Nest boxes for wildlife in Victoria: an overview of nest box distribution and use

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Abstract

Nest boxes are deployed by individuals, community groups, researchers and government and non-government organisations, mainly to improve habitat for native hollow-dependent fauna. Information was sought from those involved in nest box programs to assess the distribution and extent of nest box installation across Victoria, and to provide an overview of faunal species reported as using nest boxes. Eighty-one respondents provide dinformation on 98 'programs' that together support 9986 nest boxes. One to 1100 nest boxes were installed within programs. Most nest boxes (72%) had been installed by community/environment groups. Thirty-three native mammal and bird species used the nest boxes. More than half of the nest boxes (65%) were monitored at least once per year. Monitoring data of sixty-five percent of programs was curated and stored, but analysis or publication of results was completed for only a few programs. There is much potential to improve nest box program design and data management to help determine and increase conservation benefits for fauna. (*The Victorian Naturalist* 137 (1), 2020, 4–14)

Keywords: nest box, fauna habitat, community groups

Introduction

Nest boxes for wildlife are widely deployed in Victoria by individuals, community groups, researchers, and government and non-government organisations. They are installed for a variety of purposes, but mainly as a conservation tool to support native hollow-dependent fauna by increasing opportunities for nesting and denning, particularly where natural alternatives (e.g. tree hollows and hollow logs) have been reduced (Harley 2006; Harley 2016; Tzaros and Mentiplay-Smith 2016). They also can be used as a survey tool to detect cryptic species such as the Feathertail Glider (Ward 2000) (Appendix 1 provides scientific names of all species) and threatened Leadbeater's Possum (Harley 2004). Nest boxes are designed and installed for a wide variety of species, including those that are threatened, such as the Turquoise Parrot (Tzaros and Mentiplay-Smith 2016) and Brush-tailed Phascogale (Soderquist et al. 1996).

The installation, monitoring and maintenance of nest boxes in Victoria involves hundreds of volunteer hours and significant investment by government and other agencies. However, there is no overall picture of who is installing nest boxes, why, where, how many, which species are targeted, which species are using them, whether they are monitored and maintained, and what data are being collected. In addition, there is little information on the extent to which data from nest box programs are collated, analysed and outcomes published, thereby contributing to current knowledge on nest box effectiveness, and improvement of the contribution of nest boxes to species conservation.

Here, I summarise outcomes from a 2018 state-wide request for information aimed at obtaining an overview of the current deployment and use of nest boxes in Victoria. This type of overview information currently is not obtained easily, nor is it summarised elsewhere. Note that this is a descriptive summary of responses received and not an analysis of nest box use by fauna. For such examples, see Goldingay *et al.* (2018), Griffiths *et al.* (2018) and Rueegger *et al.* (2019).

Methods

How was information about nest boxes obtained?

Organisations that were known to, or had the potential to, coordinate, fund and support nest box installation, were contacted by email and asked to provide details about any projects with which they were involved. Email recipients were asked to pass on a request to provide information about nest boxes (in the form of a publicly available project flyer and poster) to relevant contacts. Organisations initially contacted included the Department of Environment, Land, Water and Planning (DELWP), Parks Victoria, Catchment Management Authorities (i.e. Landcare coordinators), Trust for Nature, and all Victorian city and shire councils.

The project also was publicised via postings on the DELWP Twitter and Facebook channels, and as an item in the ARI *eNews* (electronic newsletter from DELWP's Arthur Rylah Institute for Environmental Research).

Those involved in nest box programs were asked to provide a range of information including: the number of nest boxes in the program; where they were located; which species they were targeting; what was considered before installation; which species had been recorded using the nest boxes; the level of maintenance undertaken; the type and frequency of monitoring; how data were stored; whether any data analysis and publication of results had occurred; whether records were submitted to public databases; and any information about funding sources and collaborators for the program.

Results

How many responses were received?

The information presented is based on responses from 81 individuals, groups or organisations, collectively representing 98 nest box programs and a total of 9986 nest boxes (Table 1; Appendix 1). Some respondents had nest boxes installed at several separate locations or for distinct purposes, and these groups of nest boxes were each defined as a 'program'.

