REPTILES & AMPHIBIANS

"Net It Right, Get It Right": A Saving Our Species Program Initiative to Encourage Australians to Adopt Small-aperture Fruit Netting

Matthew Mo and Joshua Gregory

New South Wales Department of Planning and Environment, Biodiversity, Conservation and Science Directorate, Saving Our Species Program, 4 Parramatta Square, 12 Darcy Street, Parramatta, New South Wales, Australia (matthew.mo@environment.nsw.gov.au)

Netting is used for a broad range of purposes, including capturing or excluding animals, as well as purposes unrelated to animals such as sporting equipment, safety equipment, erosion control, and decorative displays. One of the most common forms of netting used by the public is fruit netting or garden netting, which is deployed to prevent wildlife from accessing cultivated fruit, vegetables, and ornamental trees. However, entanglements in netting, whether managed or discarded, are globally responsible for unquantifiable numbers of mortalities in herpetofauna such as lizards and snakes (Stuart et al. 2001; Walley et al. 2005), as well as mammals, birds, and fish (Taylor-Brown et al. 2019). Consequently, the use of such netting can elicit concerns from both biodiversity conservation and animal welfare perspectives. In addition, public-safety issues can arise when certain species, such as varanids and venomous snakes, become trapped and are thus brought into close proximity with humans (Fig. 1).

One simple solution for preventing entanglements is limiting the use of netting to varieties that have small mesh apertures (so small that a person cannot poke their smallest finger through an opening). Generally, this would be netting with mesh apertures no greater than 5 x 5 mm, hereafter "small-aperture netting." Community-education programs and initiatives have encouraged the use of small-aperture netting (Mo et al. 2023a). The most significant development on this issue has been the Wildlife Friendly Fencing and Netting project by the Tolga Bat Hospital (2022) in Atherton, Queensland, Australia, which, with initial funding from the World Wide Fund for Nature, has provided an online awareness platform since its inception in 2006 (Maclean 2011). Similarly, the issue is broadcast on websites of wildlife-rescue organizations (Northern Rivers Wildlife Carers 2022; Wildlife Information, Rescue and Education Service 2022). Our organization, the New South Wales (NSW) Department of Planning and Environment has frequently received feedback that these initiatives have been implemented largely due to the absence of government-led messaging and that these non-government organizations would prefer to reference a government-led initiative rather than broadcasting the issue independently through their own channels.

In 2022, we initiated "Net it right, get it right" as a communication campaign under the Saving our Species program, the NSW Government's flagship program for threatened species management (Brazill-Boast 2018). The campaign has the same objective as previous initiatives but seeks to change human behavior by appealing to factors of self-interest, such as personal and family safety and minimizing personal burdens, as well as appealing to people's empathy for charismatic animals in distress. The communication campaign is in the form of a digital factsheet (Fig. 2) clearly viewable on the website, accessible to other organizations and individuals through hyperlinks in electronic communications or their own web-

Figure 1. An Eastern Brown Snake (*Pseudonaja textilis*) trapped in large-aperture fruit netting. Photograph by D. Ralph.

