level of adjusted standardised residuals between categories, *p<.05, **p<.01, ***p<.001. Fisher's exact test reported due to expected cell count.

Stakeholders were asked, 'do you think your organisation should have responsibilities for management of animals in disaster/emergency situations?' Desired level of responsibility in these contexts is shown below in Figure 10. This indicated that although around half of all stakeholders felt their organisation had an adequate level of responsibility, one quarter felt they should have more responsibility, and a sizable proportion felt they should have none.
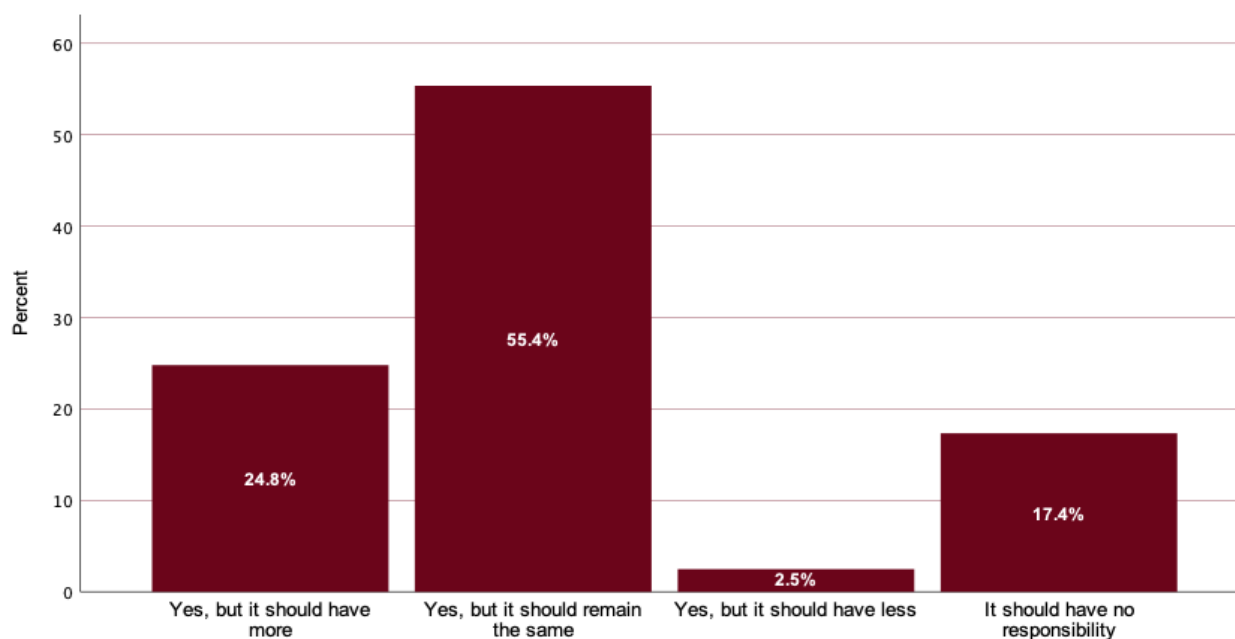

Figure 10. Stakeholder desire for responsibility for animals in disaster contexts (n=137).

When broken down by organisation type (Figure 11), stakeholders from many non-profit organisations (42.9%), emergency services organisations (23.5%), and state and territory government bodies (22.2%) would like to have more responsibility for the management of animals in disaster and emergency situations. Most local government bodies felt they had an appropriate level of responsibility for animals, and very few stakeholders indicated that they wanted less. This was seen for a small number of stakeholders in state and territory government bodies (2.8%), local government bodies (3.6%), and emergency services organisations (5.9%).

Importantly, almost a third of emergency services stakeholders surveyed felt that their organisation should have no responsibility for animals in disaster and emergency situations. Note, given low numbers for professional associations and private companies, those categories should be interpreted with caution (n=3).
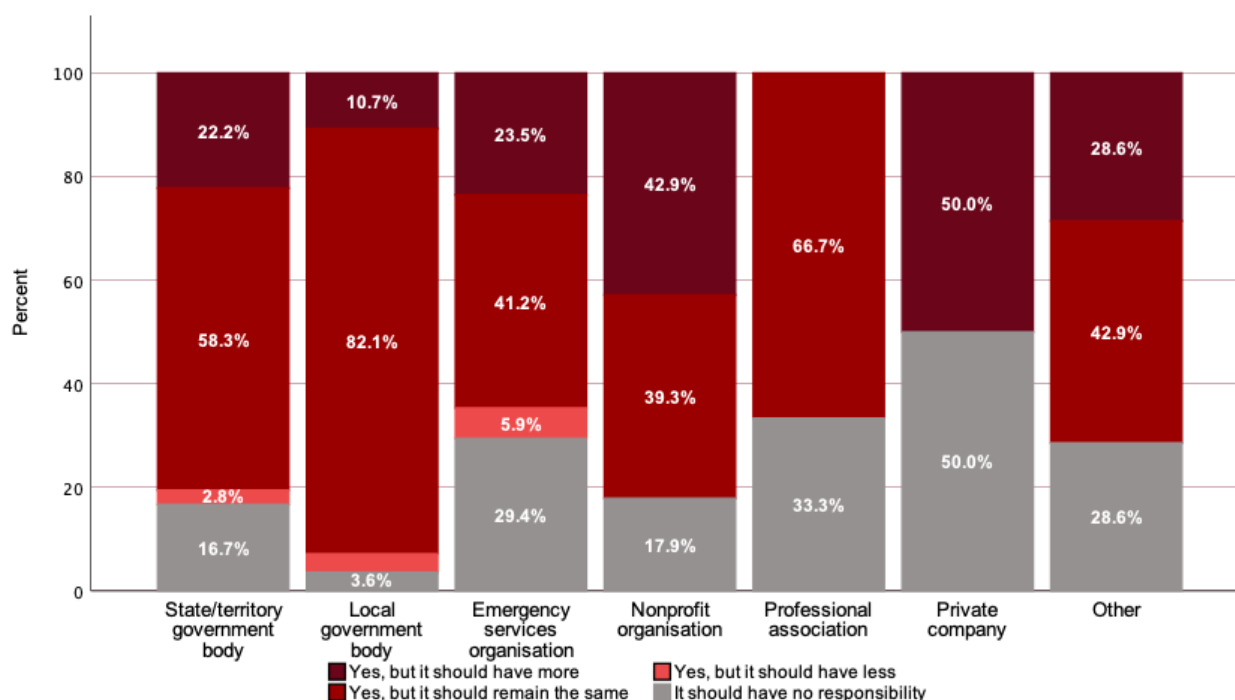
Figure 11. Organisation type by desire for responsibility for animals in disaster contexts (n=137).

Many of those whose work relates to animal management in disasters have direct contact with animal owners, and are likely to work in local government, non-profit organisations, and emergency services. Although half of stakeholders felt their organisation had adequate responsibility for animal in disaster contexts, in some cases, non-profits, emergency services and state/territory government bodies would like more responsibility for animals. A notable proportion of emergency service representatives felt that their organisation should have no responsibility for animals.

Emergency and disaster planning

For stakeholders responding about plan awareness (n=137), most were aware of the formal animal emergency planning, response, and recovery arrangement within their state

or territory (73.0%), with few reporting no awareness (12.4%) or being unsure (14.6%). Comments about formal animal emergency planning, recovery, and response arrangements in stakeholder jurisdiction (n=68) are shown in Table 5, and categorised as barriers, enablers, or needs for emergency planning, response, and recovery arrangements relating to animals. Comments suggest a broad need for effective integration of animal welfare management into existing emergency response systems, and increased communication and coordination about this with combat agencies. Note, these comments are provided for context, in response to the question, 'do you have any comments on these (planning) arrangements?'.

Table 6. Open comments on emergency planning, response, and recovery arrangements for animals (n=68).

Stakeholder comments	Category
Commonwealth/National	
It is left up to each of the councils to manage, with no formal coordination at a state level.	Barrier
These arrangements omit our key species, despite it being a native species. There is a distinct lack of information or input/dialogue from stakeholders around dingoes.	Barrier
In place, [plans] work well.	Enabler
Emergency Animal Disease Response Agreement AUSVET Plans.	Enabler
They are generally very good; however, the gap area is for wildlife.	Need
Australian Capital Territory	
Governments are professional in the way they prepare for and handle emergency arrangements.	Enabler
New South Wales	
Haphazard [planning] and often consult the wrong authority	Barrier
If there is no declaration of emergency state arrangements are unclear, and wildlife response is left to individual agencies.	Barrier
Lack of clarity over responsibility for wildlife… with no coordinated response or funding.	Barrier
Planning for recovery is not as well developed as response planning, which is consistent across all areas of EM.	Barrier
[Interagency] discussions underway at various levels.	Enabler
We assist with tasking by [government] in the event of emergencies.	Enabler
My experience suggests it is better that AASFA covers all animals and uses specialist agencies to cover that area in terms of coordination and [use] of resources as many of the structures and resources are the same for other animals, in particular the extensive numbers of government vets held by [land services] and [government].	Enabler
NGOs will often produce material around [animal] preparedness.	Enabler
The NSW State Rescue Policy is clear on our responsibility for rescuing domestic animals.	Enabler
[Maintaining] working relationships with animal welfare services.	Enabler
Engagement of the community with the responsibilities of responsible pet ownership… can achieved by continued collaboration with all agencies and inclusion of animal establishments and veterinary practices.	Enabler
EMPLAN, AASFA Supporting Plan, outline responsibilities for agriculture and animals— there is less clarity around wildlife.	Enabler
Maintaining knowledge and training in the EM space is a challenge.	Need
[Emergency services] could work more closely with [government] for community engagement, public information, planning and response arrangements.	Need
Current arrangements however do not put the same level of focus on Community Preparedness and Recovery	Need

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We need a greater level of training to ensure capability of quick 'black walks' by trained volunteers - without that you might as well forget trying to mount any response.	Need
These arrangements primarily are within the response and recovery phases of emergencies and are managed by the relevant supporting agency.	Need
Northern Territory	
NT has a small population, so it is relatively easy to establish relationships, and weather-related disasters occur with relative frequency and predictability, meaning the arrangements are well practiced.	Enabler
Queensland	
Animal management is unfortunately on the bottom of the list [for] preparing and educating the community and planning for actual disaster events. However, with more resources, support planning, and education, this can be implemented better.	Barrier
We work with whale, turtle, shark, and seal stranding groups when the need arises.	Enabler
Very comprehensive [planning] in both state and local level	Enabler
Communication and coordination of these plans with different levels of government needs to be improved if they are to be implemented effectively.	Need
Would like to see clearer working arrangements between organisations for planning and response activities, and processes for escalating requests for specific animal management support in the Queensland Disaster Management Arrangements.	Need
[Our] local animal management sub plan, a sub plan of the Local Disaster Management Plan, is currently under review post-2019 bushfires [using] National Planning Principles for Animals in Disasters.	Need
Victoria	
Victoria's emergency animal welfare plan… has proven effective in providing a framework for a coordinated approach to managing animal welfare in emergencies. Communications [with] the Victorian community have resulted in improved animal welfare outcomes and a general understanding of the importance of allowing people to evacuate with their animals.	Enabler
Good in theory, [we] need more practical experience and communication.	Need
The [equine] database was written into State Emergency plans and partnered with [emergency services]. Public education was undertaken.	Enabler
We should be operating as part of the Victorian Emergency Animal Welfare Plan under [government]… [though] have continued to operate on our own…	Barrier
[Government] is the lead agency for wildlife, while [agriculture] is the lead agency for managed animals (livestock and companion animals) Other agencies perform different roles in this space, as defined in the Victorian Emergency Animal Welfare Plan.	Enabler
We work very closely with government bodies in responding to native wildlife emergencies.	Enabler
[For] wildlife rescuers undertaking bushfire rescue work, [there is] lack of trust for safety and preparedness… [they] will not engage rescuers on this level… because within wildlife rescue there is no chain of command such as is used by [Fire Services]. This needs to change for Victoria.	Need
South Australia	
[It is] not well communicated.	Barrier
We have a main [veterinary] organisation… but they do not get involved with [all responses] ...	Barrier
[We] are part of the process, and on the whole, they work well, as long as the Government of the day follows due processes.	Enabler
[A] state project implemented [a] national agreement, now included as annex to state arrangements, and required to be incorporated in all agency planning.	Enabler
[We] utilise a number of plans prepared by other agencies including [emergency services], [government], [animal welfare], and peak [industry] bodies. Our response plans	Enabler

and training for incidents includes environmental management to… reduce impacts on native flora and fauna.	
The Managing Animals in Emergency framework is currently under review and each year the lead agency conducts workshops and desktop simulation of actual incidents…	Enabler
There is an organisation operating in South Australia… which uses volunteer veterinarian professionals to plan for and mobilise quickly to assist in the veterinary management, treatment and care of animals affected by bushfire.	Enabler
The function for recovery for animal management [is by] [government] who have expertise in livestock/pets…	Enabler
We have a main [veterinary] organisation… but they do not get involved with [all responses] ...	Need
A framework… outlines roles/responsibilities at a high level and what the state's goals are for animals in emergencies. It needs continued promotion and stakeholder engagement… but there are limited resources to do so. [We] have individual response/recovery plans for a variety of animal emergency issues.	Need
Western Australia	
These plans are fine for large local governments who have large numbers of staff, WA has a large number of small local governments that do not have the staff numbers to support an incident.	Barrier
State arrangements are in their infancy.	Barrier
[Planning is] very basic and not widespread.	Barrier
We have an Animal Management in Emergencies Plan that is attached the Shire Local Emergency Management Arrangements… State support plans and national principles have been developed to guide and support [this].	Enabler
There is a recent WA State Support Plan for Animal Welfare in Emergencies… a high level, strategic plan…. [and] the development of a plan describing [our] operational arrangements for animal welfare in emergencies.	Enabler
State support arrangements are in place… they are new and collaborative and recognise the difficulties of WA… [where] collaboration is vital due to sparse resources and logistical constraints.	Enabler
They are what I would expect from the State, a guide only and local governments can implement plans to suit their situation.	Enabler
[We] have been involved in education… for technical large animal rescue… and so [this] education has been shared with lay people and professionals.	Enabler
Place the responsibility of animal welfare in emergencies on the owner. There is minimal formal support documented for when private or local emergency plans become overwhelmed.	Need
The format is different to what I had in mind; however, some planning is better than no planning and if they have an operational plan also then I believe that would help.	Need
Tasmania	
[We have] biosecurity and local government animal refuge plans.	Enabler
Emergency response plans need to be more widely publicised, and there needs to be greater involvement of relevant stakeholder groups in all stages of a response.	Need

Note. Comments were abbreviated from raw open responses for stakeholders responding 'yes' to awareness of formal animal emergency planning, response, and recovery arrangements in their jurisdiction. Empty and incomplete comments were excluded (n=9).

The next section addresses awareness of and engagement with the NPPAD by stakeholder organisations.

Engagement with National Planning Principles for Animals in Disasters

Understanding of the purpose of the Principles was categorised to indicate *awareness* and *implementation* separately. From 105 open comments asking about this, it was found that although a reasonably large proportion of stakeholders were aware of the Principles (58.1%), almost a third were unaware of them (31.4%), with the remainder unsure if they had encountered them in their role (10.5%), see Figure 12. Other comments were non-categorisable (n=12), with no response provided by the remainder. This suggests that there is a moderate level of awareness of the Principles, but also that there is a sizable proportion who are unaware of them. These individuals may be targeted in awareness and education campaigns for relevance of the Principles.
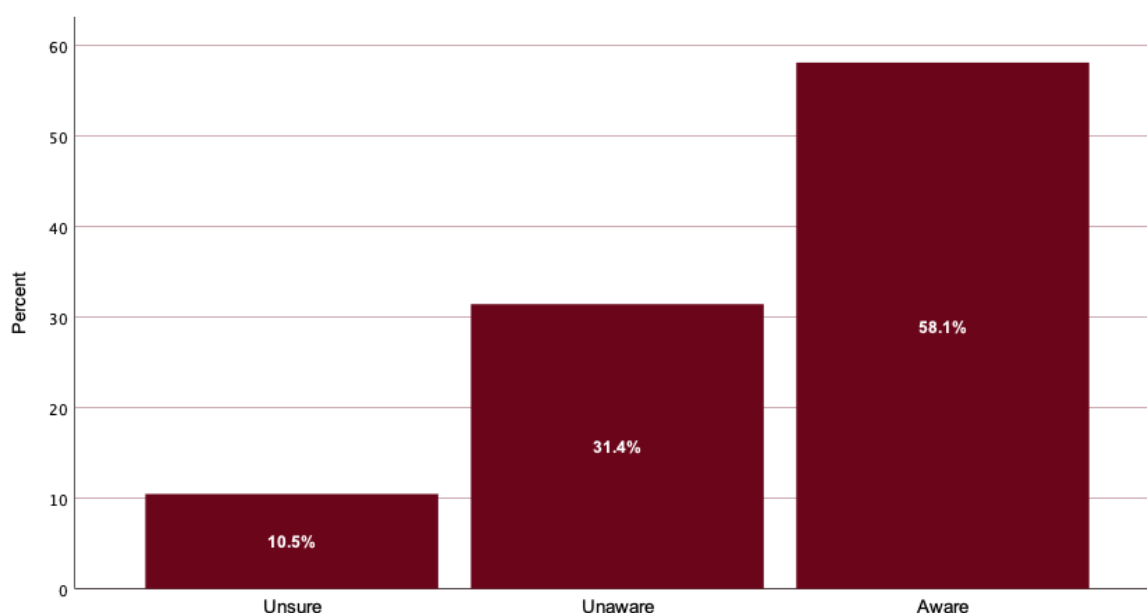
Figure 12. Awareness of the National Planning Principles for Animals in Disasters (categorised comments) (n=105).

Use of the Principles was examined by asking how they were implemented at the stakeholder's organisation. In categorised comments, overall, a moderate degree of implementation was seen (38.6%) (Figure 13). However, when looking only at those aware of the Principles, there was a higher level of implementation seen (53.8%), indicating that those aware of the NPPADs see value in applying them to planning arrangements (Figure 14).

Figure 15 shows that the Principles were mostly implemented in state and local planning, with a small proportion reporting that they informed response and policy in a broad sense.
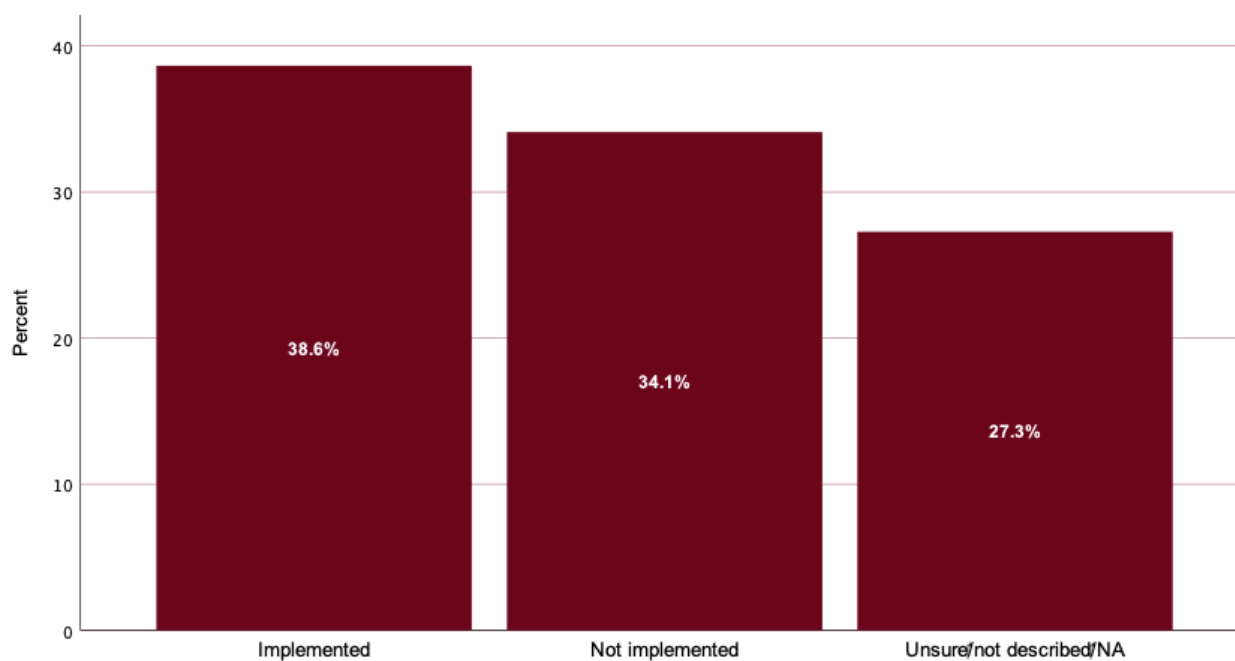
Figure 13. Implementation of National Planning Principles for Animals in Disasters (total sample, categorised comments) (n=88).
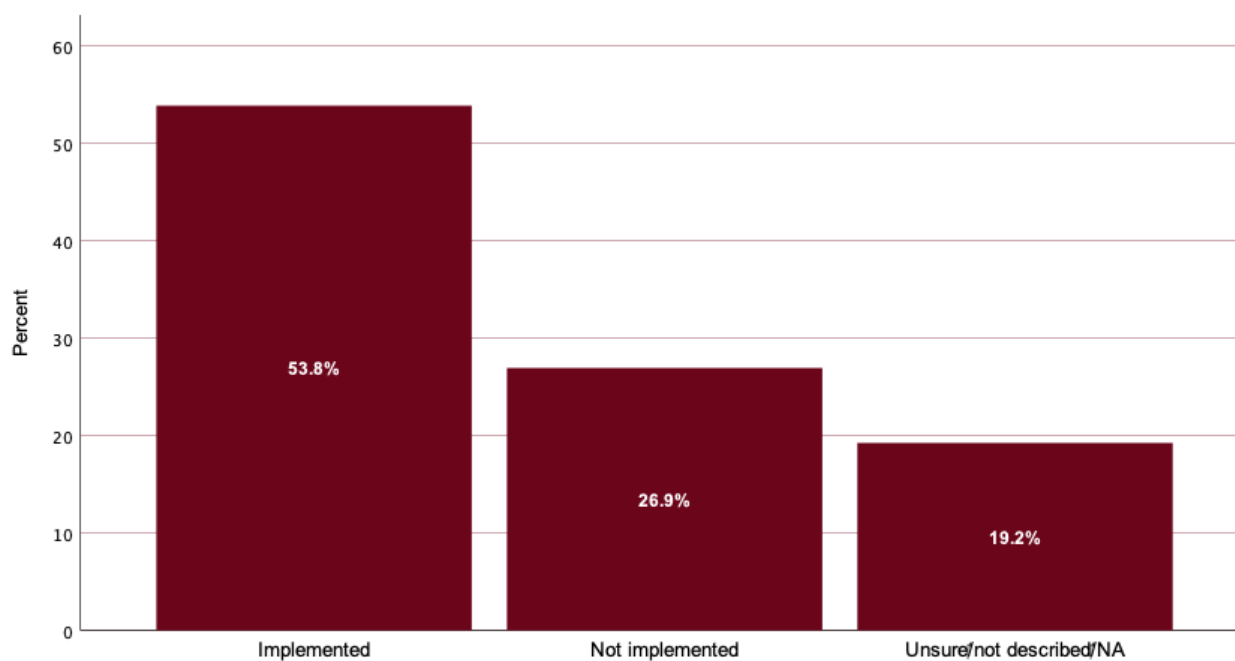
Figure 14. Implementation of National Planning Principles for Animals in Disasters (NPPAD aware only, categorised comments) (n=52).

