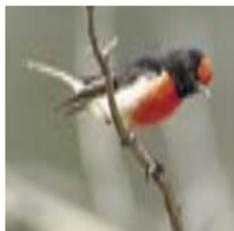


BRINGING BACK  
**birds**

A GLOVEBOX GUIDE



GREENING AUSTRALIA

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GREENING AUSTRALIA

# bringing birds back

A GLOVEBOX GUIDE FOR BIRD IDENTIFICATION  
& HABITAT RESTORATION IN THE ACT & SE NSW

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## INFORMATION SOURCES:

Pizzey, G. and Knight, F. 2003. The Field Guide to Birds of Australia 7th ed.

Schodde, R. and Tidemann, S.C. (eds.) 1986. Reader's Digest Complete Book of Australian Birds.

## PHOTOS:

**Helen Fallow:** Yellow-rumped Thornbill, Crimson Rosella, Australian Magpie, Willie Wagtail, White-plumed Honeyeater, European Goldfinch, White-browed Scrubwren, Australian Raven, Blackbird, Scarlet Robin, Speckled Warbler, Diamond Firetail, Hooded Robin, Southern Whiteface, White-throated Treecreeper, Eastern Yellow Robin, Brown Treecreeper, Eastern Rosella

**Julian Robinson:** Superb Fairy-wren, Striated Pardalote, Grey Shrike-thrush, White-eared Honeyeater, Red Wattlebird, Magpie-lark, Common Starling, Striated Thornbill, Red-browed Firetail, Horsfield's Bronze-cuckoo, White-winged Chough, Superb Parrot, Dusky Woodswallow, Jacky Winter, Pallid Cuckoo feeding

**Graeme Chapman:** Grey Fantail, Eastern Rosella, Yellow Thornbill, Buff-rumped Thornbill, Golden Whistler, Common Bronzewing, Pallid Cuckoo, Crested Shrike-tit, Double-barred Finch, White-browed Babbler

**Graham Stephinson:** Pied Currawong, Restless Flycatcher, Painted Button-quail, Willie Wagtail nesting

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**David Cook:** Weebill

**Nicki Taws & Toby Jones:** Landscapes

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A Greening Australia  
Capital Region publication



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# foreword

One reason why we must bring our native birds back is simple: there are over 86,000 species of insect in Australia, and insectivorous birds provide free, safe and highly effective pest-control services.

Healthy bird communities remove half to two-thirds of leaf-gobbling insects within tree patches, thereby keeping vital vegetation growing on farms.

Strolling through a good-sized patch of 8 year old direct seeding, loud and alive with birds, is an experience that gladdens the heart. So, too, the glimpse of a Diamond Firetail – living proof of Judith Wright's observation: 'Whatever the bird is, is perfect in the bird'.

In our hearts and heads we know that to care for birds is to care for our landscapes and for ourselves at the same time. Perhaps that's why so many landholders today are farming under the influence of birds. They understand that the Red-capped Robin on the wire, the Crested Shrike-tit on the limb, are friends for life. Inside every tree planter there is a bird lover just waiting to get out.

From Greening Australia's point of view, birds swooped into sight as useful 'indicator species' enabling us to see whether our onground activities were making a difference.

The exciting thing about the bird surveys underpinning Bringing Birds Back, is that they tell a rare good news story by showing that more than a hundred, or almost one seventh, of Australia's bird species are represented in patches of revegetation undertaken in the region in the last 15 years.

The hopeful message is that we can and are turning things around. Our challenge is to keep going and do all that needs to be done to bring birds back.

Bird is the word. Spread the word.

**TOBY JONES**

Chief Executive Officer,  
Greening Australia Capital Region

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## birdwatch tips

To improve your bird identification skills, concentrate on observing three aspects of a bird: plumage, GISS and calls. It is useful to carry a small notebook and take brief notes or sketch a quick diagram when viewing an unknown species, and refer to these when checking your field guide.

### PLUMAGE

- Look at the overall colour but also note patches of different colour.
- Look at special markings such as stripes, streaks and spots.
- Look at the colour of the beak and legs.
- Note that the males and females can differ in colour and that young birds can have different plumage.

### GISS – GENERAL IMPRESSIONS OF SIZE, SHAPE AND BEHAVIOUR

- Size – Field guides record size from the tip of the beak to the tip of the tail. Relate the size of the unknown bird to one you know, eg same size as a magpie.
- Shape – General body shape, is it slender, stout, plump, streamlined? Note the length and shape of the tail, beak and legs.
- Behaviour – What is the bird doing and where (ground, shrubs, trees, etc.) and note any special movements such as perching, pouncing, shuffling wings, etc.
- Flight – How does the bird fly – flapping or gliding, fast or slow, direct or erratic?

### CALLS

- Describe the call in terms of known sounds, eg like a creaking door, squeaky wheel, etc.

## ONE: take off

Since its inception as a national, non-profit organisation in 1982, Greening Australia (GA) has actively engaged the community in the protection and restoration of Australia's unique landscapes.

The main feature of GA's activities in the Capital Region has been broadscale revegetation, coupled with remnant retention and enhancement.

During the past 15 years, GA has direct seeded 12,000kms of tree line on 1400 properties in the region, and currently engages the community in planting more than 100,000 native plants each year. In the last year (2006) alone, over 1500 volunteers contributed toward tree planting, seed collecting and seed propagating. Another 3500 people participated in community awareness activities such as training, field days, seminars and bird watching activities.

Most of GA's work has taken place on private land, mushrooming from farm to farm, district to district and sub-catchment to sub-catchment.

All of which prompted the organisation to take stock in 1999 by asking the question: Are we making a difference? Or more specifically: Has over a decade of onground activity played any measurable role in the conservation of biodiversity?

To get nearer to the answer, GA teamed up with CSIRO Sustainable Ecosystems and the Canberra Ornithologists Group (COG) to develop the Birdwatch project.

The idea was to determine the value of revegetation as habitat for birds.

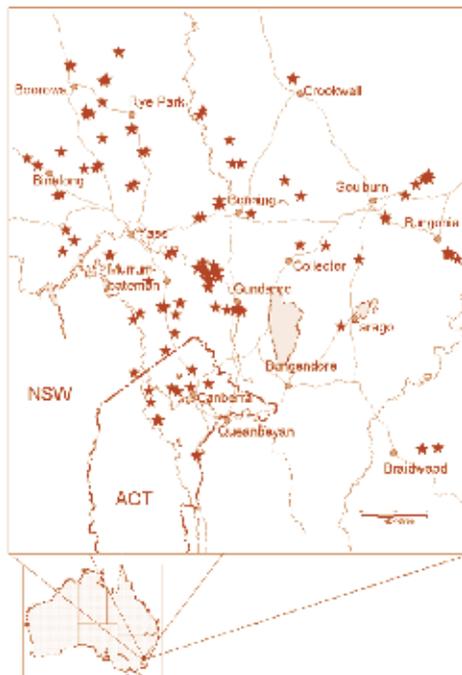
Early in 2000 fifteen COG members were recruited to survey 132 sites located on 55 private properties and 15 public reserves across the southern tablelands (see map). The sites included revegetation of varying size and shape, spread from Braidwood to Boorowa, and ranging in age from 14 months to 14 years. Sixty-two sites were established

by direct seeding, 40 by tubestock planting, and 30 were control sites in habitat ranging from remnant woodlands to farm paddocks.

Surveys were carried out quarterly, for 20 minutes in 2 hectares or less at each site. The results have been used for the Birdwatch analysis, and also passed on to Birds Australia for use in the national Atlas of Australian Birds.

A vegetation survey was conducted at each site to collect habitat information, such as density and height of vegetation, number of plant species, size and shape of the site, and surrounding landscape usage. This information along with the results of the bird surveys were analysed by CSIRO Sustainable Ecosystems to determine the best shape, size and location of revegetation for bird habitat.

## birdwatch sites



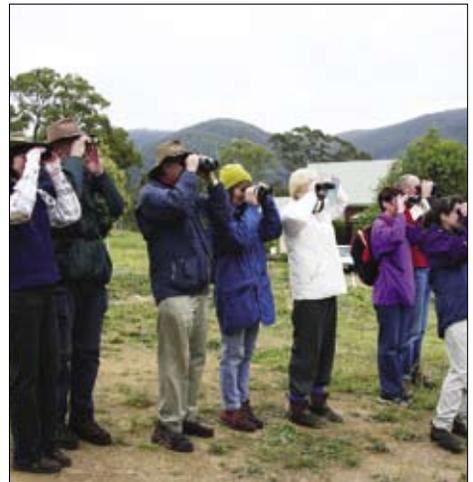
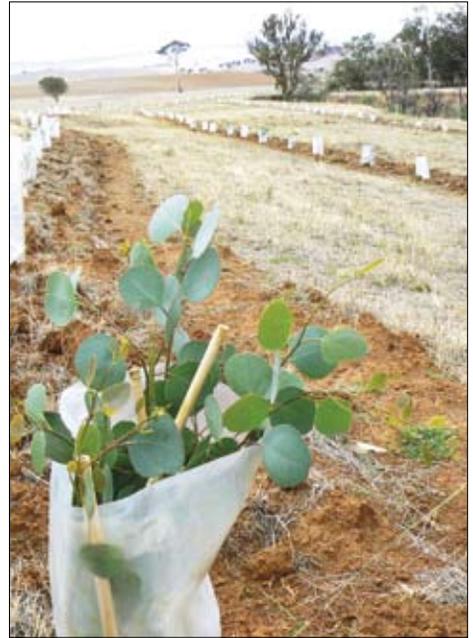
## TWO: discovery

There are about 750 species of birds in Australia. How many of these might show up in revegetation sites in the Capital Region?

More than 400 survey forms and 10,000 bird sightings later, the answer was far greater than expected: a total of 113 species have been recorded using the revegetation sites.

The 30 most commonly recorded species (measured by percentage of sites recorded in) from all revegetated sites in the study are listed in Table 1. Most of the species are native, and the majority are small insectivorous birds. Descriptions of each species, their calls, habits and occurrence in revegetated sites are given on the following pages.