Reptiles & Amphibians ISSN 2332-4961
https://doi.org/10.17161/randa.v30i1.20589

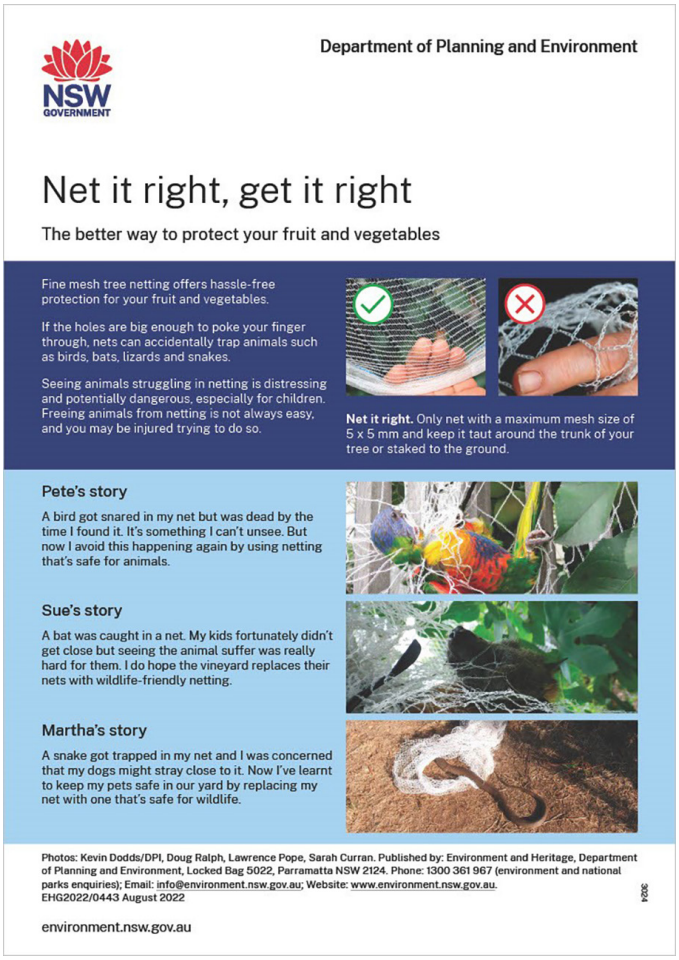

Figure 2. Digital factsheet created to raise public awareness of the hazards of large-aperture fruit netting on wildlife and to encourage adoption of small-aperture fruit-netting.

sites, and printable for organizations or businesses to display at their premises or events (DPE 2022a).

Although opinions vary within the gardening community as to whether fruit and vegetable growers should use netting of any kind, "Net it right, get it right" takes the stance that people's desire to protect crops with netting should be recognized and can be done without negative effects on wildlife — provided the correct type of netting is used and installed properly. This is consistent with the department's previous efforts to encourage small-aperture netting as a means of minimizing wildlife-horticulture conflicts, which was an enabler for legislative reforms supporting wildlife conservation, such as the phasing out of licenses to shoot flying-foxes (Mo et al. 2023b, 2023c).

As netting entanglements affect a range of vertebrate species, the factsheet uses three scenarios involving a reptile, mammal, and bird. The reptile represented on the factsheet is an Eastern Brown Snake (*Pseudonaja textilis*), a highly venomous elapid that commonly occurs in rural, urban, and some suburban areas of Australia (Whitaker and Shine 1999; Mo 2015, 2019) and has been implicated in human fatalities (Sutherland 1992). The photograph shows an actual incident during which a snake had strayed onto loosely fitted large-aperture netting, presenting a potentially dangerous scenario in which a snake can be entangled and unable to move away while a person or pet might stray too close and receive a lethal bite. The factsheet content is structured to deliver this message without creating additional aversion to snakes in general. In the incident during which the Eastern Brown Snake photograph was taken, the landholder had made numerous unsuccessful attempts to cut the netting to release the snake. Circumstances such as this elevate the risk to human safety, although we chose not to include that detail in the factsheet to avoid detracting from the theme of outdoor pet safety.

Factors appealing to people's self-interest promoted on the factsheet are common objections to animals being subjected to pain, suffering, or death, and a natural desire to protect them and their children from being injured or even having to witness such incidents. The factsheet draws on the concepts of not being able to unsee such unexpected situations and the potential mental trauma or physical injury that can arise from these encounters. The mammalian and avian examples were used to elicit these reactions as these animals tend to be more positively perceived than reptiles by the general public (Tisdell et al. 2006). Noteworthy, however, is that the factsheet uses flying-foxes (*Pteropus* spp.) to represent mammals. Although they, like reptiles, often are poorly perceived by members of the public (Mo et al. 2023b), they are the mammals in NSW most affected by netting (Mo et al. 2021; DPE 2022b). We circumvented the likelihood of eliciting a negative association by employing a close-up photograph showing the dog-like face of a flying-fox trapped in netting, which was intended to garner a greater feeling of sympathy for the animal. In the case of the Eastern Brown Snake, that technique was unlikely to garner sympathy from the general public, hence a photograph showing the entire body of the snake was used.

The content in "Net it right, get it right" is deliberately created to draw on people's emotions. Most important, however, is the message that anyone can be empowered by changing their choice of fruit netting, encouraging others to change their netting, and even advocate with businesses such as vineyards, orchards, and gardens they may visit and retail outlets from which they purchase supplies.

Acknowledgements

We thank Kevin Dodds, Doug Ralph, Lawrence Pope, and Sarah Curran for granting permission to use their photographs, and the numerous stakeholders we consulted while developing "Net it right, get it right." Alison Whealing and Amelia Stubley provided expertise, and the project was supported by Gavin Seymour, Jane Jamieson, Jennifer Riddler, and Irena Kelava.

Literature Cited

Brazill-Boast, J. 2018. Saving our Species: a cost-effective, large-scale monitoring and evaluation program for threatened species, pp. 225–238. In: S. Legge, N. Robinson, D. Lindenmayer, B. Scheele, D. Southwell, and B. Wintle (eds.), *Monitoring Threatened Species and Ecological Communities.* CSIRO Publishing, Clayton South, Victoria, Australia.

