Biodiversity Corridors Planning Guidance

Biodiversity corridors are areas of native vegetation linking fragmented habitats together, that wildlife can move through to find food, mates and other resources or move to new areas. Biodiversity corridors can be continuous bands of linear vegetation (not necessarily straight) that weave habitat together across the land, or small, isolated patches of vegetation or habitat less than 100m apart that create stepping stones between larger corridors or habitat. Table 1 provides details and definitions of different types of biodiversity corridors, including average minimum widths.

The Biodiversity Conservation Act 2016 (BC Act) requires new development to consider impacts on biodiversity corridors and the safe movement of wildlife through the environment using the 'avoid, minimise, offset' hierarchy in the BC Act. The Hunter Regional Plan 2041 (HRP) also requires Councils to plan for biodiversity corridors.

Table 1: Description and definitions of key types of biodiversity corridors, including the average minimum width for each type.

Corridor Type	Description	Average Minimum Width
Regional Corridors	Regional corridors link habitat across different regions. The HRP identifies two regional corridors that cross Port Stephens, the Stockton to Watagan Corridor and the Barrington to Port Stephens Corridor which are mostly located on public land. Council considers the continued connection of regional corridors and advocates for their protection by State and Federal governments.	Aim to achieve average minimum widths of approximately 390 - 425m when considering Koala.
Local Corridors	Local corridors connect habitat between and within suburbs or localities. Local corridors may be identified in Council strategies, place plans or mapping, and will be informed by site specific studies when a planning application is made.	Should aim to achieve an average minimum width of 100m. While corridors can have wider and narrower sections to complement the site conditions, corridors should not go below 50m in width.
Riparian Corridor	Riparian corridors located on waterfront land along the banks of creeks, streams, rivers, gullies and wetlands, protect water quality[4].	Please refer to Chapter B2: Natural Environment of Council's Development Control Plan (DCP) 2025 for information regarding widths of riparian corridors. Riparian corridors can also perform the functions of local corridors where conditions are appropriate.

Stepping Stones	When continuous connection is not possible, little patches of habitat or isolate trees can create stepping stones that connect broken corridors or habitat over small distances[1]. A network of stepping stones can create a biodiversity corridor that links larger areas, however these corridors have limited application.	Stepping stones can be separated by a maximum distance of 100m. Isolated trees or vegetation in backyards, parks or paddocks and along roads, streets or drainage reserves can create stepping stones if a travel path between them is available.

BENEFITS OF BIODIVERSITY CORRIDORS

Human activities and development can fragment continuous or connected habitats. While some open spaces and cleared land such as paddocks, recreational areas or sporting fields can allow wildlife to move through the landscape, housing, infrastructure and fencing create barriers to this movement, as shown in Figure 1. Careful planning for biodiversity corridors can facilitate safe movement of wildlife across more urbanised landscapes.

Biodiversity corridors in urban areas can provide opportunities for people to connect with nature, reduce urban heat impacts and offer natural spaces for recreation activities whilst also enabling wildlife to move safely through the landscape.

