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Wedge-tailed Eagle. Photo by www.birdphotos.com.au

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THE STATE OF AUSTRALIA'S BIRDS 2003



by Penny Olsen, Michael Weston, Ross Cunningham, and Andrew Silcocks

Supplement to Wingspan, vol. 13, no. 4, December 2003

The State of Australia's Birds 2003 report is an overview of the status of Australia's birds, the main threats they face and the conservation actions taken. The report and much of the data in it were collected and largely funded by volunteers. This is an extraordinary expression of concern for Australia's birds and their habitats. Without such commitment, how are we to understand the state of our birds: which species and bird communities are truly in trouble, where to focus conservation efforts, whether conservation interventions are working?

THE KEY FINDINGS

Favourable news

- A concerted effort by dedicated individuals, recovery teams, landholders and governments has improved the prospects for several threatened species
- Conservation of birds can be compatible with human land uses, for example, sustainable farming and the recreational use of beaches
- The number of volunteers working to monitor and improve the status of the nation's birds is increasing
- · Knowledge of long-term patterns and trends in bird populations is improving
- Most of the more highly threatened species have been listed federally and/or by the appropriate State (but preparation of recovery plans lags behind)
- Some seabirds, particularly albatrosses, appear to have benefited from by-catch reduction measures implemented in longline fisheries
- The rate of broadscale clearing of native vegetation has been markedly reduced in New South Wales and preliminary steps have been taken towards its cessation in Queensland
- · Our cities provide habitat for a wide and increasing variety of common native birds
- Although dynamic, populations of several waterbirds appear to be stable in the long-term

Unfavourable news

- The implementation of recovery plans is poorly supported by governments
- Populations of several common and widespread woodland birds of the extensively cleared wheat-sheep belt continue to decline
- Populations of several migratory shorebirds show evidence of long-term decline

- Knowledge of habitat management by burning is improving, but an inability to control extensive dry season fires remains a threat to several northern grassy woodland species
- In the 20 years between Atlases, another introduced species has established and two of the more recently established species—Spotted Turtle-Dove and Common Myna—have spread
- By-catch in Australian pelagic fisheries is a recently identified, major threat to the Flesh-footed Shearwater

There is strong circumstantial evidence that:

- Species richness is reduced where native vegetation clearance is continuing
- Low reporting rates are associated with areas of reduced native vegetation cover
- Climate change is compromising high altitude residents
- Broadscale, intensified agriculture, such as cotton growing, is an increasing threat to bird populations

Uncertain news

- Unsustainable farming practices, particularly in the wheat-sheep belt, are joint threats to agriculture and birds
- Conservation effort has been directed at rare species with relatively little action taken to improve the fortunes of more common declining species
- Australia is such a large, diverse country that the monitoring and conservation of our 700 plus bird species is a complex and demanding task
- The impact of the extended drought and exceptional fires that burned much of the High Country of the south-east in 2003 is yet to be revealed
- Populations of several long-established introduced species are declining, as they are in their natural range

INTRODUCTION

Quite possibly, birds are the most popular of wild animals. Visible, vibrant and rich in variety, they give pleasure by bringing colour and song to the garden, and enlivening the bush. Birds have long fired human imagination and remain a source of enjoyment for many, food and pests to a few. Their vital functions in nature include seed dispersal, pollination, the regulation of insect and rodent populations, and the disposal of carrion. They herald the passing of the seasons and reflect the health of natural systems.

The State of Australia's Birds 2003 (SOAB) is the first in a series of reports summarising the fortunes of Australia's birds. It presents population trends and changes for Australian birds over various time spans—some extending from the 1960s—leading up to the present. It is intended that this introductory SOAB report sets the baseline for five-yearly overviews, informed by the Ongoing Atlas of Australian Birds and many other monitoring programs. These overviews will be interspersed with themed reports

Birds as indicators

The state of the nation's birds feeds into the Australian Government's State of Environment reporting as an indicator of national environmental health. Birds can be useful surrogates or indicators of biodiversity (the variety of all living things). Monitoring of birds can provide information on the distribution of diversity and signal changes to ecosystems. Importantly, birds—often noisy, colourful and active during the day—are relatively easy to observe, which makes monitoring accessible, unobtrusive, cost efficient and, not least, enjoyable.

Management for birds cannot be assumed to cover the requirements of all other life forms. Yet, adversities such as



Red-browed Finch. Photo by www.birdphotos.com.au

on topics such as habitat change, freshwater birds, seabirds, shorebirds, and the fate of birds on islands.

Australia is a large climatically and biogeographically diverse continent with a generally sparse human population. Assessing the state of its bird species—in excess of 700 presents special challenges. This report examines the fortunes of birds at continental and regional scales. The first part is based on the nation-wide, volunteer-based Atlas of Australian Birds

the clearance of native vegetation, inappropriate fire regimes and introduced species are common threats to Australia's biodiversity. Australian ecosystems that have been over-simplified through agricultural practices are often associated with tree dieback, loss of native species, soil erosion, salinity and deterioration in water quality. A greater diversity of birds is generally associated with a greater richness of tree, shrub and ground cover species, as well as a greater range of mammals, reptiles, amphibians and invertebrates. So, in addition to being a measure of ecosystem diversity, the state of our birds can act as an indicator of environmental health and sustainable land use.

Some major threats to Australian birds

- Broadscale clearance of native vegetation
- Increasing fragmentation of native vegetation, degradation and loss of remnants, and lack of recruitment (few young plants to replace the ageing vegetation)
- Grazing pressure
- Changed fire regimes
- Intensification of agriculture
- Firewood collection and general 'cleaning up' of litter and fallen wood
- Changed hydrology—altered flow regimes, deteriorating water quality and dryland salinity
- Climate change
- Introduced animals

Galah. Photo by Graeme Chapman

Longline fishing

(which mainly covers landbirds), coordinated by Birds Australia.

The report begins by taking a look at continental scale changes in reporting rates and bird species richness over the past 20 years. Over this period we have seen rapid change to habitat through clearance, loss of native vegetation, and intensification of agriculture—some of the most pressing threats to Australia's birds. Increasing urbanisation has also brought change. Over 20 years Australia has become

warmer. Hence, the report examines some unique species that might be expected to be at risk from climate change, a topic of international concern. This is followed by an analysis of population trends for an indicative list of 15 widespread and common woodland breeding birds in the wheat-sheep regions, which are among the most degraded of major bird habitats.

The next section presents the results of numerous monitoring programs from around the nation for individual species, most of which are of high conservation concern. Lastly, the performance of

governments is examined by their

response to the identification of species of high conservation concern in the *Action Plan for Australian Birds 2000.*

2003 sees much of the country emerging from a severe drought—the worst in history—topped in the early months by extensive wildfires that burned much of the High Country and southeastern wet forests. As late as September, most regions were still experiencing below average rainfall. It is too early to detect the overall impacts of this exceptional sequence of events.

This report has been produced by Birds Australia through member and supporter donation and assistance from the Vera Moore Foundation and the Australian Government's Department of Environment and Heritage. The bird monitoring programs summarised here were undertaken by thousands of volunteers, regional governments, and institutional and private researchers, with support from State governments and the Australian Government's Natural Heritage Trust. This effort, and the willingness to contribute to SOAB, are compelling testaments of concern by Australians for the fate their birds.

