Department for Environment and Heritage

Murraylands Region

Recovery Plan for the Regent Parrot (eastern subspecies) *Polytelis anthopeplus monarchoides* in the South Australian Murray Darling Basin

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Summary

The Eastern sub-species of the Regent Parrot *Polytelis anthopeplus monarchoides* is a medium size parrot, which breeds in hollows of live and dead River Red Gums. The eastern sub-species of the Regent Parrot is restricted to three states, South Australia, New South Wales and Victoria. Although once wide spread and in some instances considered an agricultural pest—both population numbers and the range of this species have been contracting since the late 1800s. At present there are fewer than 1000 mature individuals in South Australia. As a result of this decline this parrot is listed as 'Vulnerable' at both a national level and within South Australia under the *Commonwealth Environment Protection and Biodiversity Conservation Act* 1999 and the *National Parks and Wildlife Act* 1972, respectively.

Loss of foraging habitat, particularly mallee foraging habitat within 20km of breeding sites is considered to be the primary reason for the decline of this species in the past. Factors such as competition for nest hollows, loss of nest trees, legal clearing of small areas of mallee which link nesting and foraging sites (flight paths) illegal destruction, lag effects from previous clearing, grazing in breeding season foraging areas, competition from other hollow nesting birds and continued drought have all been suggested as contributing to the continued decline of the Regent Parrot.

This recovery plan aims to identify the primary reasons for the continued decline of the Regent Parrot in South Australia and Initiate management programs to stop further population declines and provide conditions favourable for population increases. These aims can be achieved by identifying and protecting critical habitat such as nest colonies, flight corridors and foraging areas from clearing and other impacts. Further benefits can be gained by actions which minimise the number of Regent Parrots killed by shooting, accidental poisoning, and road kill.

The implementation of conservation measures for the Regent Parrot will result in a number of positive impacts on both habitats and other native fauna in riverine and mallee habitats. Measures to protect large areas of intact mallee and woodland would benefit a wide range of nationally and state listed birds including Black-eared Miners *Manorina melanotis* and Malleefowl *Leipoa ocellata*.

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1.0. INTRODUCTION

1.1 Conservation status

The Regent Parrot *Polytelis anthopeplus monarchoides* is listed as Nationally 'Vulnerable' under the *Environment Protection and Biodiversity Conservation Act* 1999 (EPBC Act), although it has been recommended that its status be changed to 'Endangered' owing to habitat fragmentation, rapid population decline and severe threats (Garnett & Crowley 2000). In South Australia it has been listed as Vulnerable' under the *National Parks and Wildlife Act 1972* While in New South Wales it is listed as 'Endangered' on Schedule 1 of the *Threatened Species Conservation Act 1995*. In Victoria it is listed as 'Threatened' under the *Flora and Fauna Guarantee Act 1988* and its status is given as 'Vulnerable' on the Advisory List of Threatened Vertebrate Fauna in Victoria (Department of Sustainability and Environment 2003).

A 2003 review of the status of threatened species in South Australia has proposed that all threatened species are classified using the IUCN Red List Categories and Criteria, Version 3.1. Using this criteria it is proposed that the Regent Parrot be classified as 'Vulnerable' as there are now less than 1000 mature individuals in South Australia (National Parks and Wildlife Council & Department for Environment and Heritage 2003).

1.2 Reasons for decline

Loss of foraging habitat, particularly in the vicinity of breeding sites, is considered the most likely reason for the past decline of this species. Although losses still occur now, they are proportionately minor, and are not likely to currently pose the most immediate threat to the birds. Breeding habitat has also been affected by a range of factors, including waterlogging and death of trees resulting from the development of weirs along the river. These trees have now been dead for many decades and are slowly deteriorating and collapsing (Smith 1999). Another possible cause for decline is the collection of birds for the avicultural trade, although there is little evidence to suggest that this would have led to large or widespread declines.

Currently, the loss of relatively small amounts of habitat along critical flight paths (vegetated corridors) that link breeding sites with foraging habitat, could potentially contribute to further declines. Also, many more of the nest trees are dying as a result of river regulation and limited flooding, combined with the recent severe drought. Changes to land-use around breeding colonies are also thought to be potentially leading to increased conflicts in some areas between the birds and horticulturalists. These are discussed further in section 3.

1.3 Recovery actions to date

Relative to other threatened species in the South Australian Murray Darling Basin, the Regent Parrot has received considerable attention, focussing primarily on surveys of breeding colonies:

- Population surveys and habitat investigations were undertaken by Beardsell (1985) and Burbidge (1985) in New South Wales, Victoria and South Australia. These studies indicated that the eastern sub-species of the Regent Parrot was in decline throughout its range and identified important breeding and foraging habitat types for this species. Burbidge (1985) suggested that the major factor in the decline of the Regent Parrot was the clearing of large blocks of mallee near their nest colonies. Hence, the key recommendation of this report was to retain all areas of mallee within 20km of known nest colonies.
- A survey of active nests was conducted between Lock 2 and the South Australian border by Harper (1989).
- Breeding population surveys were conducted by Smith (1992, 2001 & 2004) and documented the continued decline of Regent Parrots in South Australia, noting that the greatest decline in this period occurred between the 2000 and 2004

surveys. The 2004 report included recommendations that selected colonies be monitored every two years to track population trends and that unallotted Crown Land with nest sites be added to the reserve system.

- In 2003 dead trees of species indigenous to South Australia, were included as native vegetation under the *Native Vegetation Act* 1991, to protect the nesting sites of four species of parrots, including the Regent Parrot which can breed in the hollows of dead trees in addition to breeding in live trees.