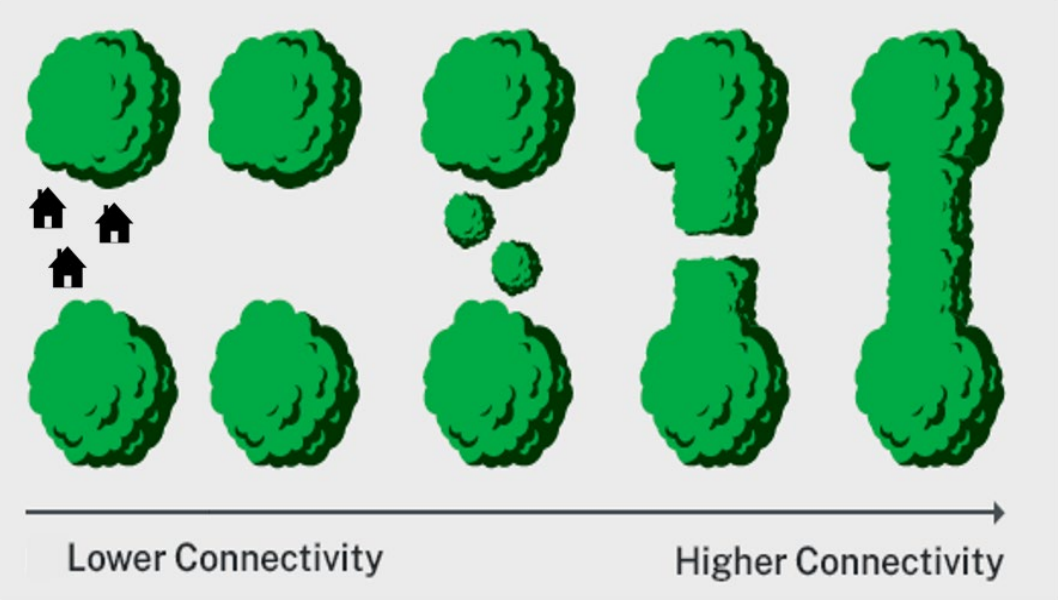

Figure 1: Examples of habitat connectivity (Hunter Regional Plan 2041, edited).

PLANNING FOR BIODIVERSITY CORRIDORS

Planning for biodiversity corridors will be informed by the conditions of each site. Planning applications contain information about the existing vegetation and wildlife on and around a site to help determine corridor requirements (width, structure, composition). Consideration is given to the importance of the corridor to the wider landscape (local, regional, stepping stone) and the type of species that need to move through it. Where available, consideration will be given to any mapping that identifies biodiversity corridors.

The following considerations can provide assistance when planning for biodiversity corridors in Port Stephens.

- Utilising existing natural features on the site, such as existing native trees, fallen timber or waterbodies, can improve outcomes from both a development and biodiversity perspective (e.g. Figure 2).
- The exact width of a biodiversity corridor should be determined on a site specific basis. Table 1 above provides average minimum widths for biodiversity corridors, which are driven by requirements for Koala.
- Where possible, seeking to co-locate biodiversity corridors with riparian corridors, vegetation buffers or flood prone land can maximise development and biodiversity outcomes and should be prioritised. In some instances, combining the location of infrastructure such as drainage structures, bike paths and walking tracks along the edge of corridors can improve social and connectivity outcomes. Some infrastructure such as fences, asset protection zones and sealed roadways can reduce connectivity.
- Urban greening seeks to increase the amount of green space in urban areas through the addition of parks, gardens, street trees and wetlands. By planting native species urban greening can reduce urban heat and improve air quality whilst also support biodiversity connectivity.
- The averaging rule allows corridor widths to reduce at one point if they equally expand at another (see example ** in Figure 2). This rule can be used during biodiversity corridor design to improve planning outcomes.

CONSIDERATIONS FOR KOALA

In Port Stephens the Koala is a significant threatened species reliant upon habitat connectivity to complete its lifecycle. Council's Koala Plan of Management identifies a need to protect Koala "Habitat Linking Areas" which provide habitat connectivity. Koalas inhabit a number of landscapes that other threatened species also rely upon making it a good target species for biodiversity corridor design. The biodiversity corridor parameters identified in this document are based on the values for Koala recommended by the NSW Chief Scientist and Engineer, and Federal Koala EPBC referral guideline[3].