Who is installing nest boxes and how many?

Most respondents were community-based conservation groups, followed by private individuals, government agencies, universities, and non-government organisations (including businesses) (Table 1, Appendix 2). Parks Victoria and Zoos Victoria were the most active of the government agencies. Communitybased conservation groups and environmental organisations were responsible for 72% of the nest boxes. These included 'Friends of', 'Naturalist' and 'Environment' groups (n=11), Landcare groups and networks (21), Conservation Management Networks (3), and other non-affiliated interest groups (8). Guide Dogs Victoria was the only non-environmental group within these. The largest number of nest boxes in a single program (1100) was installed by a Conservation Management Network group (Whroo Goldfields). Appendix 2 lists respondents and categories.

The longest duration of a nest box program was 30 years (first boxes installed in 1988), established by the Field Naturalists Club of Victoria for the Brush-tailed Phascogale. At the other end of the scale, four of the reported programs were started in 2018.

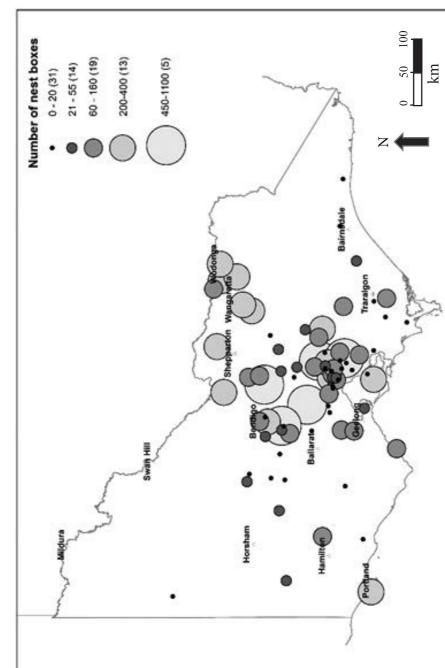
Programs were supported financially by various sources including group members, private individuals (e.g. when installed on their own property), grant funding (e.g. from DELWP), or in-kind support via government (e.g. Parks Victoria, Catchment Management Authorities) and non-government organisations (e.g. the Wettenhall Environment Trust).

Where are nest boxes installed, and how are nest box numbers distributed?

Nest boxes reported in this survey have been installed at approximately 82 localities in Victoria (Fig. 1), from Tarragal and within the Big Desert in the west, to Orbost in the east; from Fish Creek in the south to Rutherglen in the north. The highest densities of nest boxes are in central Victoria, particularly south of Bendigo around Castlemaine, Macedon and Rushworth, to Kinglake and Bundoora. The north-east, between Benalla and Wodonga, also has a high density of nest boxes. Nest boxes were installed on private properties, in state forest, in national parks and other reserves, and in urban parkland. Nearly 40% of locations had from 1-20 nest boxes installed, with another 40% having 22-160 boxes. Eighteen locations had over 200 nest boxes installed (Fig. 1).

What is the reason for installing nest boxes, and what was considered beforehand?

Respondents were asked to describe the broad purpose of installing nest boxes, and the type of ecological information considered before installation.





Type of group	Number of groups	Total number of nest boxes	Range in number of nest boxes per group
Conservation Management Network	3	1689	39 -1100
Friends of, Naturalist, Environment group	11	1103	6 - 300
Landcare group/network	21	2893	6 - 600
Other interest groups	8	1455	7 - 450
City/Shire Council	7	924	10 - 495
Government organisation	5	835	6 - 624
University	2	380	50 - 330
Company/business	2	286	116 – 170
Private individual	22	421	1 – 64
Total	81	9986	1 – 1100

Table 1. Types of groups installing nest boxes for wildlife in Victoria, the number of nest boxes, and the range in number of nest boxes installed by each group (see Appendix 2 for further details).