The occurrence of bird species will vary from site to site depending on the age, size and location of revegetation. Species not included in this list may be among the 30 most common at any one site. Refer to any of the field guides listed in Appendix 1 to help with their identification.



## THREE: the 30 most common species

TABLE 1: The 30 most commonly recorded species in revegetation.

SPECIES	% OF REVEGETATED SITES	% OF SURVEYS
1 Superb Fairy-wren	91	74.8
2 Yellow-rumped Thornbill	91	48.6
3 Crimson Rosella	85	42.2
4 Australian Magpie	75	40.2
5 Grey Fantail	69	40.5
6 Brown Thornbill	66	28.1
7 Willie Wagtail	60	27.7
8 Eastern Rosella	58	22.7
9 Striated Pardalote	57	20.8
10 Rufous Whistler	56	23.3
11 Grey Shrike-thrush	54	21.6
12 White-plumed Honeyeater	49	28.0
13 Yellow-faced Honeyeater	48	11.7
14 Yellow Thornbill	45	31.4
15 Silveryeye	41	12.8
16 Buff-rumped Thornbill	40	11.7
17 White-eared Honeyeater	32	8.9
18 Red Wattlebird	30	8.3
19 Magpie-lark	29	8.1
20 Golden Whistler	28	10.5
21 European Goldfinch	28	8.4
22 Common Bronzewing	28	8.1
23 Common Starling	27	10.6
24 Striated Thornbill	27	10.6
25 White-browed Scrubwren	27	8.4
26 Australian Raven	25	5.6
27 Blackbird	22	11.1
28 Red-browed Firetail	22	6.6
29 Pied Currawong	22	5.0
30 Weebill	21	8.7



### 1. superb fairy-wren

**APPEARANCE:** Small bold bird with long tail held erect. Breeding males metallic blue and navy, females and immatures brown, non-breeding males also brown but with blue tail.

**VOICE:** Often detected first by its brisk "prip-prip" call; also a merry trilling song.

**HABITS:** Family groups. Found wherever there is some dense cover. Often seen perched on the fence or feeding in the open outside the planting, fleeing for cover when approached.

**FOOD:** Mostly insects and other invertebrates, occasionally seeds and other plant matter.

**OCCURRENCE IN REVEGETATION:** The most frequently recorded species (75% of surveys), and found at least once in 91% of sites. Also the most adaptable species, found in the smallest, the narrowest and the most isolated of sites, as well as in the largest. Found in sites from 3 years of age onwards.

**BREEDING IN REVEGETATION:** The second most commonly recorded breeding species with 12 records. Reported nest building in October, on the nest in October, and with recent fledglings from October through to February.

**NEST:** Domed, made of fine twigs, grass, and moss, bound with spider web, usually in grass tussocks or dense shrubbery near the ground.



## 2. yellow-rumped thornbill

**APPEARANCE:** Small but distinctive with butter-yellow rump, black crown with delicate white spots, and white eyebrow.

**VOICE:** Bright tinkling song.

**HABITS:** In small flocks, sometimes with other small insectivores including other thornbill species. Feeds mostly on the ground, bobbing and jerking as it hops along. Frequently seen feeding in open paddocks, flying for shelter when disturbed, displaying the bright yellow rump.

**FOOD:** Mostly insects and other small invertebrates.

**OCCURRENCE IN REVEGETATION:** Found at least once in 91% of sites, of all sizes and shapes from 3 years of age onwards.

**BREEDING IN REVEGETATION:** The most commonly recorded breeding species with 17 records. Nest building was seen from July-August onwards, nests with chicks in September-October, and recent fledglings recorded from late September until January.

**NEST:** Domed with a hidden side-entrance, and with an open cup-like 'decoy' nest on top; made of grass, bound with spider web. In shrubbery, or low foliage of trees.



## 3. crimson rosella

**APPEARANCE:** Bright and conspicuous, adults brilliant crimson and blue, immature birds mostly olive green with patches of red and blue.

**VOICE:** Double note bell-like call, harsher and more prolonged when disturbed or in flight.

**HABITS:** Pairs or flocks. Feeds in trees or on the ground at the edge of clearings. Flight fast and swooping.

**FOOD:** Plant matter including seeds, gumnuts, leaves.

**OCCURRENCE IN REVEGETATION:** Recorded at least once in 85% of sites. Found in revegetation from 3 years onwards. Able to utilise the smallest and narrowest of sites as well as the largest. In summer and autumn takes advantage of the abundance of wattle seed produced in many direct-seeded sites.

**BREEDING IN REVEGETATION:** Two records of breeding in hollows of mature trees in the revegetation.

**NEST:** Nests in hollows in mature or dead eucalypts, 5–20 metres above the ground.



## 4. australian magpie

**APPEARANCE:** Conspicuous, black and white, with a strong pointed bill. Males are glossy black with white on the back and wings. Females similar but the white areas are greyish. Immatures are duller and mottled.

**VOICE:** Rich carolling song.

**HABITS:** Pairs, families, or large flocks particularly in autumn-winter. Spends much time feeding on the ground. Flight strong and direct.

**FOOD:** Insects and larvae, other invertebrates, small reptiles, small birds, eggs and young.

**OCCURRENCE IN REVEGETATION:** Found in 75% of sites at least once. Commonly feeds on the ground, flying up into the trees when disturbed. Found in the smallest to the largest of sites, from 3 years of age onwards.

**BREEDING IN REVEGETATION:** Usually nests in trees, occasionally in shrubs. Recorded building a nest in a young tree in a 10 year old tubestock site in July. Recorded on nests built in mature trees in revegetation in September-October, and recently fledged young have been recorded in revegetation from October until January.

**NEST:** Bowl-shaped; of twigs and sticks lined with soft grass, hair or wool, in a fork 5-16 metres high.



## 5. grey fantail

**APPEARANCE:** Grey with a white throat, black bib and buff underparts. Long dark grey tail with white edges held cocked and fanned, or opened and closed, switched this way and that.

**VOICE:** A sweet squeaky tinkling song; also often repeated single note 'check'.

**HABITS:** Singly or pairs. Energetic and conspicuous, performing constant aerobatics after flying insects.

**FOOD:** Mostly insects.

**OCCURRENCE IN REVEGETATION:** Recorded in 69% of sites at least once. A spring/summer migrant, with most birds recorded from late August to April, although some birds can be found overwintering in the region.

**BREEDING IN REVEGETATION:** The third most commonly recorded breeding species with 11 records. Nest building recorded in October, nests with eggs or chicks in October through to January, and recent fledglings being fed in January and February.

**NEST:** Small neat cup with a tail; of grasses and fine strips of bark, bound with spider web, on thin branch or vertical fork in shrubs or young trees.



## 6. brown thornbill

**APPEARANCE:** One of a group of small grey-brown birds, this one distinguished by dark streakings on the chest, dark brown eyes, and tawny brown rump.

**VOICE:** Wide range of calls from a loud deep song, to fussy squeaks and a harsh scolding. Also an excellent mimic.

**HABITS:** Common in shrubs and understorey. Singly, pairs or in small groups, often with other small insectivorous birds. Constantly active, feeding in shrubbery, hanging from foliage, fluttering after insects. Bold and curious, often attracted to a disturbance, scolding loudly at intruders.

**FOOD:** Insects and other invertebrates.

**OCCURRENCE IN REVEGETATION:** Found in 66% of sites, from 3 years of age onwards, including small and narrow sites, isolated sites, and large sites.

**BREEDING IN REVEGETATION:** Recorded breeding in 3 different 10 year old sites; a nest with young recorded in October and recently fledged young also in October.

**NEST:** Untidy dome with side-entrance; of grass, shreds of bark, green moss, bound with spider web, usually near the ground.



## 7. willie wagtail

**APPEARANCE:** Black with white underparts below the breast, and white eyebrow. Long black fanned tail wagged from side to side.

**VOICE:** Cheerful song 'sweet-pretty-creature'; also scolding rattle 'chicka-chicka-chicka'.

**HABITS:** Familiar farm bird, particularly near dams. Bold and active, perches on fences and low branches, launches into twisting flight after insects, takes them from foliage or chases them along the ground.

**FOOD:** Insects.

**OCCURRENCE IN REVEGETATION:** Found in 60% of sites, from small narrow windbreaks up to the largest sites, from 3 years of age onwards. Often seen perched at the edge of the revegetation or chasing insects out over the paddock, to return to shelter when disturbed.

**BREEDING IN REVEGETATION:** Recorded on the nest in October, and with recently fledged young in January.

**NEST:** Neat cup; of fine grass and bark covered on the outside with spider web until grey and smooth, lined with hair, wool and feathers; on a small horizontal branch from 1-15 metres high.



## 8. eastern rosella

**APPEARANCE:** Bright, colourful, unmistakable; head and shoulders red with white cheek, yellow-green underparts, blue shoulders, greenish tail.

**VOICE:** Three-note bell-like call; in flight, 'chink-chink'; also soft chatterings.

**HABITS:** Pairs or flocks. Feeds largely on the ground, fleeing noisily for cover when disturbed. Sometimes feeds with Crimson Rosellas.

**FOOD:** Various plant matter, seeds, nuts, fruits, leaves, stems.

**OCCURRENCE IN REVEGETATION:** Found in 58% of sites. Occasional in 3-4 year old sites, more common in sites 5 years or older. Recorded in small narrow windbreaks as well as large blocks.

**BREEDING IN REVEGETATION:** Two records of birds in hollows in mature trees in revegetation.

**NEST:** Nests in tree hollows in mature eucalypts, 2-15 metres above the ground, sometimes a stump or fallen log.



## 9. striated pardalote

**APPEARANCE:** Small stubby bird, pale olive back, black wings with white streak, black cap with white streaks, strong white eyebrow and yellow throat.

**VOICE:** Hard two-note 'chip-chip', or stuttered three-note 'widd-a-wit'.

**HABITS:** Singly, pairs, or small groups, may form larger groups in autumn-winter with other small insect-eating birds. Difficult to see amongst foliage, usually located first by calls or the sound of the beak clacking as it picks lerps off leaves.