I. TRENDS IN COMMON AND WIDESPREAD BIRDS

Change in the two decades between national Atlases

The first national Birds Australia Atlas was conducted from 1977 to 1981 and the second 20 years later, from 1998 to 2002. Part One of SOAB presents the broad patterns and changes between Atlases. Each Atlas is a snapshot in time and the differences between them do not necessarily reflect long-term trends. Yet, some of the patterns of change that are beginning to emerge are revealing.

Across Australia and its external territories of Christmas and Cocos-Keeling Islands in the Indian Ocean, Norfolk Island in the South Pacific and Heard and Macquarie Islands in the Southern Ocean, a total of 772 bird species was reported, 595 of which breed in Australia.

The greatest bird diversity is found in the coastal and subcoastal east and south-east, extending inland across the Murray-Darling Basin (Figure 1). Even though the inland has a naturally low diversity of species, its biodiversity value is high because of its suite of unusual, arid-adapted endemic species.

Excluding oceanic islands, analysis of patterns was possible for 422 species. Of these, 201 (48%) showed no change between Atlases, 64 (15%) were recorded less frequently during the second Atlas, and 157 (37%) were recorded more frequently.

To some extent these changes might be explained by changes in abundance and movement in response to rainfall, which was greater over most of the country during the second Atlas including an exceptional flooding event which filled Lake Eyre in 2000 providing rich, temporary breeding habitat for a range of species. This might have improved conditions for many birds, possibly resulting in a shift inland by some of the more nomadic species (reflected in the greater scattering of green dots across arid Australia in Figure 2).

Intensification of agriculture

Much of south-eastern and south-western Australia was cleared a century or more before the national Atlases. Despite the already high loss of native vegetation in the south-east, clearing of native vegetation is continuing—less as patchy clearing typical of wheat-sheep agriculture, but more commonly as clearing of vegetation remnants on amalgamated farms for broadacre farming and boom spray irrigation.

One example is irrigated cotton. Major cotton growing areas, most of which were established or expanded in the period between Atlases, tend to correspond to areas with a loss of bird species richness (Figure 3). Such land use entails the use of pesticides (often 10–18 applications a year), which have potential to impact on native plants, invertebrates and insectivorous birds, and may drift and be carried far beyond the sites of application.



Figure 3. Change in bird species richness between Atlases and areas where cotton is grown Source (cotton areas): Joint Agricultural Weather Facility, United States Department of Agriculture 2001

Cotton country at Narrabri planted with an alternative crop. Photo by **Graeme Chapman**

Australian Bustard. Photo by Graeme Chapman







Figure 2. Change in species richness between national Atlases (1977–1981 and 1998–2002)

% Change insufficient data
significant decrease
decrease
no change
increase





Native vegetation clearance

A multitude of factors potentially impact on birds, but at the continental scale habitat loss by land clearance is the most significant. Over the last 20 years in Australia, around 10 million ha of native vegetation (an area half the size of Victoria) have been cleared, much of it mature woodland and forest. Most of the recent clearing has occurred in south-east Queensland, with the greatest reduction in bird species in areas of greatest, recent clearance (Figure 4). The listing of land clearance as a Key Threatening Process under the Environment Protection and *Biodiversity Conservation Act* (EPBC) in 2001 and the recent Commonwealth–State agreement that aims to reduce woodland clearance in Queensland may be the first steps towards halting this decline.

Overall reporting rates have also changed between Atlases. Over much of the continent the number of species an Atlaser could expect to see during a single survey increased in the second Atlas (possibly an effect of greater rainfall). However, over much of the south-east corner, where survey effort has been greatest, the number of species expected has decreased by between one to four (Figure 5). Indeed, where less than 50% of native vegetation remains, an Atlaser in 1998-2002 could expect to see up to four fewer species than they would have 20 years ago.





Left: Jacky Winter. Photo by lan Montgomery Below: Lone Salmon Gum in wheat paddock. Photo by Graeme Chapman



Budgerigar. Photo by Graeme Chapman

Figure 4. Change in species richness compared with the extent of recent land clearing in Queensland Area of native vegetation cleared within he Intensive Landuse Zone of Queensland etween 1997 and 1999 by bioregion Source: Land and Water Resources Audit.

Figure 5. Change in reporting rate between Atlases compared with extent of native vegetation remaining in south-eastern Australia

Landbirds with an overall reporting rate of at least 0.02, excluding outliers/out-of range observations. Data adjusted for survey effort etc. as in Table 1 and resented according to the framework for much State of Environment reporting the IBRA region (Interim Biogeographical Regionalisation of Australia) Current extent of native vegetation by bioregion: percentage of woody vegetation remaining uncleared and natural grasses remaining uncultivated Source: Land and Water Resources Audit, Canberra 2001

Changes in individual species between Atlases

In general, tropical forest birds, pigeons, honeyeaters, parrots and fresh-water birds were recorded *more* frequently in the second Atlas. Ground-feeding insectivores of grassy woodlands, birds of high altitude forests and scrubs, and some migratory waders—Curlew Sandpiper, Terek Sandpiper, Black-tailed Godwit, Pacific Golden Plover and Double-banded Plover-were recorded *less* frequently.

As Australia is climatically and biogeographically diverse, it is not surprising that 59% of species showed significant regional variation in the direction and extent of change between Atlases. For these birds, an overall figure of change is not very meaningful and assessment for change must be made at a regional scale. The Budgerigar, for example, showed no change overall, but increases in reporting rates inland were matched by decreases towards the outer fringes of its range (Figure 6).

Birds that showed a uniform pattern of decrease in reporting rate across their range are listed in Table 1. Reporting rates for several other species decreased. but not uniformly across the country. These include: Richard's Pipit (Figure 7) and Emu (which apparently decreased in detectability over much of their range); Apostlebird (which may be shifting northwards, deserting more southern parts of its range), and Grey-crowned Babbler (which has almost disappeared from South Australia and north-western Victoria [see SOAB Part Two]).

and 1998-2001

| Decrease |
|--------------------------------|
| Red-browed Treecreeper |
| Rockwarbler |
| Flame Robin |
| Australian Bustard |
| Long-billed (Baudin's) Cockate |
| Tooth-billed Bowerbird |
| Chowchilla |
| Orange Chat |
| Purple-gaped Honeyeater |
| Spotted Quail-thrush |
| Gang-gang Cockatoo |
| Tawny-crowned Honeyeater |
| Black-necked Stork |
| Brolga |
| White-winged Chough |
| The species shown are all of t |

e more common Australian-breeding species that showed a uniform decrease across their range, and examples of species that showed no change or a uniform increase. For details of survey and statistical methods see The New Atlas of Australian Birds.