Almost all respondents installed nest boxes to support wildlife conservation, with many citing their involvement in this activity as a response to a perceived lack of tree hollows in their target area. The lack of hollows was attributed to the impact of recent fires, to a history of timber harvesting or mining activity, or due to target areas being revegetation sites (e.g. on former cleared farmland) and therefore containing trees that were too young to have formed hollows. Contributing to habitat connectivity was also mentioned as a consideration. Other ecological information considered prior to nest box installation included: the quality of existing habitat; availability of suitable food resources; the context of the site in the landscape; the presence of native species and introduced predators; and the possibility of attracting pests such as feral European Honey Bees or the Common Myna. Several respondents provided extensive detail of aspects that had helped determine nest box placement. One respondent had engaged the services of an ecological consultant to assess a property and to advise on nest box placement.

Almost one-third of respondents aimed to support particular species, such as the Sugar Glider, with a high proportion also mentioning threatened species (e.g. Brush-tailed Phascogale). Otherwise, one or more broad animal groups were stated as the focus, such as birds, bats, and/or possums and gliders, or wildlife in general.

People also considered the construction, installation and monitoring of nest boxes to be an important community engagement and education tool that connected people with each other and with nature. This included involving local 'men's sheds' in construction, as well as primary and high school students. Sometimes, students, including those from universities, also were involved in monitoring, which they saw as a valuable opportunity to view and gain a better understanding of wildlife.

Nest boxes also were used as a survey method to detect the presence of particular species, to determine their distribution and to monitor them, or to determine more broadly species occurring in the area. Some less common reasons for installing boxes were: to provide alternative dens for Common Brush-tailed Possums to reduce their use of nearby roof spaces; to compare the use of nest boxes by particular species with that of hollows formed by chainsaws; to support Powerful Owls by increasing the numbers of possums (a major prey item); and to contribute to the recovery of a traumatised regional community impacted by extensive wildfires.

Which species were targeted?

Seventy-three programs included a specific species as the target for nest box use, collectively comprising 33 native mammal and bird species. Brush-tailed Phascogale, microbats and Sugar Gliders were the most commonly targeted mammals, followed by 'possums' or 'gliders' (in general), Common Ring-tailed Possum and Squirrel Glider. The Laughing Kookaburra was the most commonly targeted bird, followed by 'pardalotes', Powerful Owl, 'parrots' and 'ducks'. Seven threatened species (Department of Susutainability and Environment

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2013) were specifically targeted, including Brush-tailed Phascogale, Powerful Owl, Squirrel Glider and Leadbeater's Possum. Species that were less commonly targeted (i.e. by one program only) included the Southern Greater Glider, Peregrine Falcon, Sacred Kingfisher and Rainbow Bee-eater.

Which species are recorded as using nest boxes?

Respondents from eighty-seven programs (89% of total) reported that nest boxes were being used by fauna, while six reported that their nest boxes were not used at all. Five programs did not include the monitoring of nest boxes. The Sugar Glider was the most recorded native species using nest boxes, detected in 51 programs (Table 2). Brush-tailed Possums (either Common, Mountain or unspecified) were the next most commonly recorded taxa (34 programs), followed by Brush-tailed Phascogale (28), Eastern Ring-tailed Possum (27), and Antechinus species (Agile, Yellow-footed or unspecified, 19). Rosellas (Crimson, Eastern or unspecified) were the most commonly recorded bird species (20 programs), with other commonly recorded birds being the Australian Owlet-nightjar (18 programs), 'ducks' (Pacific Black, Chestnut Teal, Australian Wood, teal in general or unspecified, 13) and Laughing Kookaburra (10). Some of the least commonly recorded species included the Feathertail Glider (3 programs), Striated Pardalote (2), and Eastern Barn Owl, Australian Magpie, Long-billed Corella and Major Mitchell's Cockatoo (all from one program each).

Six introduced species were recorded: European Honey Bees were recorded in 33 programs, Common Mynas in six, Black Rats in five, Common Starlings in four, and Common Blackbirds and the House Mouse in only one program each (Table 2). A variety of other animals, including insects (e.g. ants, caterpillars), reptiles (e.g. Marbled Gecko) and amphibians (e.g. Peron's Treefrog) also were found in nest boxes.