**FOOD:** Insects, particularly lerp and scale insects, other small invertebrates.

**OCCURRENCE IN REVEGETATION:** Found in 57% of sites, both large and small, but rare in the narrowest of windbreaks. Found in fast-growing tubestock sites from 3 years of age onwards, other sites from 5 years onwards, increasingly common as trees mature.

**BREEDING IN REVEGETATION:** Not yet recorded breeding in the revegetation.

**NEST:** Cup or dome-shaped; of grass and bark-shreds; in hollow of tree 10 metres or higher, or in burrow in earthbank.



## 10. rufous whistler

**APPEARANCE:** Male with white throat bordered by thick black line, rufous underparts, grey back. Female and immature, grey-brown, pale buff throat and chest with dark streaks.

**VOICE:** Glorious spirited song, particularly in the breeding season, including loud ringing 'eee-chong', and repeated warbling 'joey-joejy-joejy'.

**HABITS:** Usually single, in autumn may join feeding flocks of small insectivorous birds. Searches carefully for food on branches, trunks, under bark, amongst leaves. Strong undulating flight.

**FOOD:** Insects, other invertebrates, small reptiles, frogs, occasionally small mammals and birds.

**OCCURRENCE IN REVEGETATION:** Spring/summer migrant, recorded from late August to March. During these months found at 56% of sites. Most common in sites from 5 years of age onwards. Found in small and large sites but not the narrowest of windbreaks.

**BREEDING IN REVEGETATION:** Three records; on a nest in November, and with recently fledged young in November and December.

**NEST:** Thin, fragile cup, of few thin twigs and grass, in upright fork amongst leaves, mostly 1-5 metres high.



## 11. grey shrike-thrush

**APPEARANCE:** Soft grey bird with olive-brown back, full dark eye. Whitish patch between eyes and bill.

**VOICE:** Rich melodious song, especially when breeding. In autumn-winter, usually just a single loud note.

**HABITS:** Singly or pairs. Searches branches, trunks and bark, and the ground for food.

**FOOD:** Insects, invertebrates, small reptiles, frogs, mammals, birds and occasionally eggs and nestlings.

**OCCURRENCE IN REVEGETATION:** Recorded in 54% of sites, from as young as 3 years onwards. Found in small and large sites, occasionally in the narrowest windbreaks.

**BREEDING IN REVEGETATION:** Two records; feeding young in November and with recently fledged young in January.

**NEST:** Large bowl, of bark strips, grass and other material, in sturdy fork of large shrub or leafy tree.



## 12. white-plumed honeyeater

**APPEARANCE:** Plain olive-grey honeyeater, yellowish on head and wings, with slender white line on the side of the neck.

**VOICE:** Brisk cheerful 'chickowee'; various penetrating alarm calls.

**HABITS:** Singly, pairs or parties. Constantly active, feeding from low foliage to tops of trees.

**FOOD:** Nectar, insects, other invertebrates.

**OCCURRENCE IN REVEGETATION:** Usually close to sources of water such as rivers, creeks, or dams with surrounding trees. Recorded in 49% of sites, some as young as 3 years old, also in small, narrow windbreaks as well as large sites.

**BREEDING IN REVEGETATION:** Recorded nest building in October, and with recently fledged young in November and in February.

**NEST:** Deep but thin cup; of grass bound with spider web, lined with horsehair and soft plant material; slung from small outer branches, in low shrubbery or trees up to 25 metres high.



## 13. yellow-faced honeyeater

**APPEARANCE:** Plain olive grey honeyeater with a yellow line bordered by black extending horizontally across the face.

**VOICE:** Cheerful 'chick-up, chick-up, chick-up'; in flight a short 'chip'.

**HABITS:** Singly or pairs, but in autumn migrates from the region in flocks of tens to hundreds. Feeds actively amongst foliage; rapid darting flight.

**FOOD:** Nectar, insects, invertebrates.

**OCCURRENCE IN REVEGETATION:** Spring/summer migrant, usually leaving the region in April-May, returning in late August- early September. Some birds occasionally over winter. When migrating, the birds will utilise any shrub or tree cover to move through the landscape including small narrow windbreaks. Recorded in 48% of sites, from 5 years of age onwards.

**BREEDING IN REVEGETATION:** Not yet recorded breeding in the revegetation.

**NEST:** Small thin cup, of grass, bark, moss, and sometimes lichen, slung from horizontal fork.



## 14. yellow thornbill

**APPEARANCE:** Plain dull yellowish Thornbill, with faint streaking on the ear-coverts.

**VOICE:** Brisk repeated 'chi-chit'.

**HABITS:** Characteristic of trees with feathery or needle-like foliage, such as wattles and she-oaks. Singly, pairs or in small groups, usually with other small insectivorous birds including Brown Thornbills and Superb Fairy-wren. Constantly moving through the foliage or hovering outside to pluck off insects.

**FOOD:** Insects and other invertebrates.

**OCCURRENCE IN REVEGETATION:** Found in 45% of sites from 4 years of age onwards. More common in direct-seeded sites which tend to have a higher proportion of wattles than tubestock sites. Found in small, narrow sites, as well as large sites, wherever feathery wattles occur.

**BREEDING IN REVEGETATION:** Seven records, all of recently fledged young from September through to February.

**NEST:** Untidy dome with side-entrance; of grass, shreds of bark, moss and lichen, bound with spider web, usually suspended high in foliage or outer branches.



## 15. silvereye

**APPEARANCE:** Small, silvery-grey and yellowish-olive bird with distinctive silver eye-ring.

**VOICE:** When breeding, beautiful warbling song, some mimicry; thin, sometimes mournful contact calls.

**HABITS:** Pairs when breeding, otherwise in flocks, moving actively together through trees and bushes, calling constantly. Migratory species. Local birds leave in autumn but are replaced by Silvereyes from Tasmania during winter.

**FOOD:** Insects, berries, fruit, nectar.

**OCCURRENCE IN REVEGETATION:** Found in 41% of sites, from small and narrow to large, older than 4 years.

**BREEDING IN REVEGETATION:** Not yet recorded breeding in revegetation.

**NEST:** Delicate cup, of grass, moss, horsehair, bound with spider web; suspended from thin twigs, usually hidden in low shrub.



## 16. buff-rumped thornbill

**APPEARANCE:** Small, fairly non-descript bird, olive-grey above, yellowish below; the yellow-buff rump most visible when flying.

**VOICE:** Musical tinkling call, rapidly repeated.

**HABITS:** Pairs or groups, feeds on the ground or amongst shrubs and lower parts of trees; constantly active, hopping quickly over ground or around branches. Often with other ground-feeding birds.

**FOOD:** Insects and other invertebrates.

**OCCURRENCE IN REVEGETATION:** Recorded in 40% of sites. More common in tubestock than direct-seeded sites where the plants are well-spaced leaving room to forage on the ground. Recorded from 3 year old sites onwards but more common in sites 10 years or older where the ground layer of shrubs, herbs, native grasses and litter is better developed.

**BREEDING IN REVEGETATION:** Seven records; nest building in August and October, carrying food for nestlings in November, and with recently fledged young in October, January and February.

**NEST:** Untidy, domed; of grass, bark and spider web; on the ground or in tree fork or crevice.



## 17. white-eared honeyeater

**APPEARANCE:** Distinctive olive-green honeyeater, with black hood and large white ear patch.

**VOICE:** Variety of calls including loud full 'beer-brick, beer-brick', and rapid but mellow machinegun call.

**HABITS:** Usually seen singly, active and bold, forages amongst leaves, under bark. Rapid flight with distinctive 'flop-flop' sound.

**FOOD:** Insects and other invertebrates, also nectar, but less than other honeyeaters.

**OCCURRENCE IN REVEGETATION:** Recorded at least once in 32% of sites. Found in small and large sites from 3 years of age onwards, but not recorded in the narrowest windbreaks.

**BREEDING IN REVEGETATION:** Recently fledged young noted in January in 10 year old tubestock. Also recorded at one site feeding a young Pallid Cuckoo.

**NEST:** Deep cup; of grass and bark shreds, bound with spider web, lined with hair and wool; slung from small branches amongst foliage, 1-3 metres high.



## 18. red wattlebird

**APPEARANCE:** Large honeyeater, grey with strong pale streaks, pale yellow belly, red neck wattles, red eye.

**VOICE:** Harsh loud coughs, as though clearing throat.

**HABITS:** Single or pairs when breeding, loose flocks when migrating or congregating on food source. Loud, aggressive. Bounces around through trees or shrubs feeding on nectar or chasing insects.

**FOOD:** Insects, nectar, fruit.

**OCCURRENCE IN REVEGETATION:** Found in 30% of sites, from small narrow sites to large, from 4 years of age onwards.

**BREEDING IN REVEGETATION:** Recorded with recently fledged young in January.

**NEST:** Untidy shallow cup of sticks, grass, bark, in fork of shrub or branchlet, 2-16 metres high.



## 19. magpie-lark

**APPEARANCE:** Conspicuous black-and-white bird. Male has white eyebrow, female has vertical black band through eye from crown down to chest.

**VOICE:** Usually sung in duet by male and female, 'pee-wee pee-wee', each opening and raising wings in rhythm. Loud alarm call 'pee, pee, pee'.

**HABITS:** Pairs or loose groups. Bold, tame, aggressive near nest. Feeds mostly on ground, walking with back and forward head motion.

**FOOD:** Insects, invertebrates, small reptiles, frogs, birds, mammals.

**OCCURRENCE IN REVEGETATION:** Found in 29% of sites.

**BREEDING IN REVEGETATION:** Typically needs a mature tree for a nest site. Recorded with recently fledged young in October.

**NEST:** Deep bowl made of mud, lined with hair, grass, feathers.



## 20. golden whistler

**APPEARANCE:** Male, striking golden yellow underparts, black head, white throat. Female and immature male plain grey-brown.

