



Guidelines for the Development of Bird Habitat

User: Bushland & natural area managers,
bush regeneration contractors
and bushcare volunteers

Why manage bushland habitat for birds?

Under legislation, including SEPP 19 (Urban Bushland) of the Environmental Planning and Assessment Act and Section 36 of the Local Governments Act 1993, bushland must be conserved and managed for biodiversity. All local governments in Australia are also legally obliged to operate according to the principles of ecologically sustainable development (ESD). Three goals of ESD are to:

- maintain essential ecological processes and life-support systems;
- preserve genetic diversity;
- ensure the sustainable utilisation of species and ecosystems.

Birds are the most conspicuous animal species in urban environments, making them outstanding indicators of our performance in meeting obligations to sustainability. Unfortunately, in most urban areas bird diversity continues to decline, indicating our continuing failure to maintain adequate suitable habitat. Small native birds such as the Red-browed Finch and Superb Fairy-wren are becoming less common, replaced by dominant and aggressive species. In NSW these include the Noisy Miner, Pied Currawong and the Rainbow Lorikeet, but other states may have a different mix. Maintaining and enhancing existing urban bushland is essential to conserving species, in particular the 'remnant specialists' like the Golden Whistler that are generally only found in remnants in the urban landscape and 'urban generalists' like Eastern Spinebill, which also rely on remnants. If our urban remnants are not conserved and rehabilitated, then many of these less common species will be lost.

Areas of high human-population density are the places where we have the resources to design and manage habitat to meet the specific needs of particular fauna. In the long-term, by meeting these needs, we can facilitate an increase in local populations and possibly the return of a species that was



For more detailed guidelines for creating habitat for birds in the urban environment, please refer to the *Scientific Report* available at: www.birdsinbackyards.net/spaces/guidelines.cfm

previously present. The Birds in Backyards Program considers that in order to arrest the negative impact of humans on biodiversity, it is necessary to foster a wildlife ethic. This is best achieved by bringing people into contact with animals, and as Australians are highly urbanised, this means retaining animals in urban areas. Thus we think it is a priority to preserve all urban remnants regardless of the levels of disturbance and degradation. The following guidelines summarise current knowledge on best practice methods of designing and managing a variety of remnant urban habitats to prevent the further loss of biodiversity.

How to manage urban remnants for bird habitat

1. Assess the site and the current bird life and consider these questions:

- *What birds are using the site and are in the area?* Know which species you are trying to target, for example small birds or parrots. While in the short term, only species located in the immediate area may use the site, over the long term the site may provide important habitat for an even wider range of species. Therefore the future value of the habitat should also be considered. Simple 20-minute bird surveys conducted in and around the site for at least a month before, preferably in spring to ascertain breeding use, should be completed prior to the commencement of habitat enhancement and will give an idea of what birds are using the site. Note that some birds are migratory and your site may be important habitat for them for a short period each year. The *Birds in Backyards* surveys are ideal for simple bird surveys, go to <http://www.birdsinbackyards.net/surveys/>. Talk to households in the immediate area and see what birds they see or ask them to fill in a survey. Not only can you collect valuable information but also spark public interest and enthusiasm for your project. Surveys should also continue through the remediation period and after as well.
- *What vegetation is currently available?* Is it very simple such as open grassland and a few scattered trees or is the site structurally complex with lots of layers of different vegetation? A more structurally diverse site will support more bird species and should be a consideration if revegetation is possible adjacent to remnant vegetation.
- *Is the site invaded by weeds?* Are these weeds being used by birds? Some weeds such as Lantana in NSW are popular with birds and provide important habitat. Their use must be considered and their removal planned and staged.
- *What is the shape of the remnant?* Edge effects (like changes in temperature and elevated predation levels) affect long, thin remnants greater than round ones. The very common urban birds are more likely to dominate linear remnants.