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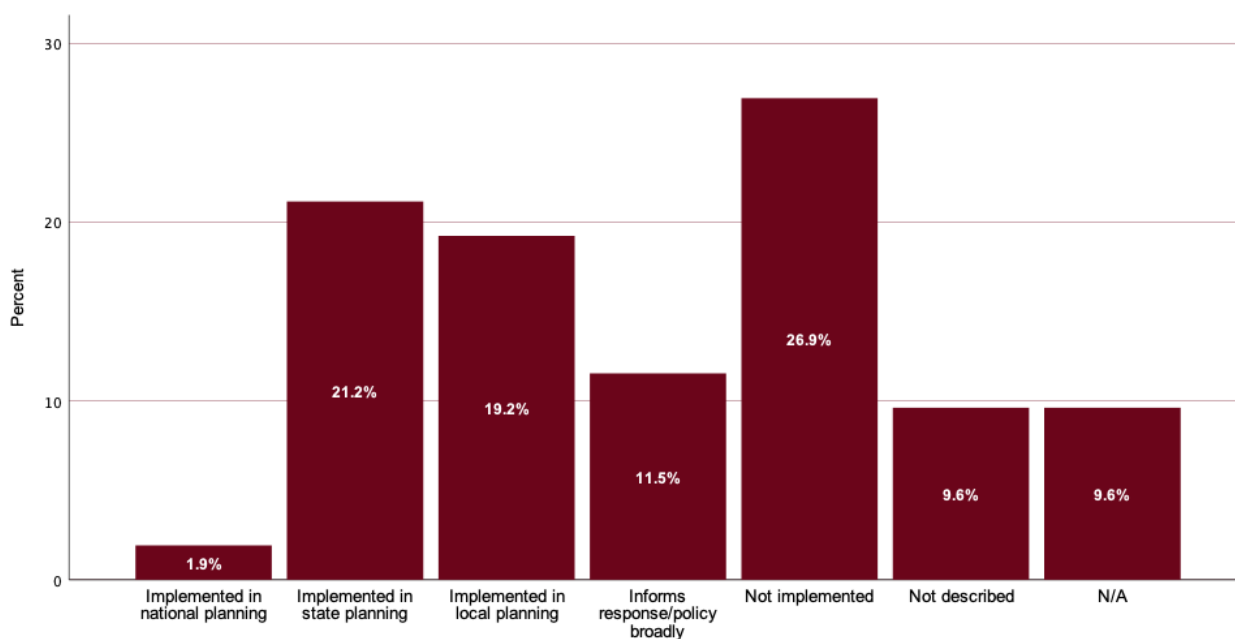
Figure 15. How National Planning Principles for Animals in Disasters are Implemented (NPPAD aware only, categorised comments) (n=52).

There was a moderate degree of engagement with the NPPAD, as reflected by 58% of stakeholders in animal management in disaster contexts being aware of the Principles, 53.8% of whom had implemented these at their organisation. This included state and local planning, or by using the Principles to inform their planning more broadly.

Endorsement of the Principles relating to the planning *process* and to the *plan* itself is described in the next section. This section of the survey allowed for responses that indicated implementation of each principle fully, partially, or not at all, or as being non-applicable. Descriptive examples supporting each of these responses were requested.

Planning process

Organisational implementation of principles relating to the planning process is summarised below, with both full and partial support in planning indicated by stakeholders (Table 7). Regarding the planning process, the strongest support was seen for explicit recognition that integrating animals into planning processes will improve welfare and safety outcomes for animals (Table 7: 1), and for humans (Table 7: 2). A moderate level of support was seen for the clear identification of roles and responsibilities relating to animal welfare in disaster response structures.

Importantly, there was low endorsement of planning development and review consultation with parties relevant to promoting animal welfare in disasters (Table 7: 4). This suggests

the current need for an examination of the parties consulted, and the nature of the consultation, relating to these aspects of the Principles.

Table 7. Stakeholder organisation endorsement of the National Planning Principles for Animals in Disasters in Planning Processes (n=90).

Planning Process for Animals in Disasters	Full (%)	Partial (%)	No (%)	N/A (%)
The planning process should:				
1. Explicitly recognise that integrating animals into emergency management plans will improve animal welfare outcomes.	47 (52.2%)	19 (21.1%)	6 (6.7%)	18 (20.0%)
2. Explicitly recognise that integration of animals into emergency management plans will help secure improved human welfare and safety during disasters.	46 (51.1%)	21 (23.3%)	6 (6.7%)	17 (18.9%)
3. Aim, for the benefit of emergency managers and animal welfare managers, to clearly identify roles and responsibilities within command-and-control structures in sufficient detail to allow for effective implementation of animal welfare measures.	41 (45.6%)	23 (25.6%)	6 (6.7%)	20 (22.2%)
4. Recognise the wide range of parties involved in animal welfare at each stage of the disaster cycle and ensure these organisations are consulted during writing or reviewing disaster plans.	32 (35.6%)	24 (26.7%)	14 (15.6%)	20 (22.2%)
5. Respect the role of local government, especially with reference to animal welfare and animal management arrangements within the local area, as 'first responders' in disasters and acknowledge local government expertise in understanding local needs and resource availability.	31 (34.4%)	21 (23.3%)	17 (18.9%)	21 (23.3%)
6. Consider how best to ensure effective integration and implementation of the plan by, for example, extensive consultation during the planning process or inclusion of an animal welfare element in requirements for disaster training exercises	28 (31.1%)	24 (26.7%)	13 (14.4%)	25 (27.8%)
7. Include effective communication about plan implementation with those parties who may be involved as well as those who may be impacted by disasters.	28 (31.1%)	29 (32.2%)	10 (11.1%)	23 (25.6%)
8. Be communicated in language that is accessible to all stakeholders including the general public.	23 (25.6%)	29 (32.2%)	13 (14.4%)	25 (27.8%)

Note. Frequencies and valid percentages reported.

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Only around one in three stakeholders fully endorsed that their planning processes respected the role of local government expertise, resources, and animal management arrangements for supporting animal welfare in disasters. This acknowledgement of the benefits of using a local perspective needs to be promoted more heavily in future.

Ensuring effective integration of animals in disaster planning regarding animal welfare was not well endorsed by stakeholders as being implemented in their organisational planning (Table 7: 6). Lastly, communication of animal related planning in accessible language to involved and impacted parties and communicating this in an accessible manner with the stakeholders and the general public both had low implementation (Table 7: 7-8).

> *Process principles relating to welfare outcome benefits of human and animal integration in planning, and clear identification of animal welfare roles and responsibilities are most supported. Engagement with multiple animal welfare parties in planning, engagement with local expertise and resources, effective integration of animal welfare in planning processes, and effective communication with those involved or impacted are less supported. This may indicate a need for greater educational initiatives in these areas with stakeholders for animal management in disasters.*

For each of the principles relating to the planning process, stakeholders gave a description of how/why these were implemented by their organisation. Selected comments are presented in Table 8 for stakeholders who had fully implemented each principle, and for those who had not implemented them. These give an overview of how each principle is applied in practice and are presented for context.

Table 8. Example stakeholder comments on implementation of the National Planning Principles for Animals in Disasters in Planning Processes (n=90).

Comments about the Planning Process for Animals in Disasters
The planning process should:
1. Explicitly recognise that integrating animals into emergency management plans will improve animal welfare outcomes.

Implemented:
- The inclusion of animals is specifically identified in our Bushfire Survival Guide for Residents.
- The plan was created to ensure animal welfare was fully considered… [and] animal welfare centres were written into the plan.
- This principle is explicitly stated in the Framework for Managing Animals in Emergencies which guides state-wide planning.
- [The plan] integrates arrangements for animal welfare with the State's formal management arrangements to ensure that animals are planned for, and their welfare is appropriately addressed in any emergency.
- Planning process stresses the importance of reuniting [owners] with pets… [to] reduce the risk of animal welfare issues.

Non-implemented:
- This is not something that has come up in discussions during our planning processes.
- References to animals and their welfare is minimal, as… [we] defer to DPI when it comes to planning for animals.

- Most plans simply cannot cover that level of detail, so remain focused on the key organisation's responsibilities and response actions and how EM agencies work together. Animal welfare is not an identified trigger point for decisions within formal planning…
- Little integration of animal impacts into [EM] response plans and [we] rely upon other agencies to implement support actions…

2. Explicitly recognise that integration of animals into emergency management plans will help secure improved human welfare and safety during disasters.

Implemented:

- Our advice and public warning messages integrate animal welfare… [as] people take dramatic risks to secure their pets/animals welfare and so any advice/actions we can undertake to minimise these risks is important.
- If people know they can bring their pets to an evacuation centre it encourages them to leave early. If they have prepared, then they will give their animals that can't be moved the best chance of surviving and hopefully they will then not stay and put their life in danger.
- It is recognised that human welfare and emotions are linked to animals and that having a pet returned reduces stress in both the human and the animal. Reduces the need for community members to re-enter emergency zones to locate animals.
- [Fire service] response primary focus is people, however in preparedness communication as part of Bushfire-Ready neighbourhoods' program there is understanding and communication of people taking risks for their animals in an emergency and so plans must take into consideration welfare of animals and their owners.
- This is why animal welfare has been written into the local emergency plans, and why the local show grounds have been chosen as the site for the evacuation… cater[ing] for animals of all sorts.

Non-implemented:

- There is not enough emphasis placed on the planning for animals in the response and recovery aspects of planning…. This often results in poor decision making and placing human life at risk.
- This principle [is] not explicitly recognised.
- [We] rely upon other agencies to manage these considerations.
- Agree with the sentiment, but we have yet to consider it, nationally.

3. Aim, for the benefit of emergency managers and animal welfare managers, to clearly identify roles and responsibilities within command-and-control structures in sufficient detail to allow for effective implementation of animal welfare measures.

Implemented:

- A pre-determined animal welfare [period] was written into the plan this ensures pre-disaster that the relevant personnel are aware of their roles and responsibility.
- Roles and responsibilities set out in Victorian Emergency Animal Welfare Plan.
- These are laid out in the NSW emergency arrangements, cascading down to the field in DPI documents and community engagement… [and] Agriculture and Animals Services Functional Area supporting plan…
- The Animal Welfare Plan lists roles and responsibilities of stakeholder groups (government and non-government organisations).
- PIRSA in South Australia are responsible for all animal welfare issues, per state arrangements.

Non-implemented:

- Poorly integrated into the operational response, in my experience.
- Council is not the agency that manages animals in emergencies.
- [Emergency service] would consider this the responsibility of DPI and may invite liaison officers to attend Operation Centres.

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4. Recognise the wide range of parties involved in animal welfare at each stage of the disaster cycle and ensure these organisations are consulted during writing or reviewing disaster plans.

Implemented:

- [We] work with the local government association, RSPCA SA, SAVEM, Animal Welfare league, CFS, SAPOL and others to develop plans for response/recovery relating to animals under the State Emergency Management Plan.
- Through planning (AASFA state sub plan), [we] have memorandums of understanding with multiple organisations (e.g., AVA, RSPCA, WIRES, OEH).
- There are so many areas that involved animals from livestock to pets to wildlife. We coordinate and manage the Ag and Animal Services Functional Area Plan… [and] have a committee of [different] agencies/reps to capture as many appropriate people as we can…
- [WA] has [an] established Committee for Animal Welfare in Emergencies (CAWE) to recognize the wide range of stakeholders.
- We have stakeholder meetings… to plan, organise and debrief [disaster] events.

Non-implemented:

- Whilst aware of the need to include the welfare of animals within its EM plans, the City itself has very little consultation with any animal group in relation to this matter.
- Local Emergency Management Committees need to improve in this area.
- There is no statutory inclusion of animal welfare agencies in the preparation of the Local EM plan.
- Most plans that may be referenced by [us] associated with animal welfare are the responsibility of other agencies… and this needs to be improved significantly.

5. Respect the role of local government, especially with reference to animal welfare and animal management arrangements within the local area, as 'first responders' in disasters and acknowledge local government expertise in understanding local needs and resource availability.

Implemented:

- We always reach out to local government to offer our support.
- [Our] plan is built around this premise.
- [You] need to develop a relationship and agreement with local council [to] know which areas are prone to disaster, [and] it helps with determining needs.
- Local governments are represented on the [welfare committee] by the Local Government Association… in WA … [and] to assist LGs to develop their own plans.
- It is recognised that the people with expertise in animal welfare are best placed to advise on, support and deliver animal welfare during an emergency.
- This is described within the Emergency Animal Disease Response Agreement and AUSVET Plan.

Non-implemented:

- [State] Department of Primary Industries assumes that role.
- I don't believe Local Government is equipped or knowledgeable enough to mount animal disaster response beyond ensuring there are evacuation centres.
- Local government in SA is not involved—though we wish they were to assist in establishing hay depots following bushfires.
- The emergency management role of local government is not well documented, articulated or supported in NSW.
- In [our] direct involvement in first response [bushfire], local government appeared absent from search and rescue efforts, and wildlife care.

6. Consider how best to ensure effective integration and implementation of the plan by, for example, extensive consultation during the planning process or inclusion of an animal welfare element in requirements for disaster training exercises.

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Implemented:

- [We] sit on the Victorian Emergency Animal Welfare committee.
- The draft plan was tested during a large-scale evacuation centre exercise involving over 30 agencies and 140 participants, including live pets…. [including] consultation with animal support agencies…
- The State Support Plan for Animal Welfare in Emergencies went through the State Emergency Management Committee approval process with formal [welfare] consultation.
- Yes, in the planning process, in the development of key documents for emergency planning such as the Local EM Plan, Consequent Management Guides, there is always a component that considers animal welfare and management during an emergency. If it doesn't appear in these key documents, it is the role of the AASFA representative to make sure that this is considered and included. In my experience, any exercises undertaken have all considered animal welfare and management, among the other components considered in emergency response.
- [This is] included in state disaster exercises, [it] was easily accepted.

Non-implemented:

- Multi-agency training and interactions are not as common as they should be.
- There is currently very little if any specific inclusion of animal welfare elements in [our] planning, exercising, or training even though animal rescue is a frequent response requirement.
- Our planning is not this advanced.
- No extensive consultation has been undertaken in regard to wildlife.

7. Include effective communication about plan implementation with those parties who may be involved as well as those who may be impacted by disasters.

Implemented:

- This is integral to the [our] education and fire planning programs for landholders.
- Important to assess and document the attitudes and perceptions of those who may be impacted by disasters, in this case animal owners and handlers.
- The 'Get Ready' program was launched in the media… In preparedness for major events…many people hear and know of the planning required, but still fail to do anything. We recognise the need for a far better community engagement strategy… [and] messaging is one part of the process.
- Bushfire-Ready Neighbourhoods program [partners] with stakeholders, [and] events feature speakers from various agencies sharing the same message and supporting residents with safer planning.

Non-implemented:

- This is another gap that needs to be addressed in capacity building programs.
- A lesson from activation of the plan in the 2019 bushfires, [is the] need to improve community education around roles and responsibilities.
- The state plan looked at high-level jurisdiction, and those that are affected would be expected to be consulted at the regional and local levels.

8. Be communicated in language that is accessible to all stakeholders including the general public.

Implemented:

- Disaster risk information is not communicated well to different audiences... [as] different audiences need different approaches, and in the case of animal risk, even more so.
- This is hugely important to those of us who are not academics—clear communication is key.
- [Our] website and documents are fully accessibility compliant.
- Normal day-to-day conversation and use of the English language is important for our group.

Non-implemented:

- Materials have not been translated/made accessible to all audiences.
- I believe more work is needed in this role.

- We are starting to do better at issuing communication in multiple languages and for the hearing impaired - but this is very inconsistent and the first thing to be overlooked in the chaos of a large-scale emergency / in the early stages. Most combat agencies simply do not have good expertise in this and there is limited resourcing to support engagement with every component of our community, so EM services focus on the majority groups.

Note. Selected comments presented in this table are indicative of the overall comments provided via the online survey.

Comments on the role of principles relating to the planning process reinforced that integrating animals in planning supports human and animal welfare and safety. However, greater attention needs to be paid to the role of local government and the local context as a source of expertise and resources for animal welfare in disasters. Lastly, the need for a strategic approach to communication with stakeholders and the public was indicated by both those who did, and those who did not implement this latter principle.

Disaster plan

Most stakeholders reported having a single formal plan (30.5%), or multiple formal written/published plans (22.0%) that related to disaster and emergency planning for animals in their jurisdiction (Figure 16). However, a sizable proportion reported not having a formal or informal plan for animal welfare in disasters (26.8%).
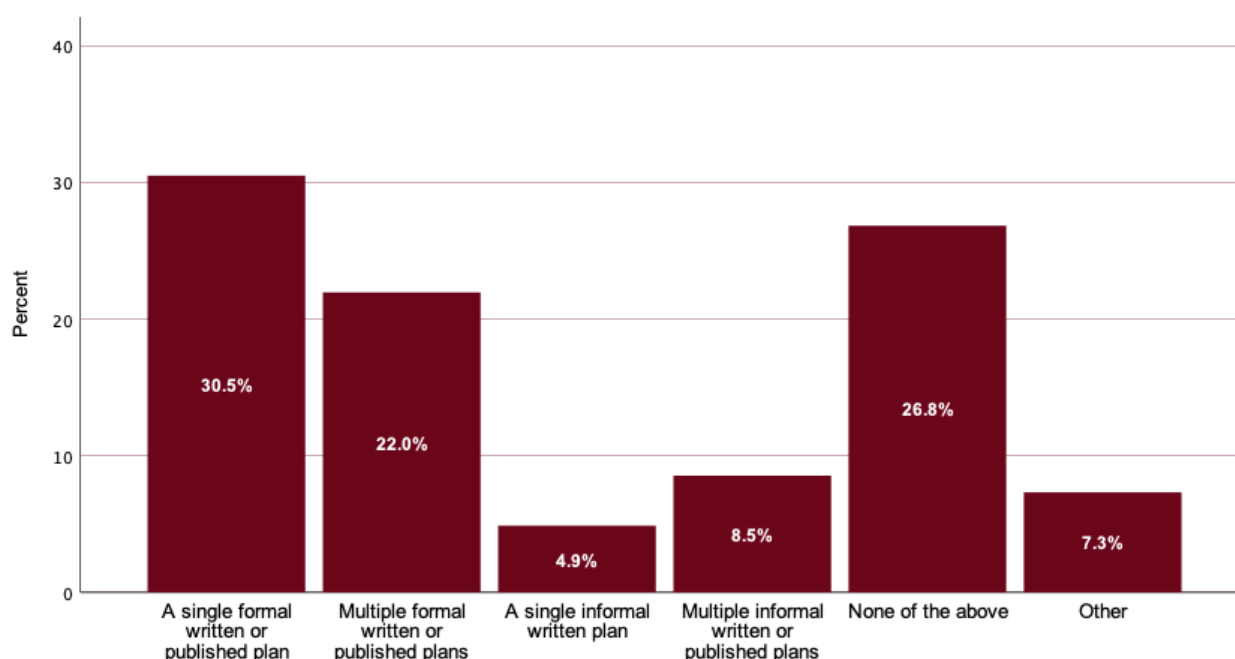
Figure 16. Format of planning arrangements relating to animals in disasters and emergencies (n=82).