**VOICE:** Rich sweet song often ending in whip crack. In autumn-winter just a single note, a rising 'wheet'.

**HABITS:** Usually single, but autumn-winter may join small feeding flocks of thornbills, etc. Searches for food on branches, under bark amongst leaves.

**FOOD:** Insects, sometimes small frogs, reptiles.

**OCCURRENCE IN REVEGETATION:** Found in 28% of sites, including small narrow windbreaks and large patches. From 4 years of age onwards. Autumn-winter migrant to the region, recorded from late March to November.

**BREEDING IN REVEGETATION:** Not recorded. Winter migrant to the region, breeds elsewhere.

**NEST:** Untidy open cup of bark strips bound with spider web, grass, stems, twigs, in upright fork of shrub or low tree, 1-4 metres high.



## 21. european goldfinch (introduced)

**APPEARANCE:** Pretty pale brown finch, red face, white cheek, black cap and nape. Bright yellow band on wing.

**VOICE:** Tinkling song 'diddle-ee-diddle-ee-dee', and harsher drawn out 'bleeeeeet'.

**HABITS:** Pairs, flocks especially in autumn-winter. Feeds on ground and fluttering on top of thistles or seeding grass. Often seen on fence posts, powerlines.

**FOOD:** Thistles and grass seed.

**OCCURRENCE IN REVEGETATION:** Found in 28% of sites, including small and narrow from 3 years of age onwards.

**BREEDING IN REVEGETATION:** Not yet recorded breeding in revegetation.

**NEST:** Neat cup of grass, in tree or shrub 1-10 metres above ground.



## 22. common bronzewing

**APPEARANCE:** Large plump pigeon. Chest and underparts pinkish-buff. Wings iridescent bronze, changing colours at different angles.

**VOICE:** Deep penetrating 'oom-oom'.

**HABITS:** Singly, pairs or loose groups. Feeds on the ground under wattles and other shrubs and around grass tussocks. Usually detected when it bursts from the ground with a loud clapping of wings. Flies some distance up into a tree where it sits motionless apart from head-bobbing.

**FOOD:** Seeds, berries, also invertebrates.

**OCCURRENCE IN REVEGETATION:** Recorded in 28% of sites, but most common in direct-seeded sites where the higher proportion of wattles provides an abundant seed source. Not found in the smallest or narrowest sites, but occurs in broader, less dense windbreaks where it can feed on the ground between the rows.

**BREEDING IN REVEGETATION:** Not yet recorded breeding in the revegetation.

**NEST:** Flimsy saucer, of few twigs, on horizontal branch or fork, in shrub or tree from 1-12 metres high.



## 23. common starling (introduced)

**APPEARANCE:** Shiny black plumage with bronze-green and purple sheen. In autumn-winter feathers are tipped buff-white, giving finely spotted appearance.

**VOICE:** Variety of rattles, whistles, wheezes, clicks. Harsh alarm call. Good mimic.

**HABITS:** Flocks, large in autumn. Bold, jaunty, walks or runs with rapid jabs of bill into ground.

**FOOD:** Omnivorous – insects, fruit, carrion.

**OCCURRENCE IN REVEGETATION:** Found in 27% of sites, but nearly always observed in mature remnant trees incorporated within the revegetation.

**BREEDING IN REVEGETATION:** Requires hollows. Recorded breeding in these where they occur in revegetation; nests with chicks in November and December.

**NEST:** In hollow of tree, also holes or cavities in buildings.



## 24. striated thornbill

**APPEARANCE:** Small grey-brown bird, greenish back, pale face, breast and underparts with fine black streaks.

**VOICE:** High-pitched, insect-like 'tzit, tzit'.

**HABITS:** Small groups, feeds in the tops of trees, searching amongst leaves and bark or hovering around the foliage. Often with other small birds, such as the Yellow Thornbill.

**FOOD:** Insects or other invertebrates.

**OCCURRENCE IN REVEGETATION:** Found in 27% of sites, from very small narrow windbreaks to large sites, from 5 years of age onwards, but more common in older sites as the trees gain height.

**BREEDING IN REVEGETATION:** Recorded with recently fledged young in October.

**NEST:** Neat, rounded with side-entrance, of grass and bark bound with spider web; hung from outer small branches among the leaves, from 1-20 metres above the ground.



## 25. white-browed scrubwren

**APPEARANCE:** Small dark brown bird with strong white eyebrow and whisker, black shoulder with white markings, and buff underparts.

**VOICE:** Loud harsh scolding, also clear penetrating calls.

**HABITS:** Singly or pairs. Associated strongly with shrubby habitats. Searches actively on the ground, amongst litter, around logs, in shrubbery. Bold and inquisitive, gives harsh scolding when disturbed and will often approach to check out the intruder.

**FOOD:** Insects and other invertebrates.

**OCCURRENCE IN REVEGETATION:** Found in 27% of sites. More common in direct-seeded sites where dense growth provides suitable habitat after 3 years if growth is rapid, but more commonly after 5 years. Found in narrow windrows and large sites.

**BREEDING IN REVEGETATION:** Recorded nest building in October in 5 year old direct seeding.

**NEST:** Untidy, domed, of grasses, twigs, leaves, fine roots, well-hidden in shrubbery or under grass tussock.



## 26. australian raven

**APPEARANCE:** Large crow, glossy black, eye white.

**VOICE:** Strong deep "aah-aah-aaaaah", last note long and descending. Throat bags out when calling.

**HABITS:** Single, pairs or small groups. Bold when used to humans, otherwise wary, especially around nest.

**FOOD:** Omnivorous – insects, reptiles, carrion, fruit.

**OCCURRENCE IN REVEGETATION:** Found in 25% of sites, but often only seen once. Most often found where mature remnant trees present.

**BREEDING IN REVEGETATION:** Recorded nest building in a mature tree in revegetation in July.

**NEST:** Large flattish bowl, of sticks lined with bark, hair, in fork of tree or powerlines, usually over 10 metres high.



## 27. common blackbird (introduced)

**APPEARANCE:** Male, fully black with orange bill and eye-ring. Female, dark-brown, paler on throat.

**VOICE:** Beautiful mellow song, occasional mimicry of native birds. Small clucking notes and loud alarm chatter.

**HABITS:** Singly or pairs. Hops along ground jabbing vigorously for worms. Usually takes cover in denser vegetation.

**FOOD:** Insects, other invertebrates, seed, berries.

**OCCURRENCE IN REVEGETATION:** Found in 22% of sites, more likely in wider sites than narrow windbreaks, from 3 years of age onwards if shrub cover is sufficiently dense.

**BREEDING IN REVEGETATION:** Not yet recorded breeding in revegetation.

**NEST:** Cup of grass or bark, in dense part of shrub or tree, sometimes around buildings.



## 28. red-browed firetail

**APPEARANCE:** Small grey-olive finch, bright red bill, eyebrow and rump.

**VOICE:** Very high-pitched squeak, almost inaudible.

**HABITS:** Pairs to flocks, feeds on the ground but darts to nearby cover when disturbed. Often associated with waterways, especially where grass is long.

**FOOD:** Seeds, insects.

**OCCURRENCE IN REVEGETATION:** Found in 22% of sites, both small and narrow, and large sites, from 5 years of age onwards.

**BREEDING IN REVEGETATION:** Not yet recorded breeding in revegetation.

**NEST:** Large bottle-shaped, made of grass, 1-2 metres high in dense, often prickly, shrub.



## 29. pied currawong

**APPEARANCE:** Large mostly black bird with robust black bill and yellow eyes. White base to the tail and square on the wings, most prominent in flight.

**VOICE:** Loud 'currar-currar-currar'. Various whistles and other notes.

**HABITS:** Single and pairs, or flocks in autumn-winter. Noisy, bold, tame around settlement. Feeds on the ground, on tree trunks, branches and amongst the leaves.

**FOOD:** Small mammals, birds, eggs and young, reptiles, insects, fruits, berries.

**OCCURRENCE IN REVEGETATION:** Found in 22% of sites, small and large, but mostly older sites from 8 years of age onwards. Mostly one-off sightings, regular at only a few sites.

**BREEDING IN REVEGETATION:** Recorded with recently fledged young in January.

**NEST:** Flattish bowl of sticks in fork of tree, 5-15 metres high.



## 30. weebill

**APPEARANCE:** Stubby little bird with very short bill. Grey-brown above, paler cream-buff below.

**VOICE:** Loud clear “dip dip weebill” or “willy-weet, willy-weetee”

**HABITS:** Pairs or small groups, often with other small birds such as thornbills, pardalotes. Active in and around foliage, sometimes hovers around outer leaves plucking off lerps.

**FOOD:** Insects, other small invertebrates.

**OCCURRENCE IN REVEGETATION:** Found in 21% of sites from 5 years of age onwards. Showed a preference for tubestock sites, which have a higher ratio of eucalypts to wattles than direct-seeded sites, and are therefore likely to have more lerps.

**BREEDING IN REVEGETATION:** Recorded nest building in August.

**NEST:** Like a hanging sock with side entrance; of leaves, grass and spider web, hung among smaller branches or outer foliage.

## FOUR: birds to watch our for!

Across the sheep-wheat belt of Australia woodland bird species are decreasing in numbers. For the region covered by this booklet 17 species are reported to be on the decline. Of the 17 ‘decliners’, 15 were recorded at least once in revegetated sites. Several other bird species can be considered as positive indicators that the habitat is improving for birds. For example, the presence of species which feed on the ground (such as robins and choughs) can indicate that healthy ground cover is establishing. Predators or parasitic birds (such as cuckoos) will only be present if there is a burgeoning population of smaller birds. Some of these species plus a number of decliners have been selected as birds to watch out for in revegetation (see Table 2).

The Rufous Whistler was the most common of the decliners, and was in fact the 10th most common bird overall (see p.22). This indicates that those habitat elements that have been lost from the landscape and are resulting in the decline of many woodland birds, may be restored by appropriate revegetation.

On the following pages are descriptions of 20 decliners and other birds of interest and their occurrence in the revegetated sites. The appearance of one or more of these species indicates the benefits of revegetation for conserving birdlife.