The symbols: - - decrease of 50% or more; - decrease of up to 49%; 0 no significant change; + increase of up to 49%: ++ increase of 50% or more

- listed, the results of the two methods are comparable





Figure 6. Regional changes in reporting rate between Atlases for the Budgerigar, which showed no change overal For statistical methods see Table 1: mapped according to IBRA region, which does not necessarily reflect the limits of distribution



Figure 7. Change in reporting rate between Atlases for the Richard's Pipit, which decreased overall

BLE 1. Differences in reporting rate between Atlases 1977–1981

| | No Change | | Increase | |
|------|-----------------------|---|------------------------------|----|
| | Superb Lyrebird | 0 | Eastern Rosella | + |
| | Black Currawong | 0 | Little Friarbird | + |
| | Little Tern | 0 | Western Rosella | + |
| | Emerald Dove | 0 | Green Rosella | + |
| - 00 | Pale-headed Rosella | 0 | Red-browed Pardalote | + |
| - | Spotted Catbird | 0 | Pacific Baza | + |
| - | Glossy Black-Cockatoo | 0 | Satin Bowerbird | + |
| - | Turquoise Parrot | 0 | Yellow-tailed Black-Cockatoo | + |
| - | Cattle Egret | 0 | Common Myna | + |
| - | Bell Miner | 0 | Australian King-Parrot | + |
| - | Speckled Warbler | 0 | Noisy Pitta | ++ |
| - | Pale-yellow Robin | 0 | Channel-billed Cuckoo | ++ |
| - | Superb Parrot | 0 | Blue-breasted Fairy-wren | ++ |
| - | Northern Rosella | 0 | White-headed Pigeon | ++ |
| - | Beach Stone-curlew | 0 | Spotted Turtle-Dove | ++ |

Wetter conditions prevailed in Atlas 2, creating more favourable conditions for many birds.

n survey effort and method, seasonal variation, and spatial bias within a grid square vertheless, several factors confound direct comparison between the Atlases, these include

Different survey methodology was used in each Atlas and detection rates for some species were affected by these differences: for the species



Figure 8. Percentage of records in Atlas 2 that are of introduced species within each bioregion Source: Garnett et al. 2003

Birds that increased between Atlases Several species increased their range between Atlases. The Noisy Pitta, Pacific Baza, Osprey, Channel-billed Cuckoo, Top-knot Pigeon, Pheasant Coucal, Figbird and Black-necked Stork (Jabiru) were among the birds that extended their range southwards down the east coast, some to reclaim former territory. The Pied Imperial-Pigeon and perhaps Magpie Goose are on the increase following cessation of harvesting and improved protection. The White-headed Pigeon is apparently spreading, assisted by the introduced woody weed, Camphor Laurel, on which it feeds. The Crested Pigeon and Galah, which began their spread from the inland into agricultural lands before the first Atlas, have now reached the south-east coast.

Clockwise from above left: Tree Martin, Photo by Graeme Chapman; Rockwarbler. Photo by Graeme Chapman: Superb Fairy-wren pair. Photo by www.birdphotos.com.au; Gang-gang Cockatoo (male). Photo by Graeme Chapman

Trends in introduced birds

The presence of introduced species in an area can be an indication that habitat is disturbed. The south-west and the southeast (including Tasmania), are the regions with the greatest abundance of exotic bird species (Figure 8).

In the period between Atlases, the Barbary Dove established wild populations in Australia—notably in Alice Springs, where recent control measures may have eradicated the species—and the self-introduced Spotted Whistling-Duck established on Cape York Peninsula. Common Mynas and Spotted Turtle-

Doves are expanding, still largely associated with human habitation. Conversely, the European Goldfinch appears to be retracting from more northern parts of its range, and the House Sparrow, European Greenfinch and Common Starling may also be retreating: the reporting rates of all decreased between Atlases. This trend was echoed by the results of weekly monitoring of the European Greenfinch, European Goldfinch and House Sparrow at a communal autumn roost in suburban Adelaide (see graph p. IX): all three species have declined markedly over the past 20 years.

Urbanisation

Between Atlases Australia's human population increased from 13 to nearly 20 million. The pattern of human settlement is characterised by a high rate of urbanisation, low density cities and concentration of 83% of the population within 50 kilometres of the coast, mainly in two crescents, in the south-eastern coast and the south-west of Western Australia. This movement from rural areas to the cities is predicted to increase. Its current impacts on birds are mixed.

Typically, Australia's relatively lowdensity cities have left room for wildlife (for example, for all capital cities except Hobart more than 250 bird species have been reported; Figure 1). They offer year round food, shelter and water where previously these may have been seasonal. Red Wattlebirds, Little Corellas, Pied Currawongs, Collared Sparrowhawks, Peregrine Falcons, Rainbow Lorikeets, Australian Magpies and Magpie-larks are just some of the common native species that have adapted well to life in cities and suburbs. Cities are also havens for several introduced species, such as House Sparrow, Common Myna, Common Blackbird, and Spotted

Climate change

Between 1950 and 2001 Australia's annual mean temperature increased 0.7°C, a warming trend that has accelerated over the past two decades. By 2030, it is predicted that most of the country will be warmer by 0.4 to 2.0°C with a tendency towards increased evaporation and summer/autumn rainfall, and decreased winter/spring rainfall in most regions. Vulnerable bird



for that year on any one occasion during weekly counts. Source: David Paton

Turtle-Dove, all of which seldom settle

far from human habitation. Tree Martins, which congregate before migrating to wintering grounds north of the Tropic of Capricorn, have declined dramatically in Adelaide. In the same area that longtime residents estimate there were between 1,000 and 3,000 on most autumn days in the 1930s, the number of martins has now declined to only a handful of birds on some days. By contrast, the number of breeding female Superb Fairy-Wrens in the botanic gardens in central Canberra has remained stable for at least a decade.

habitats include alpine areas, upland rainforest, wetlands, riverine systems and woodlands.

Climate change is likely to bring about shifts in distribution such as the southward extension of range observed in the Noisy Pitta and Pacific Baza are consistent. Although Australia has few high altitude birds, several species in the wet tropics and a few in the alps might be at risk of extinction. These are birds that



Superb Fairy-wren - Australian National Botanic Gardens, Canberra: intensive ongoing surveys throughout the gardens number of groups based on breeding females that held territories throughout the season

NB. Over the study period, the proportion of groups with helpers declined. Source: Andrew Cockburn, School of Botany and Zoology, ANU Tree Martin and introduced European Greenfinch, European Goldfinch and House Sparrow - Gilbertson, South Australia: maximum numbers s



Atlases for the Red Wattlebird, which increased overall lote that plotting changes by bioregion can exaggerate the distri ution of a species, as in this case



breed and/or reside in a narrow altitudinal range that has little scope for a shift to higher altitudes with rising temperatures (let alone changing moisture regimes). Of particular concern is the wet tropics (the Atherton area) a centre of high endemism where several species (such as the Golden and Toothbilled Bowerbird) exist within a very restricted, highland range. In the southern highlands, the Gang-gang Cockatoo and Flame Robin are altitudinal migrants that disperse widely over the south-east, returning to the foothills and high country to breed, and the Red-browed Treecreeper resides in high country over much of its range. Most of these species appear on the shortlist of birds that have shown marked decreases nationally (Table 1), in spite of the high country remaining quite undisturbed, and the general trend of forest species to increase between Atlases. In New South Wales, another high altitude species, the Rufous Scrub-bird, too uncommon to appear in the national Atlas analyses, also appears to be in serious trouble (see SOAB Part Two).

Figure 10. Five-year trends in some common woodland birds in wheat-sheep regions. Repeated 2-ha sites with at least one survey in any four of the six years. Trends were smoothed using regression splines and seasonal patterns were smoothed using harmonics. These were fitted to data within a generalised linear mixed model framework in which site was treated as random effect. Graphs show only statistically significant, non-random patterns



White-browed Babbler. Photo by Graeme Chapman



Eastern Yellow Robin (male) Photo by Graeme Chapman

Five-year trends in the wheat-sheep belt

The 'wheat-sheep' belt stretches in an arc around inland south-eastern and south-western Australia (Figure 11), and is the focus of the country's continuing clearing, land degradation, salinity, over-grazing and altered water flow problems. These are serious joint threats to agriculture and birds. A positive change has been a reduction in sheep stocking rates between Atlases.

