

Appendix B – Subject species habitat requirements

Subject species habitat requirements and distributions

Birds

Barking Owl (*Ninox connivens*)

Barking Owls are found throughout Australia, except for the central and arid regions. The species has a wide, but sparse distribution in NSW where it inhabits eucalypt woodland, open forest, swamp woodlands and, especially in inland areas, timber along watercourses. It is flexible in its habitat use and hunting can extend into close forest and more open areas. Denser vegetation is used occasionally for roosting. During the day they roost along creek lines, usually in tall understorey trees with dense foliage such as *Acacia* and *Casuarina* species, or the dense clumps of canopy leaves in large eucalypts. Hollows of large, old eucalypts including River Red Gum (*Eucalyptus camaldulensis*) are used for nesting.

Black-chinned Honeyeater (eastern subspecies) (*Melithreptus gularis gularis*)

The Black-chinned Honeyeater occupies mostly upper levels of drier open forests or woodlands dominated by box and ironbark eucalypts, especially Mugga Ironbark (*Eucalyptus sideroxylon*), White Box (*Eucalyptus albens*), Grey Box (*Eucalyptus microcarpa*), Yellow Box (*Eucalyptus melliodora*) and Forest Red Gum (*Eucalyptus tereticornis*). It also inhabits open forests of smooth-barked gums, stringybarks, ironbarks and tea-trees.

The eastern subspecies is distributed south from central QLD, through NSW, Victoria and into south eastern South Australia. In NSW it is widespread, occurring from the tablelands and western slopes of the Great Dividing Range, to the north-west and central-west plains and the Riverina.

Brown Treecreeper (eastern subspecies) (*Climacteris picumnus victoriae*)

The Brown Treecreeper is found in eucalypt woodlands (including Box-Gum Woodland) and dry open forest of the inland slopes and plains, inland of the Great Dividing Range. The species mainly inhabits woodlands dominated by stringybarks or other rough-barked eucalypts, usually with an open grassy understorey and sometimes with one or more shrub species. It is also found in mallee and River Red Gum (*Eucalyptus camaldulensis*) Forest bordering wetlands with an open understorey of acacias, saltbush, lignum, cumbungi and grasses. The species is usually not found in woodlands with a dense shrub layer and fallen timber is an important habitat component for foraging.

The western boundary for the eastern subspecies runs approximately through Corowa, Wagga Wagga, Temora, Forbes, Dubbo and Inverell where it intergrades with the arid zone subspecies.

Bush Stone-curlew (*Burhinus grallarius*)

The Bush Stone-curlew is found throughout most of Australia, although is now either rare or extinct throughout its former range in the south-east. The species inhabits open forests and woodlands with a sparse grassy ground layer and fallen timber.

Diamond Firetail (*Stagonopleura guttata*)

The Diamond Firetail is found in grassy eucalypt woodlands, including Box-Gum Woodlands and Snow Gum (*Eucalyptus pauciflora*) Woodlands. It also occurs in open forest, mallee, Natural Temperate Grassland, and in secondary grassland derived from other communities. It is often found in riparian areas (rivers and creeks), and sometimes in lightly wooded farmland. Foraging occurs exclusively on the ground, on ripe and partly-ripe grass and herb seeds and green leaves, and on insects.

The species is widely distributed in NSW, with a concentration of records from the Northern, Central and South Western Slopes and the North West Plains and Riverina. It has a scattered distribution over the rest of NSW, however, is not commonly found in coastal districts or west of the Darling River.

Flame Robin (*Petroica phoenicea*)

The Flame Robin's preferred habitat type is forests and woodlands up to about 1800 metres above sea level. In NSW it breeds in upland tall, moist eucalypt forests and woodlands, often on ridges and slopes, dominated by native grasses. Occasionally the species occurs in temperate rainforest, herbfields, heathlands, shrublands and sedgeland at high altitudes. In winter, birds migrate to drier and more open areas in lowlands, including gardens, grassland with scattered trees and open woodland on the inland slopes and plains.