**TABLE 2:** Birds to watch out for and their occurrence in revegetated sites.

SPECIES	% OF REVEGETATED SITES	% OF SURVEYS
1 Horsfield's Bronze-cuckoo	20	4.5
2 Scarlet Robin	19	3.9
3 White-winged Chough	16	3.6
4 Superb Parrot	14	3.0
5 Speckled Warbler	11	4.4
6 Red-capped Robin	9	3.8
7 Dusky Woodswallow	9	2.7
8 Pallid Cuckoo	9	2.2
9 Diamond Firetail	9	1.9
10 Restless Flycatcher	9	1.6
11 Crested Shrike-tit	6	1.3
12 Hooded Robin	4	1.1
13 Southern Whiteface	4	0.6
14 Jacky Winter	4	0.6
15 Double-barred Finch	3	3.4
16 Painted Button-quail	3	1.4
17 White-throated Treecreeper	3	0.5
18 Eastern Yellow Robin	2	0.9
19 White-browed Babbler	1	0.2
20 Brown Treecreeper	1	0.2



## 1. horsfield's bronze-cuckoo

**APPEARANCE:** Small, neat bird. Bronze-green wings, pale brown head. Long white eyebrow and brown mark extending down neck. Obvious brown bars across white chest.

**VOICE:** Loud clear whistle, descending.

**HABITS:** Usually single, occasionally pairs or groups. Calls from high dead branches or wires. Forages low in trees or shrubs.

**FOOD:** Caterpillars.

**OCCURRENCE IN REVEGETATION:** Recorded in 20% of sites, both small, narrow and large sites, from 5 years of age onwards.

**BREEDING IN REVEGETATION:** Not yet recorded breeding in revegetation.

**NEST:** Parasitic bird, lays one egg in the nest of host species. These include small birds with either domed nests such as the Superb Fairy-wren, thornbills, gerygones, or open cup nests with speckled eggs, eg. Scarlet Robin, Red-capped Robin.



## 2. scarlet robin

**APPEARANCE:** Jet-black on head and back. Scarlet on breast, starting below black throat. Distinctive white spot above beak and white slash on wing. Female dull grey-brown with pale scarlet wash on breast.

**VOICE:** Sweet plaintive 'dee-deedalee-dalee'. Also quiet 'tick' like a twig snapping.

**HABITS:** Pairs during breeding, otherwise single. Feeds by sitting quietly on low branch, fence, or stump then pouncing onto insects on the ground. In autumn-winter may be found in mixed feeding flock with other small insectivorous birds, often in more open country than during breeding.

**FOOD:** Insects and their larvae.

**OCCURRENCE IN REVEGETATION:** Recorded in 19% of sites, from small and narrow sites to large, from 5 years of age onwards. Nearly all records from March to August.

**BREEDING IN REVEGETATION:** Not yet recorded breeding in revegetation.

**NEST:** Small cup, often untidy, of bark strips or grass bound with spiders web, lined with fur or feathers, usually only 1-3 metres high in fork or on horizontal branch.



## 3. white-winged chough

**APPEARANCE:** Distinctive, mostly black, white patch on wing only seen in flight. Longish tail and down-curved beak. Red eye in adult, brown eye in immature.

**VOICE:** Mournful descending whistle. Harsh grating or chirring alarm call.

**HABITS:** Always in groups of at least 5, up to 12 birds during breeding. In autumn-winter may form large loose flocks. Feeds on the ground, flicking and raking through leaf litter, often immature birds present giving constant begging calls. Groups are often harassed by magpies.

**FOOD:** Invertebrates, occasionally small vertebrates.

**OCCURRENCE IN REVEGETATION:** Recorded in 16% of sites, 5 years of age or older where a good litter layer has developed, usually larger sites or sites near remnant bush.

**BREEDING IN REVEGETATION:** Not yet recorded breeding in revegetation.

**NEST:** Large bowl of mud, bound and lined with bark shreds and grass, plastered to horizontal branch, usually over 6 metres high in larger tree.



## 4. superb parrot

**APPEARANCE:** Graceful slender vivid green parrot. Male, forehead and throat bright yellow separated from breast with a red band. Female, duller green, no yellow or red.

**VOICE:** Rolling "curruck curruck".

**HABITS:** Pairs or flock, flight swift, arrow-like with swept wings and long tail.

**FOOD:** Seeds of grass, wattle, grain crops or grain spilt along roads, lerps in eucalypts.

**OCCURRENCE IN REVEGETATION:** Recorded in 14% of sites, nearly all sites direct-seeded (which have a greater proportion of wattles than tubestock). All records from September-December, most in November when wattle seeds ripen. Adults often bring immature birds to feed in the wattles.

**BREEDING IN REVEGETATION:** Not yet recorded, needs tree hollows.

**NEST:** Hollow in a eucalypt.



## 5. speckled warbler

**APPEARANCE:** Small bird, cream-breasted with contrasting bold black streaks, long pale eyebrow.

**VOICE:** Sweet musical song, sometimes with mimicry; harsh scolding when disturbed.

**HABITS:** Pairs or small groups, feeds on the ground, around logs, litter, tussock grasses, and in lower branches of shrubs. Commonly found with other small ground-feeding birds such as Buff-rumped Thornbills.

**FOOD:** Insects and other small invertebrates.

**OCCURRENCE IN REVEGETATION:** Found in 11% of sites but only those greater than 8 hectares in size and at least 8 years old. Needs structural variety, particularly in the ground layer; tussock grasses, logs and rocks to nest amongst, and open areas to feed in.

**BREEDING IN REVEGETATION:** Not yet recorded breeding in revegetation.

**NEST:** Untidy, domed with side-entrance; made of grass, bark-shreds, moss, lined with fur; on the ground, well-camouflaged under grass tussock, amongst branches, near shrub, log or tree trunk.



## 6. red-capped robin

**APPEARANCE:** Small but unmistakable; male with brilliant red cap and breast, otherwise mostly black with broad white streak on wing and white edges to tail. Female, pale buff-grey.

**VOICE:** Quiet but pretty little trill 'dit-dit-a-drrrr-dit'; also soft 'tick' like twigs snapping.

**HABITS:** Singly or pairs, perches on low branches or stumps, flies down to ground to pounce on insects.

**FOOD:** Insects.

**OCCURRENCE IN REVEGETATION:** Found in 9% of sites, all of several hectares in size, and all 8 years or older. Needs some open space within the site for feeding.

**BREEDING IN REVEGETATION:** Recorded nest building in August in casuarinas in a large 10 year old sites, and on a nest in October in an 8 year old site.

**NEST:** Neat, small, rounded cup, of grass and fine bark shreds bound with spider web and covered in lichen; well-camouflaged on fork or horizontal branch.



## 7. dusky woodswallow

**APPEARANCE:** Neat dusky brown bird, wings metal blue-grey edged with white, tail black with white tips.

**VOICE:** Quiet sweet song; variety of chirps and chirrups.

**HABITS:** Highly social. Found in pairs or small colonies, or large flocks when travelling. Perches on bare branches, fences, powerlines, often huddling together in a group. After landing wags tail from side to side.

**FOOD:** Mostly insects, also nectar.

**OCCURRENCE IN REVEGETATION:** Found in 9% of sites, in small and narrow windrows as well as large sites, all older than 5 years, usually where mature trees have been included in the site or are close by. Migratory to south-eastern Australia in spring-summer, all records from late August to April.

**BREEDING IN REVEGETATION:** Recorded nest-building in October in an 8 year old site, on a nest with eggs in November in a 9 year old (recently burnt) site, and with recently fledged young in a 5 year old site in January.

**NEST:** Untidy shallow saucer, of twigs lined with finer material; on horizontal branch or fork, in tree cavity, on stump or fallen log, from 1-20 metres high.



## 8. pallid cuckoo

**APPEARANCE:** Slender long-tailed cuckoo, grey with faint dark curving line through eye, prominent white markings on edges of tail. In flight underwings speckled white and tail barred white. Immature birds grey with buff, black and white mottling.

**VOICE:** Distinctive call of the male in spring; ascending scale of 8-10 notes, the second note slightly lower than the first then rising in semitones. Female utters harsh whistle.

**HABITS:** Single or pairs, usually noted first by call. Swift undulating flight.

**FOOD:** Insects, especially hairy caterpillars – one of the few birds able to eat these.

**OCCURRENCE IN REVEGETATION:** Recorded in 9% of sites, from small and narrow to large, from 4 years of age onwards.

**NEST:** Parasitic bird, lays one egg in the nest of host species. Wide range of host species including small birds with open cup nests such as honeyeaters, flycatchers, Willie Wagtail, Dusky Woodswallow.

**BREEDING IN REVEGETATION:** Recorded as dependent young of the White-eared Honeyeater in January and White-plumed Honeyeater in February.



## 9. diamond firetail

**APPEARANCE:** Small beautifully marked bird. Grey head, white throat and underparts with broad black breast-band joining white-spotted black flanks. Bright red rump and bill.

**VOICE:** Single drawn-out rising note.

**HABITS:** Pairs or small flocks. Feeds mostly on the ground, flying up when disturbed, displaying brilliant red rump. Often calls from bare branch high in a tree.

**FOOD:** Mostly grass seeds, also other plant matter and insects.

**OCCURRENCE IN REVEGETATION:** Found in 9% of sites, all 9 years or older, but a variety of sizes including short and long windrows and larger blocks up to 15 hectares.

**BREEDING IN REVEGETATION:** Recorded nest building in October in a large 10 year old site.

**NEST:** Bulky, domed with a long entrance spout, of grass, lined with finer grass and feathers; in dense shrubbery or low trees a few metres from the ground, or higher in mistletoe clump or underside of eagle's nest.



## 10. restless flycatcher

**APPEARANCE:** Bold black-and-white bird with long tail similar to the Willie Wagtail. Glossy blue-black above, contrasting with white underparts, sometimes with pale orange-buff tinge.