2.0. ECOLOGY AND BIOLOGY

2.1 Taxonomy

The Regent Parrot belongs to the Family Psittacidae and the genus *Polytelis* that contains two other species of parrot—the Superb Parrot *Polytelis swainsonii* and the Princes Parrot *Polytelis alexandrae* (Christidis & Boles 1994). Two subspecies of Regent Parrot are now recognised, *anthopeplu*s (formerly *westralis*) in south-western Western Australia and *monarchoide*s (formerly *anthopeplus*) in south-eastern Australia (Higgins 1999). Although the morphological differences between the two sub-species are not great—there are differences in habitat requirements for both breeding and foraging. Additionally there is no overlap in the range of the two sub-species (Blakers *et al*. 1984, Burbidge 1986, Higgins 1999). Throughout this document the common name Regent Parrot will refer to the eastern sub-species of this bird unless otherwise stated.

2.2 Description

The Regent Parrot is a medium size parrot weighing between 160 – 190g. Males may be slightly longer than females 40 – 42cm long compared to 37 – 41cm, but both have wingspans of between 50 – 55 cm. The male parrot has a golden-yellow head, neck, shoulder patch and underparts, and has a dark green back, blue-black flight feathers and a red-band across the mid wing. Females and juveniles are similar but are greener, particularly around the head and neck (Simpson & Day 1984).

2.3 Distribution

The range of the eastern sub-species of Regent Parrot is restricted to three states, New South Wales, Victoria and South Australia. Both population numbers and the range of this species have been contracting since the late 1800's (Blackers *et al*. 1984, Higgins 1999). The Regent Parrot currently occurs from Murray Bridge and Morgan (South Australia) in the west through to Pooncarie and Balranald (New South Wales) and Swan Hill (Victoria) in the east and has been observed south of the River Murray in Wyperfield National Park and Lake Albacutya in north-western Victoria. (Figure 2.1) (NSW, NPWS 2003).

Outside the breeding season, the Regent Parrot in South Australia is restricted to the Murray-Mallee district (Figure 2.1). It has been observed to the north of the River Murray corridor at Morgan Vale, Canopus, Cane Grass and Gluepot Stations some 40 – 50 km from breeding sites along the River Murray. It has also been observed 120 – 140km south of breeding areas mainly, around Marama and Pinnaroo but historical records indicate they have been observed even further south than this (Higgins 1999). During the breeding season the range of nesting Regent Parrots contracts to the River Murray corridor where they occur in colonies of 1 – 37 breeding pairs with 65% of colonies containing 2 – 12 nests (Smith 2004). Burbidge (1985) found that most nest trees occurred within 60m of water and noted that all nest trees were within 900m of the River Murray. All known South Australian breeding colonies are located between Chowilla—at the South Australian border—and Swan Reach. Although Regent Parrots have also been sited further south during the breeding season—between Swan Reach and Walkers Flat—survey work failed to locate any nests downstream of Swan Reach (Smith 2004).

Tenure of land within the breeding distribution

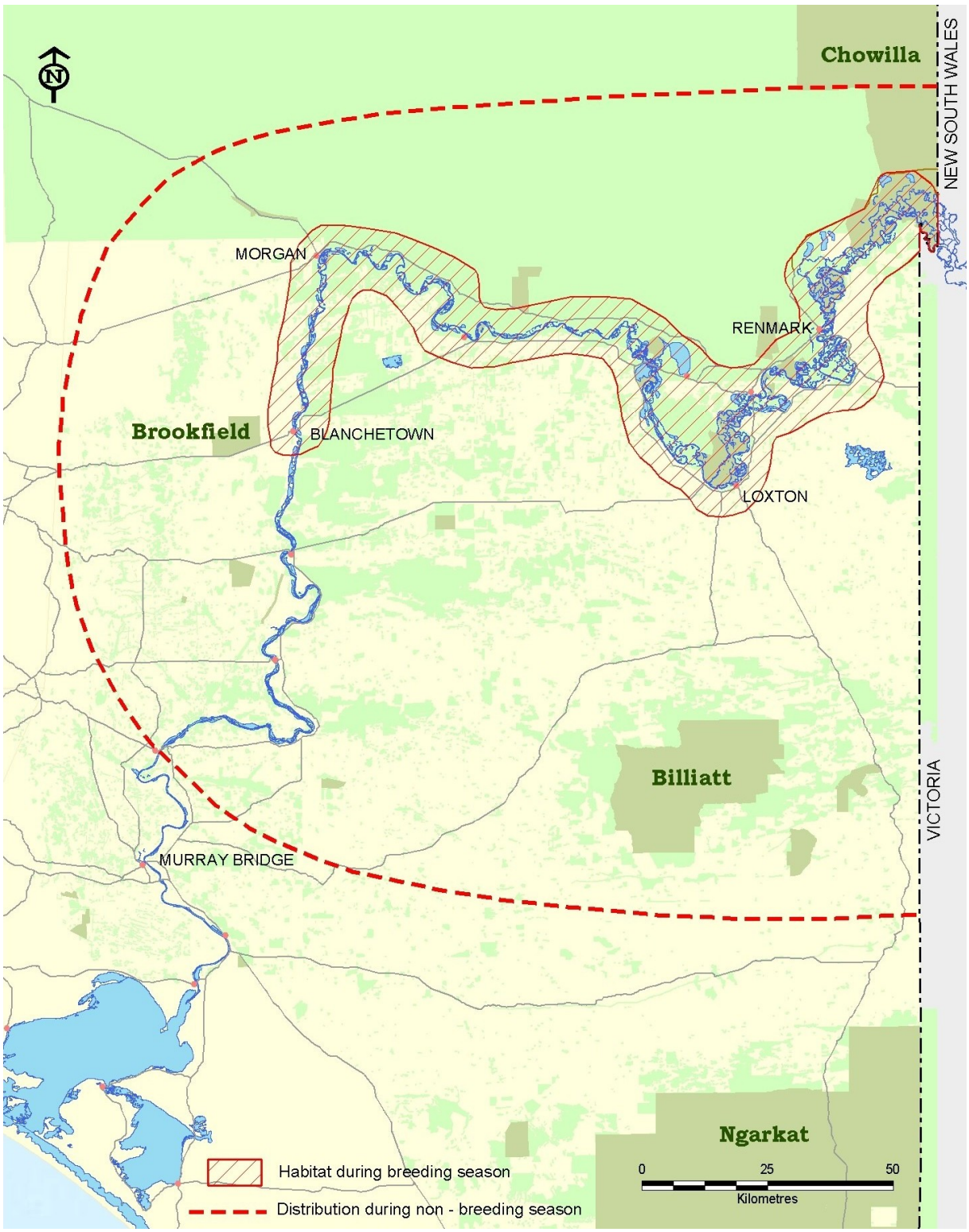
Smith (2004) reported that from the 51 breeding colonies located in the 2003 – 04 surveys, 21 (41.2%) were located in National Parks, Conservation Parks, Game Reserve or Crown Reserves and hence were under the control of the South Australian National Parks and Wildlife Service. Nine colonies (17.6%) were located on Crown Leasehold, five colonies (9.8%) were located on unallotted Crown Land and the remaining 16 (31.4%) colonies were located on freehold land.