How often are nest boxes checked, and what is monitored?

There was a wide range in the frequency and regularity of monitoring. Checks varied from

formal and regular checks of contents to opportunistic external observations. In almost all programs, nest boxes were checked at least once after installation. In 28% of programs (representing 15% of all nest boxes), they were checked twice yearly or more frequently, in 28% once yearly (49% of nest boxes), and in 39% less frequently (30% of nest boxes). Within six programs, nest boxes were not checked at all (5% of nest boxes).

Within, some programs, intermittent and irregular monitoring was carried out (e.g. once every 2-3 years or less), including where boxes had been checked only once since being installed. Monitoring frequency also varied over the life of some programs, with nest box checks initially occurring regularly, but decreasing over time and sometimes ceasing altogether. This was often linked to the availability of people, or the capacity to coordinate checking of boxes in different locations (e.g. on private properties spread over a large area). Alternatively, monitoring sometimes occurred more often during a particular year than in previous or subsequent years.

Some respondents provided details as to how nest boxes were checked (this information was not specifically requested). Nest boxes were mostly checked either by people climbing ladders, lifting the lid and looking inside; or from the ground by using a camera attached to a long pole. Equipment for the latter method often included a viewing screen that could be checked from the ground, as well as the option to take photos of box contents. Five programs used automated survey cameras (triggered by heatin-motion) at a proportion of the nest boxes to monitor the entrance for animal activity.

The level of detail collected during nest box checks ranged from checks where no formal notes were taken to those where comprehensive observations were recorded. The type of details recorded by the various programs was highly variable. Types of information included geographic coordinates of individual box locations, unique identification labels, species of host tree, height above ground of box, direction box was facing, species the box was designed for, date installed, date checked, signs of occupancy (e.g. presence of nest including **Table 2.** List of species recorded in nest boxes as reported from 98 nest box programs across Victoria. The values represent the number of programs in which a species, genus or animal type was reported as using nest boxes, ordered from most to least numerous. Where there were several options for a genus, the total for each option is shown in parenthesis. (Five nest boxes were not used, six nest boxes were not checked.)

Fauna recorded by nest box programs	Number of programs	
Mammals – native		
Sugar Glider	51	
Brush-tailed Possum	34	
Common (17) Mountain (2)		
brush-tailed sp. (15)		
Brush-tailed Phascogale	28	
Eastern Ring-tailed Possum	27	
Antechinus	19	
Agile (6) Yellow-footed (5)		
Antechinus sp. (8)		
Microbats (unspecified)	17	
Squirrel Glider	11	
Leadbeater's Possum	4	
Possums (unspecified) Feathertail Glider	4 3	
Native rat and mouse (unspecified)	2	
Mammals - non-native		
Black Rat	5	
House Mouse	1	
Birds – native		
Rosella	20	
Crimson (9)		
Eastern (7) rosella sp. (4)		
Australian Öwlet-nightjar	18	
Duck	13	
Australian Wood (5)		
Pacific Black (1)		
duck sp. (4) Teal	3	
Chestnut (2)	5	
teal sp. (1)		
Laughing Kookaburra	10	
Treecreeper White-throated (4)	8	
treecreeper sp. (4)		
Lorikeet	5	
Rainbow (2)		
Musk(1)		
Scaly-breasted (1) lorikeet sp. (1)		
Galah	5	
Parrot	4	
Red-rumped (1)		
Turquoise (1)		
parrot sp. (2) Birds (unspecified)	4	
Striated Pardalote	4 2	
	-	

Table 2. (cont.)

Fauna recorded by nest box programs	Number of programs
Birds – native	
Recorded once only: Eastern Barn Owl, Southern Boobook, Welcome Swallow, Australian Magpie, Long-billed Corella, Sulphur-crested Cockatoo, Red-tailed Black-Cockatoo, Major Mitchell's Cockatoo	8
Birds – non-native	
Common Myna Common Starling Common Blackbird sparrow sp.	6 4 1 1
Insects – non-native	
European Honey Bee	33

shape and material, chewing around entrance, presence of scats), condition of box and whether maintenance had been carried out.