Disaster stages covered by stakeholder planning are shown in Table 9. Stages are also shown excluding organisations who reported a role in planning and policy for wildlife, given the focus of this project on owned animals. This shows that most planning arrangements for animals focused on preparation and response stages, with moderate

focus on recovery, and a lower focus on prevention. This breakdown did not differ greatly after excluding stakeholders with a role in wildlife/fauna management in disaster response contexts.

Table 9. Stakeholder planning arrangements for animals by disaster/emergency stage.

Disaster stage that planning for animals applies to	All stakeholders (n=83)	Excluding stakeholders with wildlife role (n=48)
Prevention	38 (45.8%)	20 (41.7%)
Preparation	59 (71.1%)	31 (64.6%)
Response	72 (86.7%)	39 (81.3%)
Recovery	52 (62.7%)	30 (62.5%)

Note. Frequencies and valid percentages reported.

Table 10. Stakeholder organisation endorsement of the National Planning Principles for Animals in Disasters in Plans (n=83).

Disaster Plan for Animals in Disasters	Full (%)	Partial (%)	No (%)	N/A (%)
The disaster plan that incorporates animals should:				
9. Specify that the individual in charge of an animal is ultimately responsible for its welfare in disasters.	35 (46.1%)	19 (25.0%)	4 (5.3%)	18 (23.7%)
10. Make reference to, and situate the plan within, the local area and/or jurisdictional regulatory and legal frameworks.	29 (34.9%)	18 (21.7%)	14 (16.9%)	22 (26.5%)
11. Take an 'all hazards' humane approach to all species and encompass a wide range of possible disaster-type situations that may impact upon the welfare of livestock, companion animals, wildlife and other categories of animals such as laboratory animals.	18 (21.7%)	29 (34.9%)	18 (21.7%)	18 (21.7%)
12. Use a definition of disaster that aligns with the National Strategy for Disaster Resilience. *	--	--	--	--
13. Appropriately plan for animals taking into consideration the types of disasters most likely to be experienced in the particular jurisdiction	25 (32.1%)	15 (19.2%)	16 (20.5%)	22 (28.2%)
14. Include consideration of animals at all stages of the disaster cycle including preparedness, response, recovery, and mitigation.	27 (47.4%)	--	30 (52.6%)	--
15. Include a statement of scope that excludes animal disease and biosecurity emergencies from the plan	18 (23.1%)	10 (12.8%)	28 (35.9%)	22 (28.2%)
16. Emphasise that biosecurity requirements are of utmost importance in disasters and that quarantine and biosecurity protocols must be followed wherever practicable.	18 (23.1%)	15 (19.2%)	19 (24.4%)	26 (33.3%)
17. Provide for a staggered scaling up of response and resources in line with the scale and severity of disasters and their impact on animal and human welfare.	24 (30.8%)	24 (30.8%)	13 (16.7%)	17 (21.8%)

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18. Include a vision statement that makes reference to the importance of securing animal welfare outcomes in disasters.	17 (20.5%)	16 (19.3%)	31 (37.3%)	19 (22.9%)
19. Include a brief rationale statement that includes reference to the benefits of the plan for animal welfare, human safety and wellbeing, and for the economy.	9 (10.8%)	25 (30.1%)	26 (31.3%)	23 (27.7%)
20. Outline command and control structures in language that is accessible to the general public.	23 (29.5%)	25 (32.1%)	10 (12.8%)	20 (25.6%)
21. Outline the processes for interagency co-operation at all stages of the disaster cycle.	35 (46.1%)	19 (25.0%)	4 (5.3%)	18 (23.7%)
22. Include a system for formalising arrangements with animal welfare support organisations.	22 (28.9%)	22 (28.9%)	12 (15.8%)	20 (26.3%)
23. Take into consideration logistical challenges that may impact upon implementation of the plan during disasters, for example, in the event that key infrastructure or personnel are not able to be deployed, communication is affected, or shelters are destroyed or otherwise unavailable.	23 (30.3%)	20 (26.3%)	13 (17.1%)	20 (26.3%)
24. Include requirements and arrangements for regular testing and review of the animal welfare in disasters plan.	14 (18.4%)	23 (30.3%)	16 (21.1%)	23 (30.3%)

Note. Frequencies and valid percentages reported. Principle numbering continues from Table 5. *Disaster definition is discussed in text.

Regarding the disaster plan itself, Table 10 shows the level of organisational implementation for each principle. The strongest support was seen for consideration of animals at all stages of the disaster cycle and outlining processes for interagency cooperation (Table 10: 14, 21). There was moderate implementation of considering the most likely types of disasters encountered, in providing for scaling up response and resources, considering potential logistical challenges, and of accessible description of command-and-control structures relevant to animal welfare (Table 10: 13, 17, 20, 23). There was also some moderate implementation of systems for formal consultation arrangements with animal welfare groups (Table 10: 22).

Lower levels of implementation were seen for the two biosecurity focused principles (Table 10: 15, 16). Note however, that this research was not focused on emergency animal disease disasters (e.g., outbreaks). Both inclusion of vision statements addressing animal welfare outcomes, and rationale statements referencing benefits of integrating animals into planning, were not often implemented (Table 10: 18, 19). This suggests a greater need to explicitly describe guiding philosophy and reasoning in disaster plans, in general. This is not to say that this is never done. Importantly, there was low to moderate implementation of requiring and arranging for regular testing and review of animal welfare in planning for disasters (Table 10: 24), an issue relevant to currency and accuracy of disaster response planning.

Stakeholders also gave a variety of responses describing the definition of disaster used in their plan. As no stakeholders described the consistency of this definition with the

approach presented in the National Strategy for Disaster Resilience,[22] definitions were broadly categorised into eight types:

- Use of a definition for emergency per legal act (25.3%).
- Use of a common/dictionary definition of disaster (15.5%).
- Use of definitions contained in relevant state disaster plan (12.7%).
- Use of definitions relating to specific hazards (11.3%).
- Use of a definition for disaster per legal act (2.8%).
- Use of the United Nations Office for Disaster Risk Reduction disaster definition (2.8%).
- Use of definitions contained in a disaster Supporting Plan (1.4%).
- No definition used (14.1%).
- Unsure (5.6%).
- N/A (8.5%).

From the above, it is apparent that most stakeholders use a definition of *emergency*, rather than of disaster, that is consistent with legal acts relevant to their jurisdiction, and that inform their disaster planning and supporting plan documentation. Where plans may operate more independently of this (e.g., industry/private), there is also use of more common or dictionary type definitions.

Most disaster planning arrangements for animals focused on preparation and response stages, indicating a potential need for increased focus on prevention and recovery arrangements for animal welfare. This is reinforced by stakeholder implementation of plan Principles for considering animals and interagency cooperation at all disaster stages. Principles for scaling up response and considering logistical challenges showed moderate implementation. However, there is a need for more accessible description of command-and-control structures for animal welfare, and for formalising animal welfare support arrangements in disaster plans. There was low reported implementation of vision and rationale statements describing the welfare and safety benefits to animals and humans of animal integration in planning. Lastly, there was low implementation of requirements and arrangements for regular testing and review of plans for animal welfare in disasters.

For each of the principles relating to the disaster plan, stakeholders gave a description of how/why these were implemented by their organisation. Selected comments are presented in Table 11 for stakeholders who had fully implemented each principle, and for those who had not implemented them. These give an overview of how each principle is applied in practice and are presented for context.

Table 11. Example stakeholder comments on implementation of the National Planning Principles for Animals in Disasters in Plans (n=83).

Comments about the Disaster Plan for Animals
The disaster plan that incorporates animal welfare in disasters should:
9. Specify that the individual in charge of an animal is ultimately responsible for its welfare in disasters.
Implemented:

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[22] The Strategy can be accessed here: https://knowledge.aidr.org.au/resources/national-strategy-for-disaster-resilience/

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- The Emergency Action Guide, [an] educational guide based on LDMP, outlines personal responsibility, including for animals, and provides advice on how to plan for animals.
- [In] NSW… this is specified in a number of documents, both formal and for community engagement.
- Excerpt: "The owner or carer of an animal is responsible for the welfare of that animal and should include planning for its welfare in preparedness for, response to and recovery from an emergency."
- The message of 'your pet, your responsibility' is advertised regularly.
- All sheep have an identification tag that identifies the producer. They are responsible for that animal under the Livestock Production Assurance program.
- [It] explicitly states this multiple times.

Non-implemented:
- Hazard specific plans sit with the combat agency, and they relate more to what to do to prepare, and less about responsibility.
- The plan recognises this is a shared responsibility between government, non-government agencies, and the animal owner.
- This level of detail is determined as part of the response, and flows through into planning, operations, and communications.
- [It's] not part of our brief, or control.

10. Make reference to, and situate the plan within, the local area and/or jurisdictional regulatory and legal frameworks.

Implemented:
- The plan is only for the one location… and all activities are agreed by all stakeholders.
- Local plans will vary with LEMCs, but all should consider animal arrangements.
- [It] mentions all relevant legislation associated with the plan and what arrangements the plan works under.
- This Animal Welfare Plan (AWP) is prepared in accordance with the Emergency Management Act 2005 (WA). Endorsed by the SOEP Local Emergency Management Group and SOEP Council.
- [The] span of coverage is documented (generally state or regional) and the legislation the plans sit within is documented.
- The plan has been primarily developed for disasters that occur within District boundaries however… [we] have agreements with neighbouring local government authorities to provide mutual support during response and recovery phases of an emergency.

Non-implemented:
- Our plan is high level and has not gone to this level of detail yet.
- The [emergency service] has no specific role in terms of planning for arrangements in disasters for animals.
- [We] rely upon other agencies plans for reference
- Not [done] at our level but local government and allied agency planning should consider animal welfare needs.

11. Take an 'all hazards' humane approach to all species and encompass a wide range of possible disaster-type situations that may impact upon the welfare of livestock, companion animals, wildlife and other categories of animals such as laboratory animals.

Implemented:
- This is a standard part of [our] planning and flows on to operations.
- [Our] Sub Plan is designed for an all-hazard approach, so it can be utilised for any event.
- The Framework for Managing Animals in Emergencies is an all-hazards approach and includes all animals except fish.
- Reducing animal vulnerability and augmenting the resilience of their owners includes all risks.

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- NSW emergency arrangements and DPI use all-hazard arrangement as per emergency management principles for both biosecurity… emergencies affecting plants, animals, and aquatics… including natural disasters like flood, fire, or tsunami, and man-made [incidents]

Non-implemented:
- It is event specific.
- It is [bushfire focused].
- My organisation doesn't directly apply the plan… [though] the all-hazards approach is relevant…

12. Use a definition of disaster that aligns with the National Strategy for Disaster Resilience.
- This is described earlier: most stakeholders use a definition of emergency, rather than of disaster, that is consistent with legal acts relevant to their jurisdiction, and that inform their disaster planning and supporting plan documentation.

13. Appropriately plan for animals taking into consideration the types of disasters most likely to be experienced in the particular jurisdiction.

Implemented:
- The parent Local Emergency Management Arrangements identify the top six hazards likely to impact our district, [which] form part of our Emergency Risk Management Plan based on the State Government State Risk Project.
- Absolutely, the most common disaster events are listed in the [Council] Local Disaster Management Plan.
- Plans take an all-hazards approach and recognise the risk resulting which can include threats to animals and need for specific responses (e.g., rescue, feeding, stranded animals, euthanasia).
- Analysis of the types of animals within specific locations is undertaken to ensure an accurate representation of potential numbers affected.
- There is a section outlining the key emergency types expected to occur in SA.

Non-implemented:
- The State Support plan is a high level, strategic plan. It does not provide a fine level of detail (different types of disasters for the various jurisdictions).
- The planning and frameworks we are used to working under use an all hazards-type approach which allows for application to any hazard… [and] for this reason [are] high level and allow for all planning scenarios.
- It mentions an all-hazards approach, but the EM Plan for a local government area would have this information.

14. Include consideration of animals at all stages of the disaster cycle including preparedness, response, recovery, and mitigation.

Implemented:
- NSW [State] plans and documents cover all animals and prevention, preparation, response, and recovery… [also the] biosecurity subplan, AASFA supporting plan, as well as Emergency Response and Recovery Manual...
- The plan describes all cycles of PPRR. So, as an agricultural and animal functional plan it does consider all cycles. The how is defined in policies and guidelines.
- [This is] standard for BIMS and AIIMS.
- The framework outlines the roles and responsibilities of organisations at each state of the emergency cycle and outlines how issues are addressed at each stage.

Non-implemented:
- I'm not aware of any planning for animals in the mitigation phase.
- A general weakness of [state] plans is that they emphasise response and address recovery in a cursory way.

- Plans focus mostly on response arrangements, with very little coverage of anything specific in relation to preparedness or recovery. Mitigation is beyond the scope of EM organisations.
- Recovery [is] not addressed.
- Prevention isn't covered, and mitigation [is] not thoroughly (PPRR Model).
- There are no real guidelines in place for this at this stage, other than what local governments may have in arrangements or welfare plans.

15. Include a statement of scope that excludes animal disease and biosecurity emergencies from the plan

Implemented:
- The [State Plan] identifies animal, plant, and marine disease as the responsibility of PIRSA, as the Control Agency [for biosecurity].
- Excerpt: [the] plan covers the arrangements for animal welfare in emergencies within the geographical boundaries of Western Australia. It is applicable to all hazards except animal and plant biosecurity – these arrangements are detailed within State Hazard Plan—Animal and Plant Biosecurity.
- Biosecurity is covered in the biosecurity (animal and plant) Sub plan.
- Excerpt: The principles and arrangements outlined in this document apply to all of these emergency types with the exclusion of emergency animal disease incursions.

Non-implemented:
- Animal disease and biosecurity always considered.
- [Agriculture and Animal Services] plan includes all disasters including animal disease and road, rail, sea disasters involving animals.
- NSW plans do not specifically exclude animal disease and biosecurity, [as] there are specific sub-plans for those hazards.
- Included in [the] plan as specific hazard.

16. Emphasise that biosecurity requirements are of utmost importance in disasters and that quarantine and biosecurity protocols must be followed wherever practicable.

Implemented:
- [We] have responsibility as the Control Agency for animal, plant, and marine disease to develop… plans that are referenced by other agencies during emergencies and disasters.
- Guiding principle within the Framework for Managing Animals in Emergencies: "Biosecurity arrangements to prevent spread of pests and disease are extremely important and quarantine and biosecurity protocols must be upheld wherever practicable".
- Yes, in general principle [we] refer to NSW State EMPlan, Biosecurity (Animal and Plant) subplan, also the Biosecurity Act.
- Emphasis will be made [on] the importance of biosecurity when our team of responders/carers [train] prior to the Summer months.

Non-implemented:
- This is the responsibility of the Chief Veterinary Officer Unit within [Agriculture].
- There is currently no reference to biosecurity, quarantine, or biosecurity protocols.
- Biosecurity during emergencies is solely handled by the relevant agency (Local Land Services and DPIE), this is not something council has any input into.
- The plan isn't operational… it's condensed to the basics of coordination [as] the minimum to get it approved.

17. Provide for a staggered scaling up of response and resources in line with the scale and severity of disasters and their impact on animal and human welfare.

Implemented:

- Yes, [this is] one of the key principles of the Australasian Inter-Service Incident Management System (AIIMS).
- Response activities are fully integrated under the AIIMS system, allowing expansion should the need arise, as well as full integration of other agencies responding to the emergency.
- This is sensible and would be included in plans we develop. NSW EMPLAN specifically addresses escalation from local to region to state-managed response.
- We scale up using volunteer resources from around the country to support affected states.
- [Our] national management group can request additional industry participants and control centres depending on the extent of the outbreak.

Non-implemented:
- The animal welfare plan considers a generic level of support. We would manage emergencies based on their size and scale and adapt accordingly. This also recognises that Animal Management during emergencies is a shared responsibility and that no one organisation has sole responsibility.
- [It's] not detailed enough in relation to animals. Facilities are expected to operate with pets/livestock in temporary accommodation… before longer term arrangements are made for their welfare.
- Our investment/involvement is scaled on need, not size of impact or event.

18. Include a vision statement that makes reference to the importance of securing animal welfare outcomes in disasters.

Implemented:
- The plan includes a purpose, objectives and a scope that effectively detail the vision. It also includes an overview and guiding principles of the National Planning Principles for Animals in Disasters.
- The Framework for Animals in Emergencies provides a vision statement
- Not listed as a vision statement per se, however [it] specifically addresses principles in section 1.5 and throughout first few pages.
- Present in SERM Act, NSW EMPlan, regional and local EMplan AASFA supporting plan, biosecurity subplan, in DPI and LLS strategic plans, and Incident Action Plans at Local and State levels.

Non-implemented:
- Not necessary.
- Not seen as core focus for the [Local Plan] up until now.
- More people focused with a small addition of emergency kits having animal food and leads.
- For our most recent work, this was implied.
- A vision statement is not a standard component of emergency management planning—incident action plans include mission and objectives.

19. Include a brief rationale statement that includes reference to the benefits of the plan for animal welfare, human safety and wellbeing, and for the economy.

Implemented:
- This is in the Interim State Support Plan for Animal Welfare in Emergencies.
- The Framework for Animals in Emergencies provides a rationale in the introduction and reiterates it in the aims and guiding principles.
- As per the objectives of the plan… [we] provide a framework and resources that consider the management and welfare of animals… identify facilities where animals may be temporarily housed… provide a process for reuniting animals with their owners.

Non-implemented:
- Our plan is high level and has not gone to this level of detail yet.
- A rationale statement is not a standard component of emergency management planning.
- I think it is assumed knowledge by those involved in [Animal Support Functional Group].
- [Our] operational plan gives tasks and purpose to internal departments and… [uses] the VEAW Plan.

20. Outline command and control structures in language that is accessible to the general public.

Implemented:

- The Framework was intended to be a public document, not an actual disaster plan, therefore all words relating to control and command are defined in simple style.
- [Materials] fully comply with accessibility requirements and are written in plain English. They are designed to be read by our staff not the public and a level of training in emergency management or technical roles is helpful, but [this] could be understood by the public.
- [The plan] will be available for the community, however it will be lengthy and is at the decision of the community to read the document.
- [It] refers to AIIMS principles and State Emergency Management Plan structure.

Non-implemented:

- Emergency management plans are full of acronyms and lacking in context or explanation. There is an expectation that prior emergency management training and regular engagement means that we all understand the plans, processes, and roles…
- it's not [in] community language, really.
- [It] follows AIIMs principles, [but] not everyone understands 'command-control'…
- Plans are for EM agencies; media releases and daily briefings are for the community.

21. Outline the processes for interagency co-operation at all stages of the disaster cycle.

Implemented:

- Yes, it follows the State Disaster Management Plan, which outlines agency responsibilities and a collaborative approach.
- An all-agency approach is one of the underpinning principles of emergency management and is specified in the NSW EMPlan.
- The Animal Welfare Plan lists the roles and responsibilities of stakeholder groups, including government and non-government agencies.
- [The] framework outlines [our] role, activation, and collaboration with other organisations throughout [the] plan.
- The disaster plans require that all agencies work cooperatively.
- Yes, all stakeholders are involved, and our team members informed about procedures and co-operation during training workshops.
- [It's] briefly referenced, [the] Participating and Supporting Organisations AASFA Coordinator maintains agreements with Participating and Supporting Organisations.

Non-implemented:

- Contacts have been listed in the plan.
- Nothing, other than [that] local government prepare [this] information.

22. Include a system for formalising arrangements with animal welfare support organisations.

Implemented:

- Under the agriculture and animal services supporting plan… organisations have MoUs with [state government] including a number of animal welfare support organisations. A number of other carers, resource groups, organisations… [and] contractors are also used… to support welfare.
- The city has formal arrangements in place with animal rescue groups, and local veterinary practices.
- [We] have agreements with the organisations that make up the animal response service.
- This occurs within the VEAW Plan… [and] to a lesser extent in current operational plans.
- These arrangements are included in the form of participating and supporting agencies in the NSW AASFA supporting plan.
- Yes, a complete list of local and state animal welfare organisations is available in the document.

Non-implemented:

- Different agencies have different accountabilities.

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- Dealing with [animal] welfare matters is not seen to be critical to EM response arrangements, and is not the primary focus of combat agencies...
- Not specifically but will be dealt with as part of the routine response under BIMS and AIIMS.
- Arrangements are based on agencies with the capability and resourcing.

23. Take into consideration logistical challenges that may impact upon implementation of the plan during disasters, for example, in the event that key infrastructure or personnel are not able to be deployed, communication is affected, or shelters are destroyed or otherwise unavailable.

Implemented:
- Neighbouring local government resources and infrastructure are factored into the plan.
- We have scalability plans and business continuity plans.
- [Our] disaster preparedness takes in account [if] veterinary shelters in disaster zones are incapacitated. It is why help is needed from outside the zones… not affected directly by fire…
- Part of the parent Local Emergency Management Arrangements and the Animal Welfare Plan… [is] recognis[ing] that during larger emergencies animal welfare requirements may happen at a scale for which it is not possible or practical to prevent large scale losses.
- The plan allows for the difficulties in setting up control centres, and runs simulations...

Non-implemented:
- Not noted—these are operational issues that will be dealt with or communicated during an event. it is difficult to know in advance all the potential issues that may arise.
- This type of detailed, operational consideration is not included in the plan.
- This level of tactical detail would be included in incident action plans or similar tactical documents developed during a response.
- This is more likely to be in a Local emergency management plan for a local government area.