2.4 Population estimates

In eastern Australia the Regent Parrot population has declined since the late 19th centaury (Higgins 1999). Burbidge (1985) demonstrated a positive association between breeding sites and large blocks of mallee and suggested that clearing of mallee, was the single most important factor in the decline of the Regent Parrot in the east. The Regent Parrot was already considered scarce in the South Australian River Murray corridor by 1913, although it was once considered numerous in this area (White 1914 cited in Higgins 1999). Present breeding populations of the Regent Parrot have been estimated at 600 – 650 individuals in New South Wales, 750 individuals in Victoria (NSW NPWS 2002) and 800 individuals were recorded in a 2003 – 2004 Regent Parrot nest survey in South Australia (Smith 2004).

This 2003 – 2004 survey represented a considerable increase in the number of actual nesting birds recorded in South Australia, with other recent surveys reporting between 25 and 175 breeding pairs (Beardsell 1985, Burbidge 1985, Harper 1989, Smith 1992). However it should be noted that this study represented a considerable increase in both survey effort—with the survey of nest sites, occurring over two breeding seasons, and survey area and does not demonstrate an actual population increase. Indeed a comparison of three surveys of nine breeding colonies of Regent Parrot that included more than four nesting pairs conducted in 1991, 2000 and 2003 revealed a decline in numbers from 115 nesting pairs in 1991 to 78 pairs in 2003 for these sites. Interestingly between 1991 and 2000 there was a decrease of only 5 nesting pairs, hence 86% of this recorded decline occurred in just three years (Smith 2004). Similar rapid declines in numbers have been recorded in NSW where population estimates at Mallee Cliffs State Forest / Kemendoc Nature Reserve fell from 400 birds in 1993 to 150 individuals in 1997 (Webster & Leslie 1997).

Figure 2.1: The current distribution of the Regent Parrot in south-eastern Australia.



2.5 Habitat requirements

Breeding

To breed successfully Regent Parrots require three essential habitat elements, nest trees, foraging areas and treed flight corridors, which connect nesting sites with foraging sites. All known nest sites in South Australia occur in mature River Red Gum *Eucalyptus camaldulensis* woodlands within the Murray River floodplain. All recorded nest trees are large mature or drowned River Red Gums with multiple hollows (Burbidge 1985, Webster & Leslie 1997, Smith 2004). Smith (2000) reported that between the South Australian border and Waikerie—a section of the river containing four locks and many drowned trees—that 90% of Regent Parrot nests occurred in drowned River Red Gums. This contrasts with the section of the River Murray downstream of Waikerie—an area containing fewer drowned trees—where 91% of nests occur in live trees (Smith 2004) and in NSW where only a small percentage of nests were recorded in dead trees (NSW NPWS 2003).

Nest tree properties differ slightly between the states. Nest trees within South Australia are not as tall, have lower nest entrances and smaller diameters at breast height (DBH). In South Australia Burbidge (1985) reported a mean nest tree height of 24.6m, mean nest hight of 17.1m and a mean DBH of 1.20m. Compared to studies in NSW and Victoria, that have reported mean tree heights of between 27 – 33m, mean nest entrance heights of 15.4 – 22m and mean DBHs of between 1.34 – 1.75m (Burbidge 1985, Webster 1993, Webster 1999, Webster 2003).

The most important foraging locations for breeding Regent Parrots are thought to be mallee woodlands, most commonly containing Red Mallee *Eucalyptus socialis* and Ridge-fruited Mallee *Eucalyptus incrassata*. Burbidge (1985) proposed that these woodlands would need to be within 20km of breeding colonies, as the male parrots need to collect food and return to feed the incubating or brooding female or to feed the chicks two to three times per-day (Forshaw & Cooper 1981). However, Burbidge (1985) also indicates that 20km is probably a maximum distance, and points out that most breeding colonies are within 10km of mallee woodlands, and that the two major breeding areas in South Australia are within 5km of reasonable size stands of mallee. Indeed maximum trip distances recorded to mallee woodlands are between 8 – 12.5km (Webster & Leslie 1997). In addition large numbers of Regent Parrots have been observed feeding on Wheat *Triticum aestivum* crops, 6 – 7km from their nesting colonies (Webster 2001). Other foraging locations can include Black Box *Eucalyptus largiflorens* woodlands and cereal and legume crops, vineyards and orchards where they usually feed on the ground on fallen seeds, weeds and among discarded almond husks near processing sheds (Burbidge 1985, Beardsell 1985, Higgins 1999).