Gilbert's Whistler (*Pachycephala inornata*)

Gilbert's Whistler occurs in a range of habitats, although the common feature appears to be a dense shrub layer. It is widely recorded in mallee shrublands, but also in box-ironbark woodlands, Cypress Pine and Belah woodlands and River Red Gum forests (along the Murray, Edwards and Wakool rivers). Within the mallee the species is often found in association with an understorey of spinifex and low shrubs including acacias, hakeas, sennas and grevilleas. In woodland habitats, the understorey comprises dense patches of shrubs, particularly *Callitris* pine. Parasitic cherries (*Exocarpos* species) appear to be an important habitat component in Belah and Red Gum communities, although Lignum and wattles are also utilised in the latter habitat type.

The eastern population of the species in NSW extends from the central NSW mallee (Yathong, Nombinnie and Round Hill Nature Reserves), south and east through the Cocoparra Range to Pomingalarna Reserve (near Wagga Wagga) then north through the South West Slopes, east as far as Cowra and Burrendong Dam, to the Goonoo reserves.

Glossy Black-cockatoo (*Calyptorhynchus lathamii*)

Glossy Black-cockatoos inhabit open forest and woodlands of the coast and the Great Dividing Range up to 1000 metres in which stands of she-oak species, particularly Black Sheoak (*Allocasuarina littoralis*) or Forest Sheoak (*A. torulosa*) occur. Inland populations feed on a wide range of sheoaks, including Drooping Sheoak (*A. verticillata*).

In the Riverina area, the species is associated with hills and rocky rises supporting Drooping Sheoak but is also recorded in open woodlands dominated by Belah (*Casuarina cristata*). Foraging is almost exclusively on the seeds of several species of sheoak (*Casuarina* and *Allocasuarina* species). It is dependent on large hollow-bearing eucalypts for nest sites.

The species occurs from the central QLD coast to East Gippsland in Victoria, and inland to the southern tablelands and central western plains of NSW, with a small population in the Riverina.

Grey-crowned Babbler (eastern subspecies) (*Pomatostomus temporalis temporalis*)

Grey-crowned Babblers inhabit open Box-Gum Woodlands on the slopes, and Box-Cypress-pine and open Box Woodlands on alluvial plains. Flight is laborious so birds prefer to hop to the top of a tree and glide down to the next one. The species is generally unable to cross large open areas.

In NSW, the eastern subspecies occurs on the western slopes of the Great Dividing Range, and on the western plains reaching as far as Louth and Balranald. It also occurs in the Hunter Valley and in several locations on the north coast.

Hooded Robin (south-eastern form) (*Melanodryas cucullata cucullata*)

The Hooded Robin prefers lightly wooded country, usually open eucalypt woodland, acacia scrub and mallee, often in or near clearings or open areas. It requires structurally diverse habitats featuring mature eucalypts, saplings, some small shrubs and a groundlayer of moderately tall native grasses.

The south-eastern form is found throughout much of inland NSW, with the exception of the north-west, where it is replaced by an alternative subspecies.

Little Eagle (*Hieraaetus morphnoides*)

The Little Eagle occupies open eucalypt forest, woodland or open woodland. Sheoak or *Acacia* woodlands and riparian woodlands of interior NSW are also used. It nests in tall living trees within a remnant patch, where pairs build a large stick nest in winter.

The species occurs as a single population throughout NSW, where it occurs in most areas excepting the most densely forested parts of the Dividing Range escarpment.

Little Lorikeet (*Glossopsitta pusilla*)

Little Lorikeets mostly occur in *Eucalyptus* forests and woodlands, however, may also forage in *Angophora*, *Melaleuca* and other tree species. Isolated flowering trees in open country, including roadside remnants are also important for the species. Foraging is mostly on pollen and nectar, but also includes native fruits such as mistletoe. The species generally nests in the hollows of smooth-barked eucalypts.

NSW provides a large portion of core habitat for the species, which is found westward as far as Dubbo and Albury. Season and food availability can influence the nomadic movements of the species.

Major Mitchell's Cockatoo (*Lophochroa leadbeateri*)

Major Mitchell's Cockatoo inhabits a wide range of treed and treeless inland habitats, always within easy reach of water. The species feeds mostly on the ground, especially on the seeds of native and exotic melons and on the seeds of species of saltbush, wattles and cypress pines. Nesting is in tree hollows at least one kilometre apart with no more than one pair occurring every 30 square kilometres.

The species occurs in the western part of NSW and is found regularly as far east as about Bourke and Griffith, and sporadically even further east. Wagga Wagga is situated on the eastern extent of the species known range.