24. Include requirements and arrangements for regular testing and review of the animal welfare in disasters plan.

Implemented:
- Animal welfare agencies are invited to participate in training and exercises.
- Testing of the plan is required.
- These are tested during desktop exercises.
- Exercises and training are held both by emergency organisations and the emergency management committees at local, regional, and state level. Emergencies also test plans and After-Action Reviews, audits and regular review dates also provide updates to plans.
- Meetings are held every year before fire season.

Non-implemented:
- Whilst [an] annual test is done, nothing has yet been done to consider animal welfare.
- Not a primary consideration.
- These aren't a formal requirement at this point in time.
- No, it doesn't. Emergency animal welfare will be considered for testing along with many other aspects of the plan.
- [Although] encouraged to regularly test arrangements, there is insufficient funding to resource organising such tests.
- Multi-agency exercises and training are difficult to achieve, and often in the 'too hard basket'.
- There is a requirement to exercise the LEMA every year, however it doesn't specify to exercise the emergency animal welfare component of the plan.

Note. Selected comments presented in this table are indicative of the overall comments provided via the online survey. Principle numbering continues from Table 5.

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Comments on the role of principles relating to the disaster plan suggested that specification of owner responsibility for animal welfare, description of jurisdictional context, process outline for interagency cooperation across disaster stages, and provisions for scaling-up of response and resources are well acknowledged. State animal functional support systems engage with groups with expertise in animal welfare support matters. However, there may be a need to further ensure that such arrangements, including within command-and-control systems, are communicated in more accessible language for public reference. There is high-level implementation of an all-hazards approach to disaster planning that informs animal welfare planning for high-likelihood hazards. Comments also suggested that mitigation/prevention and recovery aspects of animal planning should receive greater attention. Biosecurity specific planning principles were implemented via scope of organisation and disaster plans, and via separate planning documents. Lastly, few stakeholders explicitly commented about vision or statements relating to the benefits of including animals in planning.

Further gaps and needs

The final question asked stakeholders if there were any other areas that they believed needed improvement regarding the official response to animals in disasters, that were not noted in the survey. Most stakeholders felt improvements were needed (66.7%), and comments, summarised below, indicated that the following areas were relevant to integrating animals into planning and policy for disaster response:

- Consistent communication of state-wide response, and clearer delineation of roles and responsibilities across agencies.
- Clearer acknowledgement of the intrinsic value of animals (cf. as an economic asset).
- More accessible and easy to understand descriptions of national arrangements relating to animal welfare in disasters.
- More guidance at the state level, through leadership by responsible agencies with expertise in animal welfare.
- Including animal welfare as an operational risk requiring management in emergency response agency planning arrangements.
- Increased support for consistency across local government planning for animal welfare in disasters.
- Requirement of animal emergency welfare plans in local emergency management arrangements, with auditable welfare components.
- Increased training for those writing and exercising emergency animal welfare plans.
- Increased first nations acknowledgment and inclusion in planning for animals in disasters.
- Mental health support planning and recovery requirements for those involved in emergency animal welfare management.

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The above findings support recommendations, based on the perspectives of surveyed stakeholders, regarding the Principles and integration of animals in disaster response planning in Australia.

Conclusions (survey)

Survey responses largely came from stakeholders in framework, policy and plan development, operational disaster response, or animal management who had oversight for animal management or welfare in disasters. Many stakeholder organisations had responsibility for domestic and farmed animals, and had direct contact with animal owners, particularly local government bodies.

Although over half of surveyed stakeholders felt that their organisation had an adequate level of responsibility for animals in disaster contexts, one quarter of these sought more responsibility. In particular, non-profits, emergency services, and state/territory government bodies may seek more responsibility for animals. However, almost 30% of emergency services stakeholders also felt that their organisation should have no such responsibility. Most stakeholders were aware of formal disaster planning arrangements for animal welfare in their jurisdiction. Comments about this indicated a desire for greater integration of animal welfare management into existing emergency response systems, and for increased communication and coordination of this with emergency response agencies.

There was moderate awareness of, and varied stakeholder engagement with, the NPPAD, despite 31.4% being unaware of the Principles. Over half of stakeholders aware of the Principles had implemented them in their disaster planning for animals, mostly in state- and local-level planning arrangements.

R5: To increase implementation, it is recommended that targeted NPPAD awareness and education campaigns be conducted by DAWE or other appropriate responsible agencies with stakeholders at both state and local levels.

Many stakeholder planning processes explicitly recognised the welfare and safety benefits, for animals and humans, of integrating animals into disaster planning. This was broadly accepted by stakeholders, including those not implementing the Principles. Planning processes also supported clear identification of roles and responsibilities relating to animal welfare in disaster response structures.

The low implementation of planning development and review consultation with parties relevant to promoting animal welfare in disasters suggests a current need for an examination of the parties consulted, and of the nature of this consultation. Just one in three stakeholders indicated their planning processes respected the role of local government expertise, resources, and animal management arrangements for animal welfare in disaster. Additionally, there was low endorsement of the need to ensure that animal welfare is effectively integrated into planning processes.

R6: To improve animal welfare consultation in disaster planning, improved processes for identifying, engaging, and including parties with local or other

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relevant expertise should be implemented by any authority developing or updating a plan.

Communication of animal-related planning may not always be conducted in accessible language to involved and impacted parties (i.e., stakeholders, general public). There is a particular need for more accessible description of command-and-control structures for animal welfare. This suggests a need to pre-test the readability level and comprehension of animal welfare planning systems and materials with target audiences.

R7: To increase best practice communication in animal welfare planning, guidance should be made available to support those developing plans and materials to ensure that readability level and comprehension testing is undertaken with target audiences, and appropriate revisions are made as a result.

Most stakeholders reported accessing formal disaster response planning relating to animal welfare. However, one in four reported having no plan in place for this. Primarily, this planning applied to the preparation and response disaster stages, with less coverage of prevention and recovery. Despite moderate support for the principle of planning for animals at all stages of the disaster cycle, this focus was not uniformly seen in stakeholder comments.

R8: To expand implementation of the NPPAD across all phases of the disaster cycle additional focus on prevention and recovery stages should be considered.

For principles relating to the disaster plan, there was moderate implementation of planning for scaling up response and resources for animal welfare support, as well as for accounting for logistical challenges to the plan. Comments relating to these principles highlighted the need to establish relationships for scalable resource sharing, that AIIMS supports scaling, and the operational difficulty of planning for logistical disruption to animal response. However, there was moderate implementation of the outlining of interagency cooperation processes in this context, and of systems for formalising animal welfare consultation in disaster plans.

R9: To support animal welfare in response scaling, logistical planning, interagency cooperation, and formal welfare consultation, application of the NPPAD within national disaster incident response systems (e.g., AIIMS[23]) should be explored by DHA/DRRA and/or other relevant organisations, e.g., the Australasian Fire and Emergency Service Authorities Council (AFAC).

There is a need to further promote the 'all hazards' approach to animal welfare planning in disasters, given the low to moderate implementation of this, and the greater implementation of the principle relating to planning for high-likelihood disaster types in the stakeholder's jurisdiction. Comments showed that an 'all hazards' lens was applied in some state animal welfare frameworks, following emergency management principles, and that this informed local operational plans. However, at this level there was low to moderate endorsement of plan specificity for the local/jurisdictional context.

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[23] For a description of the Australasian Inter-Service Incident Management System (AIIMS) see: Introduction to AIIMS-CFA Training Materials (2019)

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R10: To support animal welfare planning, guidance should be created to support an 'all hazards' perspective being applied at different jurisdictional levels, from national down to local levels.

Many stakeholder organisations specified that the person in charge of an animal is responsible for its welfare in disasters. Comments showed that this was clearly stated in planning documents, as well as forming part of educational and awareness initiatives with animal owners.

For the two biosecurity focused principles, there was low implementation, which may be a result of the focus of this research, and the reliance of many stakeholders on separate planning arrangements and organisations for biosecurity-related incidents (e.g., emergency animal disease response). This is still surprising however, given that biosecurity protocols are relevant to animal management during disasters such as bushfire (e.g., farmed animal holding at showgrounds). This is an intersection that should be examined in future research.

Principles relating to communication generally had low levels of implementation. Few stakeholders indicated their plan for animal welfare included a vision statement and rationale statement about the importance and benefits of planning for animal welfare in disasters. There are some notable exceptions in state-level planning that highlight guiding philosophy and motives for animal welfare planning.[24] As this is already reflected in Recommendation 4, no additional recommendation is made on this point here. However, it would be beneficial to highlight examples of how these two principles can be implemented to those who have not yet done so.

Lastly, there was low implementation of requirements and arrangements for regular testing and review of plans for animal welfare in disasters. Although comments suggested that this requirement was built into many planning arrangements, those who had not implemented this principle reported it was not required in some cases. It was also subject to funding resources.

R11: To enable regular testing and review of plans for animal welfare in disasters, capacity and resources for testing and review should be assessed and incorporated at the outset of plan development.

Separate to discussing the Principles, stakeholders described other needs that they saw in the animal welfare planning space. These included clearer and consistent communication practices about roles, responsibilities, and expertise in animal welfare, as well as how this filters down to the local operational arrangements. Following online surveying, several semi-structured interviews were conducted with key stakeholder representatives, the findings of which are presented in the next section.

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[24] For examples, see: Victorian Emergency Animal Welfare Plan (2019), WA State Support Plan for Animal Welfare in Emergencies (2019), SA Managing Animals in Emergencies Framework (2018).

Stakeholder interviewing

Findings from thematic coding of the stakeholder interviews are presented below. We looked to the interviews for insights into perspectives on where animals fit into emergency management planning, from the viewpoint of different types of interviewees. As interviews are treated as anonymous, the state or territory, and the current or former role of the interviewee are noted only. Selected aspects of the Principles were covered in interviews and are described below. For the purposes of this report, the findings of the stakeholder interviews are broken into ten sections:

1. Demographics
2. Need for National Planning Principles
3. Awareness barriers
4. Implementing National Planning Principles
5. All hazards, all species
6. Human-animal welfare link
7. Animal welfare consultation
8. Communicating animal integration and responsibility
9. Gaps and needs

Demographics

In total, 23 stakeholders were interviewed, who operated nationally (n=5), in Western Australia (n=3), Victoria (n=5), New South Wales (n=6), South Australia (n=2), Queensland (n=1), and in Tasmania (n=1). Additional interviews were conducted for scoping purposes only, which were not analysed (n=3). In the final sample, multiple organisation types were represented, including government (n=6), non-profit (n=7), industry or private (n=8), and emergency services (n=2). Job roles of interviewees were primarily related to animal emergency management (n=14), animal welfare (n=4), emergency management (n=3), land management (n=1), and communication or education (n=1). In practice, some aspects of these roles crossed categories, and all interviewees except two had a professional background that included an aspect of animal welfare. Age and gender of interviewees is excluded for reasons of anonymity.

Need for National Planning Principles

Multiple interviewees were aware of and understood the purpose and need for the NPPAD, their relevance to emergency response, and role in informing state and territory arrangements, for example:

> I've certainly seen them and been involved with them, and I think a lot of the really important tenets of that, i.e., that animals need to be included in disaster response not just for their welfare but for the welfare of people…, [help to] to make sure that all of these different components that fit together that involve animals actually work under a disaster situation. *(animal welfare, non-profit, NAT, 19)*

> In the aftermath of Black Saturday, we had to say right, that just wasn't good enough. We learned a lot [about] what we were going to put in place. Those National Planning Principles were certainly part of what has now developed as the… Victorian Emergency Animal Welfare Plan which is, as necessary, based on those principles…. [and] it's one of the better

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plans. Some states really don't even have specific animal welfare plans. *(animal emergency management, non-profit, NAT, 14)*

You've got animal people around the table, and [they] are developing a plan, in general, that works well. You know that they're quite engaged at identifying the risk issues, what needs to be addressed, [and] how the plan needs to be written. *(animal emergency management, non-profit, WA, 11)*

I started [getting] all that background to look into things, and that's where I found the Planning Principles, and what was spurring on the various states to sort of commit to it… *(animal emergency management, government, WA, 3)*

Specific aspects of the Principles were identified as necessary to consider at the state level to support engagement with the public in the lead up to emergencies, such as ensuring clear communication of roles, responsibilities, and planning objectives:

I think it's a great idea... [and] I think that owners need to take more responsibility for their own planning for emergencies. I think that if they understand the limitations of what government can do in an emergency situation, that's a good thing…. The other thing is there's accountability when you've got those objectives and vision statements as well. *(animal emergency management, government, VIC, 5)*

It just makes it so much easier during a response. There is so much going on, there are so many emergency services… to have clear hierarchy, whoever is making the decision, and how everything flows down… is absolutely invaluable. Everyone knows what they're doing, it's much safer. *(animal emergency management, industry/private, VIC, 7)*

Emergency services often provide instructions regarding preparing pets in ways that convey individual responsibility, for example:

If we make people evacuate in three days' time, we'll do a warning saying, look, you need to be ready to evacuate. It's a code orange at the moment, but we may need you to evacuate. And we give them a piece of paper that tells them what to take, how to pack their pets up, what to do, where the evacuation centre is. And then when the order's given, we send our crews out there and go, get out now! *(animal emergency management, emergency services, NSW, 1)*

In some cases, the addressing of the Principles as an organisation was less intentional, and more a result of an alignment of purpose or values:

I think some of those tenets, such as you have to take care of [your animals] ... you know it's the one welfare, one health approach is very much embedded in… how we would approach any kind of a response. So, when looking through them, I could see most of them reflected in the things that we've done... I don't know how intentional it was though. *(animal welfare, non-profit, NAT,19)*

[It] comes down to the way people interpret principles… what's the idea behind it, and can I get the idea? And really what the Principles say to me is that it's [about] shared responsibility, all agencies response. In our framework, [these] are the two underpinning principles anyway: shared responsibility and all agencies, all hazards response. *(animal emergency management, government, WA, 3)*

I think it's a good idea. I think the key with any of this is that communication 'piece'. … [So] looking at it from the practical side…. So, I think it's always difficult in these situations, you

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know, it's about the community and communication. *(emergency management, industry/private, NSW, 21)*

Despite there being organisations that either directly or indirectly saw the need for the Principles in emergency response planning for animals, there were also barriers to awareness of them.

Awareness Barriers

For interviewees with low or no awareness of the Principles, a number of potential explanations were identified, including position in organisational structure, jurisdictional and industry decisions about planning information for animals:

> I'll be quite honest, I wasn't really aware of the National Principles. But having said that I was fairly operational, [and] quite often involved with [field work]. The consideration of those principles would have sat probably with someone that was a manager. *(animal emergency management, government, VIC, 5)*

> I hadn't read the National Planning Principles for Animals in Disasters until I had a look…. People do care about this, and it's a common Australia-wide concern, but those principles are great. I really like the idea of being explicit about the value of considering animals in planning and that explicit value to human wellbeing and safety. *(land management, government, NSW, 23)*

> No, I haven't [heard of them] …. I think it's okay, but obviously, the states, as I was saying… the states have ultimate control. So, even if—whatever national bring out—[it] doesn't mean the states have to do anything with it. So, they can bring a guide out, but that really doesn't mean much unless the states all agree to that. *(animal welfare, industry/private, NAT, 16)*

> [Responsibility for animals], it's not [communicated]… who does it? So, I think general bushfire planning information is getting out a lot better, but that's just a whole of community approach. But [not] how [animal] grounds or clubs or organisations can link in with their state planning... *(animal welfare, industry/private, SA, 8)*

For example, from an emergency services perspective, the core priority of human life is reflected in how animal integration is publicly communicated in emergency response, as noted by one interviewee:

> There's a bit in public warning messaging about animals that may be coming through, but it is very people focused. It's [like], right, we're leaving it up to you as the owner of either livestock, domesticated animals, companion animals, to manage your own situation…. Our warning and advice systems are still very people focused, and the animals are not considered. *(emergency management, emergency services, SA, 20)*

This latter point raises the question of implementation needs for the Principles, prior to planning that filters down to owners of animals.

Implementing National Planning Principles

Interviewees identified two key areas to address in relation to the Principles—application across jurisdictions, and mapping the Principles more closely to practical actions for animal emergency management downstream:

And the legislation—it's a huge mess. While everyone agrees the principles are really good, it's [about] how can you overcome the mess that you've got here to [use] those principles. And I think that was the biggest part of the challenge—trying to work out what's a good way forward. *(animal emergency management, government, WA, 3)*

I hope they are brought into what's needed for now… [in a] format like a handbook or something that actually is a little bit clearer, and that has ownership back to someone, so they will actually be maintained, they will be updated as they, you know, change. *(animal emergency management, government, WA, 3)*

The basis of it is actually quite good and [you] wouldn't need a lot to update it to the environment we are in now. From what I remember reading, it was like, that makes a lot of sense. *(emergency management, government, VIC, 4)*

We've got to really go to the next stage. If we want to be serious about alleviating the challenges that we saw [2019/2020 bushfires], and that we will have again, going forward, unless something is done as overarching principles down to delivery. *(emergency management, industry/private, NSW, 21)*

[They're] written in terms of that high-level principle approach, on a national level. At that sort of level, I think there's benefit in national documentation. So, principles, guidelines, what do we need to be explicit about, what do we know, what have we learnt nationally and internationally that feeds into the benefits of doing this? The national drive to say, right states and territories, you need to consider this, and you need to develop some frameworks and policies—I think that's important. *(land management, government, NSW, 23)*

What's the point of developing stuff, unless we are actually going to use it, and it's literally a handbook that is in your glove box as you're going to an event, you know? *(animal emergency management, non-profit, VIC 15)*

I think principles arrive, and then you're cascading down to that [action]. So, I'd like to see the Principles cascading to a practical component, because at the end of the day… let's look at this as a holistic approach. *(emergency management, industry/private, NSW, 21)*

One of the main reasons for the existence of the Principles is the setting of a national standard for integration of animals in planning. This is still a persistent need, and one that interviewees clearly identified in relation to the Principles.

That's what it comes back to—it's exactly that. It's [that] the Principles then sort of overarch what the standard [is] of what we expect for [animal] response, whether it's flood, whether it's a fire, whether it's [different] species… What is the standard? *(animal emergency management, government, VIC, 4)*

National principles give you a foundation for each state to work off. And if you've got a set of national principles… it gives that: this is the gold standard that you need to work towards. And that then needs to disseminate down through state agencies. So, the State Emergency Management Committees… the heads of Local Land Services, of… emergency services. Which then flow down to Regional Emergency Management Committees who work off those plans. *(animal emergency management, emergency services, NSW, 1)*

The need for national consistency in disaster planning for animals, was reflected in frustrations with the implementing the Principles within the state and territory context, for example:

[We] did have some frustrations with them because their methods weren't consistent with what Council and [state government] were putting out there…. Some of their messaging wasn't in line with what the government's expectations or requirements were. *(animal emergency management, non-profit, QLD, 12)*

> *These findings suggest that despite identifying the need for the National Planning Principles for Animals in Disasters, and for a standard approach to animal planning, there is an inconsistent awareness of the Principles across stakeholders involved in animal management in emergencies. Areas to address to increase implementation include communicating the Principles across organisational structures and devising discrete communication strategies for use within state and territory jurisdictions.*

All hazards, all species

When discussing the species broadly under their responsibility, few interviewees noted an all hazards, all species approach, across the organisations represented. In some cases, this was due to their focus as an organisation (e.g., smaller pets, wildlife), however this was also related to how planning accounted for species that were most likely to be affected by disaster in their jurisdiction. For instance:

In the national bushfire recovery agency, or whatever statutory body… [they need] to have a look at all these issues around wildlife… I've been talking about bushfires, but for broader animals [as well]. If you're thinking about wildlife, you need to train to all hazards and all agencies… You pick up all these things. *(animal welfare, non-profit, NAT, 17)*

A lot of people are critical of the single species approach, but the fact is that doing that [work] for that animal [type] actually benefits many others. *(land management, government, NSW, 23)*

[We] have a view that we don't prioritise particular species over another. Our view is that every animal should be treated equally and receive the same amount of care. Whether it's a kangaroo or whether it's someone's horse. So, our view is that there isn't any priority. *(animal welfare, industry/private, NAT, 16)*

This perspective was mostly seen with respect to wildlife species. However, the need to plan for 'owned' domestic animals was also noted as having an 'all species' component, particularly with respect to community evacuation shelters that permitted animals:

We get an indication of the species in the area… it is like, how many animals are being impacted. It's not just one animal impacted and needs veterinary attention, it's the numbers of animals. We usually know that we're likely to see koalas; the nature of the fires also gives us an indication of the species that we're going to see. There are a lot of species that just can't survive the wildfire. *(animal emergency management, industry/private, VIC, 7)*

[Legislation] outlines that rescue agencies are responsible for the safe removal of people and domestic animals, from actual or threatened harm. So, it's… any animal that relies on humans to survive…. [or] has become trained, partially trained, or is in the process of being trained, although it was not intended, becomes a domestic animal…. So, dairy cows that get up in the morning, walk up to the dairy, become our problem… But also, elephants and tigers at the zoo… *(animal emergency management, emergency services, NSW, 1)*

Pet sheep, pet goats, so yeah, that was what we ended up with. I think we had about 12 sheep, and so we don't cater to farms, as in with their herds of cows and things like that… ours are companion pets, but they're companion farm pets. You know, the five chooks that live in the backyard that you feed every day and nurture. You know, the goats that are your friends. And people down here do, you know, have two or three goats, and they could be their babies, like dogs… Ducks, [a] setup for pigs, we had, [and] they stayed in a trailer. *(animal emergency management, government, TAS, 6)*

Also, given the dynamic nature of hazards such as bushfire, the ability to attend to all animals is clearly constrained by circumstances of the impacted animals that responders are presented with:

It's almost a moot point—whether it's response, or relief and recovery—when you're following say, the path of a fire. You've come in after the event to triage and assess stock. Mostly, farmers are probably a little bit more pragmatic… *(animal emergency management, non-profit, NAT, 14)*

The above perspectives suggest that adoption of an all hazards-all species approach is constrained by the type of organisation applying the Principles. However, at the level of environmental (i.e., wildlife) and community-level (i.e., domestic animal) planning, taking an all-species approach to disaster situations, where this is an option, may benefit welfare outcomes for animals (e.g., sheltering).