The existence of treed flight corridors linking nesting and foraging habitat may be an important component of breeding habitat for the Regent Parrot. Webster and Leslie (1997) observed that foraging males avoided open paddocks and travelled to feeding sites along virtually unbroken and occasionally narrow (less than 100m wide vegetation corridors). They suggested that this was predator avoidance behaviour, as when Peregrine Falcons *Falco peregrinus* were observed harassing Regent Parrots, the parrots would immediately seek shelter in dense vegetation. Vegetation corridors are also known to lead some other species of parrot to foraging areas (Saunders 1977). However no studies conducted in South Australia have identified a relationship between treed flight corridors and Regent Parrot breeding colony location, and the work in New South Wales is based on small sample sizes, hence further research of this subject is urgently required.

Non-breeding

It is accepted that large blocks of mallee are the most important habitat areas outside of the breeding season, although the preferred features of this habitat are not known. Additionally, large flocks containing up to 200 individuals, including fledglings, have been reported moving around horticultural districts closer to the River Murray (Smith 2004). Although these sightings

have generally been made close to the finish of the breeding season and this may be a stage in the movement out to the mallee.

2.6 Critical habitat

The critical breeding habitat of the Regent Parrot is reasonably well known currently following several surveys that have identified where colonies occur, and characteristics of next trees. All known breeding colonies are considered critical. The critical foraging habitat of the Regent Parrot is currently unknown. However, given the loss of a substantial proportion of the potential foraging habitat, particularly within the vicinity of breeding habitat, any habitat now used for foraging should be considered as critical for the species' persistence.

2.7 Movements and home range

It is widely acknowledged that Regent Parrots disperse from the river corridor into mallee areas after breeding (Joseph 1978, Burbidge 1985, Webster 1991, Smith 2001). However records of this dispersal have been sparse and no annual pattern is discernable from the available data. In South Australia, Regent Parrots have often been observed in the mallee to the north of the River Murray at traditional watering points on Gluepot Reserve and on Taylorville and Calperum Stations. This association with water in the drier mallee areas has also been noted in Western Australia, were it has been suggested that the availability of water will affect bird movements. Regent Parrots will disperse widely when adequate water is available and contract to permanent water sources when dry conditions prevail (Sedgwick 1949 in Higgins 1999). The birds also disperse to the agricultural region to the south and east of the River Murray and have been observed in the vicinity of Wynarka, and as far south as Ngarkat Conservation Park. Very little is known about movements within this region, and no traditionally visited sites are known.

The annual home range of Regent Parrots is likely to be very large, taking into account long distance movements from known breeding colonies to areas such as Calperum Station or Ngarkat Conservation Park. However, areas of core use may be much smaller, particularly during the breeding season.

2.8 Diet and foraging behaviour

Regent Parrots have been observed foraging in a range of locations that include native vegetation such as mallee and riparian woodlands, as well as agricultural areas including vineyards, orchards and cereal crops. They feed on a large range of endemic and introduced plants, primarily eating the seeds, buds and flowers (Burbidge 1985, Webster & Leslie 1997, Higgins 1999). Although seed is the major component of their diet, they have also been observed feeding on insect larvae, psyllids and lerp (Higgins 1999).

Burbidge (1985) suggested that mallee was the most important foraging habitat for Regent Parrots, based on the results of his 1984 – 85 survey, in which 50% of observations of foraging Regent Parrots were made in native vegetation, predominately in mallee compared with 18% of observations in cereal crops and 32% in vineyards and orchards. Burbidge, however, noted that Regent Parrots were easier to observe in agricultural land and considered these areas may be over represented in his survey. In addition owing to the temporary nature of crops, mallee and other native vegetation is likely to provide a more consistent food source.

While foraging in mallee woodland, Regent Parrots have been observed feeding on seeds from small herbaceous grasses, chenopods, daises and eucalypts (Table 2.1) although it has been noted that it was difficult to determine what Regent Parrots were eating while on the ground (Burbidge 1985). They have also been observed feeding in regrowth mallee on Rosy Bluebush *Marieana gracilis* and Climbing Twinleaf *Zygophyllum eremaeum* (Webster 2001). In River Red Gum woodlands they have been observed feeding on the seeding heads of daisies, including the introduced Cats Ear *Hypochoeris sp*. seeding grasses (Burbidge 1985) and on Bladder Saltbush Atriplex *versicaria* and *Osteocarpum acropterum* var. *deminuta* seed pods (Webster 1993, Webster & Leslie 1997). Regent Parrots have also been observed feeding on Black Box flower buds (Webster 2001).

Burbidge (1985) observed Regent Parrots feeding on five cereal crops (oats *Avena sativa*, triticale *Triticale sp*., barley *Hordeum vulgare*, rye *Secale cereale*, and wheat). Of these cereals oats were utilised most often, but only when the seeds had just germinated (''milky stage'') with these still soft seeds being fed to nestlings. When the seeds became ripe the birds switched to other immature cereal crops. In orchards they feed on the ground, on the seeds of various weed species and will also feed on over-ripe olives *Olea europea* that have fallen to the ground. In addition Regent Parrots have been observed in almond orchards and feeding on almond husks near processing sheds (Burbidge 1985). There have also been numerous reports of feeding on spilt grain on roadsides (Higgins 1999).

