

ABSTRACT

Planning for animals in the response and recovery phases of disasters is crucial to mitigate the negative effects that the loss or separation of animals can have. The human-animal bond can influence people's decisions during emergencies including how they will respond and when or if they evacuate. This paper uses results of a survey of residents in the Blue Mountains, NSW, who own animals to identify their emergency preparedness and their intended actions in an emergency event. The survey revealed complex animal ownership patterns and respondents showed strong bonds with their pets and were motivated to protect their animals. There was a high-level of self-reported general emergency preparedness and almost three-quarters of respondents said they included their animals in their emergency planning. However, more than half were unsure where they *would* take them and a third were unsure if they *could* take them. Findings suggest that preparedness information be locally specific and consider the complexities of animal ownership, including the need for species-specific resources and information about animals that cannot be evacuated. A case study is used to examine and understand the links between the human-animal bond, disaster preparedness and resilience and the recovery of individuals and communities.

Emergency preparedness and planning for animals: a case study in the Blue Mountains, NSW

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Introduction

The strength of the human-animal bond influences people's decision-making during emergencies. Pet ownership is associated with failure to evacuate (Brackenridge *et al.* 2012; Heath, Voeks & Glickman 2001; Fritz Institute 2006) as well as people undertaking risky behaviours to rescue animals in areas before they are declared safe (Brackenridge *et al.* 2012; Heath, Voeks & Glickman 2000; Heath, Voeks & Glickman 2001; Wilkinson, Eriksen & Penman 2016; Zottarelli 2010). People feel anxiety when separated from their pets (Wilkinson, Eriksen & Penman 2016) and many people have lost their lives attempting to save their animals in an emergency (Thompson 2013). In this context, there is increasing recognition that considering the needs of and planning for animals in disasters can have positive implications for animal welfare, public health, the emotional wellbeing of animal owners and the economy (Austin 2013).

Hall *et al.* (2004, p. 373) argue that understanding human-animal relationships is 'a critical element in promoting the resilience of individuals and communities'. Pets play an important psychosocial role in people's lives and the relationship is associated with positive mental health outcomes. For many individuals, companion animals are considered family members providing comfort and affection, routine and stability (Coombs *et al.* 2015, Trigg *et al.* 2016). Cats and dogs facilitate social interaction, thus reduce isolation and loneliness and help to create a sense of community (Friedmann & Son 2009, Wood *et al.* 2007).

Conversely, the loss of a pet is associated with poor wellbeing and mental health outcomes. The emotional or psychological connection some people feel with their pet has been likened to that experienced in close human relationships (Beck & Madresh 2008). Therefore, the 'grief following the death of a pet manifests itself in similar ways to that experienced after human loss in terms of sleep disruption and social and psychological challenges' (Packman *et al.* 2014, p. 335). Yet, the grief resulting from animal loss is frequently diminished or ignored (disenfranchised) in society (Cordaro 2012; Kemp, Jacobs & Stewart 2016; Stewart, Thrush & Paulus 1989). In these cases, those who are grieving are not recognised as having experienced a

significant loss, leading to feelings of isolation and a lack of support (Packman *et al.* 2011).

Disenfranchised grief as a result of pet loss during a disaster has negative implications for the recovery phase. Numerous studies have found that the loss of a companion animal can be a traumatic experience leading to significant negative psychological outcomes (Chan & Rhodes 2014, Coombs *et al.* 2015, Hall *et al.* 2004, Lowe *et al.* 2015). Hunt, Al-Awadi and Johnson (2008) in a study of pet loss following Hurricane Katrina found that there were significantly higher levels of acute stress, depression and post-traumatic stress disorder among those who had lost a pet. Indeed, the experience of Hurricane Katrina led to the passing of the *Pets Evacuation and Transportation Standards Act* (PETS) in the United States ensuring that pets and service animals were included in state emergency plans for evacuating residents to improve animal welfare and avoid separation between animal and owner. Although most studies in this area have been conducted in the United States, similar findings have emerged from studies in Japan (Goto *et al.* 2006) and New Zealand (Coombs *et al.* 2015). Coombs and colleagues (2015, p. 74) found that companion dogs appear to have influenced human health and wellbeing during and after the Christchurch earthquakes. This study highlights the significance of the human-companion dog bond and its positive therapeutic benefits by recommending that where possible, 'emergency management practitioners and policy makers ensure that humans and their canine companions stay together following disaster events'.