In the south-east, decreases in bird reporting rates between Atlases tended to be concentrated in this band of land (Figure 5)—despite the general increase in reporting rates inland and across the country. There was little indication of a change in species richness (Figure 2). Species in the wheat-sheep belt for which reporting rates declined included the Hooded Robin, in contrast to its forest dependent counterpart, the Eastern Yellow Robin, whose reporting rates increased (Figure 12).

To overcome some of the statistical problems in interpreting the change between Atlases, repeated surveys of 2ha blocks in the ongoing Atlas were analysed to assess temporal patterns and long-term trends. A subset of common and widespread species in urban areas (Sydney and Perth) and the wheat-sheep belt is presented here (Figure 10). In five years' time, when these are revisited in the next State of Australia's Birds report, any long-term patterns will be more apparent.

This first analysis revealed strong seasonal patterns in rates of detectability, which differed in timing between regions. The Jacky Winter, for example, showed a two-fold increase in reporting rate

Figure 11, 'Wheat-sheep' belt IBRA regions analysed for 5-year trends, showing the location of the 2-ha survey sites RBN (Brigalow Belt North): BBS (Brigalow Belt South): NSS (New South Wales South Western Slopes); SEH (South East Highlands); RIV (Riverina); MDD (Murray-Darling Depression); EYB (Eyre Yorke Block) AW (Avon Wheatbe



between the troughs and the peaks, and had biannual surges in detectability. By contrast, the White-plumed Honeyeater showed an annual pattern of seasonal increase.

Some species showed simple, easily interpreted trends in reporting rates in part of their wheat-sheep belt range. Thus, the Eastern Rosella increased strongly in the South Western Slopes bioregion of New South Wales. Conversely, there was evidence of a decrease in detection rates for: the

> > 20% decreas no siginificant chang > 20% increase



Jacky Winter, Rainbow Bee-eater and Dusky Woodswallow in the South Western Slopes, New South Wales; the Rainbow Bee-eater in the Brigalow Belt North, Queensland, and perhaps also in the Riverina, New South Wales; and the Mistletoebird in the Brigalow Belt North. Although the patterns for most species in most bioregions showed little indication of long-term change, evidence of ongoing decreases in detection rates for several species over this relatively short span of time may be of concern.

Figure 12. Regional changes in reporting rate between Atlases for the Hooded Robin, which decreased overall, and Eastern Yellow Robin, which increased overal



Fire and birds

Increasingly, inappropriate fire regimes are recognised as a greater threat to wildlife than wildfire. Too frequent burning has endangered species such as Noisy Scrub-bird, Western Bristlebird, Malleefowl and Ground Parrot. Maintenance of old-growth (or mid to late seral) vegetation for these heathland species, and for tree hollow-nesting birds, requires fire exclusion or infrequent burning. Red-tailed Black-Cockatoos are twice as likely to forage in buloke that has been unburnt for over nine years than in more recently burned trees, because of higher seed yields. On the other hand, fire exclusion disadvantages species associated with early post-fire recovery stages, such as Richard's Pipit, Little Button-quail, Blue-winged Parrot, Scarlet Robin and Flame Robin. Species, such as honeyeaters, that depend on flowering trees, fall somewhere between the two.

The Tawny-crowned Honeyeater is one of only two common honeyeaters that declined between Atlases. A 12-year study at four sites at Ngarkat-the species' stronghold in South Australia—illustrates how populations have capacity to recover following wildfire. However, in this case, the recovery six to 19 years post-fire has apparently been dampened by drought and, possibly, other threats to the species. The trend line for the site unburnt the longest also suggests that it has passed its prime for the honeyeater.

In recent years, most States have begun to acknowledge this complexity and their fire management plans take account of biodiversity. Following ecological principles, the trend is to avoid homogenisation, protect long unburnt areas, and use fine-scale mosaic burning with a range of fire regimes. An inability to control extensive dry season fires remains a threat to several northern grassy woodland species.



Drought and fire

It is too early to assess the impact of the 2002 drought (which in some areas continued into 2003) and the higher than average temperatures (maximum temperatures averaging 0.8°C higher than the previous record), resulting in higher evaporation over much of the country. This unusual combination of natural climate variation and temperature increases from global warming, contributed to extensive wildfires that burned much of the High Country and south-eastern wet forests. Many species can be considered drought or fire-adapted, but for some already stressed species extinction risk may have increased. For example, the already severely reduced Victorian Malleefowl population suffered exceptionally poor breeding success during the drought of 2002 (see SOAB Part Two).





Black-eared Miner

Surveys at 22 colonies of Black-eared Miners showed that many environmental and behavioural factors have affected the precision of yearly surveys, which have since been abandoned. An attempt is being made to develop a more reliable estimate of the current effective population size. The long term goal of the recovery effort is to have at least 1000 mature individuals in viable populations in at least five separate locations across the species' former range. During 2000 and 2001 five colonies of Black-eared Miners (90 birds in total) were successfully translocated from the Bookmark Region of South Australia to parts of the bird's former range in the Murray-Sunset National Park in Victoria. Colony cohesion was maintained in four of the five colonies, and in at least two of these colonies multiple females bred within eight weeks of translocation; some successfully fledging young. Individuals have successfully dispersed between translocated colonies and local Black-eared Miners have joined translocated colonies. Although the drought years since have been unsuitable for breeding (making the birds almost impossible to locate), some of the translocated birds have been seen, roughly two years after their transfer.

Source: Michael Clarke, Black-eared Miner Recovery Team

Left: White-naped Honeyeater (western) Photo by Graeme Chapman

II. LONG-TERM MONITORING PROGRAMS

This section reports long-term trends in populations of birds, many of which are considered to be threatened or in decline. Most of these monitoring programs are maintained by a dedicated few, who are assisted by volunteers, in collaboration with State and Federal governments.

Some of the graphs present counts of the entire Australian population—for example, those for the Australian subspecies of Gould's Petrel, Swift Parrot and Lord Howe Woodhen—but most represent sub-populations.



New South Wales: compilation of volunteer-collected data for Birds Australia Atlas 1 and by the members of the New South Wales Bird Atlassers. Field data only and sheets containing greater than 5 records, presented as annual reporting rate, i.e, number of counts per species divided by number of sheets (averaging 2757 pa). Source: New South Wales Bird Atlassers Inc

Birds of Victorian farmlands In north-east Victoria, surveys of six

areas for Grey-crowned Babblers have indicated stable populations, for example, Koonda and Tamleugh together have been home to 30-36 groups made up of 117-140 individuals. Populations in the north-west, however, have fared less well. In the Eppalock area in 1995 12 groups existed, but at the same site in 1999 only eight remained. To combat this trend, a program of predator control and habitat enhancement, expansion and manipulation has commenced. Similarly, in the Boort-Yando area, one of the species' strongholds in Victoria, eight of the 20 groups located in 1997 had disappeared by 2000, and six of the remaining groups had dwindled in size.

Since standardised monitoring began in 1994, the number of active malleefowl mounds in north-west Victoria has not shown any overall trends. However, during the 2002 drought, many mounds were prepared but breeding did not proceed because of lack of moisture to begin the composting process. These overall figures mask a steady decline in the in the north of the study area (e.g. Sunset Country), but in more southerly parts (e.g. Wyperfeld), numbers are generally steady.