- *What size is the remnant?* Edge effects influence smaller remnants more than larger ones. Small remnants (1-2 ha) tend to only support very common urban birds. At least 4 ha is preferable to adequately support the less common urban birds (such as small honeyeaters and wrens) while at least 50 ha is generally needed to support species that do not use urban areas at all and live in the interior of forests.
- *Where is the remnant located?* Location in relation to population densities may affect the level of disturbance and opportunities to expand and enhance the habitat. However even highly degraded remnants should be retained, regardless of a poor conservation value. These still have value in bringing people in contact with semi-natural vegetation and wildlife and therefore should not be cleared.
- *Is the site connected to other patches of vegetation like remnants or parks?* Increasing connectivity through corridor systems (whether that is linear such as along streets or as stepping-stones) will allow birds to move between larger patches of vegetation.
- *What is the current land use?* Sites used for public recreation may need to have a managed interface between areas for recreational access and wildlife habitat.

2. Prepare a Habitat Restoration Plan

If, after answering the questions in Section 1 above, you determine there are species of native birds present on your site which could benefit from habitat protection and enhancement, then consider preparing a Habitat Restoration Plan.

Be prepared for long-term commitments

Three major goals when creating or enhancing habitat on a site should be to:

- maximise biodiversity
- minimise disturbance and
- encourage ownership and involvement of the community

Projects that act as 'quick-fix' solutions, with little thought and planning and no ongoing maintenance will have little chance of success. The public are more likely to support projects that have been carefully considered and planned, to learn from them and understand their relationship to sustainability.

The Plan should address the following issues:



2. a. What do birds require?

While the amount and type might vary greatly, all birds need food and water, shelter and a place to nest, whether that is a dense thicket, tall tree or hollow. Most of these requirements can be met by the availability of suitable vegetation. How much space there is in the habitat to expand or create suitable habitat of various types and how this links to other suitable habitat in the local area will define the constraints and opportunities of the Plan.

Because urban habitats are so fragmented, one site will generally not be large enough to provide all of the requirements that a bird will need. However, each patch is vital in forming the web of habitat that birds use.

2. b. Regeneration or revegetation?

In general, local native plants provide native birds the best forms of habitat for feeding, sheltering, roosting, etc. If you already have bushland on your site, whether it is pristine or invaded by weeds, managing it as a natural area is usually the best approach, both ecologically and economically. This means managing the site to promote natural regeneration (the “**Regeneration**” approach), eg. from seeds in the soil, as opposed to planting (the “**Revegetation**” approach). There are many ways to promote natural regeneration, eg. weeding, pile burns (with the assistance of the relevant authorities), etc. Plants can regenerate from seeds in the soil or seeds on plants prior to burning or nearby. It often takes 2 or more years for the full potential of natural regeneration to become apparent. The best methods to promote natural regeneration will depend on the type of plant community you have and the particular site factors. Once in a healthy, weed free condition, bushland is usually far more economical to manage than a planted garden.

The best methods will depend on the type of plant community you have and the particular site factors. More information may be obtained from your local Council's Bushland department. Planting into bushland can hinder natural regeneration, including of species which are not in cultivation and which may be important for native birds. Once in a healthy, weed free condition, bushland is usually far more economical to manage than a planted garden.



That said, planting provides alternative opportunities for providing habitat for native birds. Through carefully considered design, plantings will provide excellent habitat for specific species or groups of species. This will depend on many factors, including: the geographic location of the site; what other habitat is nearby, eg. bushland, creeks; its size; the species selected; how the species are arranged.

There are almost always opportunities to plant adjacent to remnant bushland. Such areas may improve connectivity to other nearby habitat, eg. either another patch of bushland or habitat in private gardens. Plantings can provide habitat features which your remnant bushland doesn't currently have, whether this be sources of food, shelter etc.

Assess the current vegetation: Most vegetation can provide habitat for birds. Before removing any vegetation, whether exotic plantings, weeds or otherwise, be sure to observe usage by birds. Protect and enhance any native remnant, eg by planting local native species adjacent or encouraging regeneration.