Human-animal welfare link

A core aspect of the Principles is the explicit recognition of the connection between human and non-human animal welfare in the context of disaster. Specifically, organisations need to recognise that effective integration of animals into emergency management planning helps improve welfare and safety outcomes for both humans and animals. The risks to human safety of not planning for animals are well acknowledged, including by interviewees in this research:

One of the main rationales for having a plan, you know, as well as obviously protecting the animals, is that if people don't have a good plan… down at the individual level, then something comes up unexpectedly… If they haven't got a plan as to what they're going to do with their animals, people could put their lives at risk trying to deal with [them]… particularly if they've got horses or livestock. *(animal emergency management, non-profit, WA, 11)*

Animals provide a great comfort during times of disaster, whether it's a personal situation or natural disasters, for example. So, I think they are a great coping mechanism for people, [and] most people do consider them part of the family. So, thinking that an animal has to be left behind because there aren't proper measures to accommodate an animal during a disaster is quite concerning. *(animal emergency management, non-profit, QLD, 12)*

Well for me, being in animal welfare, it's the fact that animals are sentient beings and they do need to be protected. But that doesn't float for most people. So, from a policy perspective, it's about human safety. Yes, so the human behaviours… impact not only that person, but also the animals that they're connected to. *(animal emergency management, government, WA, 2)*

In our training we always talk about why we save animals. And I always give the example of the reason that a firefighter will get a cat out of a tree, it's not because they love cats. It's because if they don't get that cat out of the tree, someone else is going to climb up that tree without the training, experience, and equipment… and fall out of the tree. And [they'll] be dealing with a more dangerous situation. *(animal emergency management, emergency services, NSW, 1)*

Owners' desire to keep close to their animals, coupled with the logistics of managing multiple households and various species in disaster response, emphasises the need for planning to explicitly address animal welfare in this context:

The local oval [is] all right if you're just parking cars… you can use the football clubrooms to shelter people, but people bring with them those small animals, the dogs, cats… Most don't have a cat carrier, they just chuck it in a box in the car, and if they're there for any more than 24 hours how are they managing the welfare and safety… You've got interaction of animals. You start bringing different dogs, cats, all those into that environment. The pre-planning for that—I don't see it realistically. *(emergency management, emergency services, SA, 20)*

[In] Mallacoota, where people were getting on the ships with their animals, they were taking them to relief centres where animals were admitted. So, everyone, all the council areas, the relief centres that were set up, were well aware that animals needed to be a part of that relief centre. There are already provisions… to accommodate veterinary needs, any food, kitty litter, harnesses, blankets, bedding, whatever. Everyone was equipped to assist; all agencies are equipped to assist with animals now at relief centres. *(animal welfare, industry/private, NAT, 16)*

Another aspect of this link is how incredibly influential animals can be on the mental wellbeing of people in disaster contexts, as illustrated in bushfire evacuation and relief centres (positive), and in assessment of disaster affected locations (negative):

At that relief centre, we spent all our time walking around just listening to people, talking to them about their dogs… [and] providing animals with parasite control… [giving] out treats and enrichment toys. And just to see how those people opened up, and to see how it impacted on them in a positive way, like a smile on their face from people. When we first met them, they just seemed down and out. *(animal emergency management, non-profit, QLD, 12)*

[Some] were extremely traumatised by the experience at Kangaroo Island… who [did] rapid damage assessment… They encountered extremely stressed landholders and individuals who tried to save their properties, often unsuccessfully… with dead and dying animals around them. So, it was quite confronting… *(emergency management, emergency services, SA, 20)*

Although the above points reflect the need to account for the human-animal welfare link in planning, in emergency response broadly, this is deprioritised for human safety, for example:

It's quite clear in Victorian Emergency Response Protocols, human safety is the highest priority. We will not, we should not, be undertaking any activity that puts human safety at risk, either responders or members of the public around them. *(animal emergency management, government, VIC, 4)*

Human life is something that we can't put in jeopardy, we can't expect frontline workers to be going out and putting themselves at risk to save this animal, when it's really that person's

responsibility to be planning for their animal. *(animal emergency management, government, WA, 3)*

It's always a challenge. [Farmed animals] are our highest priority, obviously, when we're responding. It's just that primacy of [human] life is the first priority. It's frustrating at times not to be able to get in, but we all understand that that primacy of life is the first priority. *(animal emergency management, government, VIC, 5)*

> *The above findings reinforce the influential connection between human and animals in disaster welfare outcomes for both. Interviewees confirmed that integrating animals into emergency planning improves human and animal welfare and safety in disasters. It was noted that although this is becoming integrated into disaster planning and response (e.g., Mallacoota), improvement is needed. The connection of animals to mental wellbeing of owners in this context, is an area to consider in future iterations of the Principles. Lastly, although a bidirectional welfare link exists, human life is prioritised in emergency arrangements.*

Animal welfare consultation

Interviewees described the type of animal welfare consultation they engaged in as part of creating and reviewing animal integration into their disaster response plans to promote animal welfare, as in the below examples:

Most of that happens within the industry groups… [and] there is a lot of consultation in terms of certainly planning for any situation that might involve [animal] population or any kind of impact on the food chain…. So, I know our farm animal people consult quite a lot with industry on those kinds of things… I'd say in regard to [companion animals], it's more likely that people consult with [veterinary bodies]. *(animal welfare, non-profit, NAT, 19)*

What happens with the [us], and what happened this year as part of [Black Summer bushfires], is that several of us from [Victoria], were part of the emergency response and recovery centre. We're right inside the formal response teams. *(animal emergency management, non-profit, NAT, 14)*

I think [emergency service] have made significant improvements… you will see information about how they plan, how they advise people to plan in preparedness, response, and recovery in relation to animal welfare and management.... [there's] support from the peak bodies. [Equine organisation] is a good example because of the nature of the type of animals, where they are, people's passion, and their care for them—those sorts of things. They have done a lot of work in that field with [emergency service]. *(emergency management, emergency services, SA, 20)*

They engaged a [welfare] consultant for the work…. as [local government] has limited capacity. But then there's [also] people that… are really passionate about it, [and] they've done some really good work, [then] others are [like] 'I know this is important, but it's big'…. Definitely the animal welfare bodies are the first step, just to understand what their capacity is because usually, it's nothing. *(animal emergency management, government, WA, 2)*

Compared to the variability in welfare consultation around natural disasters, for example, when considering biosecurity and emergency animal disease, there is an established veterinary response mechanism that embeds this:

The arrangements around agriculture and companion animals, lifestyle companion animals, that's quite clear. That sits under the Chief Veterinary Officer, there's a national network around veterinary officers, the Commonwealth. There's AUSVETPLAN, and a whole nice cascading… [system] implemented. At the moment… you see it replicated in the Chief Health Officers nationally. *(animal emergency management, government, VIC, 4)*

In the case of natural hazards like bushfire, welfare consultation for farmed animals can, for example, involve planning for effective management of animal relief centres:

There's been a lot of work done in the last 12 to 18 months on animal relief centres and how they can be managed. Early on, whilst they may have had them in place, I think there wasn't really a good understanding about the human resources that would be required to actually manage them…. I am aware of our animal health and welfare staff attending workshops with [emergency service] leading up to summer… The question is whether or not we're doing enough… *(animal emergency management, government, VIC, 5)*

To address this variability in welfare consultation, multiple interviewees identified the need for a central contact point for animal welfare consultation advice and resources, as part of disaster planning, with contacts designed for this purpose already present in some states and territories, and needed in others:

[We] have… a [veterinary] representative. So, there is a connection that can get out to local vets, and the idea was to actually work more with local people who are available… [and] what we really want to see is the local governments identifying who their vets are in the area, what their vets can offer, and then when the neighbouring local governments in distress, working through shared agreements between the local areas to do the support. *(animal emergency management, government, WA, 3)*

We need a values advisory team because this is really big, and they're the people who would facilitate and communicate with those outside organisations and resources that can help with a response [to] provide better outcomes for wildlife, for livestock, and for domestic animals… *(land management, government, NSW, 23)*

We have councils, local councils, involved in that [committee] as well. So, there's a register for each council of what sort of equipment that they can access, whether it's horse stalls or equipment for horses or livestock stalls or showgrounds and things like that... The register [supports] the community and all the local councils feed all their resources into that. During the bushfires, we had a teleconference every day, and any community councillors that are affected, ring in and basically say, we need this, we need that. *(animal welfare, industry/private, NAT, 16)*

> *The extent of animal welfare consultation for disaster planning varies across jurisdictions and sectors in Australia, suggesting that this aspect of the Principles remains relevant. The need for central animal welfare information points and committees was supported by interviewees as essential to animal integration in disaster planning and response. However, it was noted that different forms of consultation for advice and resources were taking place across Australia, which should be audited to gain a clearer picture for a standardised approach.*

Communicating animal integration and responsibility

The Principles state the need to clearly and accessibly communicate how animals are integrated into disaster planning, and to emphasise that the owner of an animal is

ultimately responsible for their wellbeing and safety. When asked directly about integration of animals, interviewees described a need to communicate about this more effectively with the public, and with relevant organisations.

> We'd certainly like to see a better integrated and more coordinated response to these kinds of things, and to giving good quality information that's easy for the public to understand, about what they should do with their animals… in a situation like this... which I don't think was the case this time. *(animal welfare, non-profit, NAT, 19)*

> Respond[ers] to emergency events come together at regular intervals throughout the year. They know how to communicate with each other, how to contact each other and what each other's responsibilities and capabilities are before the event. [However] the function of [animal support organisations] is not well communicated…. not well understood at the [district] level. *(land management, government, NSW, 23)*

> [You] have to be careful not to be too state specific, because fires cross borders and you might need help from your neighbours. But really, [it's] that there's a clear plan that's well communicated, and that preparation occurs during the 'down years'. *(animal emergency management, industry/private, VIC, 10)*

> I don't think the messaging can be any clearer, but perhaps there's a bit more work to do in terms of providing our general community with the knowledge of how to best prepare—a lot of the information is out there. *(animal emergency management, government, VIC 5)*

An effective approach for promoting engagement with planning information relating to animals is 'translating' the content into language that is readily accessible to different target audiences (e.g., industries, services), for instance:

> It does vary, and what we do is we get the sector, rather than the [government] and rather than emergency management. The sector representatives are the ones that write it in the language that they feel their community will take. So, it's putting that responsibility down to them because they are the experts in their area. *(animal emergency management, government, WA, 3)*

> It's a marketing job…. generally [it's] just put in one bucket of marketing to one segment. Well, there's multiple segments… [like] a pet owner segment—how we're going to communicate [with] that, so they feel more comfortable…. So, then you've got that segment. I think breaking those segments down to say, okay, this is the framework, this is how we're going to do it, and [how] we're going to get it out to the market… you know, you've got different types of people. *(animal emergency management, industry/private, NSW 21)*

> We have to be really mindful—we can get the [animal welfare] experts in that don't have the fire background. But if we get them in, it has to be with someone who has that background and can speak that language… *(land management, government, NSW, 23)*

> There's going to be a communication subgroup [producing]… outward facing documents that will sit on our website that that comms group will look through… to increase that understanding, and what information we put out there about our [policies]. *(animal emergency management, government, VIC 4)*

When looking at how individual responsibility for animal welfare and safety is conveyed in planning, interviewees reflected that although this was accepted at the organisational level, understanding of this varied at the individual animal owner level.

There's a [plan] part about communication to do with stressing the need for individual planning by the public. You know, to do with the key risk management issues. *(animal emergency management, non-profit, WA, 11)*

At the end of the day… any managed animal is the responsibility of the owner or carer. And really, when [it's] a decision about pro the animal's life over human life, that it needs to be happening at the owner's level. They should be taking the preparations just like they would with a child or anything else that they needed to look after, it really is their responsibility and other people can't be risking their lives for that responsibility. *(animal emergency management, government, WA, 3)*

We do very much take that role with [owners]… We state very clearly that it's still your responsibility to safeguard the welfare of animals in your care. You have responsibilities under the Animal Welfare Act… *(animal welfare, non-profit, NAT, 19)*

What we're aiming to do this time round is very clearly set the expectation with all volunteers working in [animal management] that owners must take responsibility for their animals, and this is the level [required]. Like, we all were going to expect that the owner… checks on the animal's welfare, and feeds and waters them… *(animal emergency management, government, TAS 6)*

It's about people's life—it's that 'don't rely on somebody to come and knock on your door in an emergency'. There's still a level of expectation for that… [so] some of the messaging is going to be that you need to take responsibility. Don't rely on emergency services, get your plan together, decide if you're going to stay or go. And part of that plan is considering your animals. That's the primary messaging. *(animal emergency management, government, TAS 6)*

The latter quote from the 2019-20 bushfires indicates that public expectation about responsibility for animals in disasters remains an issue. Given this, there is still a need for a principled approach to communicating individual responsibility for animal welfare and safety.

Although ultimate responsibility for animal welfare in disasters is communicated between government and emergency services organisations, there is a still a need to emphasise this in communication with broader organisations (e.g., industries) and individual animal owners. Using central committees or positions to help translate animal planning responsibilities with different target audiences (e.g., industries) is one approach consistent with the Planning Principles.

Gaps and needs

In the context of discussing the Principles, interviewees described a range of gaps and needs to address in relation to effective planning for animals in disasters, including unified approaches to animal welfare planning, for example:

I understand the complexity of state-based things, but the same issues are everywhere…. If you have a unified approach… it's going to be easier for everyone to be on the same page. And because we're having such big events now, you need to go across state lines, then everyone should know who's doing what…. Because when you look at it, the resources available to animal welfare are minuscule compared to human response, yet the number of

animals that are impacted are usually about 100-fold the number of humans. *(animal emergency management, government, WA, 2)*

In NSW, it's legislated and given to the Local Land Services. But it's done in different areas in an ad hoc [manner]. It doesn't seem to be [consistent], like the evacuation that was done there at the Hawksbury Showgrounds—really solid. The Blue Mountains was more lacklustre. There doesn't seem to be a solid planning document around [how] it's done this way every time. Whereas when you evaluate people, it doesn't matter whether [it's] here or in South Australia—the evacuation process is the same. *(animal emergency management, emergency services, NSW 1)*

Where it's hard is when national groups or agencies need to interact with [states]. If it's a national strategy, or plan, or something that the states have to put into place, or tailor it for their needs… It's unrecognisable by the time it's gone through all the filters and lenses, of [one] state versus another. *(animal emergency management, non-profit, NAT 14)*

Some interviewees identified the need to consider principles for animal welfare planning more explicitly within the Australasian Inter-Service Incident Management System (AIIMS):

For real change of the Principles to come in, and where I don't see it actually happening in the conversation, is still [in]… AIIMS that we respond to emergencies under. And we still haven't pulled animals into that structure anywhere… [by] having it pulled into there, it then flows into everything else as well, because if the incident controller knows that they have to answer questions about animals, they're going to make sure that the plans… can answer those questions. *(animal emergency management, government, WA 2)*

Another concern raised was variability in awareness of accessible resources to support animal integration in disaster response planning.

If I was to turn to a shift commander and ask, 'if you're in a bushfire, what plans would you refer to for the management of a horse stud [if] you heard that it's impacted?', I'd say they're unlikely to know what's available to support them. *(emergency management, emergency services, SA 20)*

It's just a big gap. There's a gap in what's available in the community. Because it's all very well saying, 'oh, we'll open up our pony club yards.' But they're just four rails on four posts quite often. You'll have stallions come in, or cattle come in, or alpaca… *(animal welfare, industry/private, SA 8)*

We're heavily involved in [the] whole operation from the communication to, you know [response], and my goal in any operation—I'll just ring all the facilities, [and] one big gap we're finding in all this is no one knows where the animal housing facilities are. No one's got a database to manage these people. *(emergency management, industry/private, NSW 21)*

Sustaining knowledge of planning approaches and resources specifically for animal management in disasters was a further gap noted by interviewees:

Our collective memory is short, and our attention is drawn to other things before the next big event happens. In a world of finite resources... we do the best we can to establish frameworks and processes and protocols that will help the next time an event like last summer happens… The real challenge is how you sustain learning procedures so that when the next extreme event comes… it's something people are familiar with. *(land management, government, NSW 23)*

And the problem that happens with disasters, planning for fires, [and] every season from now on, is when you have these big episodic events, so much is mobilised and learned, and then where does it go?... You need a body with the core business of addressing animal needs and disasters. That's all it does, it maintains that knowledge in the database and the contacts. *(animal emergency management, non-profit, VIC 15)*

Someone has got to be responsible for that... It's a great thing having all these tools available, but they have to be maintained, because there's no point investing a lot of time and money into it and then five years later you realise that… a lot of the information is out of date. *(animal emergency management, government, VIC 5)*

Lastly, given the extreme nature of animal management during disasters, psychological care measures for people managing animals in these contexts was raised by interviewees as a need to be addressed in animal emergency planning, and potentially in principles, in the future:

I'm used to seeing dead animals and in various different states. Whereas, a paramedic is used to seeing dead people, but they're not used to seeing dead animals, and that the psychological impact is huge. We saw that in our last fire, where we got the Defence Force to assist with burying animals…. [and] they weren't prepared to see that. *(animal emergency management, government, WA, 2)*

After my period of time in [animal welfare], and knowing the toll that seeing so many things [can] take, I don't want people to have to experience that... I was always very conscious of 'we're doing it for this reason', trying to make it a group decision. *(animal emergency management, industry/private, NSW 9)*

When we realised the extent of people that are encountering who potentially have mental health issues, we did some very rapid development with mental health professionals who were [responders] at the time to come up with a check sheet of questions you could ask people. It did relate to other concerns they had, and it did include animals… [asking] 'do you have concerns for yourself, your family, your animals?' *(emergency management, emergency services, SA 20)*

We do active debriefs during the event… but you might do that at the end of a shift, of a 24-hour period, or weekly for long, ongoing events, and at the end of a season as a way of people being able to download concerns and issues… [as] part of the psychological recovery from what you've gone through… *(land management, government, NSW 23)*

The above findings suggest a number of research and practice gaps to address via the Principles in how animals are integrated into disaster planning in Australia.

Needs relevant to the Principles included action towards unifying approaches to animal welfare planning in Australia, and more explicit integration of this in standard emergency management systems (e.g., AIIMS). Increased awareness of accessible resources to facilitate animal welfare integration in disaster planning and response was also identified, as was the need to support the mental health of those managing animals in disaster contexts.

Conclusions (interviews)

Stakeholder interviews indicated a clear need and ongoing relevance for the National Planning Principles for Animals in Disasters. Multiple stakeholders from various sectors and jurisdictions were aware of the Principles, understood their intended purpose, and described their role in fostering unity in how animal welfare considerations are integrated into disaster planning at a state level.

Interviewees felt the Principles would foster interagency and jurisdictional cooperation, and support more consistent disaster planning and preparedness messaging with animal owners. In cases where the Principles did not explicitly inform planning, stakeholders noted that they were consistent with their organisations' approach to animal planning, and reinforced the importance of specific principles (e.g., communicating the responsibility of the person in charge of the animal, acknowledging the benefits of including animal welfare planning for human safety and animal welfare). For those unaware of the Principles, potential barriers to awareness included lack of access to the Principles, due to their role in the organisation, and jurisdictional or organisational planning decisions that are not aligned with the Principles.

R12: To increase uptake, it is recommended that the NPPAD be provided by DAWE/DHA/DRRA or other appropriate responsible agencies and peak bodies in a format that can easily be shared by all stakeholder organisations, and that it is emphasised that human behaviour is shaped by the human–animal bond and that this has a powerful influence on decision-making in emergencies.

To aid implementation, stakeholders expressed a desire for a clearer mapping of the Principles onto practical emergency management actions relevant to their jurisdiction. As the principles were designed for this purpose, this may reflect the need for a communication strategy around the Principles that gives examples that can be adapted and applied across states and territories.

R13: To improve implementation, the NPPAD should be communicated via a State or Territory specific strategy that maps principles to examples of practical actions.

An 'all-hazards, all-species' approach was not used by all stakeholders, and this was largely due to the primary responsibility of the stakeholder, for example, state government body versus private industry. Many focused only on the species they managed and the disaster types they would likely encounter, due to the additional resources required to take this approach. No specific recommendations are made on this point, although animal planning consistency across disaster types should be examined in future. This relates particularly to the Principles that state the need for an 'all hazards, all species' approach and that relate to the most likely forms of disaster encountered and species affected. Stakeholders may benefit from more information around this.

Connection of human welfare and animal welfare in disaster contexts is well established and was described by all stakeholders interviewed as a planning and response consideration for their organisation. However, few identified explicitly communicating this to animal owners. Rather, the connection was framed as a risk factor for physical safety and mental wellbeing of owners, as well as for emergency responders (e.g., evacuation

shelters, wildlife rescuers), in a context where human life is prioritised by emergency arrangements.