Several threatened honeyeaters have proven difficult to survey (see box on Black-eared Miner). The Regent





Honeyeater Recovery Team monitored monthly for seven years in the three remaining core breeding areas. However, analysis demonstrated that the methods employed were unlikely to detect trends in the population: this is an inherent problem with a species that does not necessarily return to the same patch each year (such as Swift and Superb Parrots during the nonbreeding season). New survey protocols are being trialed.

The estimated total population of the critically endangered Helmeted (Yellow-tufted) Honeyeater at the last known breeding colony of the subspecies

Birds of New South Wales' woodlands and forests

Across New South Wales there was no evidence of a long-term trend for the Grey-crowned Babbler or the Wedgetailed Eagle despite the introduction of calicivirus in 1995 that reduced rabbit populations in some areas by as much as 90%. Over 30 years, the reporting rate for the Brown Treecreeper shows a downwards trend, especially over the last 15 years. Reporting rates for White-naped Honeyeater and perhaps Flame Robin, indicate gentler declines. On the other hand, reporting rates for the Pacific Baza, while typically low, have increased steadily and markedly over the same period, along with a slight southward expansion of the species' range. The severe drought of 1981–1983 may be reflected in the declines observed about that period for some species.

Grey-crowned Babbler - Koonda and Tamleugh, north-east Victoria: surveys of groups along a standard 30 km grid of roadsides, subdivided into one kilometre sections usually in mid-winter when birds are not breeding and group size is at a minimum. Source: Doug Robinson, Grey-crowned Babbler Working Group

Helmeted (Yellow-tufted) Honeyeater – Yellingbo, Victoria: minimum overall population size. Source: Bruce Quin, Helmeted

Malleefowl National parks and reserves of north-west of Victoria: all known mounds-about 900 in total-in 24 grids monitored annually during the breeding season (October-January). Source: Ann Stokie, Victorian Malleefowl Recovery Group

> fluctuated between about 70 and 103 individuals—comprising 32–54 breeding pairs in 15–27 breeding territories—but showed no trends. In the last three years 11–12 captive-bred birds have been released to bolster the population, without measurable effect (see graph). Since the 1950s, hydrological change to create grazing land has caused loss of breeding habitat because of eucalypt dieback along the creeks. Work is in progress to restore the flood plain and control erosion upstream so that the swamp woodland breeding habitat might be rehabilitated.

XIV The State of Australia's Birds 2003

Swift Parrot. Photo by Chris Tzaros



Swift Parrot

Annual monitoring of the migratory Swift Parrot occurs across woodlands and forests in four States as well as in the Tasmanian breeding grounds. In winter the parrot congregates anywhere across a broad range where *Eucalyptus* flowering

Black-Cockatoos

These large, distinctively Australian woodland species have lost habitat, including foraging and nest trees. All suffer from increased competition for nest sites and increased predation of eggs and chicks by the few species which benefit from habitat disturbance. Generally, black-cockatoos respond well to management intervention.

On Kangaroo Island, nest sites of Glossy Black-Cockatoos are protected from Little Corellas, possums and feral bees. As a result, nest success has increased from 2% in 1996 to 35% in 2002, and the proportion of young birds in the population has doubled.

Sixty percent of the habitat of the south-eastern subspecies of Red-tailed Black-Cockatoo in Victoria has been cleared, and 80% in South Australia. The current population is 700–1000 birds, a marked increase in the number of known pairs since 1996 when concerted conservation action began. Trees are collared



Mainland wintering States: twice yearly counts at known and potential sites on designated weekends in autumn and winter by a team of up to 200 volunteers. The number of volunteers has increased over the survey period, resulting in an apparent increase in the number of birds. Source: Debbie Saunders and Chris Tzaros, National Swift Parrot Recovery Team



is intense, making repeat censusing all but impossible. The number of volunteer surveyors has increased, masking any real change. Indications are that in 2002 the bulk of the population wintered in New South Wales rather than Victoria. On the breeding grounds of south-east Tasmania

the number of pairs was estimated from counts as 1320 in 1987 and 940 in 1995. By extrapolation from the amount of habitat available, these figures were 1409 in 1999 and 4415 in 2001 (these latter figures are in need of corroboration by field survey).



Red-tailed Black-Cockatoo - Portland to just north of the Little Desert, Victoria, and Bangham-Francis to Mt Gambier, South Australia estimated minimum total population size from February/April counts. Source: Richard Hill, Red-tailed Black-Cockatoo Recovery Team **Birds Australia**

Short-billed Black-Cockatoo - Coomallo Creek, southwestern Australia: number of clutches. Source: Saunders and Ingram (1998) Yellow-tailed Black-Cockatoo - Eyre Peninsula, South Australia: estimated total population size extrapolated from counts, flock composition and fledging success. Source: Jason Van Weenen, SA DEH

Glossy Black-Cockatoo - Kangaroo Island, South Australia: estimated total population based on counts. Source: Trish Mooney, SA DEH

to exclude possums and the Recovery Team actively campaigns for legislative protection and change, with some success. For example: intervention in clearance applications to remove paddock buloke (feeding) trees; passing of legislation to protect dead (nesting) trees in the species' range in South Australia; listing of 'Buloke grassy woodlands of the Riverina and Murray-Darling Depression Bioregions' (of which 2% remains) under federal legislation; commitment of State agencies to maintain at least 85% of stringybark (feeding trees) woodlands on public land as unburnt in the long-term.

The distinctive population of Yellowtailed Black-Cockatoo on Eyre Peninsula, South Australia, is critically endangered. In the early 1900s flocks of hundreds were seen; by the early 1980s counts were of less than 40 birds, reducing to 24 in the last half of the decade. Since monitoring began in the late 1990s the situation may have improved slightly, with the number of known birds increasing from 21-22 to 33-34.

In south-western Western Australia, monitoring of some key breeding sites of the endangered Short-billed (Carnaby's) Black-Cockatoo (where recovery actions are being undertaken) began in 2001. The species was once so numerous that it was shot as a pest, but in the past 45 years populations have at least halved and continue to decrease. Its range has contracted by more than 33% since 1969. For example, in the Coomallo Creek area north of Perth, in 1959 the amount of cover by native vegetation in the area was 90%; reducing to 34% by 1982; and 25% by 1996. In the monitoring area, the annually breeding black-cockatoos laid 74 clutches in 1973 but only 19 in 1996.

Birds of thickets

Birds of thickets and heaths have restricted ranges and are often cryptic, hence, they are monitored by the calls of territorial males rather than by observation. Surveys suggest that the five remaining populations of Rufous Scrubbird in New South Wales are in poor shape. In 2002, extreme dry weather conditions, including the occurrence of wildfire in the Gibraltar Range, appeared to be highly destructive to the Rufous Scrub-bird and its habitat. During that year, the lowest number of Rufous Scrubbirds was recorded—only 17 males, down from a high of 51 in 1999.

The situation is also serious for the Eastern Bristlebird in Queensland. Since 1996, declines have been recorded at all seven known sites in the State, despite attempts by the State agency and local land-owners to improve habitat. Fire has contributed to the local declines in some areas.