2. c. What and how to plant

- *What to plant - species:* We recommend local native vegetation grown from locally collected seed. Such plants are available from Council, community and specialist nurseries. This vegetation was traditionally used by birds in the area and is best suited to the conditions of the site. Use a variety of different species throughout the planting rather than a single, or select few plants. Greater plant diversity generally means a greater diversity of bird species present.
- *What to plant – structure:* The key is to create structural diversity that is reflective of the original habitat – so lots of plants and lots of different layers. Having a mix of trees, shrubs of varying heights, grasses and ground covers will maximise the numbers of birds using a site. Retaining patches of open grass is also important for some birds such as the parrots and finches to forage on.



2. d. Requirements of specific bird groups

Bird Type	Food Source	Habitat Preference
Large Nectarivores (nectar feeders) Honeyeaters and some parrots e.g. Noisy Miners, Red and Little Wattlebirds, Rainbow and Scaly-breasted Lorikeets	<i>Banksia</i> , <i>Callistemon</i> (Bottlebrush), <i>Eucalyptus</i> , <i>Grevillea</i> , <i>Hakea</i> , <i>Melaleuca</i> (Paperbark)	Shrubs and trees for foraging, perching and nesting Some require hollows for nesting
Small Nectarivores Honeyeaters e.g. Eastern Spinebill, New Holland Honeyeater, Brown Honeyeater	<i>Banksia</i> , <i>Callistemon</i> (Bottlebrush), <i>Eucalyptus</i> , <i>Grevillea</i> , <i>Hakea</i> , <i>Melaleuca</i> (Paperbark), <i>Epacris</i> , <i>Correa</i>	Spend most time foraging and perching in shrubs but also use trees. Generally nest in dense shrubs
Granivores (Seed Eaters) Parrots, finches and pigeons e.g. Eastern Rosella, Pale-headed Rosella, Galah, Sulphur-Crested Cockatoo, Common Bronzewing, Red-Browed Finch, Double-Barred Finch, Chestnut-breasted Manikin	Trees and shrubs: <i>Acacia</i> (wattle), <i>Casuarina</i> (she-oak), <i>Leptospermum</i> (tea-tree) Grasses: <i>Lomandra</i> , <i>Themeda</i> , <i>Poa</i>	Utilise shrubs and trees for perching, nesting and foraging but also forage on mature grasses
Frugivores (fruit eaters) Pigeons and cuckoos e.g. Wonga Pigeon, Common Koel, Silvereye, Satin Bowerbird	<i>Ficus</i> (figs), <i>Syzygium</i> (Lillipillies), <i>Eleocarpus</i> (Quandong)	Shrubs and trees important habitat
Insectivores e.g. Superb Fairy-wren, Eastern Yellow Robin, Spotted and Striated Pardalotes, Willie Wagtail	Insects and other invertebrates either on the bark and foliage of shrubs and trees or on the ground	Dense shrubs important for protection and nest sites as well as some open areas for foraging
Carnivores (Meat Eaters) e.g. All species of Currawongs, Laughing Kookaburra, Grey and Pied Butcherbirds, Powerful Owl, Black-shouldered Kite, Peregrine Falcon	Other birds, reptiles, frogs, mammals, invertebrates	Tall trees for perching, roosting and nesting. Some require hollows for nesting

2. e. How to manage weeds

Some weeds provide important food, shelter and nest sites for birds. If their removal would threaten a local population of native birds, they should be removed gradually and after alternative habitat is established. Lantana, for example, is used by many smaller birds due largely to its dense habit but birds also feed on its nectar and the insects it attracts. In other instances, weeds are thought to be responsible for the dominance of some birds. Privet, once a popular garden tree, is partially responsible for an increase in Pied Currawong abundance in urban areas of the east Australian coast by providing an important winter food source, its fruit.