R14: To acknowledge the impact of the human-animal bond on owner decision-making and behaviour in emergencies, the NPPAD should address this aspect more directly and ensure that risk and safety behaviour motivated by attachment to animals is communicated to all users of planning information.

When considering consultation to support animal welfare in disaster response planning, stakeholders revealed different approaches, including a range of resources used, and stakeholders consulted, e.g., the engagement of local government, non-profit veterinary groups, animal owners. Although this is often built into emergency response arrangements through access to animal welfare expertise and resources (e.g., animal related functional supports/services), interviewees noted that this varied across state and territory jurisdictions, and that a central contact point or committee was needed to help coordinate and drive best practice approaches and the identification of the best resources to use.

R15: To promote a consistent and optimised approach to disaster planning, consultation with animal welfare organisations and other stakeholders should be guided by a centralised or coordinated source and a common set of best available resources.

Additionally, stakeholders discussed a number of gaps and needs relating to planning for animals, including the abovementioned need for unified approaches to animal welfare planning. Explicit integration of animal welfare into the Australasian Inter-Service Incident Management System (AIIMS), was noted as one potential means of promoting this. A key gap to address is the variability in awareness of resources to support planning for animals and sustaining knowledge of planning approaches and resources developed to support animal welfare in disasters.

R16: To promote consistent integration of animals in disaster planning, the NPPAD should emphasise the need to maintain knowledge of emergency systems and resources available to support animal welfare in disasters.

As a final point regarding gaps in this space, stakeholders emphasised the profound mental health effects on owners, responders, and others of the confronting and potentially traumatising nature of disaster response for managing animals. Given that the need for psychological support was discussed in relation to after action reviews and debriefing, this relates clearly to principles addressing links between human and animal welfare. This is an area where a principle clearly maps to a 'practical example' that needs to be addressed in planning (e.g., psychological preparedness, psychological first aid).

Case studies

The following section presents five separate case studies involving management of owned animals in natural disaster contexts. These are presented as examples of current animal welfare management approaches and draw on direct interviews with stakeholder representatives and supporting source materials for descriptions.

Case 1: City of Wanneroo (Western Australia)

Organisation type: Local Government
Location: Perth, Western Australia
Website: https://www.wanneroo.wa.gov.au

In January 2019, the Yanchep bushfires burnt through Wanneroo, WA, and its surrounds. Over 1600ha was burned by the blaze, significantly impacting both humans and animals throughout the area. An evacuation warning was sent out, and thousands of people were evacuated for up to six days, a number of which arrived at centres with their pets and domestic animals.

The City of Wanneroo Local Animal Welfare Support Plan integrates provisions for animal welfare within the City's emergency management arrangements, to ensure that animals are effectively planned for, and that their welfare is addressed during an emergency.

By recognising that the bonds between humans and their animals impact decision-making behaviour in an emergency, local emergency arrangements are consistent with a multiple National Planning Principles for Animals in Disasters. Planning for farmed animals, horses, companion animals, as well as animals in wildlife parks and native fauna are included in the City's emergency planning processes.

To support animal welfare consultation and combined responsibility for animal welfare, the City of Wanneroo engages with the Western Australia Local Government Association Committee for Animal Welfare in Emergencies via their representative for preparedness in emergencies. This Committee consultation gives City direct access to government members and supporting materials that promote the use of the NPPAD in animal emergency response arrangements. The City provides assistance with urgent animal welfare needs including emergency shelter, food, and veterinary requirements.

The Animal Welfare Team responds to emergency situations within the City of Wanneroo. The team is made up of Animal Care Centre Officers, Rangers and Emergency Management staff, and lead by the City's Coordinator of Community Safety. For larger-scale events, the Department of Primary Industry and Regional Development, Department of Biodiversity Conservation and Attractions, RSPCA WA, Western Australia Police, Department of Communities, State Emergency Services, Volunteer Bush Fire Brigade members, and veterinarians are employed to assist in emergency responses involving animals.

Figure 17. Gumblossom community centre site, Quinns Rocks WA, used by the City as a nominated evacuation centre to house people, dogs, and cats (Source: City of Wanneroo Council).

First and foremost, animal owners or carers are considered by the City to be responsible for the welfare of their animals before, during and after an emergency. Planning for safe relocation of animals, including transportation, accommodation, and care, need to be vigilantly considered by animal owners or carers. Although the City of Wanneroo places priority on human safety and security, they acknowledge that this often involves non-permittance of animals in evacuation centres, with the exception of assistance animals, such as guide dogs, hearing dogs, and disability aid dogs.

In response to this, temporary animal evacuation centres are established for emergency events (Figure 17). At these centres, there are arrangements for the registration, treatment, and short-term accommodation of animals, include identification and record keeping, secure holding facilities, feed and water, veterinary treatment, contacting owners/carers, specialist attention for wildlife, separation and control arrangements for animals declared as dangerous, and health and safety procedures for all staff and members of the public.

> *These arrangements particularly illustrate the following National Planning Principles for Animals in Disasters:*
>
> *The planning process should:*
> - *Explicitly recognise that integrating animals into emergency management plans will improve animal welfare outcomes.*
> - *Explicitly recognise that integration of animals into emergency management plans will help secure improved human welfare and safety during disasters.*

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- *Recognise the wide range of parties involved in animal welfare at each stage of the disaster cycle and ensure these organisations are consulted during writing or reviewing disaster plans*
- *Respect the role of local government, especially with reference to animal welfare and animal management arrangements within the local area, as 'first responders' in disasters and acknowledge local government expertise in understanding local needs and resource availability.*
- *Consider how best to ensure effective integration and implementation of the plan by, for example, extensive consultation during the planning process or inclusion of an animal welfare element in requirements for disaster training exercises*

The disaster plan that incorporates animal welfare in disasters should:
- *Specify that the individual in charge of an animal is ultimately responsible for its welfare in disasters.*
- *Take an 'all hazards' humane approach to all species and encompass a wide range of possible disaster-type situations that may impact upon the welfare of livestock, companion animals, wildlife and other categories of animals such as laboratory animals.*

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Case 2: Animal Welfare League (New South Wales)

Organisation type: Non-profit Animal Welfare Organisation
Location: Kemps Creek, New South Wales
Website: https://www.awlnsw.com.au/

In 2019, severe bushfires developed in the Bega Valley Shire and surrounding regions during the 2019/2020 fire season that came to be known as Australia's 'Black Summer' crisis. From 29 December 2019 to 11 February 2020, approximately 400,000ha were burnt at areas including Werri Berri, Badja Forest, Big Jack Mountain, Postman's Trail, and at the Victorian border South of Eden. Over 600 residences and 1000 other structures were damaged or destroyed.[25] This prompted emergency responses from the NSW Rural Fire Service and Police to protect assets and residents, many of whom owned animals, and required support in managing shelter, relocation, welfare and triaging of animals.

On 31 December 2019, the head of the Department of Primary Industries emergency response requested AWL NSW to deploy to Bega as bushfire first responders, and by 4 January they were integrated into the Emergency Operations Centre at Bega over eight days. Importantly, AWL NSW has an agreement to fulfil this role under the NSW Agriculture and Animal Services Functional Area (AASFA) Supporting Plan.[26] During this period AWL evacuated from the centre multiple times to protect their teams,[27] and were offered community resources to support them in assisting animals. Over the course of the fires, Bega Shire Council emphasised that owners should re-house animals themselves where possible, with smaller pets welcome at the Showground evacuation centre, and larger farmed animals to be directed to Bega Saleyards.[28]

In NSW, following emergency operation control alert, AASFA Coordinators identified incident response needs, and activated organisations such as AWL, who then communicate and plan with emergency services groups within bushfire response. During deployment, this allowed AWL to help relay updates from combat agencies to animal owners, and to channel information from animal owners back to the incident management team. This two-way communication was essential to effective emergency animal management and reduced risk-taking behaviour and other complications by animal owners. As noted by AWL CEO Mark Slater, 'you need to expect the unexpected'.

At Bega, hundreds of residents and their animals who had evacuated together arrived at the Showground, where pets and other animals were accommodated, and received veterinary support (e.g., advice, treatment, euthanasia), from AWL teams and via their Mobile Veterinary Truck (Figure 18). This also included larger domestic pets such as

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[25] For a summary of bushfire impacts, see the Bega Valley Shire Council Recovery Action Plan by the Bega Valley Local Recovery Committee.
[26] See: Agriculture and Animal Services Functional Area Supporting Plan V2.
[27] For a frontline account from the AWL CEO, see Animal Welfare League NSW News (02/11/2020).
[28] See: Bega Valley Bushfire Update (02/02/2020).

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horses, and smaller ones such as chickens to whom owners had an emotional connection. As part of this, AWL ensured that evacuees knew who they were (e.g., branded clothing), why they were there, and how they fit into the response to support animals and owners. They also recognised that during the Bega bushfires, some owners had less capacity to assume personal responsibility for their animals, which can affect animal welfare. To supplement response capacity, AWL partnered with local veterinarians who had a more detailed picture of local animal management and welfare needs.

Figure 18. Drone photo of AWL NSW mobile vet truck at Bega Showground, used as a site to check pets and livestock. As the crisis grew worse, the truck was moved to allow more evacuees onto the site, Bega, NSW, 2020 (Photo courtesy of AWL NSW).

Co-sheltering animals and people at the Showgrounds and the Saleyards required consideration of biosecurity and physical safety concerns. Evacuated chickens and Salmonella spread, and potential injuries from horses were two considerations at the Showground, and AWL were aware of this. AWL also set up a veterinary response area further away from evacuees, to minimise potential further distress for evacuees when treating or euthanising severely injured animals (Figure 19). Consideration of mental wellbeing and health extended to AWL teams, who had access to full mental wellbeing checks post-event, prior to after-action review. Additionally, AWL review and practice their incident response arrangements in the window between fire seasons.

Figure 19. AWL NSW vet team treating pets for stress, smoke inhalation, burns and other injuries, Bega, New South Wales, 2020 (Photo courtesy of AWL NSW).

The above summary particularly demonstrates the following National Planning Principles for Animals in Disasters:

The planning process should:
- *Explicitly recognise that integration of animals into emergency management plans will help secure improved human welfare and safety during disasters.*
- *Aim, for the benefit of emergency managers and animal welfare managers, to clearly identify roles and responsibilities within command-and-control structures in sufficient detail to allow for effective implementation of animal welfare measures.*
- *Respect the role of local government, especially with reference to animal welfare and animal management arrangements within the local area, as 'first responders' in disasters and acknowledge local government expertise in understanding local needs and resource availability.*
- *Include effective communication about plan implementation with those parties who may be involved as well as those who may be impacted by disasters.*

The disaster plan that incorporates animal welfare in disasters should:
- *Emphasise that biosecurity requirements are of utmost importance in disasters and that quarantine and biosecurity protocols must be followed wherever practicable.*

- *Include a system for formalising arrangements with animal welfare support organisations.*
- *Include requirements and arrangements for regular testing and review of the animal welfare in disasters plan.*

Case 3: Hanrob Pet Hotels (New South Wales)

Organisation type: Animal Boarding Facilities
Location: Heathcote, NSW; Duffys Forest, NSW
Website: https://hanrob.com.au

"We communicated to the customers, 'for safety reasons we're moving your pets'."—
Andrew Biggs, CEO, HANROB Pet Hotels

HANROB Pet Hotels is an Australian Pet accommodation and dog training business, established 1981, and operating at six locations including Heathcote and Duffys Forest NSW. During the 2019/2020 'Black Summer' fires, these two locations came under threat, prompting emergency responses on the part of the business to protect the welfare and safety of companion animals under their care, and to preserve business assets. HANROB staff also later assisted the community with managing companion animals during evacuations. Learning from earlier bushfire experiences in 2001, the organisation understood their specific emergency response planning, transport, fire protection and communication needs in the event of bushfire threats at the Heathcote and Duffys Forest sites in the 2019/2020 season. Notably, HANROB identified that even with emergency response trained staff, they required clear communication with and assistance from support agencies such as the NSW RFS. The two examples here include sheltering in place (Heathcote site), and emergency evacuation of animals (Duffy Forest site).

In October 2020, bushfires in the Royal National Park approached the Southern side of the 10-acre Heathcote facility at time when 40 staff and 170 animals were on site. The CEO and Pet Care Manager were central contact points for support agencies and for HANROB staff, and for maintaining communication with the NSW RFS. The bushfire survival plan was activated once the fire threat crossed a 10km radius, around an hour into the emergency response, with non-essential employees being evacuated. A staff member worked the front desk as a central communication point for customers and the public, who also received regular hourly updates on emergency activities via social media. As part of the sheltering response, HANROB used mobile hose units and impact sprinklers, and requested a NSW RFS firefighting unit where needed. Importantly, a full audit of on-site animals and their management requirements had been completed in preparation for enacting their plan to shelter in place, given the large size of the Heathcote facility. Sheltering in place at this facility required limiting movement and limiting people to reduce potential risk, over a seven-hour period, late in the day, before conditions eased and the fire was controlled.

At the Duffys Forest location, the emergency response required evacuation of the facility and approximately 200 animals housed there, starting at 11.00pm. The South-Eastern NSW fires in the Ku-ring-gai Chase National Park and Terrey Hills area posed a threat to animals and staff. As HANROB had relationships with local volunteer fire fighting groups with smaller firefighting units (e.g., Terrey Hills Brigade), and risk reduction expertise, they were able to ensure that that site was well prepared against bushfire (e.g., vegetation, equipment). Using 10 vans, all animals were evacuated in under an hour to Sydney Airport, a last resort option given the logistical needs and risk of this decision, despite HANROB staff being well-versed in animal transportation (Figure 20). This process required animals to be clearly identified and tracked by the responsible staff members, and for the HANROB staff coordinating the response to remain calm and in control, prior to return of animals to the site, when safe to do so.

Figure 20. Smoke at the Moruya Showground, where HANROB teams assisted owners with their animal welfare, safety, and management needs (Photo courtesy of HANROB Facebook).

A key learning from both of these events was the need to have a well-reviewed and rehearsed bushfire emergency plan, tailored to the characteristics of each site. HANROB had in place staff training for this purpose, where from September leading into summer, emergency response drills were conducted each fortnight with staff to test processes (e.g., relocation) and equipment (e.g., pumps) during the high fire risk period. Since this, HANROB has created brief training videos for emergency preparedness and response processes at their various sites to enhance staff engagement with bushfire response planning.

Additionally, HANROB was activated on 3 January 2020 by NSW DPI as part of the Agriculture and Animal Services Functional Area Committee, to support response to the South Eastern NSW bushfires emergency, due to their expertise with companion animal management, and significant animal transport capacity.[29] Three teams dispatched to support animal management and welfare needs of approximately 4000 animals at evacuation centres across Moruya (Figure 21), Berry, and Moss Vale NSW, working with other organisations to record, feed, transport and shelter animals, while liaising with local land services and incident management team members. HANROB staff were stood down on 6 January 2020.

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[29] See HANROB Pet Hotels, 'Hanrob Emergency Response South Eastern NSW - Bushfire Emergency' Update post (07/01/2020),

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Figure 21. HANROB vehicles used to transport companion animals from Duffys Forest boarding site to Sydney Airport during bushfire evacuation (Photo courtesy of HANROB Facebook).

The above summary particularly demonstrates the following National Planning Principles for Animals in Disasters:

The planning process should:
- *Explicitly recognise that integrating animals into emergency management plans will improve animal welfare outcomes.*
- *Explicitly recognise that integration of animals into emergency management plans will help secure improved human welfare and safety during disasters.*
- *Aim, for the benefit of emergency managers and animal welfare managers, to clearly identify roles and responsibilities within command and control structures in sufficient detail to allow for effective implementation of animal welfare measures.*
- *Consider how best to ensure effective integration and implementation of the plan by, for example, extensive consultation during the planning process or inclusion of an animal welfare element in requirements for disaster training exercises.*

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- *Include effective communication about plan implementation with those parties who may be involved as well as those who may be impacted by disasters.*

The disaster plan that incorporates animal welfare in disasters should:
- *Appropriately plan for animals taking into consideration the types of disasters most likely to be experienced in the particular jurisdiction.*
- *Take into consideration logistical challenges that may impact upon implementation of the plan during disasters, for example, in the event that key infrastructure or personnel are not able to be deployed, communication is affected, or shelters are destroyed or otherwise unavailable.*

Case 4: Cyclone Trevor evacuations – a collaborative animal management response (Northern Territory)

Organisation:	Northern Territory Government	Roper Gulf Regional Council	AMRRIC
Organisation type	State/Territory Government	Local Government	National Non-profit Animal Management Organisation
Location	Northern Territory	Roper Gulf region, NT	Darwin, NT
Website:	https://nt.gov.au/	https://ropergulf.nt.gov.au/	www.amrric.org

Tropical Cyclone Trevor, a Category 4 event in March 2019 with wind gusts of up to 250km/h, caused impacts of varying extent from the Northern Territory to Northern Queensland, and prompted the largest evacuation since Cyclone Tracey in 1974. Drought ravaged areas across the Territory experienced heavy rainfall, leading to localised flooding and cutting off roads in several districts. In efforts coordinated by the Northern Territory Government, thousands of residents from the Roper Gulf region in Cyclone Trevor's path were evacuated as a precaution.

During the event, approximately 2000 animals owned by evacuees found safe shelter in residences during the cyclone, in remote communities at Urapunga, Ngukurr, Numbulwar, Robinson River, Borroloola, and nearby outstations.

These animals included free-roaming mixed-breed domesticated dogs,[30] with varying temperament and ability to be handled. Additionally, these animals can be companions that also hold spiritual and cultural significance to community members. Domestic pets in the path of the cyclone also included horses, pigs, chickens, and ducks.

Given the geographic remoteness of these communities, lack of local facilities to safely accommodate evacuated pets and the safety risks and stress likely to be experienced by these animals during capture, transport over vast distances and confinement at regional facilities, upon consultation with all stakeholders, secure sheltering was determined to be a more suitable approach than individual animal co-evacuation (Figure 22).

Importantly, evacuation centres in the Northern Territory do not accept animals during a cyclone. One reason for this is that some animals can become dangerous, posing a health and safety risk to people and other animals during the overall disaster response. At the same time, animals remain the responsibility of their owners or carers during emergencies such as cyclones, and on evacuation owners/carers must decide whether to leave their animals outside to find their own safe place, or to secure them inside a house or structure for shelter.

During the Cyclone Trevor event, if leaving the animals in place, community members were told to put out food, water, and to ensure that animals could access or were secured in shelter. Residents were advised that veterinary teams would assess their animals once safe access to the community had been established after the cyclone had passed. During

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[30] For an overview of camp dogs in the Northern Territory, see the article 'Camp dogs and Darwin specials are a Northern Territory trend' by Gabrielle Lyons, ABC.

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Cyclone Trevor, most owners were evacuated for a week, with some residents taking longer to be repatriated and returned to their animals.

Figure 22. Community camp dogs within AMRRIC health and welfare assessments during Tropical Cyclone Trevor response, Northern Territory, 2019 (Photo courtesy of AMRRIC).

As part of this process various agencies within the Northern Territory Government collaborated with the local government – Roper Gulf Regional Council and the non-profit Animal Management in Rural and Remote Indigenous Communities (AMRRIC) to coordinate support for the health and welfare of these animals. While the Northern Territory Government maintained responsibility for the overall response, Roper Gulf Regional Council's Animal Management staff provided local knowledge of the animal populations within the region, assisted by data captured through AMRRIC's data system for companion animal populations. AMRRIC additionally provided veterinary personnel, experienced in the nuances of remote community veterinary service delivery, and collaborated with local animal welfare organisations to secure emergency food donations for the animals. After safety clearance was issued, veterinary teams comprising staff from AMRRIC, Roper Gulf Regional Council and Northern Territory Government re-entered communities to provide food and health assessments of animals that remained following evacuation. The vast majority of animals had survived the cyclone unscathed, with only a few animals requiring minor veterinary treatment.

Roper Gulf Regional Council are the local government authority. Their services include an Animal Health Program, delivering regular veterinary services (focusing on desexing, anti-parasitic program and animal welfare treatments) to the 11 remote communities within their region.

AMRRIC collaborates with a wide variety of remote Aboriginal and Torres Strait Islander community stakeholders (e.g., local governments, ranger groups, environmental health organisations etc.) to support community health, wellbeing, and safety, by improving the health and welfare of companion animals. The organisation comprises a team of staff and volunteers funded predominantly by the Australian Government, National Indigenous Australians Agency. The organisation also receives philanthropic support and various grants-based funding.

The Northern Territory has an Animal Preparedness Program, which begins before the wet season. Disaster preparedness and response information is provided to communities and stakeholders from September through to May (e.g., local radio stations). This also involves preparedness meetings with stakeholder organisations and highlights the importance of cultural lenses in disaster preparedness for animals.

The lead agency in animal emergency preparedness and response is the Department of Primary Industries and Resources (DPIR), with the Northern Territory Biosecurity and Animal Welfare Group responsible for the welfare of companion animals, livestock and wildlife in a disaster or emergency situation. As in other states, emergency response for animals is coordinated with several supporting organisations, including interstate and federal primary industry departments, emergency services, primary industry peak bodies, private veterinary clinics, wildlife care groups, and animal welfare organisations including the RSPCA, PAWS, AMRRIC and other non-government animal organisations with welfare expertise that are approved by DPIR.