**VOICE:** Loud harsh 'zrip'; a sustained raspy grinding song while hovering above the ground, giving rise to the common name of 'Scissors Grinder'; also a clear whistling 'chewee, chewee'.

**HABITS:** Singly or pairs, active, restlessly sweeping tail from side to side. Searches for insects amongst leaves, branches, in the air and on the ground, often hovering low above the ground uttering its distinctive call.

**FOOD:** Insects, other invertebrates.

**OCCURRENCE IN REVEGETATION:** Found in 9% of sites, from windrows to blocks, 0.5 to 3 hectares in size, all older than 5 years.

**BREEDING IN REVEGETATION:** Not yet recorded breeding in revegetation.

**NEST:** Shallow, thin-walled cup, of fine grass and bark-shreds, bound with spider web.



## 11. crested shrike-tit

**APPEARANCE:** Distinctive, sturdy, crested bird; striking black-and-white pattern on the head, yellow breast and olive-green back, strong black bill.

**VOICE:** Interesting stuttered 'knock-at-the-door'; also mournful downward whistle.

**HABITS:** Pairs or small groups. Forages noisily amongst foliage and bark. The powerful bill is used to prise open bark curls, leaf galls, seed cases, or crush hard-shelled insects.

**FOOD:** Insects, other invertebrates, seeds.

**OCCURRENCE IN REVEGETATION:** Found in 6% of sites, mostly over 1.5 hectares in size, but also in a small windrow. All sites 5 years or older. Often found in eucalypts with peeling bark such as *E. viminalis*, *E. macarthurii*, *E. albens*.

**BREEDING IN REVEGETATION:** Not yet recorded breeding in revegetation.

**NEST:** Beautiful cup, of bark shreds bound with spider web, decorated with lichen, lined with grass; amongst vertical twigs at top of eucalypt tree or sapling, 5-20 metres high.



## 12. hooded robin

**APPEARANCE:** Handsome black-and-white bird; male with full black hood contrasting with white breast and underparts; white bars on shoulder, wings and edge of tail. Female grey-brown instead of black, underparts paler grey.

**VOICE:** Song mostly heard only when breeding, muffled 'wumpa-wumpa-wumpa'.

**HABITS:** Usually in pairs, sits quietly on low branch, stump or other vantage point, flying down to take insects on the ground.

**FOOD:** Insects.

**OCCURRENCE IN REVEGETATION:** Found in 4% of sites, all larger than one hectare and greater than 25 metres wide. All sites were at least 10 years old, with a well-developed ground layer of leaf litter, bark, twigs, native grasses and herbs. Needs some open spaces in the site for feeding.

**BREEDING IN REVEGETATION:** Not yet recorded breeding in revegetation.

**NEST:** Neat cup, of grass, bark strips and fine roots bound with spider web; inconspicuous on a horizontal fork or branch, or top of stump, usually 1-2 metres above ground.



## 13. southern whiteface

**APPEARANCE:** Plain, small bird, grey-brown head and back, pale underneath. White face-mask bordered at the top by black line. Black tail with white tips seen in flight.

**VOICE:** Quiet twittering 'twee-ti-ti-ti-ti-ti' on the one note.

**HABITS:** Pairs to small flocks. Often heard before seen. Feeds mostly on or near the ground with other ground-feeding thornbills, usually in fairly open terrain with fallen timber, takes cover in low shrubs.

**FOOD:** Insects, other invertebrates.

**OCCURRENCE IN REVEGETATION:** Recorded in 4% of sites, both small and narrow, and large sites.

**BREEDING IN REVEGETATION:** Recorded on a nest in October.

**NEST:** Untidy dome of grass and bark, in tree hollow, stump, shrub, low tree.



## 14. jacky winter

**APPEARANCE:** Plain, soft grey-brown bird with pale underparts, tail dark with white edges and corners.

**VOICE:** Clear, sweet 'peter-peter-peter-peter'.

**HABITS:** Singly or pairs, perches on dead trees, fence-posts, stumps; constantly switching tail from side to side. Flies from the perch into the air or onto the ground to pounce on insects.

**FOOD:** Insects.

**OCCURRENCE IN REVEGETATION:** Found in 4% of sites, all older than 8 years, but a variety of sizes including long narrow windrows and large blocks. Prefers a lot of open space in and around the site for feeding.

**BREEDING IN REVEGETATION:** Not yet recorded breeding in revegetation.

**NEST:** Small cup, of dry grass bound with spider web and camouflaged on the outside with bark and lichen; on horizontal branch or fork, 1-20 metres high.



## 15. double-barred finch

**APPEARANCE:** Small neat finch, white face and breast with two black rings, one encircling face and throat, the other across the breast. Back pale brown, wings flecked white.

**VOICE:** Nasal, somewhat drawn out 'nyaap, nyaap'.

**HABITS:** Pairs or small flocks. Feeds mostly on the ground amongst seeding grasses. Darts for cover with bouncing flight displaying prominent white rump above black tail.

**FOOD:** Mostly seeds, also insects.

**OCCURRENCE IN REVEGETATION:** Recorded in 3% of sites, older than 5 years, all well-structured sites with dense cover and open patches. Found regularly at these sites.

**BREEDING IN REVEGETATION:** Recorded in a nest in October.

**NEST:** Small, untidy, bottle-shaped, of dry grass, in low dense shrub.



## 16. painted button-quail

**APPEARANCE:** Small, dumpy, cryptically coloured bird. Mottled brown, grey and black on the back; chestnut neck and shoulders.

**VOICE:** Female: deep 'oom, oom, oom', seldom-heard.

**HABITS:** Singly or small groups. Ground-dwelling bird, dust-bathes, forages amongst litter, runs quickly in spurts. When disturbed bursts from the ground with a whirr of wings, weaving fast through the trees before dropping to the ground and running.

**FOOD:** Insects, seeds and other plant matter.

**OCCURRENCE IN REVEGETATION:** Found in 3% of sites, all greater than 2 hectares in size, and 8 years or older with a well-developed ground layer of leaf litter, twigs, native herbs and grass tussocks.

**BREEDING IN REVEGETATION:** Not yet recorded breeding in revegetation.

**NEST:** Slight depression on the ground, lined with leaves and grass; tucked beside grass tussock, rock, log or tree trunk.



## 17. white-throated treecreeper

**APPEARANCE:** Sturdy bird with large claws and feet for gripping tree trunks. Dark head and back, prominent white throat, buff underparts with heavy black-edged white streaks.

**VOICE:** Strong high piping on the same note. Also a quieter warbling trill.

**HABITS:** Usually single or in pairs. Forages on tree trunks probing in the bark, starting at the base and spiralling upwards in brisk hopping motion, then gliding down from high up in the tree to the base of the next.

**FOOD:** Insects, particularly ants, other invertebrates, sometimes seeds, occasionally nectar.

**OCCURRENCE IN REVEGETATION:** Recorded in 3% of sites, all larger than 2 hectares and older than 8 years. Unlikely to be found in sites younger than this as the tree trunks are probably not mature enough to support appropriate food. Also, treecreepers are poor at dispersing across open country, so are most likely to be found in revegetation that is close to remnant bush.

**BREEDING IN REVEGETATION:** Not yet recorded breeding in revegetation, needs hollows.

**NEST:** Usually in hollow branch or trunk, occasionally in wall cavity.



## 18. eastern yellow robin

**APPEARANCE:** Chunky bird, soft grey above, bright yellow breast, large dark eye.

**VOICE:** One of the first calls at dawn and last at dusk, loud repeated 'chop-chop', also a continuous slow piping.

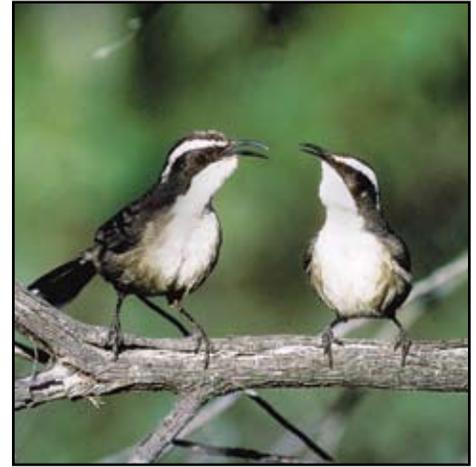
**HABITS:** Singly or pairs, usually inhabits dense, dark vegetation. Quiet and inconspicuous, clings sideways to tree trunks watching for food on the ground. When agitated flicks wings, gives a scolding chirr.

**FOOD:** Insects.

**OCCURRENCE IN REVEGETATION:** Found in 2% of sites, from 1 to 10 hectares in size, but 10 years or older with well-developed ground layer of litter where it can feed on insects.

**BREEDING IN REVEGETATION:** Not yet recorded breeding in revegetation.

**NEST:** Neat cup, of bark shreds bound with spider web, lined with grass, camouflaged on the outside with bark, lichens and moss; in fork of shrub or low tree, 1-5 metres high.



## 19. white-browed babbler

**APPEARANCE:** Sturdy bird with longish tail and curving bill. Dark brownish overall with prominent white throat and long narrow white eyebrow. White tips to tail obvious in flight.

**VOICE:** Wide variety of chattering, chirring, miaowing and whistling calls.

**HABITS:** Usually in groups, of 3 to 15 birds. Noisy, active, feed mostly on the ground, raking and flicking through litter with their strong beaks, moving with fast bouncing hops.

**FOOD:** Insects, other invertebrates, small reptiles, frogs, seeds, fruit.

**OCCURRENCE IN REVEGETATION:** Found only once, in 10 year old revegetation. Most likely to be found in older sites which have developed a ground litter layer. Babblers are generally poor at dispersing across open country so are most likely to be found in revegetation close to remnant bush where babbler groups occur.

**BREEDING IN REVEGETATION:** Not yet recorded breeding in revegetation.

**NEST:** Large, domed structure with spout-like side entrance, in low shrub, 1-3 metres high.



## 20. brown treecreeper

**APPEARANCE:** Sturdy bird with strong feet and claws. Plain brown bird with strong black-edged buff streaks on underparts.