During the breeding season Regent Parrots have been observed feeding in pairs, small parties and occasionally large flocks that form up over the breeding colony and may include members of other colonies (Beardsell 1985, Smith 1992). Outside the breeding season large flocks have been observed assembling to roost in the late afternoon and during the day groups of between 2 – 20 birds would leave to forage (Smith 2001). Feeding is usually on the ground but occasionally in tree canopies (Beardsell 1985, Burbidge 1985). They drink early in the morning before feeding and in the evening before roosting (Forshaw & Cooper 1981).

Table 2.1: Known Regent Parrot food plants.

Family	Common name	Scientific name	Food
	Monocotyledons		
Poaceae	Oats	*Avena sativa**	S
Poaceae	Spiny Burr-grass	*Cenchrus pauciflorus**	S
Poaceae	Barley-grass	*Hordeum leporinum**	S
Poaceae	Barley	*Hordeum vulgare**	S
Poaceae	Rye	*Secale cerale**	S
Poaceae	Speargrass	*Stipa spp.*	S
Poaceae	Sudax	*Sudax sp.**	S
Poaceae	Triticale	*Triticale sp.**	S
Poaceae	Wheat	*Triticum aestivum**	S
	Dicotyledons		
Asteraceae	Capeweed	*Arstotheca calendula**	S
Asteraceae	Creeping Knapweed	*Centauris repens**	S
Asteraceae	Cat's Ear	*Hypochoeris sp.**	S
Asteraceae	Hawkweed Picris	*Picris hieracioides**	S
Asteraceae	Common Sowthistle	*Sonchus oleraceus**	S
Brassicaceae	Wild Mustard	*Sisymbrium sp.*	S
Chenopodiaceae	Saltbush	*Atriplex semibaccata*	S
Chenopodiaceae	Hard-head Bassia	*Bassia paradoxa*	S
Chenopodiaceae	Fat Hen	*Chenopodium album*	S
Chenopodiaceae	Ruby Saltbush	*Enchylaena tomentosa*	B
Cucurbitaceae	Camel Melon	*Citrullus lanatus**	S
Cucurbitaceae	Paddy Melon	*Cucumis myriocarpus**	S
Dilleniaceae	Guinea-flower	*Hibbertia virgata*	S
Dilleniacea	Guinea-flower	*Hibbertia sp.*	S
Geraniaceae	Heron's Bill	*Erodium crinitum*	S
Loganiaceae	Olive	*Olea europea**	B
Loranthaceae	Box Mistletoe	*Amyema miquelii*	B
Mimosaceae	Wattle	*Acacia sp.*	S
Moraceae	Fig	*Ficus carica**	B

Myoporaceae	Berrigan	*Eremophila longifolia*	B
Myrtaceae	River Red Gum	*Eucalyptus camaldulensis*	S
Myrtaceae	Silver Mallee	*Eucalyptus cyanophylla*	L
Myrtaceae	Yorrell	*Eucalyptus gracilis*	S, BU
Myrtaceae	Black Box	*Eucalyptus largiflorens*	S
Myrtaceae	Oil Mallee	*Eucalyptus oleosa*	L
Myrtaceae	Mallee	*Eucalyptu sp.*	F
Oxalidaceae	Soursob	*Olalis pes-cap-rae**	C
Papilionaceae	Golden Pea, Field Pea	*Pisum sativum**	S
Rosaceae	Almond	*Prunus amygdalus**	B
Rosaceae	Apricot	*Prunus armeniaca**	B
Rosaceae	Loquat	*Eriobotrya japonica**	B
Rosaceae	Apple	*Malus sylvestris**	B
Rosaceae	Pear	*Pirus communis**	B
Sapindaceae	Hopbush	*Dodonaea angustissima*	S
Solindaceae	Oondoroo	*Solanum simile*	S
Vitaceae	Grape	*Vitis* Vinifera*	S, B

Abbreviations: B = berry, BU = buds, C = culms, F = flowers, S = seeds, L = lerps, * = introduced species. This table is reproduced from Burbidge (1985).

2.9 Social organisation and reproduction

The breeding season of the Regent Parrot in South Australia begins in early August and continues until mid November (Smith 1992), which is similar to that recorded in NSW and Victoria, although breeding may extend into December and January in these states (Webster 1991). These birds are generally colonial nesting (Burbidge 1985), although solitary nests are also recorded (Burbidge 1985, Smith 1992, 2001, 2004). In the most extensive Regent Parrot nest survey conducted in South Australia, Smith (2004) found that colony size ranged from one to 37 nests (mean = 7.86 $\pm$ 8.03, n = 51 colonies) with 65% of colonies containing between 2 – 12 nests. However the author cautions that an arbitrary separation of 500m was used to delineate between colonies and may not represent an actual separation of the groups as many of the small ''colonies'' would join up to form larger feeding flocks.

Regent Parrots show a degree of nest site fidelity, with colonies occupying the same areas of River Red Gum forest or woodland annually throughout their range (Burbidge 1985, Webster & Leslie 1997, Smith 2001, 2004). However, Smith (2001) found that while the same areas were used from one year to the next, only a small percentage of previously used nest hollows (17%) and nest trees (29%) were reoccupied in following surveys.

Breeding begins with courtship behaviour in August, which can include breeding pairs inspecting tree hollows (Smith 1992), short-display flights by the male, feather puffing by the male and the female and the female soliciting feeding and copulation (Foreshaw & Cooper 1981, Webster 1991). Egg laying usually occurs about two weeks after the courtship displays and between three to six eggs are laid on a layer of decayed wood in the nest-hollow. Incubation is exclusively by the female who is fed by the male for the duration of the incubation period, which lasts for 21 – 23 days (Forshaw & Cooper 1981, Higgins 1999). The male may also continue to feed the female during the initial brooding phase—this has been observed in Regent Parrots in captivity for periods of two weeks (Higgins 1999). From hatching to fledging takes approximately six weeks (Foreshaw & Cooper 1981) and the parents may continue to feed the young for up to six weeks after fledging (Higgins 1999).