Identify and research any of the weeds at the site you are working on. If they provide habitat for birds, especially small birds, then slowly remove the weeds. Take out areas of no larger than 20 m x 20 m at a time, or, if this is larger than 20% of the area of these weeds, then no more than this amount. Only once the replacement plantings are mature should the next patch of weeds be removed and a patchwork or mosaic pattern followed. This allows birds to use the remaining weeds till new vegetation becomes established. The new vegetation should provide a similar structure or food source to the weeds.

2. f. What else affects the bird community?

Habitat is the most important factor that influences whether a bird will visit a site, however it is not the only one. A range of other factors also play a role and must be considered when creating bird habitat.

- *Other birds:* Urban habitats are dominated by medium to large birds that are often very aggressive. There are a number of these who have been shown to influence what other birds occur at a site. Red Wattlebirds and Rainbow Lorikeets have demonstrated aggression and Pied Currawongs are predatory on smaller birds. However there are two species in particular that are thought to be especially important in shaping urban bird communities.

Noisy Miners are a particularly aggressive species that chase out other birds from their territory. These birds prefer sites with a Eucalypt canopy and no understorey. Therefore we strongly recommend that planting simple eucalypt and grass plantings are avoided. Planting a dense shrub layer and including other plants as well as Eucalypts should assist in reducing their impact over time.

Common (or Indian) Mynas are a much hated pest however little research has been undertaken to examine how they effect the rest of the bird community. While aggression in general has not been documented, they have been shown to compete with and exclude other hollow-nesting birds such as parrots, from hollows. At sites where there are natural hollows or nest boxes set up, regular monitoring and removal of Common Myna nests should be conducted to ensure they are not using them.



- *Domestic pets:* Cats in particular have been shown to have an impact on birds in some urban areas and dogs may cause problems by chasing and disturbing birds. There is also some evidence that cat and dog urine can damage vegetation. The only way to limit the impact that pets have on birds in remnants is to stop or limit access. Cats should be kept indoors or in cat runs and dogs should be kept in secure yards and only allowed in public areas when on-leash with trapping done in remnants to remove wandering or feral animals (including cats and foxes). This must be coupled with education to inform pet owners of the dangers of roaming pets, both to local wildlife and also to the pets themselves.
- *Other threats:* Living in urban areas exposes birds to a wide range of disturbances. Care must be taken to limit the extent to which these different disturbances, such as pesticides and herbicides, trampling of vegetation and the dumping of rubbish can impact on the bird community using the site.

3. Community Involvement

3.a. Utilise community groups and educate

Encouraging community participation in developing habitat for wildlife serves three invaluable purposes.

1. Assistance in undertaking a myriad of tasks such as planting, weeding and long term monitoring of the site.
2. Getting the right conservation messages out into the community. There are many misconceptions in the community such as “weeds must all be removed, the sooner the better” and “feeding birds is helpful.” Involving the community in urban habitat projects provides the opportunity to educate them on a wide range of issues.
3. Increasing public awareness and involvement throughout the initial planning stages provides the community with a sense of ownership, increasing the likelihood that the project will be accepted and has long-term support. Various methods of outreach can be used to obtain community support and involvement including media coverage, organised project campaigns, public meetings and technical workshops. Making contact with environmental volunteer organisations such as ‘Bushcare’ or ‘Landcare’ can also make available a wealth of knowledge and experience.



3.b. Focusing on iconic species:

Focusing on a particular iconic species can be an effective way of encouraging community participation in the creation or enhancement of urban habitats. Iconic species that have been used in this way are typically well-known attractive or interesting birds that are sometimes in decline in urban areas. Examples are small birds like Superb Fairy-wrens or Red-browed Finches or large carnivores like Powerful Owls.

3.c. Monitor the site regularly:

Baseline bird surveys should be obtained before any work begins and continue in the long term. This allows comparisons to be made over a long time period and forms part of assessing the success of the project and developing future projects.

Bird surveys are quick and easy to complete, requiring simply a 20 minute observation period. How often these surveys are conducted can be up to the site manager but even surveys conducted once a month can be valuable. Community participation can be encouraged to complete these surveys. Bush regeneration contractors may also be able to undertake monitoring as part of their works.