Although AMRRIC has no direct formal responsibilities for animals in emergencies, they fulfil an essential role as a member of the Northern Territory Biosecurity and Animal Welfare Group, by advocating for Aboriginal and Torres Strait Islander perspectives in this context. Their relationships with local councils also supports effective animal management in disasters. Following Cyclone Trevor, increased AMRRIC and veterinary presence during evacuation has been recommended, to reassure animal owners, and to increase veterinarians' opportunity to gauge household animal numbers, speeding up household community safety checks.

These arrangements particularly illustrate the following National Planning Principles for Animals in Disasters:

The planning process should:
- *Explicitly recognise that integrating animals into emergency management plans will improve animal welfare outcomes.*
- *Aim, for the benefit of emergency managers and animal welfare managers, to clearly identify roles and responsibilities within command and control structures in sufficient detail to allow for effective implementation of animal welfare measures.*

- *Recognise the wide range of parties involved in animal welfare at each stage of the disaster cycle and ensure these organisations are consulted during writing or reviewing disaster plans.*
- *Respect the role of local government, especially with reference to animal welfare and animal management arrangements within the local area, as 'first responders' in disasters and acknowledge local government expertise in understanding local needs and resource availability*

The disaster plan that incorporates animal welfare in disasters should:
- *Specify that the individual in charge of an animal is ultimately responsible for its welfare in disasters.*
- *Include consideration of animals at all stages of the disaster cycle including preparedness, response, recovery, and mitigation.*
- *Include a vision statement that makes reference to the importance of securing animal welfare outcomes in disasters (i.e., AMRRIC promotes this).*
- *Include a system for formalising arrangements with animal welfare support organisations.*

Case 5: Hunter Local Land Services (New South Wales)

Organisation type: Regional Land Management Government Agency
Location: Paterson, NSW
Website: https://www.lls.nsw.gov.au/regions/hunter

Hunter Local Land Services (LLS) supports regional community in areas of natural resource and sustainability management, biosecurity, animal and agricultural veterinary needs, and emergency management. Managing land extending from the Mid Coast Council south to Lake Macquarie City Council, NSW, and from Upper Hunter Shire east to the coast, NSW, they assist landholders in preparing for, responding to, and recovering from emergency incidents. As a principal support agency in the NSW Agriculture and Animal Services Functional Area Supporting Plan, they also assist in coordinating animal welfare and management during disasters.[31]

For example, in April 2015 the Hunter region (e.g., Dungog, NSW) experienced severe flooding that impacted communities and farming operations, causing significant losses (i.e., approximately 500 dead animals) and displacement of farmed animals, requiring assistance for stranded stock and animal holding facilities at evacuation centres.[32] Over 300mm of rain fell in under 24 hours, with multiple areas declared natural disaster zones.[33] The Hunter region again experienced flooding in 2016, with residents in some areas evacuated after the banks of the Hunter River broke, requiring State Emergency Service support, and evacuation centre facilities.[34] Given the size of this region, there is also a high fire-risk. For example, during the 'Black Summer' bushfires of 2019/2020 the Kerry Ridge bushfire burned for 79 days, merging with nearby fires (e.g., Gospers Mountain Fire), and impacting over 191,000ha.[35]

In such emergency responses, Hunter LLS provides an Incident Controller, who acts as the coordination point for agencies supporting the emergency response under NSW DPI, and the need for this is growing. Following the 2015 floods for example, Hunter LLS increased their incident control training and capability, including AIIMS[36] training, allocating more staff time to emergency preparedness and response activities. This is also reflected in LLS emergency management input into state-wide advisory groups. During emergency response, Hunter LLS also coordinates the activities of various animal welfare and management groups, such as RSPCA NSW, WIRES, and FAWNA, for farmed animals, companion animals, and wildlife.

LLS staff also record available resources in the region for emergency animal welfare (e.g., veterinary), relocation and sheltering, including human shelters that have animal housing capacity (e.g., showgrounds, saleyards, pony clubs). Their regional review of veterinary capacity included all contact details, operating hours, large and small animal treatment specialisation, cages and holding facilities. Hunter LLS noted, "that was a big achievement, because during the fires we were able to ring a local vet in the area and say, 'we know you've got cages, can we grab some?'" Currently, they are creating a

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[31] See: Agriculture and Animal Services Functional Area Supporting Plan (2016).
[32] See: Hunter Local Land Services: Flood Response and Recovery (2015).
[33] See: After the Floods: Dungog, New South Wales (12.05.2015).
[34] See: NSW Weather: Flood clean-up in the Hunter begins, food dropped off to stranded campers (07.01.2016).
[35] See: NSW Rural Fire Service deems 79-day Kerry Ridge bushfire officially 'out' (10.02.2020).
[36] Australasian Inter-Service Incident Management System (AIIMS).

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highly detailed version of this for future emergencies, information that has to updated and maintained over time.

Many landholders own animals in the Hunter region. This emphasises the need to have a detailed awareness of local infrastructure that can meet animal needs during disasters, and how this is positioned relative to fire risk, flood risk, human and animal welfare support (i.e., feed, water, safety), and staffing requirements. As put by a Hunter LLS worker: "Do you have good yards? Do you have adequate loading facilities? Do you have water and feed troughs? Is there shelter? … I went and looked at one [site] the other day, and they can put 2000 cattle under cover. Like Hallelujah, you know, that's rare… those sorts of things are absolutely high priority, you know, [animals], they're all they're all different. They've all got a different level of complexity".

Figure 23. Cows stranded along a tree line in floodwaters in the Hunter Valley region.

Hunter LLS also aids landholders in preparing for the possibility of animal evacuation or relocation, and for sheltering with other landholders' animals. NSW RFS produce flood and bushfire plan materials for landholders that LLS provide to animal owners for animal planning (e.g., Farm Fire Plan), along with their own materials (e.g., Farm Flood Readiness Kit). This engagement is essential, as large losses of farmed animals can occur at a single property. As illustrated by a Hunter LLS worker regarding flood risk: "you might have a levee bank, and below [it] a fence… [and] cattle at the bottom paddock have got to jump over fences to get out of flood water…. [So] if you're talking about animal welfare, [you need] really good farm plan management…" (Figure 23). To provide this, Hunter LLS run field days to engage landholders and priority groups on emergency animal preparedness (e.g., cattle farmers, smallholders).

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After an incident is deemed safe, veterinarians and rangers working for Hunter LLS can perform preliminary assessment of animals for treatment needs or euthanasia and facilitate carcass disposal. Ultimately, the LLS noted that "it is the landholder's responsibility to maintain the welfare of their animals, irrespective of what they've been through, [and] we're there to give them as much support as we can".

To achieve this, land services provide access to emergency preparedness supports for animal welfare and safety in disasters for different property types. For example, small farms and lifestyle blocks can use the 'Every Little Bit Counts' program resources.[37] Still, a core approach to engaging landholders on emergency animal preparedness is via discussion, as noted by Hunter LLS: "the best method, it's still to get them together in a shed, you know, on somebody's veranda, and have a talk to them and go through it and make it as non-confrontational as possible—get them to work on that collective good".

The above summary particularly demonstrates the following National Planning Principles for Animals in Disasters:

The planning process should:
- *Recognise the wide range of parties involved in animal welfare at each stage of the disaster cycle and ensure these organisations are consulted during writing or reviewing disaster plans.*
- *Respect the role of local government, especially with reference to animal welfare and animal management arrangements within the local area, as 'first responders' in disasters and acknowledge local government expertise in understanding local needs and resource availability.*
- *Include effective communication about plan implementation with those parties who may be involved as well as those who may be impacted by disasters.*

The disaster plan that incorporates animal welfare in disasters should:
- *Take an 'all hazards' humane approach to all species and encompass a wide range of possible disaster-type situations that may impact upon the welfare of livestock, companion animals, wildlife and other categories of animals such as laboratory animals.*
- *Appropriately plan for animals taking into consideration the types of disasters most likely to be experienced in the particular jurisdiction.*
- *Take into consideration logistical challenges that may impact upon implementation of the plan during disasters, for example, in the event that key infrastructure or personnel are not able to be deployed, communication is affected, or shelters are destroyed or otherwise unavailable.*

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[37] Animal welfare Rural Living Handbook (2020) at: https://www.lls.nsw.gov.au/what-we-do/our-major-projects/every-bit-counts

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Conclusions (case studies)

From the five case studies discussed above, a number of points can be made, bearing in mind that these particular case studies are most generalisable to organisations similar to those presented.

Multiple of the National Planning Principles for Animals in Disasters were supported in the disaster planning and emergency response arrangements and actions at each of the five case study organisations. Although these were primarily indirectly supported, there is strong potential for each of the organisations to benefit from a more structured implementation of the NPPAD. This is particularly seen in Case Study 1, the City of Wanneroo, who had consulted a local government animal welfare committee that actively works to include the NPPAD in emergency response arrangements. This has informed the disaster planning by the City's Animal Welfare Team and Animal Care Centre Officers. Other organisations were members of various animal emergency and welfare committees. However, representatives did not note that the NPPAD informed committee actions.

Organisations often had a role in supporting State Government led disaster response arrangements, due to their expertise in animal welfare and management, veterinary capability, access to resources and infrastructure, as well as expertise in animal management needs. As these roles drew on local context, were focused on particular species or animal types, and met community or industry needs, targeted promotion of why explicit implementation of the NPPAD can benefit their emergency planning should consider these factors and note that the Principles can be adapted to fit them.

As the animal welfare support role of each organisation is framed by State jurisdictional arrangements, communication of why and how to implement the NPPAD in emergency planning and response arrangements may benefit from being presented in emergency response language specific to each State and Territory. Additionally, presenting examples of what each principle might look like in practice will give those considering adopting the NPPAD, either partially or fully, a starting point to implement the Principles in a way that meets their jurisdictional requirements and other factors.

Overall, these five cases offer a broad look into the different types of organisations that are able to benefit from using the Principles to support their animal emergency planning and response arrangements. Representatives from each organisation appreciated the value of a having set of structured principles on hand to inform their management of animals in emergency response arrangements. However, more direct communication of the NPPAD, with industry for example (e.g., Case Study 3), may provide further feedback about a broader range of interested organisations that can potentially implement them to improve animal welfare in disasters.

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DISCUSSION AND RECOMMENDATIONS

This research presented the findings of a mixed methods study into implementation of the National Planning Principles for Animals in Disasters [4, 5] within Australia, from the perspective of organisations with a stake in managing animals in disaster contexts. This included stakeholders from government, emergency services, non-profit organisations, and others who held roles with responsibilities related to animal management.

Targeted literature review, online stakeholder surveying, in-depth interviewing, and a selection of case studies were conducted to provide a picture of how the Principles have been explicitly and indirectly implemented since their release. The study aimed to describe this, and provides recommendations for the Australian context, as follows. Note, recommendations are sequentially numbered in this section and earlier in the report.

In presenting the following recommendations it is acknowledged that responsibility for animal welfare and animal emergency management is complex in Australia. At the national level it is assumed that a degree of oversight sits with the Department of Agriculture, Water, and the Environment (DAWE), and the Department of Home Affairs (DHA) or the new National Recovery and Resilience Agency (NRRA). In some of the following recommendations we have identified DAWE, DHA, DRRA or other organisations as responsible for leading action. We recognise that there may be different agencies or organisations that are responsible and should be tasked. In some situations national, inter-jurisdictional, or inter-organisational working groups or committees may be more appropriate to deliver improvements in specific areas.

As the Principles were publicly released in 2014, some time has passed since their initial availability to animal welfare stakeholders. However, both reviewed planning materials and survey responses indicated that over half of prospective users of the tool were aware of the Principles (58.1%), and approximately half of these had implemented them, directly or indirectly, in their disaster planning and policy (53.8%). This suggests that there is still a need to more actively promote how they can benefit animal welfare planning and policy for disaster response. Findings from the literature review suggest the following recommendations for applying the Principles:

R1: To increase uptake of the NPPAD across Australia, it is recommended that representatives from organisations responsible for animal welfare planning in each State and Territory strategically share information about how they have integrated (or plan to further integrate) the tool into their emergency management planning for animals.

R2: To help advocate for, and frame, local disaster planning arrangements, DAWE/DHA/DRRA or appropriate responsible agencies or organisations should ensure that the NPPAD is more actively shared with State and Territory Local Government Associations across Australia.

R3: To emphasise the role and recognise the challenges for animal owners, statements addressing the owner's ultimate responsibility for animal welfare in disasters need to be more consistently stated in disaster plans. Statements should also consider the variable capacity of owners to meet this requirement and emphasise awareness of potential assistance needs.

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R4: To strengthen and embed the case for effective emergency planning for animals, disaster plans should include vision and rationale statements that recognise that positive outcomes for animal welfare are linked to benefits for individual and community resilience, through improved human safety, well-being, and economic outcomes.

Via the online survey, most stakeholders felt that official responses for animal welfare needed to be improved (66.7%), with the following areas suggested to be gaps in addressing animal welfare in planning arrangements:

- A need for consistent communication of state-wide response, and clearer delineation of roles and responsibilities across agencies.
- Clearer acknowledgement of the intrinsic value of animals (cf. as economic
- assets).
- More accessible and easy to understand descriptions of national arrangements relating to animal welfare in disasters.
- More guidance at the state level, through leadership by responsible agencies with expertise in animal welfare.
- Including animal welfare as an operational risk requiring management in emergency response agency planning arrangements.
- Increased support for consistency across local government planning for animal welfare in disasters.
- Requirement of animal emergency welfare plans in local emergency management arrangements, with auditable welfare components.
- Increased training for those writing and exercising emergency animal welfare plans.
- Increased first nations acknowledgment and inclusion in planning for animals in disasters.
- Mental health support planning and recovery requirements for those involved in emergency animal welfare management.

These areas for development should be considered in relation to the Principles in future research and practice, though are not framed here as specific recommendations.

Survey responses indicated that stakeholders understood the growing need to integrate animal welfare considerations into disaster planning, and that this informs safety outcomes for animals, although the role of this in securing human safety outcomes should be more frequently addressed. Currency of the Principles is supported by their explicit inclusion in state-level emergency response planning in Victoria, Western Australia, and South Australia, with this then informing local level planning. However, responses also indicated that although they are intended as a high-level planning tool, there may be benefits to more closely connecting the Principles to operational processes. This could take the form of providing examples of how each Principle might be implemented. Stakeholder feedback via the survey supported the following recommendations:

R5: To increase implementation, it is recommended that targeted NPPAD awareness and education campaigns be conducted by DAWE or other

appropriate responsible agencies with stakeholders at both state and local levels.

R6: To improve animal welfare consultation in disaster planning, improved processes for identifying, engaging, and including parties with local or other relevant expertise should be implemented by any authority developing or updating a plan.

R7: To increase best practice communication in animal welfare planning, guidance should be made available to support those developing plans and materials to ensure that readability level and comprehension testing is undertaken with target audiences, and appropriate revisions are made as a result.

R8: To expand implementation of the NPPAD across all phases of the disaster cycle additional focus on prevention and recovery stages should be considered.

R9: To support animal welfare in response scaling, logistical planning, interagency cooperation, and formal welfare consultation, application of the NPPAD within national disaster incident response systems (e.g., AIIMS[38]) should be explored by DHA/DRRA and/or other relevant organisations, e.g., the Australasian Fire and Emergency Service Authorities Council (AFAC).

R10: To support animal welfare planning, guidance should be created to support an 'all hazards' perspective being applied at different jurisdictional levels, from national down to local levels.

R11: To enable regular testing and review of plans for animal welfare in disasters, capacity and resources for testing and review should be assessed and incorporated at the outset of plan development.

Within interviews, multiple stakeholders from various sectors and jurisdictions described being aware of the Principles, understanding their intended purpose and role in fostering unity in how animal welfare considerations are integrated into disaster planning at a state level. Interviewees noted that this would support more consistent disaster planning and preparedness messaging with animal owners through interagency and jurisdictional cooperation. Those unaware of the Principles may hold organisational roles with low access to, or likelihood of encountering, this type of planning tool. Findings from stakeholder interviewing supported the following recommendations:

R12: To increase uptake, it is recommended that the NPPAD be provided by DAWE/DHA/DRRA or other appropriate responsible agencies and peak bodies in a format that can easily be shared by all stakeholder organisations, and that it is emphasised that human behaviour is shaped by the human–animal bond and that this has a powerful influence on decision-making in emergencies.

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[38] For a description of the Australasian Inter-Service Incident Management System (AIIMS) see: Introduction to AIIMS-CFA Training Materials (2019)

R13: To improve implementation, the NPPAD should be communicated via a State or Territory specific strategy that maps principles to examples of practical actions.

R14: To acknowledge the impact of the human-animal bond on owner decision-making and behaviour in emergencies, the NPPAD should address this aspect more directly and ensure that risk and safety behaviour motivated by attachment to animals is communicated to all users of planning information.

R15: To promote a consistent and optimised approach to disaster planning, consultation with animal welfare organisations and other stakeholders should be guided by a centralised or coordinated source and a common set of best available resources.

R16: To promote consistent integration of animals in disaster planning, NPPAD should emphasise the need to maintain knowledge of emergency systems and resources available to support animal welfare in disasters.

The five case studies presented in this report offer brief examples of how Principle implementation can be framed to represent different organisation types and locations across Australia, from suburban areas to remote locations. By presenting a local context, focusing on particular species or animal types, and community or industry needs, targeted promotion of why explicit implementation of the Principles is needed can be directed to stakeholders yet to adopt them. This equates to showing what the Principles look like in practice, a need noted in survey feedback and interviews. This approach may give those considering adopting the Principles a starting point to implement the Principles in a way that meets their jurisdictional requirements and local context.

Lastly, format is a final point to mention regarding the NPPAD. As the current format is the same as at their initial release, a single version document, there is the potential to create a toolkit informed by the research recommendations (e.g., structured guide, index, or scorecard), as well as a review period for the Principles to ensure they align with current emergency management practice. Periodic consultation on these two points with animal emergency management stakeholders would also increase exposure to the Principles as a useful planning tool, and likely increase their implementation in Australia.

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APPENDICES

Appendix A: Participant information statement

Participant Information and Consent Statement

Project title
Planning for animals in disasters: An updated assessment of Australia's animal related planning for, and response to, disasters

Investigators
Assoc. Prof. Mel Taylor (Chief Investigator), Department of Psychology, Faculty of Medicine, Health and Human Sciences. mel.taylor@mq.edu.au
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What is this study and why is it important?
You can help to inform better planning, policy, and practice for animals in disasters.
We invite you to participate in a study of the current status of disaster plans and policies for animals in Australia, an important issue with disasters increasing in frequency and severity across Australasia. The purpose of the study is a national evaluation of planning for animal in disasters, including the uptake and implementation of the National Planning Principles for Animals in Disasters (NPPAD), tool designed to support jurisdictions in disaster management planning that ensures consideration of animals. This study will also evaluate how planning for animals has been operationalised in recent years development of the NPPAD by the Australian Animal Welfare Strategy and World Animal Protection, and endorsement of the NPPAD by the Australian and New Zealand Emergency Management Committee in 2014.

Participants will be provided the option of receiving a summary of findings via email or online webinar, and the project will conclude with delivery of an openly accessible report of findings, due in January 2021.

What does the research involve?
You can participate in one or both parts of this research, each designed to hear your perspective in complementary ways:

1. You can participate in an online survey of stakeholders in the area of animal emergency management (including government agencies, local government, animal-related charities, and associations). The survey asks about details of planning, policy, and response for animal management in disasters, as well as about *examples of how the NPPAD principles have been used* by you/your organisation (Surveying from Jul-Aug 2020, approx. 40 minutes)

2. You can participate in an audio/video interview to explore challenges and successes in this area. Questions will relate to planning for animals in disasters, written plans of organisations, preparedness to respond, organisational goals in this area, and comment on how plans were operationalised in recent emergencies, such as bushfires, floods. Interviews give an opportunity to discuss further details, examples, opinions, and direct experiences, which we are very interested in hearing, and *you can opt-in to interviewing within the survey* (Interviewing from Aug-Sep 2020, approx. 60 minutes).

Why were you chosen for this research?
You can participate if you are a stakeholder in animal emergency management and are aged over 18 years. We are seeking employees in government agencies (e.g., agricultural departments, emergency services), local government, and professional animal organisations and associations. We are also seeking participants who may be from smaller groups and charity organisations who work

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with government groups in emergency situations to help with animal management. Note, if you are no longer employed in a stakeholder role, and have been previously, we still want to hear your perspective.

Consent to participate

Participation in this research is entirely voluntary. Before you can participate in the study you will be asked to read this Participant Information form and sign the consent agreement at the end, indicating you have understood what the study is about and that you agree to participate. Verbal consent can also be arranged. You have a right to withdraw from further participation at any stage without disadvantages, penalties, or adverse consequences. Specifically, this is will not impact upon any relationships with Macquarie University.

Possible benefits and risks

Participants may have an interest in best practice in this area. The outcomes of the evaluation will be made available in an openly accessible report as a snapshot of national activities, challenges, and approaches being used in other states and categories of organisation. Increased awareness of animal emergency management activities and information from this project will help improve planning and response to natural hazards, and outcomes for public safety and animal welfare. No direct risks are foreseen for participants. However, as the research explores challenges and successes, these could be emotional to recall (e.g., frustrating). Some participants may have already discussed these topics within event-specific reviews as part of their work role responsibilities. If needed, please contact Lifeline on 13 11 14, or view a list of suggested mental health resources at the end of this article: https://www.ranzcp.org/news-policy/policy-and-advocacy/position-statements/addressing-the-mental-health-impacts-of-natural-di

What will happen to the results?