No direct observations of breeding successes in Regent Parrots have been recorded in its eastern distribution owing to the difficulty in observing nest cavities. Indirect observations include those made by Smith (1992) who recorded ''families'' consisting of adult birds and 2 – 3 juveniles around known nest trees in mid-November. Studies of the western sub-species reported that from 104 eggs, 88.5% hatched and 63.5% fledged (Long 1989 in Higgins 1999) and that on average three young were fledged at each active nest (Long & Mawson 1994).

No studies of nest mortality have been conducted for the eastern sub-species, but there have been incidental observations of nest predation of chicks by Australian Ravens *Corvus coronoides* (Burbidge 1985) and of nesting pairs abandoning nest hollows after rain, suggesting chick mortality or egg failure caused by nest flooding (Smith pers com.). No studies have been conducted on the number of fledgling that are recruited into the breeding population in either the western or eastern sub-species.

No studies have ascertained the life-span of Regent Parrots in the wild, although Webster (1993) suggests that it may be 15 – 20 years based on continuous occupation of nest hollows and further suggests that their life span may be similar to the related Superb Parrot which can live for up to 25 years in captivity.

3.0. THREATS TO SPECIES PERSISTENCE OR RECOVERY

3.1 Clearing of mallee near nest sites

Clearing of large tracts of mallee near nest sites has been considered to be a major threat to Regent Parrots in South Australia and has no doubt been a major factor in their decline (Burbidge 1985). Although, the rate of mallee clearance has slowed since the introduction of native vegetation clearance controls in 1983 and the establishment of the Native Vegetation Authority in 1985. And slowed further since the enactment of the Native Vegetation Act in 1991 (Glanznig 1995). Exemptions to the Act still allow some clearing with conditions and illegal clearing of mallee has occurred as recently as 2002 when over 1,200ha was cleared without a permit.

If, as suggested, Regent Parrots do require treed flight corridors connecting nest sites with foraging areas, it is possible that clearance of even a small area of connecting vegetation will render larger mallee blocks unusable to Regent Parrots and lead to the abandonment of nesting colonies (NPWS 2002, Baker-Gabb 2004).

3.2 Loss of nest hollows

In the 2003 – 04 South Australia nest survey 32% of the known Regent Parrot nests were recorded in drowned River Red Gums standing in permanent water (Smith 2004). Because Regent Parrots exhibit a high degree of nest site fidelity with birds returning to the same colonies annually (Section 2.4). It has been suggested that these areas were existing colonies before Locks 3 – 6 were built between 1925 – 1930. These trees have now been flooded for between 75 – 80 years and many are either showing serious signs of decay or have completely rotted and fallen. The decline of these trees is now rapid with Smith (2001) reporting that from 101 nest trees surveyed in 1991 and resurveyed in 2000 – 2001, seven had blown over or had broken off at water level, and 18 had suffered major loss of limbs. Hence in a 10-year period 25% of trees have suffered significant damage. In addition, this report noted that many trees are showing increased signs of termite and fungal attack, so it may be expected that the rate of loss of nest trees will increase over the next 10 years.

Although Regent Parrots will also nest in live River Red Gums, these too have a finite life span. Hence the continuing decline of River Red Gum numbers in the South Australian River Murray a result of river regulation, fewer floods owing to extended periods of drought and continuing high levels of consumptive water use and rising saline water tables (Morris 1991, Murray-Darling Basin Commission 2002, 2003 & 2005), is a potential high order threat in the future.

3.3 Competition for nest hollows

Observers at nesting colonies have noted that Regent Parrots are very timid when interacting with other birds (Smith 1992, 2001, 2004, NSW NPWS 2003). Smith (1992) noted that Yellow Rosellas *Platycerus elegans faveolus* in particular, drove off Regent Parrots in all observed interaction. Common Starlings *Sturnus vulgaris* and Feral Pigeons *Columbia livida* have also been observed moving Regent Parrots away from their nest trees. Smith (2004) has recorded a range of birds entering hollows in Regent Parrot nest colonies. While some species such as the Sulpher-crested Cockatoo *Cacatua galerita* used larger hollows than those favoured by Regent Parrots and other species such as Common Starlings, Tree Martins *Necrosis nigricans*, Purple-crowned Lorikeets *Glossopsitta porhyrocephala* and Red-rumped Parrots *Psephotus haematonotus* use hollows smaller than those required by Regent Parrots. Despite this it is still possible that these species will drive Regent Parrots away from suitable nest hollows.

The 2003 – 2004 South Australian Regent Parrot nest survey found that Little Corellas *Cacatua sanguinea*, Galahs *Cacatua roseicapilla* Yellow Rosellas and Mallee Ringnecks *Barnardius Barnardo* were in direct competition with Regent Parrots for available nest hollows, with competition from Little Corellas being particularly strong. In some areas Regent Parrots appear to have been completely displaced by Little Corellas and Sulpher-crested Cockatoos (Smith 2004). In Victoria Feral Honey Bees *Apes mellifera* have also been recorded in hollows

formerly occupied by nesting Regent Parrots (Noilier in Garnett 1992). No incidences of exclusion have been observed in New South Wales or South Australia, but in both states Feral Honey Bees have been observed in River Red Gum woodlands and forests suitable for Regent Parrot nesting (Smith 2001, NSW NPWS 2003). Given the continued decline of River Red Gums along the lower reaches of the River Murray (Murray-Darling Basin Commission 2005) competition for nest hollows has the potential to become even more intense, particularly with Little Corellas whose range and population has increased as a result of forest clearing and agriculture (Higgins 1999).