How are nest box data stored?

Monitoring data was stored for sixty programs (64%) either electronically (usually MS Excel spreadsheets, but sometimes in purpose-built software), on hard copy data sheets, or both. One respondent mentioned that electronic data entry was completed on site using mobile devices.

How are nest box data used?

The results of nest box activities had been disseminated via some form of publication for thirty-five nest box programs. This included via newsletters (e.g. Bender 2005), short informal field day reports, newspaper articles, unpublished and internal organisational reports (e.g. Hurley 2009), published reports (e.g. Tzaros and Mentiplay-Smith 2016) and journal articles (e.g. Dashper and Myers 2003; Harley 2016; Griffiths *et al.* 2017; Goldingay *et al.* 2018). Some groups posted results on their websites or via social media.

At least 13 nest box programs involved scientific input at the program design stage and/ or during subsequent analysis. Some of these results have been published in peer-reviewed literature, including books or ecological journals (e.g. Harley 2004; Griffiths *et al.* 2017; Goldingay et al. 2018), or are in preparation for publication. Respondents of the above programs variously reported that they have used, or plan to use, their data as a survey and monitoring tool (Harley 2016), and to explore topics such as longevity of nest boxes (Goldingay et al. 2018), occupancy rates or use by species (Dashper and Myers 2003; Griffiths et al. 2017; Goldingay et al. 2018), post-fire recolonisation (Harley 2016), nest box maintenance rates (Goldingay et al. 2018), and the impact on local fauna community structure (Griffiths et al. 2018). One program was being undertaken as a PhD study, while several others have been included as a component of PhD studies (e.g. Griffiths et al. 2018).

Monitoring results for 29 nest box programs (encompassing 600 boxes: 6% of all boxes) were reported as having been submitted to public databases including 'Victorian Biodiversity Atlas' (VBA), 'Birdata' (BirdLife Australia) or 'Atlas of Living Australia'. Some respondents who had not submitted records expressed plans to do so, while others were not in the position to submit records due to incomplete monitoring or data not being stored.

Challenges associated with nest box programs Although respondents were not directly asked to provide details of challenges associated with maintaining a nest box program, many volunteered this information, often to explain why

certain activities (e.g. monitoring) had not been completed.

Regular ongoing monitoring of nest boxes was something many groups found hard to achieve. Reasons given included: lack of time and the effort needed to coordinate people to check boxes; lack of resources for recording and storing monitoring data; uncertainty about what details to monitor and record; a reluctance to use ladders to reach nest boxes; and the cost and logistics of using an arborist to reach nest boxes as an alternative to using ladders.

Successfully dealing with infestations of ants or feral European Honey Bees was an ongoing challenge for some, leading to nest boxes being permanently removed in some cases. A few groups had called in apiarists to remove bees from nest boxes.

Submitting nest box data to public databases was seen by some as difficult and cumbersome, which meant this activity was not completed.

Conclusions

Currently a large number of nest boxes for wildlife are installed across Victoria. The estimate given here (~10 000) should be viewed as a minimum, as not all nest box programs were included in this project (e.g. duck boxes installed by Field and Game groups, penguin boxes installed by Phillip Island Nature Parks).

Nature-based community groups are a large contributor to nest box installations and involve a wide variety of group types from the incorporated or organisation-affiliated, such as Landcare groups, to less formal local environment or biodiversity groups. Central to their involvement is that this activity is regarded as a positive contribution to support native wildlife. Indeed, based on the information provided, a wide variety of species, including threatened species, are benefiting from nest boxes. The strong volunteer component of these groups demonstrates the importance of nest box related activities as a community engagement tool.