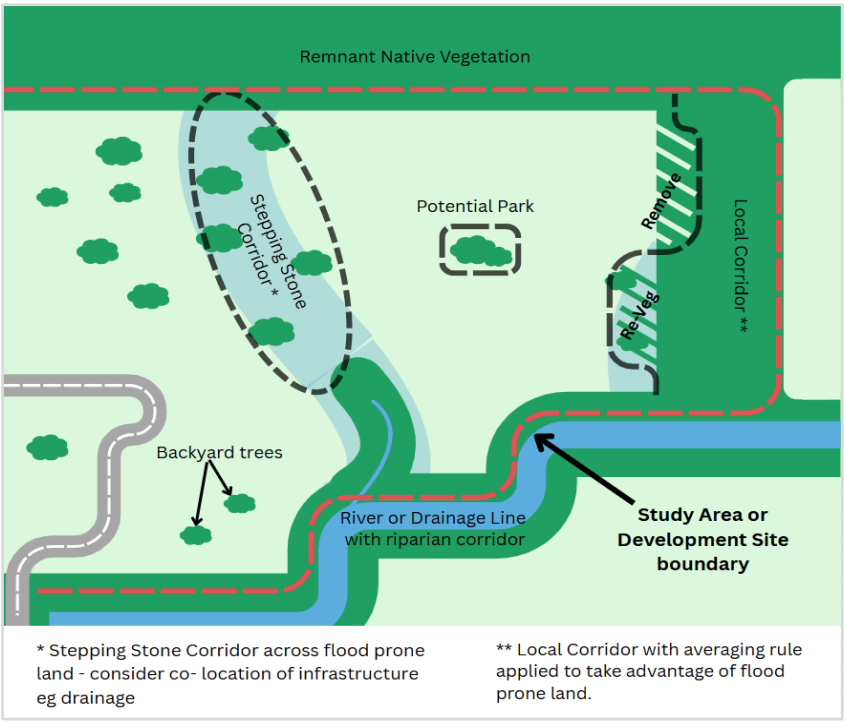

Figure 2: Example of planning for Biodiversity Corridors (not to scale).

LOCAL STRATEGIC PLANNING

In accordance with Ministerial Direction 1.1 and the HRP, local strategic planning in Port Stephens will seek to:

a) Identify regionally and locally significant biodiversity corridors and a framework for where conservation priorities and opportunities can be secured.

b) Consider the location and function of biodiversity corridors when determining future urban growth areas.

PLANNING PROPOSALS

In alignment with Ministerial Directions 1.1 and 3.1 and the HRP, planning proposals should plan for and include provisions to allow the safe movement of wildlife through a landscape by following the 'avoid, minimise, offset' hierarchy. Where possible, flood prone land and riparian corridors should be prioritised for biodiversity corridors.

As per the HRP, the level of protection afforded to biodiversity corridors should be commensurate with the contribution they make to the wider landscape and can be secured in a variety of ways including voluntary conservation agreements, biodiversity stewardship agreements, conservation zones and other zoning.

DEVELOPMENT APPLICATIONS

During a development application, biodiversity corridors need to be identified and assessed to maintain functional connectivity across or around a development site. Site-based studies undertaken by specialist consultants inform this assessment. A Biodiversity Development

Assessment Report (BDAR) may be required, to assess the impact of new development on corridors.

Depending on site conditions, there are often multiple possibilities for facilitating movement through a development site and these matters are best considered during the development design process. To meet the requirements under the BC Act, a proponent may need to avoid or minimise impacts to trees or areas of vegetation that create connectivity, or revegetate areas of poor connectivity to offset impacts in other areas.

REFERENCES AND LINKS

1. NSW Office of Environment and Heritage, Conservation management notes – Corridors and Connectivity (https://www.environment.nsw.gov.au/resources/cpp/CorridorsConnec.pdf)
2. NSW Department of Planning and Environment 2022 Factsheets – New expert advice on Koala corridors (https://www.planning.nsw.gov.au/sites/default/files/2023-03/cpcp-new-expert-advice-on-koala-corridors-fact-sheet.pdf)
3. Environment Protection and Biodiveristy Conservation (EPBC) Referral Guidelines for Koala https://www.dcceew.gov.au/environment/biodiversity/threatened/publications/referral-guidelines-endangered-koala
4. NSW Guidelines for riparian corridors on waterfront land https://water.dpie.nsw.gov.au/__data/assets/pdf_file/0008/386207/licensing_approvals_controlled_activities_riparian_corridors.pdf
5. Biodiveristy Conservation Act 2016 https://legislation.nsw.gov.au/view/html/inforce/current/act-2016-063
6. Federal Department of Climate Change, Energy, the Environment and Water Wildlife Corridors Information https://www.dcceew.gov.au/environment/biodiversity/conservation/wildlife-corridors
7. Hunter Regional Plan https://www.planning.nsw.gov.au/plans-for-your-area/regional-plans/hunter-regional-plan-2041