3.4 Predation at nest-hollows

There is a paucity of information regarding nest site predation on Regent Parrot chicks. There has been one recorded observation of an Australian Raven *Corvus coronoides* removing and consuming a Regent Parrot chick when both parents were absent. The same study also reported observations of Australian Ravens inspecting nest hollows and leaving if the hollow was too small or if a parent was present (Burbidge 1985). Observations of a Lace Monitor *Varanus varius* feeding on a Feral Pigeon chick within a Regent Parrot nest colony (Smith 2001) suggest that predation by this species on Regent Parrot chicks may also be possible.

3.5 Agriculture

Threatening processes resulting from agriculture, can include the deliberate destruction of birds to protect crops from a perceived threat, or can result as the unintentional consequences of other actions such as rabbit baiting or roadside grain spills. In addition land clearing for agriculture has directly affected the availability and distribution of food for the Regent Parrot and has brought it into direct contact with competing species such as the Little Corella, as described above.

Regent Parrots have been considered by some growers to cause damage to almond, apricot, plum, peach and fig crops. However the amount of damage they actually cause is probably negligible, because they primarily feed on the ground in these areas. However they are sometimes blamed for damage to crops caused by Yellow Rosellas (Burbidge 1985). In the past Regent Parrots have been legally destroyed in large numbers, in agricultural areas throughout their range. Indeed as many as 500 were destroyed in one year alone in South Australia (Condon 1947 in Higgins 1999). Although the destruction of Regent Parrots has been prohibited in South Australia since 1983, when they were formally protected throughout Australia (Higgins 1999). There have been unconfirmed reports of Regent Parrots being mistaken for Yellow Rosellas and shot in orchards as late as 2001 (Smith 2001). Given that Regent Parrots in some South Australian colonies either fly across agricultural areas in order to forage in mallee or forage in agricultural areas at some times of the year, there is still the potential for the illegal destruction of this species. Indeed, requests for destruction permits for this species have been received as recently as 2005 in the Riverland district (Strachan pers. com.).

Accidental poisoning of Regent Parrots has occurred in the past as a result of rabbit *Oryctolagus cuniculus* and mouse *Mus domesticus* control programs (Burbidge 1986, NSW NPWS 2003). Burbidge (1985) suggests that while regulations governing the use of 1080 are stricter than they have been in the past, some poisoning may still occur.

Regent Parrots often feed on spilt grain by the roadside in large numbers with greater than 300 being recorded along a 3km section of road in 1979 (Forshaw & Cooper 1981). This poses a major risk to the birds, and in one instance in March 1980 more than 150 were killed by vehicles (Anon. 1980 in Higgins 1999).

3.6 Avicultural trade

Regent Parrots have long been trapped for the avicultural trade, and in Victoria prior to the 1930s, the birds were trapped in sufficient numbers to cause local population declines. There are also records of large numbers being trapped in South Australia in the late 1950's (Higgins 1999). Although it is presently illegal to trap Regent Parrots and despite the fact that they

breed readily in captivity, there have been recent prosecutions for trapping birds and other evidence of removal in some South Australian colonies. Smith (2001, pers com.) reported evidence of nest tampering during the 2000 and 2003 – 2004 nest surveys in South Australia.

3.7 Knowledge gaps

There has been little scientific research of the eastern sub-species of Regent Parrots and there is a paucity of published research on their ecological requirements for successful breeding and survival in the non-breeding period. While the location of nesting colonies within South Australia and the decline in numbers of breeding pairs at known nest sites is well documented (i.e. Beardsell 1985, Burbidge 1985 Harper 1989, Smith 1992, 2001, 2004), with the exception of Burbidge (1985), no study has quantified or analysed habitat requirements outside the breeding colony in a formal manner.

In the absence of this information it is difficult to predict or monitor the efficacy of a range of management actions. In particular more information is required on breeding season foraging habitat requirements. While it has been established that the distribution of nesting colonies is significantly related to the existence of large blocks of mallee within 20km of the breeding colonies (Burbidge 1985), this study was conducted before the use of Geographical Information Systems became wide-spread, hence more detailed studies, of the relationship between Regent Parrot nest sites and surrounding land and vegetation type and land use are now possible. Such studies could include identifying potential flight corridors between nest sites and foraging habitat and assessing the impacts of grazing and other land uses in mallee areas close to nest colonies in South Australia.

Additionally basic biological information such as breeding success, main foraging locations and non-breeding season movements and habitat requirements are poorly understood, making appropriate management of the Regent Parrot and the areas they occupy difficult to achieve.

4.0. RECOVERY OBJECTIVES

4.1 Broad goals

Short-term Goal

- Within five years identify the primary reasons for the continued decline of the Regent Parrot in South Australia. Initiate during this time period, management programs to stop further population declines and provide conditions favourable for population increases.

Long-term Goal

- Within ten years improve the conservation status and recovery potential of the Regent Parrot.

4.2 Specific objectives

1) Increase the level of knowledge of the Regent Parrot's breeding biology in South Australia.

2) Increase the level of knowledge of the Regent Parrot's breeding season habitat requirements within South Australia.

3) Increase the total breeding population of Regent Parrots in South Australia.

4) Implement strategies to mitigate identified threats to Regent Parrots in South Australia.

5) Increase community awareness and involvement in the conservation of threatened riverine birds.

6) Formation of a Tri-State Recovery Team for Regent Parrots.

5.0. RECOVERY CRITERIA AND ACTIONS

5.1 Specific recovery actions

Objective 1: Increase the level of knowledge of the Regent Parrot's breeding biology in South Australia.

Criteria 1.1: Hatching success and overall breeding success is determined for Regent Parrots at selected colonies.