In Australia, many emergency services organisations and other stakeholders (emergency management and animal welfare) have developed strategies and resources to assist their staff members and animal owners. However, there is an absence of research on the roles animals play in the recovery phase in the Australian context. This research is part of the Bushfire and Natural Hazards CRC Managing Animals in Disasters project that indicates pet loss has a significant negative impact on recovery. A study examining recovery after the Canberra bushfires in 2003 found that one of the most popular community gatherings was a memorial service for animals that died in the disaster (Camilleri *et al.* 2010). This indicates that remembering pets is important and social support and recognition are crucial to the recovery process for individuals and communities (Kemp, Jacobs & Stewart 2016).

Planning and preparedness for animals in disasters are crucial components in mitigating the negative effects of animal loss and separation in the response and recovery phases (Glasse 2010). Effective disaster planning for animals must incorporate an understanding of the human-animal bond and be flexible and responsive to the local context applying knowledge about geography, the local people and their animal ownership patterns (Edmonds & Cutter 2008).

This paper examines the results of a survey of Blue Mountains residents and provides the starting point for a community profile to develop knowledge of animal ownership and preparedness activities and to identify local needs and gaps when planning for animals. How this

information can be used to better prepare community members and their animals is considered. It is argued that understanding the specific needs of a community in planning and preparedness can strengthen resilience.



Planning for pets and other animals is important for mitigating the negative effects of animal loss and separation.

Image: Jenny Bigelow

Method

A questionnaire was developed to assess resident characteristics, pet ownership patterns, emergency preparedness for animals and needs and gaps when it comes to preparing and planning for animals in emergencies. Respondents needed to be current residents living in the Blue Mountains and surrounding areas (including Lithgow, Hawkesbury and Penrith) who either own, care for or work with companion animals, livestock or wildlife. Only a few respondents reported having a service animal. It is not within the scope of this paper to consider the needs of these owners and their animals. This paper uses a subset of the full dataset, reporting responses received during the initial 12 weeks of the survey period between February and April 2017.

The questionnaire was administered using Survey Monkey. The survey was promoted on the Blue ARC¹

¹ Blue ARC: Animal Ready Community is a community-led group that was formed in the Blue Mountains in 2015. The aim is to support community resilience in emergency events through better awareness, preparedness, planning and response for all animals. Blue ARC works with formal response agencies to produce outputs relevant to the local community.

Facebook page, in local newspapers and through organisations such as neighbourhood centres in the Blue Mountains. Respondents were asked to share the survey link with friends and neighbours. Hard copy questionnaires with postage-paid return envelopes were made available at local libraries, bookshops, neighbourhood centres and other public spaces for those who did not want, or were unable, to complete the questionnaire online. The questionnaire was detailed and took approximately 20 minutes to complete; longer for those who had experienced an emergency event and completed that section.

Data were analysed using IBM SPSS software (V.25). Simple descriptive statistics and frequencies provide an overview of some of the survey findings. Respondent quotes from open-ended questions and comments have been used to support the quantitative data. This study was approved by the Macquarie University Human Research Ethics Committee (Approval No. 5201600201).

Results

Sample description

In the first 12 weeks of data collection, data were collected from 292 respondents who met the inclusion criteria for this paper. A majority of respondents were resident in the Blue Mountains (82 per cent) with the remaining 18 per cent residing in the immediate surrounding areas of Lithgow, the Hawkesbury, Emu Plains and Penrith. The majority of the sample was female (88 per cent) and around half (49 per cent) were aged 45-64 years, with 40 per cent aged under 45 years and 11 per cent aged 65 years or older.

Around two-thirds of respondents (64 per cent) had lived in the area for more than 10 years. A further 20 per cent had lived in the area for 5-10 years. This paper does not specifically consider the experiences of respondents during the 2013 bushfires, however, these data indicate that most respondents were resident in the area at that time.

To get an indication of how many residents might be away from home and unable to get back to their homes and animals in an emergency situation, a question asked how much of the time adults in the household were more than 30 minutes away from home on a 'typical' week day. Thirty nine per cent of respondents reported that all adults are away from home 'a lot of the time' or 'quite often'. Around a third of respondents (36 per cent) stated that all adults are 'rarely' or 'very rarely' over 30 minutes away from home on a week day. Most respondents (92 per cent) usually had access to a private vehicle, four per cent indicated that they sometimes did and four per cent did not have access to a private vehicle.