DPE (Department of Planning and Environment). 2022a. *Net it right, get it right*. <https://www.environment.nsw.gov.au/research-and-publications/publications-search/net-it-right>.

DPE (Department of Planning and Environment). 2022b. *NSW Wildlife Rehabilitation Dashboard*. <https://www.environment.nsw.gov.au/topics/animals-and-plants/native-animals/rehabilitating-native-animals/wildlife-rehabilitation-reporting/wildlife-rehabilitation-data>.

Maclean, J. 2011. The 'Devil's rope': flying-foxes in barbed wire fences, pp. 421–423. In: B. Law, P. Eby, D. Lunney, and L. Lumsden (eds.), *The Biology and Conservation of Australasian Bats*. Royal Zoological Society of New South Wales, Sydney, Australia. https://doi.org/10.7882/FS.2011.042.

Mo, M. 2015. Herpetofaunal community of the constructed Lime Kiln Bay Wetland, south Sydney. *Victorian Naturalist* 132: 64–72.

Mo, M. 2019. Seasonality and frequency of snake and goanna incursions on an Australian agricultural institute and the attitudes of staff toward coexistence. *Reptiles & Amphibians* 26: 16–20. https://doi.org/10.17161/randa.v26i1.14322.

Mo, M., M. Roache, R. Haering, and A. Kwok. 2021. Using wildlife carer records to identify patterns in flying-fox rescues: a case study in New South Wales, Australia. *Pacific Conservation Biology* 27: 61–69. https://doi.org/10.1071/PC20031.

Mo, M., K. Coutts-McClelland, V. Wilson, R. Haering, L. Oliver, L. Bell, and D. Lunney. 2023a. Managing the Grey-headed Flying-fox as a threatened species in New South Wales two decades on: threats and conservation issues. *Australian Zoologist* 42: 897–918. https://doi.org/10.7882/AZ.2022.024.

Mo, M., V. Wilson, K. Robinson, K. Dodds, L. Bell, and J. Gregory. 2023b. An investment toward non-lethal crop protection measures for a threatened species in New South Wales: the Flying-fox Netting Subsidy Program. *Australian Zoologist* 42: 919–936. https://doi.org/10.7882/AZ.2022.020.

Mo, M., K. Coutts-McClelland, V. Wilson, R. Haering, L. Oliver, L. Bell, and D. Lunney. 2023c. Managing the Grey-headed Flying-fox as a threatened species in New South Wales two decades on: contentious issues for horticulturalists and communities. *Australian Zoologist* 42: 871–896. https://doi.org/10.7882/AZ.2022.014.

Northern Rivers Wildlife Carers. 2022. *How to Protect the Fruits of your Labour*. <https://www.wildlifecarers.com/how-to-protect-the-fruits-of-your-labour>.

Stuart, J.N., M.L. Watson, T.L. Brown, and C. Eustice. 2001. Plastic netting: an entanglement hazard to snakes and other wildlife. *Herpetological Review* 32: 162–164.

Sutherland, S.K. 1992. Deaths from snake bite in Australia, 1981–1991. *Medical Journal of Australia* 157: 740–746. https://doi.org/10.5694/j.1326-5377.1992.tb141272.x.

Taylor-Brown, A., R. Booth, A. Gillett, E. Mealy, M. Ogbourne, A. Polkinghorne, and G.C. Conroy. 2019. The impact of human activities on Australian wildlife. *PLoS ONE* 14: e0206958. https://doi.org/10.1371/journal.pone.0206958.

Tisdell, C., H. Swarna Nantha, and C. Wilson. 2006. Public support for conserving Australian reptile species: a case study of global relevance. *International Journal of Global Environmental Issues* 6: 373–390.

Tolga Bat Hospital. 2022. *Wildlife Friendly Fencing and Netting*. <https://wildlife-friendlyfencing.org>.

Walley, H.D., R.B. King, J.M. Ray, and J. Robinson. 2005. What should be done about erosion mesh netting and its destruction of herpetofauna. *Journal of Kansas Herpetology* 16: 26–28.

Whitaker, P.B. and R. Shine. 1999. Responses of free-ranging brownsnakes (*Pseudonaja textilis*: Elapidae) to encounters with humans. *Wildlife Research* 26: 689–704. https://doi.org/10.1071/WR98042.

Wildlife Information, Rescue and Education Service. 2022. *Wildlife Friendly Netting*. <https://www.wires.org.au/wildlife-information/wildlife-friendly-netting>.