Chapter 1
Current Status of Native Vegetation in the Riverina

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The acknowledgment that native vegetation is vital for sustainable agricultural production and also its importance for the conservation of native species and their habitats has lead to an increasing interest and need to better conserve and manage native vegetation in Australia. The Riverina as defined in this Guide is approximately 8,075,000 hectares in size and comprises four bioregions: Riverina (88 percent), Murray Darling Depression (6 percent), Cobar Peneplain (5 percent) and NSW South West Slopes (1 percent).

The Riverina Bioregion, which includes parts of Victoria, comprises 96 percent freehold land and the remaining area as Crown Land (state forests, conservation reserves, Travelling Stock Reserves (TSR), highway reserves and public land). Not all vegetation types found within the Riverina Bioregion are represented on Crown Land. About 34 percent of the Riverina Bioregion in NSW has been cleared. There are land managers in the region who are aware of the significance and value of native vegetation and have already undertaken beneficial conservation management activities on their properties to retain and enhance existing areas of native vegetation.

The development of the Western Riverina Regional Vegetation Management Plan under the *Native Vegetation Conservation Act 1997* aims to, amongst other things, limit further degradation and removal of particular vegetation types in the region by:

- categorising vegetation that can be cleared without development consent;
- categorising vegetation that require development consent for clearing;
- categorising vegetation that cannot be cleared;
- highlighting areas where the condition of native vegetation can be improved; and
- recommending priority areas for revegetation or enhancement.

Vegetation communities

Descriptions of the vegetation present within the Riverina indicate that five distinct plant communities occur: forests and woodlands, mallee, shrublands, grasslands and wetlands.

Forests and woodlands

River Red Gum communities occur along the rivers and creeks where the watertable is sufficiently high to saturate the root zone of these trees or on areas subjected to periodic flooding. In places they form dense forests, but usually occur as open woodland. They usually occur on grey clay soil, but along ephemeral streams they can be associated with sandy soils. Few other tree and shrub species usually occur, but the ground or herbaceous layer is extensive and continuous.

The current extent of River Red Gum is 77 percent of its pre-European extent. Some areas have been cleared for grazing and cropping while other areas have changed from open woodland to dense forest due to grazing and altered flooding regimes. Harvesting of River Red Gum for saw logs and firewood is widespread across the region. While River Red Gum is well represented in state forests in the region, virtually none is present in conservation reserves.

Figure 1: Riverine forest along Colombo Creek.

Black Box communities occur on grey clay soils associated with watercourses and depressions, but in locations subject to less frequent inundation than those where River Red Gum occurs. The communities usually occur as open woodlands, sometimes consisting as clumps of trees or isolated trees separated by grasslands or shrublands. Some smaller trees and shrubs are often scattered among the Black Box and include Cooba, Boree, River Cooba, Miljee, Belah and Lignum. Ground cover is variable, usually consisting of forbs and perennial grasses.

Large areas of Black Box have been cleared for cropping and many clumps are now under threat from changed flooding regimes. This varies from too frequent and prolonged inundation from irrigation drainage water to exclusion from natural floods by irrigation channel banks and levee banks.

River Red Gum and Black Box communities dominate the riparian areas that have a particularly important role to play in maintaining water quality in the rivers.

Western Grey Box communities occur on level to undulating country in the south and east of the region, on the red-brown earths. Communities vary from those that are Western Grey Box dominant to those that merge with Yellow Box, Bimble Box, White Cypress Pine and Bulloak. Associated trees and shrubs often include Fuzzy Box, needlewoods, Butterbush, hopbushes, Miljee, Deane's Wattle and various other wattles. The ground cover consists of perennial grasses such as White-top, together with annual and perennial forbs.

Western Grey Box communities occur on the most fertile and friable soils which are favoured for cropping. As a result, the community is the most heavily cleared in the region and there are now very few high quality examples of the community remaining. Some good stands of trees remain but usually the native shrub and ground cover species are missing. Kangaroo Grass would have once been a major component of Western Grey Box communities but is now rare in the region. There is none of this community represented in conservation reserves and urgency is required to retain, enhance, restore and manage the community for conservation.

Bimble Box occurs in the northern half of the region in two distinct communities. One occurs on the flat to undulating fertile red-brown earths and is often associated with Wilga, Belah, Budda, Emu-bush and needlewood. Like the Western Grey Box community in the south, the Bimble Box community

located on arable land has been extensively cleared for dryland cropping.

The other Bimble Box community occurs on the rocky ridges from the centre to the north of the region with associated species such as Blakely's Red Gum, Dwyer's Red Gum, Cypress Pine, Kurrajong and Grey Mallee, wattles and hopbushes. This community remains well retained because the ridges have mainly been unsuitable for cropping.

Cypress Pine communities occur on the red earths and red-brown earths in the north east of the region and the sand hills, prior streams and lunettes in the south. Species typically found in the northern version of the community are White Cypress Pine, Black Cypress Pine, Bulloak, Rosewood and Wilga. The southern version typically includes White Cypress Pine, Murray Pine, Yellow Box, Cooba, needlewoods and hopbushes. The condition and extent of the community in the north is generally fair but in the south the condition of the majority of the remaining pine areas is of concern. Most areas have a very degraded understorey with few native species present and little or no regeneration of pine. Dense populations of rabbits are a problem in many locations.

Figure 2: Callitris mixed woodland in Cocoparra National Park.

Boree woodland communities occur on the flat to gently undulating red-brown earths and the grey and brown clays. The Boree is associated with Belah, Old Man Saltbush, a variety of small shrubs as well as native grasses and forbs. This community would have been the most extensive in the region prior to European settlement. Lopping for drought fodder and continuous grazing that does not permit regeneration have decimated the community. However, Boree has a remarkable ability to be able to re-establish itself with a change in grazing management and suitable seasonal conditions. There are some excellent stands remaining in the Four Corners area.