Animal ownership

Respondents were asked about the animals they own or care for on their property. Almost all respondents (98

per cent) owned at least one cat or dog. The five most frequently owned animals were dogs (76 per cent), cats (54 per cent), chickens (27 per cent), fish (14 per cent) and birds (14 per cent). More than half of dog owners (53 per cent) owned two or more dogs, and two-thirds of cat owners (66 per cent) owned two or more cats. Twelve per cent reported owning larger animals, such as horses, sheep, cows, goats, alpacas and pigs. Only 14 per cent of respondents owned a single animal, for example, one dog. More than 60 per cent owned multiple types of animals. Figure 1 shows the complexity of the animal ownership profile.

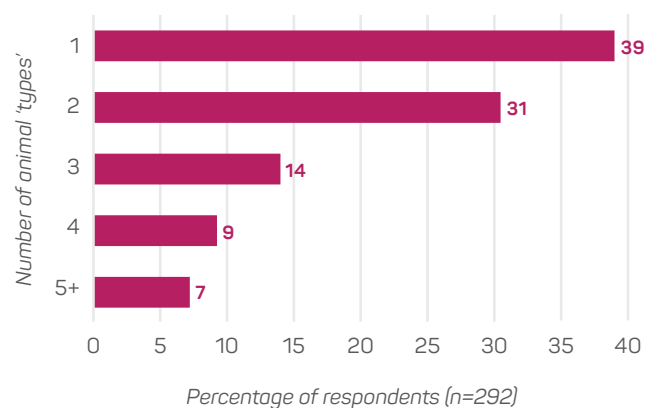


Figure 1: The number of animal 'types' owned by respondents (i.e. dogs, cats, chickens, horses). Most respondents own a mix of multiple animals, even those with only one 'type' of animal own more than one of them, for example three dogs.'

A small proportion of respondents had responsibility for animals owned by others, with three per cent running animal-related businesses and six per cent involved with fostering, sheltering or re-homing animals (these respondents will have fluctuating numbers of animals on-site). A further 16 per cent of respondents felt responsible for another person's pet in an unpaid capacity, for example a pet owned by a neighbour or family member and 27 per cent of respondents feel a sense of responsibility for local wildlife that visit their property, for example, birds and possums.

Emergency preparedness

Respondents were asked how prepared they felt for an emergency and how they intend to manage their animals in an emergency situation. Around two-thirds of respondents (63 per cent) reported feeling 'somewhat prepared'; having thought about what they might do and having discussed this with household members. Only 20 per cent reported being 'very prepared'; having a written or well-rehearsed plan for an emergency event. A further 16 per cent felt they were 'not really prepared'; having no definite plan and no discussions about what to do. Only a small proportion of respondents (one per cent) reported feeling 'unprepared'. Most respondents reported that they had included their animals in their emergency

planning (72 per cent) and 18 per cent reported that they had planned for some animals but not others (i.e. some animals were not included in plans).

Logistics

When asked if they had a clear plan for where they would take the animals they intended to evacuate, less than half of respondents (47 per cent) stated they had a definite plan and 26 per cent felt they 'probably' had a plan for only some of their animals. Around a quarter (26 per cent) had no clear plan in place. Only a few respondents (one per cent) did not plan to take any animals with them in an evacuation.

Participants were asked if they were able to take their animals on public transport if this would help to evacuate in an emergency or relocate animals on 'high-risk' days. Overall, more than a quarter (28 per cent) stated they were 'likely' to or 'might' use public transport if permitted. This proportion was much higher (88 per cent) for those without access to a private vehicle. Although most respondents reported having access to a private vehicle (92 per cent), allowing animals on public transport could encourage early evacuation.

Respondents were asked if they were advised to evacuate by authorities how their decision would be influenced if they could not take their animals. Forty three per cent reported they 'definitely would not' evacuate and a further 42 per cent 'might not' evacuate or would question the need to leave. Only 14 per cent said they would 'probably' or 'definitely' evacuate without their pets. Many respondents commented how difficult this decision would be because of the close bond they have with their animals. Survey responses include:

If I'm leaving my dog is too!

This would be a traumatic experience if I was required to make this dreadful decision.

I am lucky as cats are so portable. I would take them and nothing else in my car if I had to.