The situation is much brighter in Western Australia, where Noisy Scrubbird, Western Bristlebird and Western Whipbird have been upgraded from endangered to vulnerable as the result of successful recovery programs. Rediscovered on Mt Gardner in 1961,

the Noisy Scrub-bird remained restricted to the headland until 1974, when an increase in numbers allowed dispersal of a few individuals. Translocations were carried out between 1983 and 1999, but ceased after this time as a result of the

observed decline in the population. Nevertheless, the total population continues to grow and spread. The Mt Manypeaks sub-population has achieved the most remarkable growth, from a small number of individuals translocated in 1983 and 1985 the population index rose to 427 in 2001 (i.e. 56% of the total Albany Management Zone population). The area occupied by scrub-birds in the Albany Management Zone (over 25,000 ha) is now so large that comprehensive monitoring has become difficult. Wildfire remains the key threat.



Noisy Scrub-bird - Mt Gardner, Albany Management Zone (AMZ), and total AMZ, Western Australia: annual count of territorial singing males in selected sub-populations; complete census of AMZ every 3–4 years. Source: Sarah Comer and Alan Danks, CALM Rufous Scrub-bird – Border Ranges, Gibraltar Range, New England, Werrikimbie and Barrington Tops National Parks, New South Wales: 370 monitoring sites surveyed each breeding season (spring) by call playback. Source: Peter Eckert, Rufous Scrub-bird Monitoring Program in north-east New South Wales Eastern Bristlebird - Conondales, Spicer's Gap, Mt Barney, Duck Creek, Snake Ridge, Stretcher Track, Mt Gipps, Queensland: surveyed by call playback and subsequent counts of birds seen or heard. Source: David Stewart, QPWS



Western Ground Parrot

Monitoring of the critically endangered subspecies of Ground Parrot in Western Australia indicates an increase in numbers at one site and a decrease at the other.

Waychinicup, near Albany, Western Australia

Survey effort was much more intensive in 2003 than in 1999, and although extra sites were covered, fewer birds were found.



A trend of clear decline is consistent with other observations and surveys of Ground Parrots in this area at other times of year. The reasons for the decline are unknown.

| Survey period | No. of surv sessio |
|---------------|-----------------------|
| Autumn 1998 | |
| Autumn 2003 | 1 |
| | |

Source: McNee (1999) and Newbey (2003)





Source: Allan Burbidge, CALM

| ∋y ns | Minimum no. of parrots |
|----------|---------------------------|
| 58 | 29 |
| 15 | 4 |

Fitzgerald River National Park, between Jerramungup and Ravensthorpe, Western Australia

Calls from a set of eight fixed sites were recorded in 1996, 1998 and 2000. Calling rate increased during the study. In 1996, the peak calling frequency was about 6 calls/minute/ session, in 1998 about 9, and in 2000 about 14. It seems clear that this population is

increasing, for reasons unknown.





Left: Blue-billed Duck (male). Photo by Peter Merritt Below right: Black-winged Stilts. Photo by www.birdphotos.com.au



New South Wales National Parks and Wildlife Service October aerial surveys: all waterbirds on wetlands greater than 1 ha were counted over ten regularly spaced bands, each 30 km in width, centred on each 2° of latitude from 38°30'S to 20°30'S Source: Kingsford et al. (2003)



Gould's Petrel - Cabbage Tree Island, New South Wales: number of pairs on eggs along standardised transects Source: David Priddel, NSW NPWS

Little Tern - all known colonies New South Wales: counts of nests. Source: David Priddel, NSW NPWS Little Tern - East Gippsland, Victoria: number of breeding birds; experience of counters have changed over time so numbers are indicative. Source: Leona Waldegrave-Knight, DSE





Fairy Tern - Rigby, Crescent, Tyers, Tamboon, Lakes Entrance, Victoria: number of breeding birds; experience of counters has changed over time so numbers are indicative. Source: Leona Waldegrave-Knight, DSE

Green Parrot and Norfolk Island Southern Boobook - Norfolk Island: estimates from observations, counts, annual survey of nests, breeding success and adult survival. Source: Ron Ward, DEH, and Penny Olsen, ANU

Hooded Plover - Mornington Peninsula National Park, Victoria: numbers of adults in December. Source: Parks Victoria and The Friends of Hooded Plover

Birds of coasts and islands In addition to their threats at sea. seabirds and shorebirds that feed or nest onshore face some of the same threats as landbirds, including feral animals and direct human disturbance. In general these land-based threats have proven tractable.

The Australian subspecies (race) of Gould's Petrel nests at in two gullies on Cabbage Tree Island, New South Wales, with a few on neighbouring Boondelebah Island. From 375 pairs in 1970, only 122 remained in 1990, mainly because grazing by introduced rabbits reduced cover, exposing the birds to predation. Control of Pied Currawongs and removal of rabbits and birdlime trees—whose sticky seeds entrap birds—allowed the population to increase rapidly, to around 1000 petrels in 2001–2002. Young birds have been successfully translocated to Boondelebah Island.

At Mornington Peninsula National Park, Victoria's most heavily visited national park, intervention occurred before Hooded Plover numbers fell too low. Targeted management began in 1993/94, and grew in intensity and effectiveness. Minor changes (which did not prohibit beach access by tourists) increased reproductive success, and the population has recovered.

By 1980, the Lord Howe Woodhen (found only on Lord Howe Island) had declined to five breeding pairs. Predation and habitat degradation by the introduced masked owl, and feral pigs and goats, were factors operating at the time. However, the birds proved prolific breeders in captivity and 82 were bred and released in two and a half years. Feral pigs were eradicated by 1983 and feral goats by 2001. The resulting wild woodhen population quickly grew to an apparently stable population of about 200 birds.

On Norfolk Island, rat proofing and improvement of natural nest sites for the Green Parrot has led to a marked increase in numbers. Similarly, the population of Southern Boobooks has increased as a result of the construction of nest boxes and the introduction of a New Zealand male to partner the sole remaining bird.

In New South Wales, short-term monitoring of the State's Little Tern population suggests that numbers are increasing. Long-term monitoring of the same species at Gippsland, Victoria, reveals large fluctuations but general stability in the long-term. A severe hailstorm in the 2001–2002 season killed many adults of both Little and Fairy Terns, with at least 38 Little Terns found dead. Both species have a naturally high rate of breeding failure and are susceptible to predation and disturbance at the nest, but active management of breeding sites has allowed them to expand their range in Victoria and New South Wales. Neither are now considered threatened.



at the Coorong, South Australia

| Year | Red-necked Stint | Sharp-tailed Sandpiper | Curlew Sandpiper | Red-capped Plover | Fairy Tern |
|-------|------------------|------------------------|------------------|-------------------|------------|
| 1980s | 63 800 | 55 700 | 40 000 | 5 700 | 1 500 |
| 2000 | 25 524 | 13 089 | 8 157 | 1 243 | 632 |
| 2001 | 27 047 | 4 399 | 2 324 | 1 638 | 687 |
| 2002 | 28 413 | 13 335 | 3 633 | 625 | 346 |
| 2003 | 43 300 | 17 473 | 2 364 | 1 576 | 381 |

Counts of total birds over whole of the Coorong (110 km x 5 km in area) each January. Source: David Paton

Waterbirds of eastern Australia

In eastern Australia, numbers of several waterbird species apparently increased dramatically following the breaking of the three-year drought in the early 1980s. Their numbers increased in response to similar events subsequently. Nevertheless, converted to a logarithmic scale to tame the extreme fluctuations in numbers, the data indicates long-term stability in numbers for all six species.