Painted Honeyeater (*Grantiella picta*)

Painted Honeyeaters inhabit Boree, Brigalow and Box-Gum Woodlands and Box-Ironbark Forests. The species is a specialist feeder on the fruits of mistletoes, preferentially of the genus *Amyema*, growing on woodland eucalypts and acacias. Insects and nectar from mistletoe or eucalypts are occasionally eaten. It also eats saltbush fruit, berries, seed and flowers.

The species is nomadic with the greatest concentrations and almost all breeding occurring on the inland slopes of the Great Dividing Range in NSW, Victoria and southern QLD. It is more likely to be found in the north of its distribution during the winter.

Regent Honeyeater (*Anthochaera phrygia*)

The Regent Honeyeater inhabits dry open forest and woodland, particularly Box-Ironbark woodland, and riparian forests of River Sheoak. The species inhabits woodlands that support a

significantly high abundance and species richness of bird species. These woodlands have significantly large numbers of mature trees, high canopy cover and abundance of mistletoes.

The species is a generalist forager which mainly feeds on the nectar from a wide range of eucalypts and mistletoes. Key eucalypt species include Mugga Ironbark, Yellow Box, Blakely's Red Gum, White Box and Swamp Mahogany. Nectar and fruit from the mistletoes *Amyema miquelii*, *A. pendula* and *A. cambagei* are also eaten during the breeding season. A shrubby understorey is an important source of insects and nesting material.

In NSW, the species distribution is very patchy and mainly confined to the two main breeding areas and surrounding fragmented woodlands. These breeding areas are in the Capertee Valley and the Bundarra-Barraba regions. In the last 10 years the species has been recorded Mugga Ironbark and Yellow Box trees in urban areas around Albury.

Scarlet Robin (*Petroica boodang*)

Scarlet Robins occupy dry eucalypt forests and woodlands in which the understorey is usually open and grassy with few scattered shrubs. It is known to occur in both mature and regrowth vegetation. The species breeds often on ridges, hills and foothills of the western slopes, Great Dividing Range and eastern coastal regions, and is occasionally found up to 1000 metres in altitude. Following breeding, in autumn and winter many of the birds disperse to more open habitats such as open grassy woodland and grasslands or grazed paddocks with scattered trees.

In NSW, the species occurs from the coast to the inland slopes and after breeding disperses to the lower valleys and plains of the tablelands and slopes.

Speckled Warbler (*Pyrrholaemus sagittatus*)

The Speckled Warbler lives in a wide range of *Eucalyptus* dominated communities that have a grassy understorey, often on rocky ridges or in gullies. Typical habitat would include scattered native tussock grasses, a sparse shrub layer, some eucalypt regrowth and an open canopy. Large, relatively undisturbed remnants are required for the species to persist in an area.

The species has a patchy distribution, which includes the eastern half of NSW where it is most frequently reported from the hills and tablelands of the Great Dividing Range

Spotted Harrier (*Circus assimilis*)

The Spotted Harrier occurs in grassy open woodland including *Acacia* and mallee remnants, inland riparian woodland, grassland and shrub steppe (e.g. chenopods). It is found most commonly in native grassland, but also occurs in agricultural land, foraging over open habitats including edges of inland wetlands.

In NSW, the species comprises a single population. It occurs in most habitats except in densely forested or wooded habitats of the coast, escarpment and ranges.

Superb Parrot (*Polytelis swainsonii*)

The Superb Parrot inhabits Box-Gum, Box-Cypress-pine and Boree Woodlands and River Red Gum Forest. In the Riverina the birds nest in the hollows of large trees (dead or alive) mainly in tall riparian River Red Gum Forest or Woodland. On the South West Slopes nest trees can be in open Box-Gum Woodland or isolated paddock trees. Species known to be used are Blakely's Red Gum, Yellow Box, Apple Box and Red Box. The species may forage up to 10 kilometres from nesting sites, primarily in grassy box woodland in trees, understorey shrubs and on the ground.

The species is found throughout eastern inland NSW. The core breeding area in the South-western Slopes is roughly bounded by Cowra and Yass in the east and Grenfell, Cootamundra and Coolac in the west. These birds mostly migrate north during winter. The other main breeding sites are in the Riverina along the corridors of the Murray, Edward and Murrumbidgee Rivers.