Information on nest box design, construction, appropriate sizes for specific species, and methods of installation is readily available (e.g. Franks and Franks 2003); however, less is known about the impact on fauna. While large numbers of individual animals from a range of

species are recorded as using nest boxes (e.g. Goldingay et al. 2015; Harley 2016), little information is available on the type and extent of conservation benefits that are achieved. Questions around the factors influencing nest box use, the effects on populations and cross-species impacts remain unanswered. For example, does the use of nest boxes by individual animals have benefits for the population? What are the factors that most strongly influence use by native fauna? If there is an increase in nest box use by some common species, is this to the detriment of other less common species? Systematic studies are required that compare the status of local populations in relation to the installation of nest boxes before and after the installation of nest boxes (e.g. Griffiths et al. 2018). They could test, for example, whether the local population has increased in size because of the availability of nest boxes or whether there has been more successful breeding because of the availability of nest boxes. In addition, there are questions around the extent to which nest boxes may provide shelter for introduced species, such as feral European Honey Bees or Common Mynas (Harper et al. 2005).

The level of expertise, resources and coordination that such studies require are generally beyond most groups involved in nest box installation. Nevertheless, there is much scope for collaboration between scientists and community groups to obtain greater insight from current activities. At the very least, regular monitoring and effective data storage, if completed in a consistent and systematic way, would facilitate subsequent analysis, especially if it was made available to those with appropriate expertise (e.g. Goldingay *et al.* 2018).

Although not a comprehensive audit of nest boxes in Victoria, this exercise has provided base-line data on how and where nest boxes are being deployed by various groups and individuals, and the range of species known to take advantage of them. It also highlights that the challenges of monitoring and data storage are having an impact on the availability of potentially useful information that could contribute to our understanding of the degree to which nest boxes benefit faunal conservation.

Contribution

Acknowledgements

This study was funded by the Victorian Government's Biodiversity On-ground Action—Regional Landscapes and Targeted Action funding 2017–2018. Tim O'Brien, Andrew Bennett, Fern Hames, Peter Menkhorst, Lindy Lumsden (Arthur Rylah Institute for Environmental Research (ARI)), Jess Lawton and Steve Griffiths (La Trobe University) provided project input and advice. Comments on draft versions were gratefully received from Andrew Bennett, Peter Menkhorst, Josephine MacHunter (ARI) and an anonymous reviewer. Thanks also to Jenny Nelson and Graeme Newell (ARI) for comments on an unpublished version of this paper, and Tiarne Ecker (ARI) for data manipulation.

Special thanks go to the large number of people who responded to this project, and generously contributed information about their nest boxes. See Appendix 2 for the list of groups whose data were used in this paper.

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Appendix 1. Common and scientific names of fauna species mentioned in the text. * = listed as threatened in Victoria (DSE 2013); ^ = introduced species. Ordered taxonomically as per Menkhorst and Knight (2011); Christidis and Boles (2008); and Cogger (2018).

Common name	Scientific name			
Mammals				
Agile Antechinus	Antechinus agilis			
Yellow-footed Antechinus	Antechinus flavipes			
Brush-tailed Phascogale*	Phascogale tapoatafa			
Mountain Brush-tailed Possum	Trichosurus cunninghami			
Common Brush-tailed Possum	Trichosurus vulpecula			
Leadbeater's Possum*	Gymnobelideus leadbeateri			
Sugar Glider	Pétaurus breviceps			
Squirrel Glider*	Petaurus norfolcensis			
Southern Greater Glider*	Petauroides volans			
Eastern Ring-tailed Possum	Pseudocheirus peregrinus			

Appendix 1. (cont.)