Black-winged Stilts. Photo by www.birdphotos.com.au

Sandpiper, Curlew Sandpiper—and resident Red-capped Plover and Fairy Tern

Migratory shorebirds of the Hobart area

Increasing coastal development and associated human disturbance are the greatest threats to shorebirds, about 35 of which are regular migrants from the Northern Hemisphere. Australia hosts migratory waders that breed as far away as Siberia, and has an international obligation to protect them.

In south-east Tasmania, the Eastern Curlew has shown a steady long-term decline from the 1960s, to less than one quarter of former numbers. Winter counts—which reflect the number of young birds entering the population—also show a consistent decrease. Although Hobart is close to the southern boundary of the Eastern Curlew's range, widespread declines often first become apparent at the edge of a species' range.

Over the same period, the Bar-tailed Godwit and, perhaps, Common Greenshank show gentle declines. Of the more numerous species which return to Hobart every year, the Red-necked Stint may also have decreased in numbers. The pattern for the Curlew Sandpiper is less clear, although numbers have been at an all time low in recent years. The Curlew Sandpiper has decreased markedly in the Coorong of South Australia (Table 2) and a widespread decline is indicated by the national Atlas.



Hobart area, Tasmania: summer count of individuals. Source: Mike Newman, the late David Thomas, Shorebird Study Group and Birds Australia – Tasmania



Pacific Golden Plover. Photo by Brent Stephenson

Montagu Island seabirds Montagu Island supports the most southerly colony of Wedge-tailed Shearwaters and one of the most northerly colonies of Short-tailed Shearwater on the east coast. About 15 000 pairs of shearwaters—in mixed colonies of Wedge-tailed, Short-tailed and a few Sooty Shearwaters—commence breeding in November each year, and chicks fledge the following April.

Annual numbers vary widely but in recent years they have been relatively

stable. Catastrophic flooding in 1971 and 1999, after exceptionally heavy summer rainfall, caused high mortality of chicks. The extraordinarily high numbers of Short-tailed Shearwaters found during 1973–1987 have never been observed subsequently. It may be that warmer breeding seasons during recent years have favoured Wedge-tailed Shearwaters, which feed in warmer waters than Shorttailed Shearwaters, which must travel to the Antarctic pack-ice to gather food for their chicks.



Montagu Island, New South Wales: annual counts of chicks on fixed study plots in the last week of March. Source: Dr Peter Fullagar, MIPartners

Oceanic birds

One hundred and forty-two species of seabird occur in Australian waters. Seventy six of these breed and spend their lives in the region, and 34 are regular or occasional visitors. A major threat to several species is incidental capture during longline fishing operations. The Australian Government's 1997 Threat Abatement Plan for the Incidental Catch (or By-catch) of Seabirds During Oceanic Longline *Fishing Operations* has been broadly successful in meetings its aims to reduce seabird by-catch in Australian fisheries, particularly in regard to albatrosses. However, some fisheries, such as those catching pelagic tuna, still present a serious by-catch problem, particularly with Flesh-footed Shearwater.

On Macquarie Island, the Wandering Albatross population was all but destroyed by sealers in the 1800s, and only one breeding pair was recorded in 1913. The population slowly recovered to peak in the early 1960s, but by the 1980s had again declined to levels close to extinction—coincident with the rapid expansion of longline fishing in the Southern Hemisphere. Since 1994, the population has remained stable, at approximately 19 breeding pairs. In 1986 access to the main breeding grounds in the south-west corner of the island was closed during the breeding season to minimise disturbance. This appears to have been a successful management action, as the number of eggs laid in the southern end of the island has increased more quickly than at the more accessible northern end.

The Red-footed Booby has been hunted for food in the Cocos (Keeling) Islands in the Indian Ocean since first settlement in 1827. Formerly present throughout the islands, the estimated 30,000 pairs now breed only on isolated and uninhabited North Keeling Island. Despite legislative protection, illegal hunting remains a potential conservation threat. Informants estimate that 2000-3000 birds are killed in most years, and possibly as many as 10,000 in some years. Nest counts show no evidence of overall decline in nesting density since 1986, with no evidence of impact by illegal harvesting during that period. Large annual variations in numbers were associated with cyclonic events.

Black-browed Albatross. Photo by Brent Stephenson







Vandering Albatross - Macquarie Island, Tasmania: number of eggs laid—equivalent to the number of pairs that laid ource: Rosemary Gales, Department of Parks and Wildlife, Tasmani

Red-footed Booby – North Keeling Island: active nests counted in August or September. Counts were made annually a different stages in the breeding cycle, causing most of the variation. Source: Baker et al. (2003)

III. COMMITMENT OF GOVERNMENTS TO BIRD CONSERVATION

As a simple measure of government commitment to bird conservation in Australia, the listing of species in trouble and preparation of recovery plans addressing the major threats were examined. The Action Plan for Australian Birds 2000-a comprehensive assessment of the conservation status of all bird taxa (species and subspecies), based on the best available evidence at the timeserved as a benchmark.

Most species identified in the Action *Plan* have been listed nationally and/or in the relevant State. The exceptions are island or oceanic species, which stand to benefit from programs for other species. Examples include the apparently successful control of Crazy Ants on Christmas Island, implementation of the Action Plan for the

Conservation of Migratory Shorebirds in the East Asian-Australian Flyway 2001–2005, and management plans for Norfolk and Christmas Island Nature Reserves. Although it is too early to see effects of the Environment Protection and Biodiversity *Conservation Act*, which came into effect in 2000, its threat abatement plans, if properly resourced, offer salvation to many species.

Although most 'at risk' species are listed, the preparation of recovery plans lags well behind the recognition process at both State and national levels. For example, of 15 full species identified as critically endangered in the Action Plan, the Commonwealth has listed 12 and prepared recovery plans for only seven (Table 3). The equivalent figures for endangered species are: 22 identified, 16 listed and eight with plans prepared. For

38 species identified as Vulnerable, 22 have been listed and recovery plans have been prepared for 15. Over half of listed threatened species have a recovery plan-an improvement on the proportion in 2000 (c. 13%). Threatened birds remaining unlisted nationally include Albert's Lyrebird and the Australasian Bittern.

Work on threatened birds is overwhelmingly funded by government. For the eight-year period between 1993 and 2000, an estimated \$18 million was dedicated to bird conservation by government conservation agencies an annual investment equivalent to about 0.002% of the Australian Government's expenditure on the environment and 0.00001% of total government expenditure.