Swift Parrot (*Lathamus discolor*)

The Swift Parrot occurs on the mainland in areas where eucalypts are flowering profusely or where there are abundant lerp (from sap-sucking bugs) infestations. Favoured feed trees include winter flowering species such as Swamp Mahogany *Eucalyptus robusta*, Spotted Gum *Corymbia maculata*, Red Bloodwood *C. gummifera*, Mugga Ironbark *E. sideroxylon*, and White Box *E. albens*. Commonly used lerp infested trees include Grey Box *E. microcarpa*, Grey Box *E. moluccana* and Blackbutt *E. pilularis*.

This species breeds in Tasmania during spring and summer and migrates to south-eastern Australia during autumn and winter. In NSW, it mostly occurs on the coast and south west slopes.

Turquoise Parrot (*Neophema pulchella*)

The Turquoise Parrot lives on the edges of eucalypt woodland adjoining clearings, timbered ridges and creeks in farmland. The species prefers to feed in the shade of a tree and spends most of the day on the ground searching for the seeds or grasses and herbaceous plants, or browsing on vegetable matter. Nesting is in tree hollows, logs or posts.

The species is distributed from southern QLD through to northern Victoria, from the coastal plains to the western slopes of the Great Dividing Range.

Varied Sittella (*Daphoenositta chrysoptera*)

The Varied Sittella inhabits eucalypt forests and woodlands, especially those containing rough-barked species and mature smooth-barked gums with dead branches, mallee and *Acacia* woodland.

The species inhabits most of mainland Australia except the treeless deserts and open grasslands. In NSW its distribution is nearly continuous from the coast to the far west.

White-fronted Chat (*Epthianura albifrons*)

The White-fronted Chat is found mostly in temperate to arid climates where it occupies foothills and lowlands up to 1000 metres altitude. It is usually found foraging on bare or grassy ground in wetland areas for various insects.

In NSW, it occurs mostly in the southern half of the state, in damp open habitats along the coast, and near waterways in the western part of the state. Along the coastline, it is found predominantly in saltmarsh vegetation but also in open grasslands and sometimes in low shrubs bordering wetland areas.

Mammals

Corben's Long-eared Bat (*Nyctophilus corbeni*)

Corben's Long-eared Bat inhabits a variety of vegetation types, including mallee, Buloke *Allocasuarina luehmannii* and box eucalypt dominated communities, but it is distinctly more common in box/ironbark/cypress-pine vegetation that occurs in a north-south belt along the western slopes and plains of NSW and southern Queensland. The species roosts in tree hollows, crevices, and under loose bark.

The distribution of the south eastern form of the species, overall, coincides approximately with the Murray Darling Basin with the Pilliga Scrub region being its distinct stronghold.

Eastern Bentwing-bat (*Miniopterus schreibersii oceanensis*)

Eastern Bentwing-bat uses caves as its primary roosting habitat, but also uses derelict mines, storm-water tunnels, buildings and other man-made structures. Discrete populations are centred on a maternity cave that is used annually in spring and summer. It hunts in forested and woodland areas, catching moths and other flying insects above the tree tops.

The species is distributed along the east and north-west coasts of Australia, with Wagga Wagga located on the western edge of its distribution.

Southern Myotis (*Myotis macropus*)

Southern Myotis preferred habitat is riparian. It roosts in caves, mines, tree hollows, storm water channels, buildings, under bridges and in dense vegetation in the vicinity of water. The species forages over streams and pools.

The species is found in the coastal band from the north-west of Australia, across the top-end and south to western Victoria. It is rarely found more than 100 kilometres inland, except along major rivers, such as the Murrumbidgee River.

Squirrel Glider population in the Wagga Wagga Local Government Area (*Petaurus norfolcensis*)

The Squirrel Glider inhabits a wide range of open forest, woodland and riverine forest habitats. It utilises remnants of various sizes, including small remnants and even small stands of trees within Travelling Stock Reserves (TSRs), roadside reserves or private land. Linear remnant vegetation along roadsides or rivers and streams is often utilised. Eucalypt species known to provide suitable denning and foraging resources include (but are not restricted to): Blakely's Red Gum (*E. blakelyi*), Grey Box (*E. microcarpa*), Red Box (*E. polyanthemos*), Mugga Ironbark (*E. sideroxylon*), River Red Gum (*E. camaldulensis*), White Box (*E. albens*) and Yellow Box (*E. melliodora*). Some *Acacia* species are also a key foraging habitat at certain times of the year.