Having lost a dog in a bushfire there is no way I would leave without our current dog, saying that if we had to leave (were given evacuation notice) I would leave, but with the dog. I'd like to see someone try and argue with me about it.

I would rather burn to death than leave my cats.

Transportation

In the case of evacuation, two-thirds of respondents (66 per cent) stated they would or could take all their animals with them. The remaining respondents felt they 'possibly' (22 per cent) or 'definitely' (12 per cent) would or could *not* take at least some of the animals in their care with them if they evacuated. For many respondents this was due to the difficulties of transporting particular species. In addition, there were uncertainties about what to do for the animals if they were left behind:

I do not have for-purpose carriers for all five chooks (without crowding), so would need supplementation (e.g. large cardboard box) to transport all at once. Also depends on whether I am in the vicinity, or working down the Hill on the day, and able to get back in time.

The Aviary birds would be difficult, I may have to consider opening the door so they could fly free.

We have not thought about the large goldfish in our outside water feature. I am not sure what to do for them or whether we need or can evacuate them.

Two sheep would be hard to catch and would not fit in car. If possible I would put pig in car but would depend on her willingness to get in and dogs and teenagers would be prioritised.

These quotes indicate that some animals may take priority over others, or people may not have solutions or know what is best to do for some of their animals. Although 80 per cent of respondents felt they could evacuate all their animals and people in a single trip, transport concerns contribute to uncertainties about how long it would take to evacuate animals, with some relying on more than one trip to take more difficult or lower priority animals. For some, evacuation decisions were related to who may be present to help them:

I think we would only be able to evacuate the chickens if two people were home and we had two vehicles here. I don't think they could fit in the one vehicle with the dog and cats.

I don't think I could physically lift the goats onto the ute (or coax up a ramp) if my husband was too far away from home to arrive in time in a bushfire situation. My neighbours would be busy in similar situations so I cannot assume I can rely on them to help with the manual lifting or handling them to go up a ramp. If this were to happen we have discussed letting them free to hopefully escape if there was no other option.

Seeking information and help

Forty four per cent of respondents felt they had all the information they needed to prepare and plan for their animals. Almost half (49 per cent) felt 'unsure' and the remaining seven per cent felt they did not have all the information they needed. Respondents were asked where they intended to seek information from about what to do with their animals in an emergency. Figure 2 summarises the sources of information that respondents felt they would go to if they needed information or advice about what to do with their animals in an emergency.

Respondents were asked to consider a scenario where they were unable to get home to evacuate their animals and were asked whether they had a neighbour or nearby friend or family member who could do it for them. One-fifth (20 per cent) reported they had someone who could help and they had discussed this with them. Almost half (48 per cent) stated they had someone who could probably help but they had not discussed it with

them and 31 per cent did not have anyone nearby who could help. Figure 3 shows a breakdown of responses by respondent age. It indicates a trend that shows younger people are more likely to have *not* discussed the possibility of help with a neighbour, friend, or family member (in situations where there is probably someone who could be of help to them).

Animal behaviour and characteristics

The behaviour of animals may also add challenges to evacuation. When asked if their animals had any special needs, 28 per cent of respondents had one or more animals with behavioural issues, for example, aggression or anxiety, 26 per cent had elderly animals