Species identified as critically endangered (CE) or Endangered (E) in The Action Plan for Australian Birds 2000 and their legal status federally and in the States and Territories in 2003

| Common name | Action Plan 2000 | National (EPBC Act) | Vic | NSW | ACT | Qld | NT | WA | SA | Tas |
|----------------------------------|------------------|---------------------|-----|-----|-----|-------|----|------|----|-----|
| Southern Cassowary | E | E | | | | E / V | | | | |
| Herald Petrel | CE | CE | | | | E | | | | |
| Round Island Petrel | CE | CE | | | | | | | | |
| Grey Petrel | E | | | | | | | | | E |
| Wandering Albatross | CE | V | CE | E | | | | Rare | V | Е |
| Amsterdam Albatross | CE | E | | | | | | Rare | | |
| Tristan Albatross | E | E | | | | | | Rare | | |
| Northern Royal Albatross | E | E | | | | | | Rare | E | |
| Black-browed Albatross | E | | | V | | | | | | E |
| Grey-headed Albatross | E | V | | | | | | Rare | V | E |
| Chatham Albatross | CE | E | | | | | | | | |
| Grey-backed Storm-Petrel | E | | | | | | | | | |
| Christmas Island Frigatebird | CE | V | | | | | | | | |
| Abbott's Booby | CE | E | | | | | | | | |
| Buff-breasted Button-quail | E | E | | | | v | | | | |
| Lord Howe Woodhen | E | V | | E | | | | | | |
| Plains-wanderer | E | V | E | E | | V | | | E | |
| Grey Ternlet | E | | | V | | | | | | |
| Christmas Island Imperial-Pigeor | n CE | | | | | | | | | |
| Carnaby's Black-Cockatoo | E | E | | | | | | Rare | | |
| Muir's Corella | E | V | | | | | | Rare | | |
| Coxen's Fig-Parrot | CE | E | | E | | E | | | | |
| Swift Parrot | E | E | Е | E | E | | | | V | E |
| Norfolk Island Green Parrot | E | E | | | | | | | | |
| Golden-shouldered Parrot | E | E | | | | E | | | | |
| Orange-bellied Parrot | CE | E | CE | Е | | | | | E | E |
| Night Parrot | CE | E | EX | | | E | | Rare | E | |
| Christmas Island Hawk-Owl | CE | V | | | | | | | | |
| Forty-spotted Pardalote | E | E | | | | | | | | E |
| Eastern Bristlebird | E | E | | E | | E | | | | |
| Black-eared Miner | E | E | CE | E | | | | | E | |
| Regent Honeyeater | E | E | CE | E | Е | E | | | E | |
| Helmeted Honeyeater | CE | E | Е | | | | | | | |
| Gouldian Finch | E | | Е | | | Е | Е | Rare | | |
| White-chested White-eye | CE | | | | | | | | | |
| Christmas Island White-eye | CE | | | | | | | | | |
| Slender-billed White-eye | E | | | | | | | | | |

A red E or V indicates that a national recovery plan has been prepared. Definitions vary between States, Territories and the Commonwealth. The Action Plan for Australian Birds 2000 applied the IUCN (1994) red list criteria:

Extinct (EX): no reasonable doubt that the last individual has died

Critically endangered (CE): facing an extremely high risk of extinction in the wild in the immediate future

Endangered (E): not critically endangered but facing a very high risk of extinction in the wild in the near future

Vulnerable (V): neither critically endangered nor endangered, but facing a high risk of extinction in the wild in the medium-term future

CONCLUSIONS

Through two national Atlases, a State atlas and several other remarkable datasetssome unbroken and reaching back four decades—a picture is beginning to emerge of the state of the nation's birds. Not surprisingly, their fortunes are mixed.

- The prospects for a number of rare species has been improved by targeted conservation actions that include: rabbit control (Gould's Petrel); collars to protect nest holes in trees (several Black-Cockatoos); rat-proofing nest sites (Norfolk Island Green Parrot and Southern Boobook); translocation and protection from fire (Noisy Scrubbird); pig and goat control (Lord Howe Woodhen); and beach management (Hooded Plover, Little and Fairy Terns).
- Declining common species have fared less well, notably woodland birds of the wheat-sheep belt. Landscape-level actions will be necessary to reverse these trends. There are encouraging signs that broadscale clearing will be stopped, but a worrying trend towards amalgamation of farms and intensification of agriculture has emerged.
- High altitude species were overrepresented among the species showing a decrease in reporting rate between Atlases. These include Rufous Scrubbird, Gang-gang Cockatoo and Flame Robin. Their declines may be early indications of the impact of climate change. Seabirds such as the Shorttailed Shearwater, which travel to the Antarctic pack-ice to gather food for their chicks, may have to travel further. On the other hand, the response of other species (e.g. several fruit-eating pigeons) may be to expand their range southwards into areas that were previously too cold, provided there is suitable and accessible habitat.
- Long-term monitoring reveals strong seasonal patterns in detectability of species and wide fluctuations in numbers resulting from natural forces that create cycles of destruction and renewal. Examples include cyclones (several species of seabirds), drought (Malleefowl), fire (Rufous Scrub-bird) and flood (waterbirds).
- A growing recognition that some fire management practices can be harmful to birds is yet to be embraced in parts of northern Australia, where a failure to limit extensive dry season fires

- threatens several northern grassy woodland species, including the Gouldian Finch and Hooded Parrot. Australia's relatively low-density, wellvegetated cities provide habitat for a variety of native species as well as sheltering exotics. However, urban sprawl and coastal development destroy bird habitats.
- One country's pest is another's endangered species. Long regarded as pests, the House Sparrow and Common Starling are listed as threatened in the United Kingdom and apparently are also decreasing in Australia. Other introduced species, such as the Common Myna, continue their invasion.



- Most species identified as at high risk of extinction in *The Action Plan for* Australian Birds 2000 are officially recognised through the listing process, although the preparation of recovery plans lag well behind, and the resources available to implement the plans are too often restrictive.
- In the 20 years between Atlases there has been a shift from governments and nature reserves as the main agents of bird conservation, to individuals and community groups taking up much of the responsibility.



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Pied Currawong. Photo by Raoul Slater

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Ongoing Atlas

The first Australian bird Atlas (1977–1981) laid a foundation for nationwide monitoring of bird species; over the five years nearly three million records were made by 3,000 Atlasers. Since then, the notion that birds may serve as a measure of biodiversity and change to the environment has gained momentum and with it the need for a follow-up Atlas. Consequently, between 1998 and 2002, Birds Australia, with National Heritage Trust Funding, coordinated the second Atlas. Every 1º grid across Australia was visited and the result was the largest continent-wide survey of birds in the world, with 279,000 surveys completed over four years by 7,000 Atlasers, five million bird records made and more than 750 bird species recorded.

Building on this foundation, the Ongoing Atlas is designed to continue indefinitely. New point-survey techniques can be used by volunteers under minimal supervision and produce data that can be used to examine longterm trends in bird abundance. The vetting procedure has been centralised, reducing the workload of Regional Organisers, who have offered their continued support. Atlasers themselves have shown their continuing commitment, submitting over 1,000 surveys to Birds Australia each week.

The Ongoing Atlas of Australian Birds, in particular the repeated, 2-ha intensive survey blocks, will contribute to each of the future *State of Australia's Birds* reports and generate much needed data for conservation. Understanding of natural and unnatural changes in bird populations is essential, to direct conservation effort where it is most needed and measure its effectiveness both in the short- and long-term.

For information, contact Andrew Silcocks (03 9882 2622; a.silcocks@birdsaustralia.com.au).

Other Birds Australia initiatives

The Threatened Bird Network links volunteers with recovery efforts for 25 threatened species. Contact Chris Tzaros (03 9882 2622; c.tzaros@birdsaustralia.com.au) The Important Bird Area project identifies areas critical to the survival of native birds. Contact Mike Weston (03 9882 2622; m.weston@birdsaustralia.com.au) Birds Australia's **Threatened Bird List** presents and reviews the conservation status of Australian birds. Contact Mike Weston (03 9882 2622;

m.weston@birdsaustralia.com.au) Birds Australia Reserves protect important bird habitat and incorporate monitoring into adaptive land management. Contact Michelle Sweeney (03 9882 2622; m.sweeney@birdsaustralia.com.au)

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Rainbow Bee-eater. Photo by Raoul Slater