The extent of the endangered population is legally defined by the boundaries of the Wagga Wagga LGA. The distribution of the Squirrel Glider and its known or potential habitats within, or linked across, this boundary is not well defined. However, potential habitat occurs at low densities and is patchily distributed on public lands (TSRs, NPWS reserves, Bush Heritage Trust reserves), private lands and roadside corridors with remnant vegetation.

Yellow-bellied Sheathtail-bat (*Saccolaimus flaviventris*)

The Yellow-bellied Sheathtail-bat forages in most habitats across its very wide range, with and without trees, and appears to defend an aerial territory. The species roosts in tree hollows and buildings, and are known to utilise mammal burrows in treeless areas.

The species is wide-ranging and found across northern and eastern Australia. It is a rare visitor in late summer and autumn in the most southerly part of its range, which includes south-western NSW.

Flora

Woolly Ragwort (*Senecio garlandii*)

Woolly Ragwort occurs on sheltered slopes of rocky outcrops. The species distribution is between Temora, Bethungra and Albury, and possibly Burrinjuck near Yass. The species is known from The Rock Nature Reserve 30 kilometres south-east of Wagga Wagga where it

exists with an overstorey of *Eucalyptus macrorhyncha* with some *E. polyanthemos*, *E. albens* and *Brachychiton populneus*. There is another large population at Mt Tabletop, and a single population at Chiltern, Victoria.

Endangered ecological communities

Box-Gum Woodland (White Box Yellow Box Blakely's Red Gum Woodland)

Box-Gum Woodland is an open woodland community (sometimes occurring as a forest formation) and is characterised by the presence or prior occurrence of White Box, Yellow Box and/or Blakely's Red Gum. The trees may occur as pure stands, mixtures of the three species or in mixtures with other trees, including wattles. Commonly co-occurring eucalypts include *Eucalyptus bridgesiana*, *E. polyanthemos*, *E. rubida*, *E. pauciflora*, *E. cinerea*, *E. mannifera*, *E. macrorhyncha*, *E. microcarpa* and others. Intact sites contain a high diversity of plant species, including trees, some shrubs and groundcover grasses and forbs, stands of which are rare. Modified sites include areas where the main tree species are present and the groundlayer is predominantly comprised of exotic species, and sites where the trees are absent and the groundlayer comprises native species.

The EPBC Act criteria for listing of the community is more stringent in its requirements than the TSC Act criteria, which requires stands to have an intact tree layer and predominantly native groundlayer, or an absent tree layer but with an intact native groundlayer that has a high diversity of native plant species.

Box-Gum Woodland is found from the Queensland border in the north, to the Victorian border in the south. It occurs in the tablelands and western slopes of NSW.

Inland Grey Box Woodland (Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobarr Penneplain, Nandewar and Brigalow Belt South Bioregions)

Inland Grey Box Woodland includes those woodlands in which the most characteristic tree species, *Eucalyptus microcarpa* (Inland Grey Box), is often found in association with *E. populnea* subsp. *bimbil* (Bimble or Poplar Box), *Callitris glaucophylla* (White Cypress Pine), *Brachychiton populneus* (Kurrajong), *Allocasuarina luehmannii* (Bulloak) or *E. melliodora* (Yellow Box), and sometimes with *E. albens* (White Box). Shrubs are typically sparse or absent, although this component can be diverse and may be locally common, especially in drier western portions of the community. A variable groundlayer of grass and herbaceous species is present at most sites. At severely disturbed sites the ground layer may be absent. The community generally occurs as an open woodland 15 to 25 metres tall but in some locations the overstorey may be absent as a result of past clearing or thinning, leaving only an understorey.

The community occurs predominately within the Riverina and South West Slopes regions of NSW down to the Victorian border, on fertile soils. It includes Albury to the east and may extend out west towards Hay. This community also extends across the slopes and plains in Central and Northern NSW up to the QLD border. It generally occurs where average rainfall is 375 to 800 millimetres per annum and the mean maximum temperature is 22 to 26 degrees celsius.