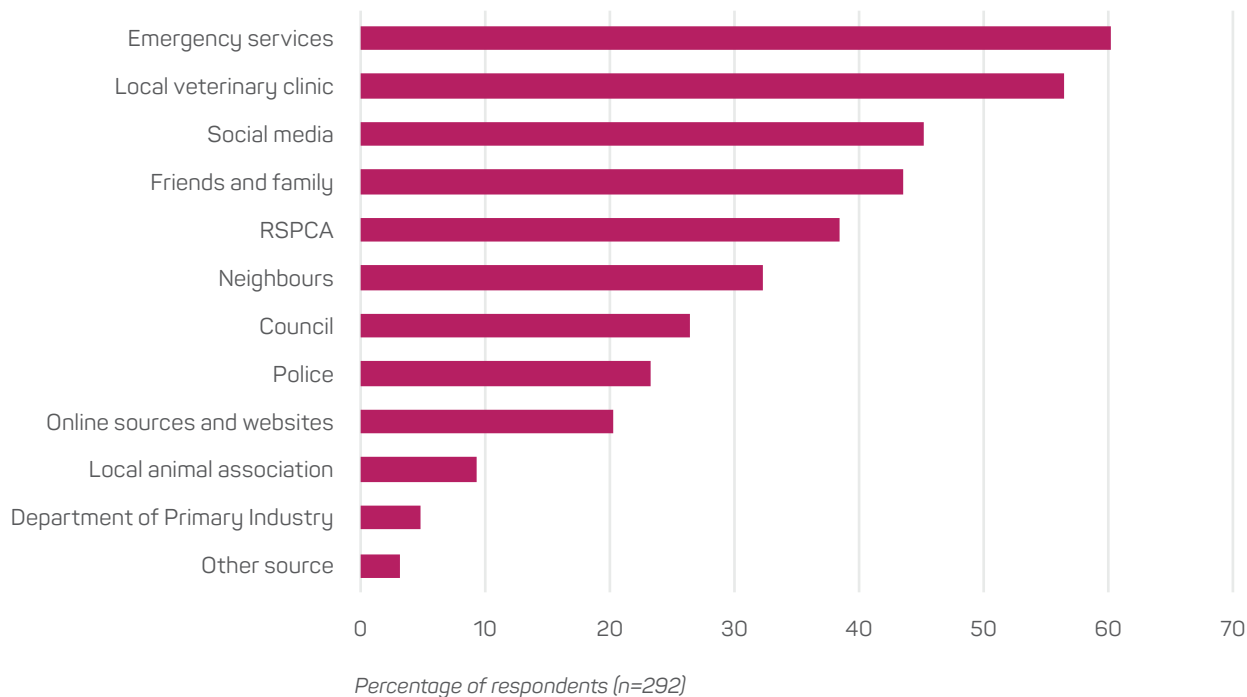


Figure 2: Where respondents would go for information or advice about what to do with their animals in an emergency.

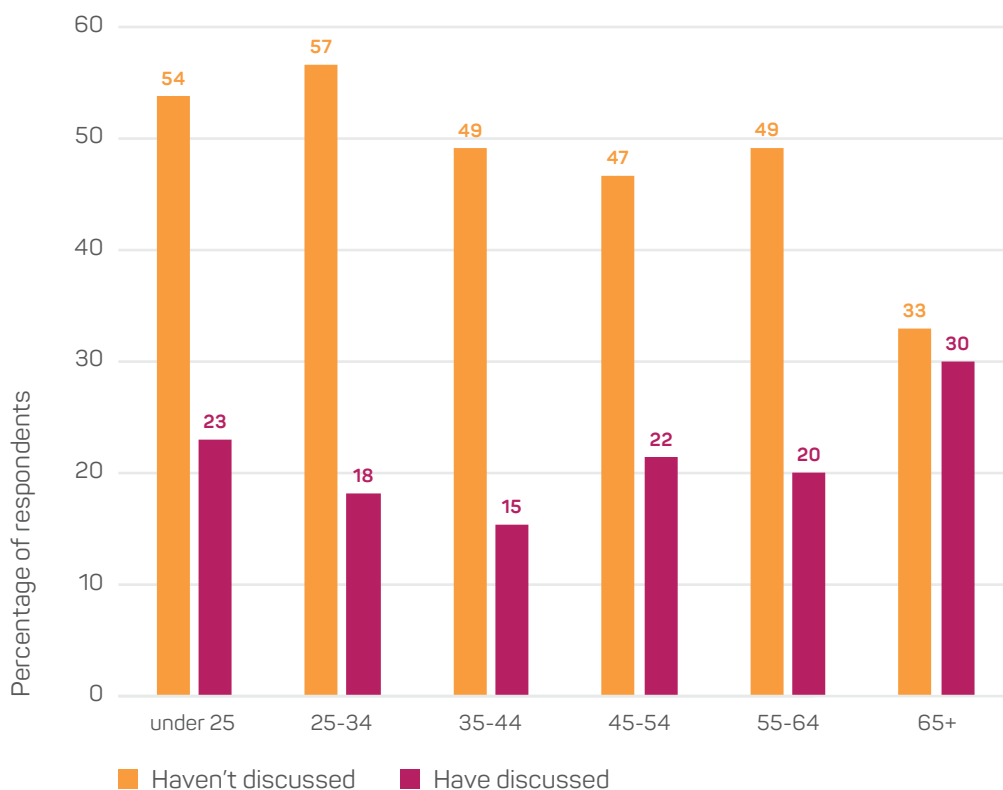


Figure 3: Percentage of respondents by age who have and have not discussed plans for their pets with someone who could help them.

and 11 per cent had sick animals with medical needs. Some respondents mentioned specific concerns about animal behaviour that may add stress and time to an evacuation:

Cats can be scared to get in the carrier, especially if they sense urgency.