**VOICE:** Loud explosive 'spink!', uttered once or more, slowly descending in note.

**HABITS:** Single, pairs or family groups. Feeds largely on the ground, logs or lower tree trunks. Active, hopping briskly around, probing dead wood and bark crevices. Flight, rapid wingbeats interspersed with glides, displaying buff-orange wing patch.

**FOOD:** Insects, particularly ants, other invertebrates, sometimes seeds, occasionally nectar.

**OCCURRENCE IN REVEGETATION:** Found only once, where the revegetation abutted remnant bush. Brown Treecreepers will not cross open paddocks or other unsuitable habitat so are only likely to be found in revegetation that is well-connected to remnants where the species already exists. Revegetation needs to be open with space for ground-foraging, and lots of logs and litter.

**BREEDING IN REVEGETATION:** Not yet recorded breeding in revegetation.

**NEST:** Usually in hollow branch or trunk, stump or fence-post near the ground.

## FIVE: birds breeding in revegetation

Is revegetation a source or a sink of native birds? Do birds actively breed in revegetation?

It was this questioning that inspired honours student Suzi Bond from the Australian National University to determine whether birds were attempting to breed in patches of revegetation. A supplementary aim of the research was to determine whether the revegetation age bore any influence on the number and type of species attempting to breed within patches.

During the 2003 spring breeding season, 20 Birdwatch sites including 16 revegetated sites and 4 remnant sites were surveyed for bird species, abundance and breeding attempts. The size of the patches ranged from 0.5 to 10 hectares, with most patches being less than 2 hectares – a patch size often considered too small to be useful for birds. Various habitat characteristics were recorded including distance to other habitat patches, tree health, and number of tree hollows. All bird species using the sites were identified and nesting categorised as woodland, non-woodland or hollow dependant.

A total of 111 bird species were recorded in the revegetated and remnant patches, including some unusual species such as the Budgerigar and the spectacular Crimson Chat, thought to be seeking refuge from the drought stricken inland areas of NSW. Forty four birds were



**KEY:** THREATENED (T); DECLINING (D); INTRODUCED (\*); HOLLOW-DEPENDENT (H); ONLY RECORDED BREEDING IN MATURE TREE (M).

observed attempting to breed in revegetation, 18 of these were woodland bird species, including 4 declining species and 2 threatened species – the Diamond Firetail and White-winged Triller. Other breeders ranged from small insectivorous species such as the Superb Fairy-wren, Weebill and Western Gerygone taking advantage of the shrub cover in which to hide their nests, to the larger Rufous Whistler and Dusky Woodswallow, both considered to be declining species.

The age of the revegetation influenced the number of bird species occupying and attempting to breed in the patch – the older the patch, the more likely to support a greater number of species. The size of the patch was important, with more bird species being found in larger patches. Woodland birds were also affected by the connectivity of the patch – whether or not it was close to other suitable habitat. In addition to patch size, age and connectivity, breeding results were found to be affected by tree health, with more breeding attempts in healthy vegetation. Not surprisingly, hollow dependant nesters were only observed attempting to breed in revegetation which incorporated hollow-bearing remnant trees.

This study has confirmed that woodland birds will attempt to breed in small patches of revegetation. Particularly encouraging were the breeding attempts by locally declining and threatened birds such as the Southern Whiteface and Diamond Firetail, demonstrating once again the importance of revegetation in sustaining our native birdlife.



**TABLE 3:** Bird species detected attempting to breed in revegetation patches

SPECIES	DETAILS (SEE KEY)	NO. OF BREEDING RECORDS	OFFSPRING PRODUCED
Yellow-rumped Thornbill		17	
Superb Fairy-wren		12	○
Grey Fantail		11	○
Australian Magpie		6	○
Yellow Thornbill		6	
Buff-rumped Thornbill		5	
Common Starling	* H, M	4	
Eastern Rosella	H, M	4	
Crimson Rosella	H, M	3	
Brown Thornbill		3	
Diamond Firetail	T	3	○
Dusky Woodswallow	D	3	○
Noisy Friarbird		3	
White-plumed Honeyeater		3	
Australian Raven	M	2	
Brown-headed Honeyeater		2	
Double-barred Finch		2	
Pallid Cuckoo		2	
Red-capped Robin	D	2	
Rufous Whistler	D	2	○
Striated Pardalote	H, M	2	
White-eared Honeyeater		2	
White-winged Triller	T	2	
Willie Wagtail		2	○
Black-faced Cuckoo-shrike		1	
Common Myna	H, M	1	
Crested Pigeon		1	
Diamond Dove		1	
European Goldfinch	*	1	
Golden-headed Cisticola		1	
Grey Butcherbird		1	
Grey Shrike-thrush		1	
Laughing Kookaburra	H, M	1	
Magpie-lark		1	
Mistletoebird		1	
Pied Currawong		1	
Red Wattlebird		1	
Rufous Songlark		1	
Southern Whiteface	D	1	○
Striated Thornbill		1	
Weebill		1	
Western Gerygone		1	
White-browed Scrub-wren		1	○
White-winged Chough		1	○

## SIX: designing for birds

While it is preferable to follow the suggestions about size, shape, structure and connectivity of vegetation, the Birdwatch experience indicates that even small isolated patches of revegetation may provide habitat for some native birds and lay a foundation for future birdscaping endeavours.

Some of the region's model bird havens started out as barren and degraded landscapes.

You've got to start somewhere.

Here are 10 points to keep in mind if you would like to help bring birds back into the landscape.

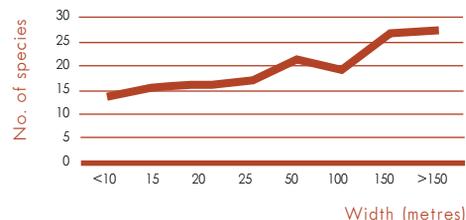
1. Protect existing remnant vegetation. Fence from stock. Revitalise degraded remnants by establishing understorey species. Revegetate around remnants to increase their size and connect to other patches.
2. Establish local native species using tree, shrub and grass species suited to the planting location, eg. different species grow on ridgetops compared to creeks and low-lying areas.
3. Large sites have more bird species than smaller sites. Create sites at least 2 hectares in size, or enlarge existing ones by revegetating around the outside.

Small thornbills need 0.5-2.5 hectares of habitat for a breeding territory. The Speckled Warbler needs at least 5 and preferably 10 hectares of suitable habitat for a breeding territory. Nearly all sightings of Speckled Warblers in revegetation were in sites greater than 8 hectares. The Hooded Robin needs 5-6 hectares during the breeding season and uses 15-50 hectares when not breeding.

4. The wider the windbreak, the more species of woodland birds.

In an average windbreak of 3 rows (12 metres wide) 11 species of woodland birds were common. In windbreaks of 25 metres wide (usually 5 rows) the number of common woodland bird species increased to 17.

FIGURE 1: The number of common woodland bird species found in sites of different widths



In narrow windbreaks (10 metres wide or less) the Rufous Whistler was seen in only 6% of surveys, in 25 metre wide windbreaks it was found in 23% of surveys, and in sites wider than 50 metres it was seen in 33% of surveys.



5. Variety or patchiness of structure is important; trees, shrubs, native grasses, herbs, logs and leaf litter; dense patches to nest in and open areas (internal space) to feed in.

More species of woodland birds were found in sites with different layers of vegetation. 'Internal space' in a revegetated site is important to many ground-feeding species. Robins, in particular, need the cover of shrubs and trees for nesting, and for perching and watching, but they also need open space to feed in.

Internal space can be achieved in a number of ways:

- by spacing rows at least 5 metres, and up to 10 metres apart,
- by putting 2 rows close together then leaving a 10 metre gap to the next row,
- by leaving out a middle row,
- or inadvertently where sections of seeding or planting fail. Gaps where trees have failed do not necessarily need to be filled with more trees.

6. Connect sites with wide windbreaks or create "stepping stones", ie. patches greater than 1 hectare in size, between larger sites.

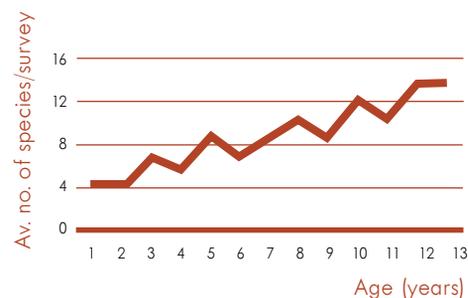
Some woodland birds avoid going across any open farmland. For example, young White-browed Babblers need to disperse 1 to 4 kilometres to find a new territory. They can use remnants, revegetated patches and wide windbreaks but will rarely travel more than 20 metres away from tree or shrub cover. To be able to disperse successfully, the Babbler needs a well-connected network of vegetation.

Other species are prepared to cross a certain amount of open farmland and can use vegetation patches as 'stepping stones' if they are not too far apart.



7. Leave branches where they fall. If logs or branches need to be 'tidied up' elsewhere on the property, throw them over the fence into the revegetation to provide habitat for wildlife.
8. The greater the amount of vegetation in the area surrounding the site, the more woodland bird species will inhabit revegetation. If starting to plant in a mostly treeless area, best results will be achieved if the site is large, 10 hectares or greater in size.
9. The method of tree establishment, whether tubestock or direct seeding, is not important in determining the number of bird species, but direct seeding is cheaper.
10. The number of woodland bird species increases with the age of the site, however the first birds start inhabiting the site from 2 years of age onwards. As sites get older and trees get taller, flowers and seeds are produced, different understorey layers develop, native grasses and herbs regenerate, and a litter layer develops.

FIGURE 2: The relationship between the age of the site and the average number of species seen each survey



## what's next?

Birdwatch has provided a valuable snapshot of the birds in revegetated sites across the Capital Region. Greening Australia is continuing to survey a sample of the sites to monitor the changes in birdlife with the development of the vegetation. GA remains firmly committed to encouraging the community to watch and learn, grow and plant for birds.