Common name

Mammals

Feathertail Glider House Mouse^ Black Rat^

Birds

Australian Wood Duck Chestnut Teal Pacific Black Duck Australian Owlet-nightjar Peregrine Falcon Red-tailed Black-Cockatoo* Yellow-tailed Black-Cockatoo Maior Mitchell's Cockatoo* Galah Long-billed Corella Sulphur-crested Cockatoo Rainbow Lorikeet Scaly-breasted Lorikeet Musk Lorikeet Australian King Parrot Crimson Rosella Eastern Rosella Red-rumped Parrot Turquoise Parrot* Powerful Owl* Southern Boobook Eastern Barn Owl Laughing Kookaburra Sacred Kingfisher Rainbow Bee-eater White-throated Treecreeper Striated Pardalote Australian Magpie Welcome Swallow Common Blackbird^ Common Starling^ Common Myna^

Insects

European Honey Bee^

Reptiles

Marbled Gecko

Amphibians

Peron's Tree Frog

Scientific name

Acrobates pygmaeus Mus musculus Rattus rattus

Chenonetta jubata Anas castanea Anas superciliosa Aegotheles cristatus Falco peregrinus Calyptorhynchus banksii Calyptorhynchus funereus Lophochroa leadbeateri Eolophus roseicapilla Cacatua tenuirostris Cacatua galerita Trichoglossus moluccanus Trichoglossus chlorolepidotus Glossopsitta concinna Alisterus scapularis Platycercus elegans Platycercus eximius Psephotus haematonotus Neophema pulchella Ninox strenua Ninox boobook Tvto delicatula Dacelo novaeguineae Todiramphus sanctus Merops ornatus Cormobates leucophaea Pardalotus striatus Cracticus tibicen Hirundo neoxena Turdus merula Sturnus vulgaris Acridotheres tristis

Apis mellifera

Christinus marmoratus

Litoria peronii

Appendix 2. List of respondents who provided nest box data by group category.

Group category, name of group or location

Conservation Management Network

Broken Boosey Conservation Management Network, Kara Kara Conservation Management Network, Whroo Goldfields Conservation Management Network.

Friends of / Naturalist / Environment group

Friends of Brisbane Ranges, Friends of Chiltern Mt Pilot National Park, Friends of Glenfern Valley Bushlands, Friends of Morwell National Park, Friends of Organ Pipes National Park, Friends of Wilson Reserve, Friends of Yarramie Reserve, Bendigo Field Naturalists Club, The Field Naturalists Club of Victoria, Melton Environment Group, Montmorency Biodiversity Group.

Landcare group/network

Basalt to Bay Landcare Network, Bellarine Landcare Group, Christmas Hills Landcare Group, Hughes Creek Catchment Collaborative, Mid-Loddon Sub Catchment Management Network, Monbulk Landcare Group, Moorabool Catchment Landcare Group, Northern Bendigo Landcare Group, Pinkerton Landcare & Environment Group, Rutherglen Landcare Group, Smiths Gully Landcare Group, Snowy West Landcare Group, Strath Creek Landcare Group, Strathallan Family Landcare Group, Tarragal Landcare Group, Toomuc Landcare Group, Upper Goulburn Landcare Network, Watson Creek Catchment (Landcare) Group, Westernport Swamp Landcare Group, Wodonga Urban Landcare Network, Wye Weed Warriors (Wye to Wongarra Landcare Group).

Other interest groups

Connecting Country Inc., Darebin Creek Management Committee Inc., Guide Dogs Victoria, Mammal Survey Group of Victoria Inc., Mount Elephant Community Management Inc., Regent Honeyeater Project, Seymour Bushland Park Committee of Management, Trust for Nature.

City/Shire Council

City of Greater Dandenong, Indigo Shire Council, Knox City Council, Macedon Ranges Shire Council, Moonee Valley City Council, Mornington Peninsula Shire Council, South Gippsland Shire Council.

Government organisation

Barwon Water, DELWP (now maintained by private individual), Parks Victoria, Red-tailed Black-Cockatoo Recovery Team, Zoos Victoria.

University

La Trobe Wildlife Sanctuary, Southern Cross University.

Company/business

Dunkeld Pastoral Company, Themeda Rural.

Private individuals

Bailieston, Broadford, Campbell's Creek, Chum Creek, Clifton Creek, Cottles Bridge, Emu Creek, Fish Creek, Kalorama, Muckleford, Nowhere Creek, Parwan, Smiths Gully, St Arnaud, Steiglitz, Stratford, Strath Creek, Strathbogie, Upwey, Warrandyte.