It can also be difficult to catch the Rooster and would cause more stress to both animals and humans.

Indoor bird. Too aggressive to catch and put in a travel container.

It may be possible that I would not be able to find one or both of my cats. If they were frightened they would hide somewhere they felt safe, so, if time was a constraint, then it may be possible I would not be able to find them before we had to leave.

Discussion

This paper provides the beginning of a profile of animal ownership in the Blue Mountains, revealing high levels of ownership of diverse animal species with differing needs. In addition, the Blue Mountains is an area at high risk of bushfire, with limited road and public transport access and a high number of commuters. This research suggests that bushfire preparedness advice needs to extend beyond the current mantra of 'your pet, your responsibility' to be detailed and flexible, including the needs of people in diverse situations and encouraging the creation of contingency plans for multiple scenarios and species.

Current preparedness advice regarding animals is focused on evacuating with cats and dogs and preparing livestock and horses for bushfire. There is scant information for preparing other species that may have different requirements, such as how they are transported and contained. In this study, respondents commonly referred to being unsure about preparing for or evacuating with chickens and fish, indicating a need for additional species-specific information. Furthermore, over 60 per cent of respondents own more than one type of animal, which is likely to mean that planning and preparation is more complicated for these owners. Residents with constantly fluctuating numbers of animals such as animal-related business owners, boarding facilities and those who foster or agist animals have specific challenges in planning and preparedness.

A specific challenge in the Blue Mountains is access and egress. Residents without regular access to a private vehicle face additional challenges when planning for themselves and their animals. Pets are not currently allowed to travel on NSW trains and can only travel on buses with permission of the driver.² A recent study recommended that community members in the Blue Mountains be able to access public transport with pets during times of declared disaster (Ingham & Redshaw 2017). These findings support this recommendation and suggest this could be extended to high fire danger days

as an overwhelming majority of respondents without access to, or with unreliable access to, a private vehicle suggested they would consider using public transport to move their animals if permitted.

Where respondents expect to find information does not often correspond with official guidance. The *Fire Safety for Your Pets* fact sheet available on the Blue Mountains Rural Fire Service website³ states that long before a bush fire people should consult with local council, Department of Primary Industries (DPI) or the RSPCA for information on animal refuges in the local area. These organisations were not highly ranked as information sources by respondents. The local council was listed by around a quarter of respondents and DPI was selected by only five per cent of respondents. The most frequently cited sources were emergency services organisations and local veterinary clinics. This suggests information, support and resources are needed to allow emergency services and local veterinarians to become more involved in this area as trusted information sources.

Risk communication materials generally assume someone is at home at the time bushfire threat becomes apparent. Therefore, communicating with neighbours, friends and family about contingency plans for pets needs to be done prior to a fire event to avoid unnecessary risk to humans and animals (Wilkinson, Eriksen & Penman 2016). This study demonstrates that people are often not at home during the day and are unable to return quickly. In addition, many residents, especially younger people, do not discuss their emergency plans for their pets with neighbours. To help overcome these situations, Heath and Linnabary (2015) recommend community-based approaches by emergency managers to assist animal owners, such as buddy systems among neighbours.

Clearly, people consider their animals a valuable part of the family indicating that the human-animal bond is an important consideration in all phases of emergency management. This study reported on a self-selecting sample, implying these respondents have strong bonds with their animals and are engaged with emergency planning. Nonetheless, they still indicate that they require support and guidance to create contingency plans suitable for their individual situations to protect human and animal welfare. An understanding of the challenges and complexities that animal ownership adds to emergency planning and preparation is crucial to bring about improvements that will lead to increased resilience and recovery for individuals and their communities.

2 www.transportnsw.info/travel-info/using-public-transport/travelling-with-animals-pets.

3 www.rfs.nsw.gov.au/_data/assets/pdf_file/0006/9429/Fire-Safety-for-your-Pets-Factsheet.pdf.

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