If you would like more information or more copies of this publication, please contact:

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## APPENDIX ONE: further reading and bird identification references

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## APPENDIX TWO:

### list of bird species found in revegetation

	COMMON NAME	SCIENTIFIC NAME	% OF REVEG SITES	% OF SURVEYS
1	Superb Fairy-wren	<i>Malurus cyaneus</i>	91	74.8
2	Yellow-rumped Thornbill	<i>Acanthiza chrysorrhoa</i>	91	48.6
3	Crimson Rosella	<i>Platycercus elegans</i>	85	42.2
4	Australian Magpie	<i>Gymnorhina tibicen</i>	75	40.2
5	Grey Fantail	<i>Rhipidura albiscapa</i>	69	40.5
6	Brown Thornbill	<i>Acanthiza pusilla</i>	66	28.1
7	Willie Wagtail	<i>Rhipidura leucophrys</i>	60	27.7
8	Eastern Rosella	<i>Platycercus eximius</i>	58	22.7
9	Striated Pardalote	<i>Pardalotus striatus</i>	57	20.8
10	Rufous Whistler	<i>Pachycephala rufiventris</i>	56	23.3
11	Grey Shrike-thrush	<i>Colluricincla harmonica</i>	54	21.6
12	White-plumed Honeyeater	<i>Lichenostomus penicillatus</i>	49	28.0
13	Yellow-faced Honeyeater	<i>Lichenostomus leucotis</i>	48	11.7
14	Yellow Thornbill	<i>Acanthiza nana</i>	45	31.4
15	Silvereye	<i>Zosterops lateralis</i>	41	12.8
16	Buff-rumped Thornbill	<i>Acanthiza reguloides</i>	40	11.7
17	White-eared Honeyeater	<i>Lichenostomus chrysops</i>	32	8.9
18	Red Wattlebird	<i>Anthochaera carunculata</i>	30	8.3
19	Magpie-lark	<i>Gallinula cyanoleuca</i>	29	8.1
20	Golden Whistler	<i>Pachycephala pectoralis</i>	28	10.5
21	European Goldfinch	<i>Carduelis carduelis</i>	28	8.4
22	Common Bronzewing	<i>Phaps chalcoptera</i>	28	8.1
23	Common Starling	<i>Sturnus vulgaris</i>	27	10.6
24	Striated Thornbill	<i>Acanthiza lineata</i>	27	10.6
25	White-browed Scrubwren	<i>Sericornis frontalis</i>	27	8.4
26	Australian Raven	<i>Corvus coronoides</i>	25	5.6
27	Blackbird	<i>Turdus merula</i>	22	11.1
28	Red-browed Firetail	<i>Neochmia temporalis</i>	22	6.6
29	Pied Currawong	<i>Strepera graculina</i>	22	5.0
30	Weebill	<i>Smicronis brevirostris</i>	21	8.7
31	Crested Pigeon	<i>Ocyphaps lophotes</i>	21	8.5
32	Black-faced Cuckoo-shrike	<i>Coracina novaehollandiae</i>	21	7.0
33	Red-rumped Parrot	<i>Psepholus haematanotus</i>	21	5.9
34	Flame Robin	<i>Petroica phoenicea</i>	21	4.8
35	Horsfield's Bronze-Cuckoo	<i>Chrysococcyx basalis</i>	20	4.5
36	Welcome Swallow	<i>Hirundo neoxena</i>	19	5.9
37	Scarlet Robin	<i>Petroica multicolor</i>	19	3.9
38	Noisy Friarbird	<i>Philemon corniculatus</i>	18	3.9
39	Noisy Miner	<i>Manorina melanocephala</i>	16	5.3
40	White-winged Chough	<i>Corcorax melanorhamphos</i>	16	3.6
41	Rufous Songlark	<i>Cincloramphus mathewsi</i>	15	5.5
42	Galah	<i>Cacatua roseicapilla</i>	15	4.7
43	Brown-headed Honeyeater	<i>Melithreptus brevirostris</i>	15	3.3
44	White-throated Gerygone	<i>Gerygone olivacea</i>	15	3.3

	COMMON NAME	SCIENTIFIC NAME	% OF REVEG SITES	% OF SURVEYS
45	Mistletoebird	<i>Dicaeum hirundinaceum</i>	15	2.8
46	Superb Parrot	<i>Polytelis swainsonii</i>	14	3.0
47	Laughing Kookaburra	<i>Dacelo novaeguineae</i>	12	3.9
48	Speckled Warbler	<i>Pyrrholaemus sagittatus</i>	11	4.4
49	White-winged Triller	<i>Lalage tricolor</i>	11	3.3
50	Eastern Spinebill	<i>Acanthorhynchus tenuirostris</i>	11	3.0
51	Red-capped Robin	<i>Petroica goodenovii</i>	9	3.8
52	Dusky Woodswallow	<i>Artamus cyanopterus</i>	9	2.7
53	Sulphur-crested Cockatoo	<i>Cacatua galerita</i>	9	2.7
54	Tree Martin	<i>Hirundo nigricans</i>	9	2.5
55	Pallid Cuckoo	<i>Cuculus pallidus</i>	9	2.2
56	Spotted Pardalote	<i>Pardalotus punctatus</i>	9	2.0
57	Diamond Firetail	<i>Stagonopleura guttata</i>	9	1.9
58	Restless Flycatcher	<i>Myiagra iniquita</i>	9	1.6
59	Western Gerygone	<i>Gerygone fusca</i>	8	1.9
60	Golden-headed Cisticola	<i>Cisticola exilis</i>	7	2.3
61	House Sparrow	<i>Passer domesticus</i>	7	1.7
62	Brown Falcon	<i>Falco berigora</i>	7	1.6
63	Australian Pipit	<i>Anthus novaeseelandiae</i>	7	1.4
64	Grey Butcherbird	<i>Cracticus torquatus</i>	7	1.4
65	Stubble Quail	<i>Coturnix pectoralis</i>	7	1.1
66	Southern Boobook	<i>Ninox novaeseelandiae</i>	6	1.6
67	Australian Wood Duck	<i>Chenonetta jubata</i>	6	1.4
68	Crested Shrike-tit	<i>Falcunculus frontatus</i>	6	1.3
69	Nankeen Kestrel	<i>Falco cenchroides</i>	6	1.1
70	White-naped Honeyeater	<i>Melithreptus lunatus</i>	6	1.1
71	Dollarbird	<i>Eurystomus orientalis</i>	6	0.9
72	Leadon Flycatcher	<i>Myiagra rubecula</i>	6	0.9
73	Brown Goshawk	<i>Accipiter fasciatus</i>	5	0.8
74	Olive-backed Oriole	<i>Oriolus sagittatus</i>	5	0.8
75	Hooded Robin	<i>Melanodryas cucullata</i>	4	1.1
76	Black-shouldered Kite	<i>Elanus axillaris</i>	4	0.8
77	Grey Currawong	<i>Strepera versicolor</i>	4	0.6
78	Jacky Winter	<i>Microeca fascians</i>	4	0.6
79	Southern Whiteface	<i>Aphelocephala leucopsis</i>	4	0.6
80	Double-barred Finch	<i>Taeniopygia bichenovii</i>	3	3.4
81	Painted Button-quail	<i>Turnix varia</i>	3	1.4
82	Common Myna	<i>Acridotheres tristis</i>	3	1.1
83	Rainbow Bee-eater	<i>Merops ornatus</i>	3	0.6
84	Sacred Kingfisher	<i>Todiramphus sanctus</i>	3	0.6
85	Gang-gang Cockatoo	<i>Callocephalon fimbriatum</i>	3	0.5
86	Little Eagle	<i>Hieraaetus morphnoides</i>	3	0.5
87	Little Raven	<i>Corvus mellori</i>	3	0.5
88	Rose Robin	<i>Petroica rosea</i>	3	0.5

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COMMON NAME	SCIENTIFIC NAME	% OF REVEG SITES	% OF SURVEYS
89 White-throated Treecreeper	<i>Cormobates leucophaeus</i>	3	0.5
90 Australian Reed Warbler	<i>Acrocephalus stentoreus</i>	2	0.9
91 Eastern Yellow Robin	<i>Eopsaltria australis</i>	2	0.9
92 Brown Quail	<i>Coturnix ypsilophora</i>	2	0.6
93 Masked Woodswallow	<i>Artamus personatus</i>	2	0.5
94 Pied Butcherbird	<i>Cracticus nigrogularis</i>	2	0.5
95 Satin Bowerbird	<i>Ptilonorhynchus violaceus</i>	2	0.5
96 White-browed Woodswallow	<i>Artamus superciliosus</i>	2	0.5
97 Australian Hobby	<i>Falco longipennis</i>	2	0.3
98 Collared Sparrowhawk	<i>Accipiter cirrhocephalus</i>	2	0.3
99 Shining Bronze-Cuckoo	<i>Chrysococcyx lucidus</i>	2	0.3
100 Varied Sittella	<i>Daphoenositta chrysoptera</i>	2	0.3
101 Wedge-tailed Eagle	<i>Aquila audax</i>	2	0.3
102 White-faced Heron	<i>Ardea sumatrana</i>	2	0.3
103 Australasian Grebe	<i>Tachybaptus novaehollandiae</i>	1	0.3
104 Fuscous Honeyeater	<i>Lichenostomus fuscus</i>	1	0.3
105 Australian Owlet-nightjar	<i>Aegotheles cristatus</i>	1	0.2
106 Australian White Ibis	<i>Threskiornis molucca</i>	1	0.2
107 Black Falcon	<i>Falco subniger</i>	1	0.2
108 Brown Treecreeper	<i>Climacteris picumnus</i>	1	0.2
109 Budgerigar	<i>Melopsittacus undulatus</i>	1	0.2
110 Little Grassbird	<i>Maegalurus gramineus</i>	1	0.2
111 Rufous Fantail	<i>Rhipidura rufifrons</i>	1	0.2
112 White-browed Babbler	<i>Pomatostomus temporalis</i>	1	0.2
113 Yellow-tailed Black Cockatoo	<i>Calyptorhynchus funereus</i>	1	0.2