Results of this study will be produced as an openly accessible report, due for delivery in January 2021. Research will also be published in peer-reviewed academic journals, practitioner-focused publications, and conference presentations. All participating organisations and initial recipients of emails will be contacted with a link to the final report. Any information or personal details gathered in the course of the study are confidential, except as required by law. No individual will be identified in any publication of the results. Research data will be stored in electronic copy with the Chief Investigator on the Macquarie University password-protected server, and responses for this survey are securely stored by Qualtrics in California and not in Australia. Data will be stored for a minimum of five years from the date of the publication of the final report and handled in accordance with National Health and Medical Research Council guidelines.

Funding

Funding for this project has been provided by World Animal Protection (WAP) for Macquarie University to conduct this independent research.

Questions or complaints

Questions concerning the procedure and/or approach used in this study are welcome at any time. If you would like further clarification of any point, your initial contact is the Chief Investigator, Assoc. Prof. Mel Taylor (mel.taylor@mq.edu.au). Ethical aspects of this study have been approved by the Macquarie University Human Research Ethics Committee (project ID#: 6757). If you have any complaints or reservations about any ethical aspect of your participation in this research, you may contact the Committee through the Director, Research Ethics & Integrity (telephone (02) 9850 7854; email ethics@mq.edu.au). Any complaint you make will be treated in confidence and investigated, and you will be informed of the outcome.

Survey consent agreement

Note, this survey consent agreement is included in the online version of the survey and is provided in printed format to use if needed for reference or hard-copy purposes. I have read, or where appropriate, have had read to me, and understand the information above and any questions I have asked have been answered to my satisfaction. I agree to participate in this research, knowing that I can withdraw from further participation in the research at any time without consequence. I have been given a copy of this information to keep.

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Appendix B: Stakeholder online survey

Planning for Animals in Disasters: 2020 Survey

ABOUT THE RESEARCH
Participant Information Statement presented here with download link, with the full survey formatted in Qualtrics.

To continue, please confirm you understand these conditions by selecting the 'Yes, I agree' option, and then 'Next':

○ YES, I AGREE

○ I DO NOT AGREE

YOUR ROLE AND ORGANISATION

Q2.1 What organisation do (or if relevant, did) you work for? *(briefly describe)*

_____
_____
_____
_____
_____

Q2.2 What is the State or Territory jurisdiction of your organisation?

○ NSW

○ QLD

○ WA

○ SA

○ VIC

○ NT

○ ACT

○ TAS

○ Commonwealth/National

○ Other (please specify) _____

Q2.3 What is your current (or if relevant, former) occupational or related role?

_____

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Q2.4 I currently work in the above role

○ Yes

○ No, I formerly did *(please specify time period)*

_____

Q2.5 Is the work that you perform in this role primarily focused on emergency/disaster situations?

○ Yes

○ No *(please specify primary focus)* _____

○ N/A

Q2.6 What is the nature of the work in this role that relates to planning and/or policy for animal management in disasters? *(briefly describe)*

_____
_____
_____
_____
_____

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Q2.7 Which of the following classifications best describes your organisation?

○ State and territory government body

○ Local government body

○ Emergency services organisation

○ Not for profit organisation

○ Professional association

○ Private company

○ Other *(please specify)* _____

Q2.8 Within your organisation, and in the context of disasters/emergencies, does (or did) your role include oversight of any of the following? *(select all that apply)*

☐ Community engagement/disaster preparedness

☐ Operational response/disaster response

☐ Animal management/animal welfare

☐ Community evacuation centres

☐ Emergency management/planning

☐ Community recovery

☐ None of the above *(reason optional)*
_____

☐ Other *(please specify)* _____

Q2.9 Which of the following animals does your organisation have a role in disaster/emergency planning or policy for? *(select all that apply)*

- [ ] Agricultural livestock/farmed animals

- [ ] Smaller pet species (e.g., dogs, cats)

- [ ] Larger pet species (e.g., horses)

- [ ] Aquatic species

- [ ] Wildlife and native fauna

- [ ] Animals considered invasive/pest in your jurisdiction

- [ ] All animals/all types

- [ ] No role in animal management planning/policy

- [ ] Other *(please specify)* _____

Q2.10 In the context of disaster/emergency response, do you/your organisation have direct interactions with animal owners?

- ○ Yes

- ○ No

- ○ Other *(please specify)* _____

Q2.11 What is your organisation's role or responsibility with regard to the management of animals and/or their owners in disasters/emergencies? *(briefly describe, noting key species)*

_____
_____
_____
_____
_____
_____

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Q2.12 Do you think your organisation should have responsibilities for management of animals in disaster/emergency situations?

○ Yes, but it should have more

○ Yes, but it should remain the same

○ Yes, but it should have less

○ It should have no responsibility

○ Unsure

Q2.13 Are you aware of any formal animal emergency planning, response, and recovery arrangements within your State or Territory?

○ Yes

○ Unsure

○ No

Q2.14 Do you have any comments on these arrangements? *(optional)*

_____
_____
_____
_____
_____

Q2.15 Please describe the <u>primary documents</u> that direct how you/your organisation <u>plans for animal management</u> in disasters/emergencies. Where there are planning and response arrangements for animals in emergencies/disasters that operate outside of formal emergency response arrangements, please describe this.

Add a description or paste URLs here:

_____
_____
_____
_____
_____

Q2.16 Upload primary document files here:

IMPLEMENTATION OF THE NATIONAL PLANNING PRINCIPLES FOR ANIMALS IN DISASTERS

This next section asks about each of the National Planning Principles for Animals in Disasters. If desired, these are available via the Australian Veterinary Association, and can be accessed here.

Q3.2 What is your understanding of how the National Planning Principles for Animals in Disasters are used in Australia, in your field? *(briefly describe)*

_____
_____
_____
_____
_____

Q3.3 How are the National Planning Principles for Animals in Disasters implemented by your organisation? *(briefly describe)*

_____
_____
_____
_____
_____

Q3.4 This section relates to your planning processes for animals in disasters/emergencies. We are seeking EXAMPLES of how you/your organisation have APPLIED EACH PRINCIPLE in your experience. Please only use the N/A option where this is applicable. Does the PLANNING PROCESS you/your organisation use do the following?

Q3.5 The PLANNING PROCESS explicitly recognises that integrating animals into emergency management plans will improve animal welfare outcomes.

○ Yes, fully (please give an example of how this is recognised)

○ Yes, partially (please give an example of how this is recognised)

○ No (give a reason)

○ N/A (give a reason)

Q3.6 *(Briefly describe)*

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Q3.7 The PLANNING PROCESS explicitly recognises that integration of animals into emergency management plans will help secure <u>improved human welfare</u> and safety during disasters.

○ Yes, fully (please give an example of how this is recognised)

○ Yes, partially (please give an example of how this is recognised)

○ No (give a reason)

○ N/A (give a reason)

Q3.8 *(Briefly describe)*

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Q3.9 The PLANNING PROCESS aims, for the benefit of emergency managers and animal welfare managers, to clearly identify roles and responsibilities within command and control structures in sufficient detail to allow for effective implementation of animal welfare measures.

○ Yes, fully (please give an example of how these are identified)

○ Yes, partially (please give an example of how these are identified)

○ No (give a reason)

○ N/A (give a reason)

Q3.10 *(Briefly describe)*

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Q3.11 The PLANNING PROCESS recognises the wide range of parties involved in animal welfare at each stage of the disaster cycle and ensures these organisations are consulted during writing or reviewing disaster plans

○ Yes, fully (please give an example of how this consultation is ensured)

○ Yes, partially (please give an example of how this consultation is ensured)

○ No (give a reason)

○ N/A (give a reason)

Q3.12 *(Briefly describe)*

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_____
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Q3.13 The PLANNING PROCESS respects the role of local government, especially with reference to animal welfare and animal management arrangements within the local area, as 'first responders' in disasters and acknowledges local government expertise in understanding local needs and resource availability

○ Yes, fully (please give an example of how this is acknowledged)

○ Yes, partially (please give an example of how this is acknowledged)

○ No (give a reason)

○ N/A (give a reason)

Q3.14 *(Briefly describe)*

_____
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Q3.15 The PLANNING PROCESS considers how best to ensure effective integration and implementation of the plan by, for example, extensive consultation during the planning process or inclusion of an animal welfare element in requirements for disaster training exercises

○ Yes, fully (please give an example of how this is considered)

○ Yes, partially (please give an example of how this is considered)

○ No (give a reason)

○ N/A (give a reason)

Q3.16 *(Briefly describe)*

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_____
_____
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_____

Q3.17 The PLANNING PROCESS includes effective communication about plan implementation with those parties who may be involved as well as those who may be impacted by disasters

○ Yes, fully (please give an example of how this communication occurs)

○ Yes, partially (please give an example of how this communication occurs)

○ No (give a reason)

○ N/A (give a reason)

Q3.18 *(Briefly describe)*

_____
_____
_____
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Q3.19 The PLANNING PROCESS is communicated in language that is accessible to all stakeholders including the general public

○ Yes, fully (please give an example of how accessible language is used)

○ Yes, partially (please give an example of how accessible language is used)

○ No (give a reason)

○ N/A (give a reason)

Q3.20 *(Briefly describe)*

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Q3.21 The following questions relate to your DISASTER PLAN for animals in disasters/emergencies.

Q3.22 Which one of the following planning arrangements <u>best describes</u> that used by your organisation with regard to disaster/emergency planning for animals in your jurisdiction?

○ A single formal written or published plan

○ Multiple formal written or published plans

○ A single informal written plan

○ Multiple informal written or published plans

○ None of the above

○ Other *(please specify)* _____

Q3.23 How would you describe your planning arrangements for animals in disasters/emergencies? *(Briefly describe)*

_____
_____
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_____

Q3.24 Please indicate which stages of the disaster/emergency cycle your planning arrangements for animals apply to? *(select all that apply)*

- [ ] Prevention
- [ ] Preparedness
- [ ] Response
- [ ] Recovery
- [ ] Other *(please specify)* _____

Q3.25 We are seeking EXAMPLES of how you/your organisation have APPLIED EACH PRINCIPLE in your experience. Please only use the N/A option where this is applicable. Does the DISASTER PLAN you/your organisation use do the following?

Q3.26 The DISASTER PLAN includes a VISION STATEMENT that makes reference to the importance of securing animal welfare outcomes in disasters.

- ○ Yes, fully (please describe how this is included)
- ○ Yes, partially (please describe how this is included)
- ○ No (give a reason)
- ○ N/A (give a reason)

Q3.27 *(Briefly describe)*

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Q3.28 The DISASTER PLAN includes a brief RATIONALE STATEMENT that includes reference to the benefits of the plan for animal welfare, human safety and wellbeing, and for the economy.

- ○ Yes, fully (please describe how this is included)
- ○ Yes, partially (please describe how this is included)
- ○ No (give a reason)
- ○ N/A (give a reason)

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Q3.29 *(Briefly describe)*

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Q3.30 The DISASTER PLAN makes reference to, and situates the plan within, the local area and/or jurisdictional regulatory and legal frameworks.

○ Yes, fully (please give an example of how the plan does this)

○ Yes, partially (please give an example of how the plan does this)

○ No (give a reason)

○ N/A (give a reason)

Q3.31 *(Briefly describe)*

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_____
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Q3.32 The DISASTER PLAN takes an 'all hazards' humane approach to all species and encompasses a wide range of possible disaster-type situations that may impact upon the welfare of livestock, companion animals, wildlife and other categories of animals such as laboratory animals.

○ Yes, fully (please give an example of how an 'all hazards' humane approach is used)

○ Yes, partially (please give an example of how an 'all hazards' humane approach is used)

○ No (give a reason)

○ N/A (give reason)

Q3.33 *(Briefly describe)*

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_____
_____
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_____

Q3.34 How is 'disaster' defined in the DISASTER PLAN that you/your organisation use?
(Please provide definition, summarise, or note where definition is taken from)

_____

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_____
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_____

Q3.35 The DISASTER PLAN includes a statement of scope that excludes animal disease and biosecurity emergencies from the plan.

○ Yes, fully (please give an example of how this statement is presented)

○ Yes, partially (please give an example of how this statement is presented)

○ No (give a reason)

○ N/A (give a reason)

Q3.36 *(Briefly describe)*

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_____
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_____

Q3.37 The DISASTER PLAN emphasises that biosecurity requirements are of utmost importance in disasters and that quarantine and biosecurity protocols must be followed wherever practicable.

○ Yes, fully (please give an example of how biosecurity is emphasised)

○ Yes, partially (please give an example of how biosecurity is emphasised)

○ No (give a reason)

○ N/A (give a reason)

Q3.38 *(Briefly describe)*

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Q3.39 The DISASTER PLAN appropriately plans for animals taking into consideration the types of disasters most likely to be experienced in the particular jurisdiction.

○ Yes, fully (please give an example of how these disaster types are considered)

○ Yes, partially (please give an example of how these disaster types are considered)

○ No (give a reason)

○ N/A (give a reason)

Q3.40 *(Briefly describe)*

_____
_____
_____
_____
_____

Q3.41 The DISASTER PLAN provides for a staggered scaling up of response and resources in line with the scale and severity of disasters and their impact on animal and human welfare.

○ Yes, fully (please give an example of how scalability is supported)

○ Yes, partially (please give an example of how scalability is supported)

○ No (give a reason)

○ N/A (give a reason)

Q3.42 *(Briefly describe)*

_____
_____
_____
_____
_____

Q3.43 The DISASTER PLAN includes consideration of <u>animals at all stages</u> of the <u>disaster cycle</u>.

○ Yes (please give an example of this below)

○ No

○ N/A (give reason)

Q3.44 For which stages are animals considered? *(select all that apply)*

☐   Preparedness

☐   Response

☐   Recovery

☐   Mitigation

☐   Other *(please specify)* _____

Q3.45 *(Briefly describe)*

_____
_____
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Q3.46 The DISASTER PLAN outlines <u>command and control</u> structures in language that is accessible to the general public.

◯ Yes, fully (please give an example of how accessible language is used)

◯ Yes, partially (please give an example of how accessible language is used)

◯ No (give a reason)

◯ N/A (give a reason)

Q3.47 *(Briefly describe)*

_____
_____
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_____

Q3.48 The DISASTER PLAN specifies that the individual in charge of an animal is ultimately responsible for its welfare in disasters.

○ Yes, fully (please give an example of how it specifies this)

○ Yes, partially (please give an example of how it specifies this)

○ No (give a reason)

○ N/A (give a reason)

Q3.49 *(Briefly describe)*

_____

_____

Q3.50 The DISASTER PLAN outlines the processes for <u>interagency co-operation</u> at all stages of the disaster cycle.

○ Yes, fully (please give an example of this below)

○ Yes, partially (please give an example of this below)

○ No (give a reason)

○ N/A (give a reason)

Q3.51 For which stages are cooperation processes outlined? *(select all that apply)*

☐ Preparedness

☐ Response

☐ Recovery

☐ Mitigation

☐ Other *(please specify)* _____

Q3.52 *(Briefly describe)*

_____

_____

Q3.53 The DISASTER PLAN includes a system for formalising arrangements with animal welfare support organisations.

○ Yes, fully (please give an example of how these arrangements are formalised)

○ Yes, partially (please give an example of how these arrangements are formalised)

○ No (give a reason)

○ N/A (give a reason)

Q3.54 *(Briefly describe)*

_____
_____

Q3.55 The DISASTER PLAN takes into consideration logistical challenges that may impact upon implementation of the plan during disasters, for example, in the event that key infrastructure or personnel are not able to be deployed, communication is affected, or shelters are destroyed or otherwise unavailable.

○ Yes, fully (please provide an example of how this has been considered)

○ Yes, partially (please provide an example of how this has been considered)

○ No (give a reason)

○ N/A (give a reason)

Q3.56 *(Briefly describe)*

_____
_____

Q3.57 The DISASTER PLAN includes arrangements for regular testing of planning for animal welfare in disasters.

○ Yes, fully (please provide an example of how this is tested)

○ Yes, partially (please provide an example of how this is tested)

○ No (give a reason)

○ N/A (give a reason)

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Q3.58 *(Briefly describe)*

_____
_____

Q3.59 The DISASTER PLAN includes <u>requirements</u> and arrangements for regular testing and <u>review</u> of planning for animal welfare in disasters.

○ Yes, fully (please provide an example of how this is required and reviewed)

○ Yes, partially (please provide an example of how this is required and reviewed)

○ No (give a reason)

○ N/A (give a reason)

Q3.60 *(Briefly comment)*

_____
_____

Q3.61 Are there any other areas you believe need improvement in relation to the official response to animals in disasters not mentioned in this survey (or in your previous responses)?

○ Yes (which areas, and can these be represented as Planning Principles?)

○ No (why do you hold this perspective?)

Q3.62 *(Briefly describe)*

_____
_____

SIGNIFICANT DISASTER EVENTS

Q4.1 We are also asking people about their experiences planning for and managing animals in natural disaster events that have occurred since the endorsement of the National Planning Principles for Animals in Disasters in 2014.

The researchers conducting this study will be <u>conducting interviews</u> on the topics covered in this survey and are seeking further participants with expert and direct experience in disaster/emergency management of animals. This includes people with relevant experience in this area who may no longer hold an active role in their field. If you or someone you know would like to contribute viewpoints to this research, please enter the relevant contact details below to register your interest.

_____

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Appendix C: Interview questions

Semi-structured Stakeholder Interview Schedule

Project title
Planning for animals in disasters: An updated assessment of Australia's animal related planning for, and response to, disasters

Introduction
Thank you for your interest in this research into emergency management planning and policy for animals in disasters. The purpose of this interview is to hear the perspectives of a range of stakeholders with a role or responsibility for animal emergency management. This will include variety of perspectives from emergency services, government, non-government, and other organisations.

In this interview, we will explore your perspective on the current status of and best practice in disaster planning and policy for animals in Australia. We aim for you to present your views in relation to your current role or occupation. Central to this interview are the National Planning Principles for Animals in Disasters (NPPAD), a tool collaboratively designed by the National Advisory Committee for Animals in Emergencies and World Animal Protection, and endorsed by Australian jurisdictions in 2014, for later incorporation into state and territory emergency policy and planning.

I would also like to emphasise that although this research is commissioned by World Animal Protection, this research is being independently conducted by Macquarie University researchers. In this interview, we will cover a range of topics related to the above aims.

To continue, we request your verbal consent to record the interview, after reading a project summary [PIS] Note. Provide copy of NPPAD for reference. Thank you, let's begin [RECORD]. Note time, date, interviewee first name and role, and researcher name.

Interview

	Topic	Prompt/expand
First, I'd like to get some context.		
1.	Could you please describe your experience in planning for animals in disasters?	
2.	What do you see as the key reasons for incorporating animals into disaster planning and policy?	Specific to your role/organisation? Is this view shared?
3.	To what extent are animals incorporated in your jurisdiction's/organisation's response to disaster?	Why? How is this upheld? Your involvement? Effective?
4.	How effectively do you feel animals are incorporated into Australia's National Disaster Risk Reduction Framework? (e.g., *built, social, natural, economic*)	Why do you hold this view/position?
5.	To what extent is planning and policy for animals in disasters a priority in Australia? (e.g., *understanding, accountability, governance, investment*)	Why? Your jurisdiction? Specific examples?
Next, we'll look at *National Planning Principles for Animals in Disasters* specifically.		
7.	What is your understanding of the *NPPAD*?	How are they used? Why are they used? Relevance to *you*?
A) In your planning *processes*.		
8.	How does your disaster planning integrate animals to benefit: - animal welfare? - human welfare/safety?	Explicit? Formalised? Before/during/recovery?

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9.	How are roles and responsibilities for animal welfare <u>clearly</u> defined for implementation?	Organisation structure? Level of detail? Coordination?
10.	What consultation do you conduct for animal welfare when creating/revising disaster management plans?	Types of parties? Ensuring effectiveness? Education/training?
11.	To what extent does your planning reflect local area expertise and structures for animal welfare?	Local government?
12.	How do you communicate your integration of animals in disaster management planning?	To involved/impacted? Language/accessibility?
B) In your disaster *plan.*		
13.	How does your plan reflect jurisdictional/legal regulation of animal welfare?	
14.	What disaster types and species types does your plan encompass?	All hazards? All species? Disease/biosecurity protocols?
15.	How does your plan for animals prioritise the disaster types most likely to occur?	Local needs?
16.	Is your integration of animals in disaster planning scalable for response and resources?	How?
17.	What is your <u>vision statement</u> for the importance of animal welfare in disasters? (i.e. declared objective)	Publicly accessible?
18.	What is your <u>stated rationale</u> for planning for animal welfare in disasters?	Regarding animals, people, economy?
19.	How are animals considered across stages of the disaster cycle?	Preparation, response, recovery, mitigation?
20.	Is authority and responsibility for animal welfare communicated in accessible language in your plan?	Command-control? Ultimate individual?
21.	Are processes for interagency cooperation on animal management defined? - Are animal welfare organisations <u>formally</u> included?	Disaster stages?
22.	How does your disaster plan implementation: - Adapt to logistical challenges (e.g. communication/infrastructure loss)? - Receive testing for animal welfare outcomes? - Require review for effectiveness?	Backup? Improvement?

Lastly, I'd like to ask you if there is anything you would like to say today, that we have not covered already [UNPROMPTED]? Is it okay for us to contact you in future to clarify anything we have discussed today [EMAIL]? Thank you for taking the time to talk with us today.

A summary of the findings of this research will be made available at a later date [END REC].

End interview

[END]