



Guidelines for the Development of Bird Habitat

User: Landscape Architects

Why design landscapes for birds?

The design and planning of urban landscapes, including large and small residential developments and public spaces, can make a critical difference to the environmental sustainability of our cities and towns and the conservation of urban wildlife.

Birds are the most conspicuous animal species in urban environments, making them outstanding indicators of our performance in meeting obligations to sustainability¹. 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.

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 or possibly the return of a species that was previously present. Parks, gardens and open spaces have considerable potential to prevent further biodiversity loss at a local scale, by enhancing the connectivity between bushland remnants and by providing habitat in their own right. Landscape architects have control over the design and planting of a wide variety of habitats, both public and private.

¹ All local governments in Australia are legally obliged to operate according to the principles of ecologically sustainable development (ESD). Three essential goals of ESD are:

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



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

Within most parks and public open space areas, and even residential areas, there are opportunities to identify and manage sites for wildlife habitat, especially native birds. The following guidelines summarise current knowledge on best practice methods of designing and managing a variety of urban habitats to prevent the further loss of biodiversity.

The following steps provide a check list for helping to incorporate habitat restoration into landscape design.

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, however over the long term the site will 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 a month or so, preferably in spring to ascertain breeding use, should be completed prior to the commencement of remediation and will give an idea of what birds are using the site. The *Birds in Backyards* surveys are ideal for this. See <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.
- *What vegetation is currently available?* Is it very simple such as open lawn 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.
- *Is the site invaded by weeds? Are these being used by birds?* Some weeds such as Lantana in NSW are popular with birds and provide important habitat. Their use must be considered.
- *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 large 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. Design your landscape plan to include habitat restoration

Seek out and receive input from people experienced in restoration ecology and bird identification in order to develop and maintain habitat. Give consideration to the following issues.

2.a. What do the 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. In most cases locally native vegetation is best for birds, although exotic vegetation can also be important and should not be automatically removed.

Because urban habitats are so fragmented, one site will not generally 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. What and how to plant

- *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 planting local native plants in adjacent areas.
- *Whereever possible do not remove vegetation immediately:* instead wait until new vegetation establishes (produces flowers and/or fruit). Alternatively recommend removal of only small (< 20 m) patches of vegetation at a time to be replaced immediately with new plantings. Many birds may abandon the site, or be predated upon, if all or large portions of the intact vegetation are removed too quickly.
- *What to plant - floristics:* We recommend local native vegetation grown from locally collected seed. Such plants are available from council, community and specialist nurseries, when ordered within appropriate timeframes. 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 such as entire beds of Agapanthus or Lomandra. Gardens that contain a broad range of plant species are more likely to support a broad range of bird species. Plant clumps of 5-7 plants of the same species together so there is enough of the



resource (food or shelter) available to be used by the birds. Numerous groupings or thickets of different plant species is also better for overall aesthetics and design. Plant lists can also be obtained from the above sources.

- Along the east coast of Australia, sites where Eucalypts are the major or only canopy species are more likely to become dominated by an aggressive honeyeater, the Noisy Miner. These birds drive out other bird species from their preferred territory. Hybrid grevilleas should be avoided as they provide food for Noisy Miners and other large aggressive honeyeaters, especially when Eucalypts are not in flower. Small-flowering locally native grevilleas used instead.
- *What to plant – structure:* The key is to create structural diversity – 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.
- *Native plants do not need to look messy:* Small birds like dense shrubs. Pruning can encourage a much denser growth pattern, which provides good protection for small birds. Pruning can also help create a more formal and neater garden, which some people may prefer.
- *How to plant:* In areas where recreation must be balanced with potential bird habitat, garden beds can be used. These should be as large with as little fragmentation as possible. By utilizing perhaps a quarter of the space in one block a limited area is taken away from other recreation requirements. Alternatively, beds should be placed close to each other so birds can move easily between them. If there is concern about shrubs concealing anti-social activity, shrubs in a dense block can easily be avoided and do not have to be tall.
- *Maintenance:* Maintaining these types of garden beds is much less time consuming than mowing vast areas of lawn. Pruning is very quick and rarely has to be done, heavily mulching the beds reduces the need to weed and also provides a source of insects for insectivores and mowing can simply occur around the beds. Creating beds with edges (rectangular or square), makes mowing around them more efficient.



2.c. Requirements of different birds

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>Eleocharpus</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.d. Other considerations

- Water features or onsite elements of integrated stormwater management can be made more bird habitat-friendly when incorporated with plantings of local native species.
- Logs, rocks and other habitat features should also be specified in landscape plans to enhance and create habitat.