Figure 3: Boree woodland in the Coleambally region.

There is currently very little Boree woodland included in conservation reserves and a large effort is required to restore and enhance the community.

Large areas that would have previously been Boree woodland community have become 'derived' grasslands by removal of the tree layer.

The Belah – Rosewood woodland communities occur on the solonised brown soils or calcareous red earths in the north of the region. These two species may occur separately or in association and may occur as scattered trees or dense scrubs. Yarran, Wilga and Emubush are commonly associated species. An understorey of Spiny Saltbush,

copperburrs, Ruby Saltbush, bluebushes, grasses and forbs is usually present.

Like the Western Grey Box and Bimble Box communities, the Belah - Rosewood community is found on fertile land suitable for cropping and consequently has been extensively cleared.

Mallee

Mallee woodland communities occur in the north-east and south-west of the region, particularly on the calcareous sandy loam soils. As well as mallee species, other low trees and shrubs occur including Kurrajong, Quandong, Mugga Ironbark and a variety of wattles. Porcupine Grass often dominates the ground cover.

Figure 4: Sandplain Mallee in Loughnan Nature Reserve south-east of Hillston.

Extensive areas of mallee have been cleared for cropping but there are still some large areas remaining. Good quality examples of this community are extremely rich in biodiversity. There are significant areas of Mallee woodland contained in reserves in the north of the region.

Shrublands

Bladder Saltbush shrubland communities occur over much of the western section of the region, on the grey and brown clays and shallow surfaced red-brown earths. They are mainly treeless, although scattered Black Box or Boree may occur. The Bladder Saltbush is usually dominant, with grasses and forbs occurring in the inter-shrub areas.

Along with Boree woodland, this community would have been the most widespread in the region prior to European settlement. However, the extent of this community has diminished dramatically since European settlement as a result of grazing pressure and a number of dieback incidences. There is very little Bladder Saltbush shrubland represented in conservation reserves.

Old Man Saltbush shrubland has been greatly reduced in extent but still occurs as the dominant overstorey in some grasslands and as understorey in some Black Box woodlands.

Black Bluebush shrubland occurs in some dense stands in the Hay to Balranald area and gives way to Pearl Bluebush shrubland in the north west of the region. These communities are still well represented and they provide useful grazing value and protection for stock. There is a small amount found in conservation reserves.

Cottonbush shrubland is a widely represented community across the western half of the region. Cottonbush withstands grazing fairly well because of its unpalatable nature. There is a small amount located in conservation reserves.

Dillon Bush shrublands are not thought to have existed as a distinct community prior to European settlement. Grazing has led to the removal of some of the more palatable species that would have dominated the community leaving the Dillon Bush to multiply. Dillon Bush does provide some shelter for sheep on open plains and has some grazing value in dry times, but is usually dominant only in degraded areas.

Figure 5: Chenopod (saltbush/bluebush) shrubland, Freshwater Road, north of Oxley.

Grasslands

White-top (Wallaby Grass) communities occur on the clay soils and the loamy red earths, over much of the region. These communities are mainly treeless but scattered individuals or clumps of Black Box, Western Grey Box or Boree may occur. Other perennial grasses such as Windmill Grass, native millets and Speargrass, together with Cottonbush, saltbushes and copperburrs are the main pasture species present. Annual introduced forbs such as Trefoil and exotic grasses such as Barley Grass, Wimmera Ryegrass and Wild Oats are abundant in winter and spring. These provide a large bulk of very palatable feed for sheep and cattle in a good season but native perennial species are able to respond to even small falls of rain at any time of the year, and serve to protect soils from wind erosion in very dry times.

Figure 6: Grassland/herb field near Morundah.

It is thought that prior to European settlement there would only have been relatively small areas of open grassland but that the majority of the current grassland areas have been 'derived' by the removal of overstorey species such as Boree, Bladder Saltbush and Old Man Saltbush by continuous grazing. Nevertheless, these derived grasslands if in good condition, support a diverse range of flora and fauna. Significant areas of native grassland are located in the recently reserved 'Oolambeyan' station.

Wetlands

Lignum communities occur throughout the area, mostly on grey clay soils subject to periodic flooding. The Nimmie-Caira section of the Lowbidgee District contains a particularly large area. They are often treeless, but scattered Black Box or River Red Gum may be present. Associated shrub species include Canegrass and Nitre Goosefoot, and pastures mostly consisting of spike rushes, Nardoo and Neverfail.

Figure 7: Lignum swamp (Avalon Swamp, Lowbidgee) with Black Box in background.

Nitre Goosefoot communities mainly occur on grey clay soils that are periodically flooded. They are generally treeless, with Lignum and Canegrass often also occurring. Pasture cover is

variable and consists of spike-rushes, Nardoo, copperburrs and saltbushes.

Canegrass communities occur on lakebeds or prior streams with compact clay soils, subject to periodic inundation. Few other species occur in these Canegrass swamps.

Reed and Rush communities occur throughout the region in areas that are more or less permanently inundated. Here the vegetation may be dominated by Common Reed, Cumbungi and other aquatic species. The reed beds of the Great Cumbung Swamp are a good example.

Many wetland communities have been subjected to changes in wetting and drying patterns because of modifications to natural river flow regimes and the construction of flood levees and irrigation channels and banks which restrict water flow. Conversely, some are used as irrigation drainage disposal or recycle areas with lengthy periods of inundation which degrade the native flora and fauna.

References and further reading

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