Criteria 1.2: Nest sites are monitored every two years to track population trends and measure the efficacy of management actions.

Criteria 1.3: The level of competition for nest hollows from other bird species is better understood.

Actions

1.1 Monitor selected nests to determine the number of eggs laid, the number of eggs hatched, the number of chicks fledged and overall breeding success.

1.2 Monitor selected colonies every two years to determine numbers of breeding pairs at each location.

1.3 Monitor selected colonies every two years to determine number of breeding pairs of Regent Parrots at each location, determine the number of other species nesting within extent of the colonies, total number of available nest hollows and the number of other species nesting in hollows formerly occupied by Regent Parrots.

Regular monitoring of selected colonies will allow trends in the breeding populations size and breeding success of Regent Parrots in South Australia to be tracked and provide baseline information necessary for evaluating the efficacy of recovery actions. An assessment of the threats posed by competition from other species for nest hollows will assist in the development of a mitigating strategy if necessary. Additionally improved knowledge of the species breeding biology will help to inform future recovery actions.

Objective 2: Increase the level of knowledge of the Regent Parrot's breeding season habitat requirements within South Australia.

Criteria 2.1: Factors influencing the distribution and viability of Regent Parrot colonies within South Australia are better understood.

Actions

2.1 Identify and map potential mallee foraging areas (all blocks of mallee within 20km of known breeding colonies) for breeding Regent Parrots in South Australia.

2.2 Identify and map treed flight corridors between breeding colonies and potential and known foraging areas.

2.3 Identify the characteristics of known flight corridors.

2.4 Conduct spatial analysis on existing Regent Parrot nest colony distribution data to determine the relationships between distribution and size of Regent

Parrot colonies; with the existence of flight corridors, the area of grazed and un-grazed mallee and agricultural land.

2.5 Assess changes in land-use in the vicinity of the breeding colonies since 1990.

While the locations of Regent Parrot breeding colonies in South Australia are well documented, the locations of breeding season foraging areas and connecting flight corridors are not as well understood. The identification of these areas is critical if they are to be protected under actions, 3.1, 3.2, 3.3 and 4.2. These actions may also identify areas with potential for restoration particularly flight corridors (Action 3.1).

Objective 3: Increase the total breeding population of Regent Parrots in South Australia.

Criteria 3.1: The continued decline of Regent Parrot colony numbers and colony size is stopped and within ten years there is an increase in breeding pairs recorded at South Australian nest colonies.

Actions

3.1 Identify and assess for restoration flight corridors that connect declining and recently abandoned nest colonies to large blocks of mallee.

3.2 Add unallotted Crown Land with Regent Parrot nest sites to the reserve system.

3.3 Encourage landholders with Regent Parrot nest colonies on their properties to enter into Heritage Agreements to protect these sites.

3.4 Support the decommissioning of non-essential watering points in the mallee to reduce grazing pressure and increase plant bio-diversity and native food items for Regent Parrots.

These actions will enhance and protect existing breeding habitat for Regent Parrots and minimise the loss of this habitat. The restoration of identified flight corridors has the potential to increase the area of breeding season foraging habitat available for this species.

Objective 4: Implement strategies to mitigate identified threats to Regent Parrots in South Australia.

Criteria 4.1: All breeding season foraging habitat including flight corridors are mapped and protected.
Criteria 4.2: Develop and implement programs to prevent deliberate and accidental destruction of Regent Parrots by agriculturalists.

Actions

4.1 Prevent clearing of any mallee within 20km of Regent Parrot nest colonies.

4.2 Improve local landholder awareness of Regent Parrot breeding habitat.

4.3 Continue existing program of training agriculturalists to distinguish between Regent Parrots and other parrots particularly Yellow Rosellas and explain their low impact on crops.

4.4 Implement the national 'Regent Parrot Grain Spill' strategy when finalised.

Effective implementation of actions 4.1 and 4.2 will protect all elements of Regent Parrot breeding habitat including flight corridors and foraging areas. While effective implementation of actions 4.3 and 4.4 will minimise accidental loss of individuals from the population as well as increase public awareness of Regent Parrots and the threats it faces.

Objective 5: Increase community awareness and involvement in the conservation of threatened riverine birds.

Criteria 5.1: Increase awareness of the Regent Parrot Recovery Program across a broad range of community groups
Criteria 5.2: Involve the local communities in the recovery process.

Actions

5.1 Studies of the Regent Parrot's breeding and foraging ecology and threatening processes are published in peer-reviewed journals.

5.2 Results / outcomes from programs are reported to interested community groups such as LAP groups and the South Australian Murray River Care Team.

5.3 Develop educational fact sheets and posters that promote the conservation of Regent Parrots.

5.4 Report recovery program results to the local community, through the local media.

5.5 Train and involve community volunteers in population survey work.

5.5 Train and encourage landholders to identify Regent Parrots and report sightings.

5.6 Establish a Recovery Team with members from other interest groups and organisations, to ensure effective integration of this plan.

These actions will raise the public profile of the species and assist in the collection of research data and the implementation of recovery actions.

Objective 6: Formation of a Tri-State Recovery Team for Regent Parrots.

Criteria 6.1: When formed, participate and contribute to the running of a Tri-state Recovery Team for Regent Parrots.

Action

6.1 Attend recovery team meetings and update on research results and management actions undertaken.

The establishment of a Tri-State Recovery Team will help with the co-ordination of research and recovery actions and the dissemination of information between the State based recovery teams in South Australia, Victoria and New South Wales.

6.0. IMPLEMENTATION SCHEDULE

Table 6.1, provides a summary of the implementation schedule for the recovery actions identified in Section 5 of this plan. This plan is to be reviewed within five years of the date of publication.

Table 6.1: Implementation and costing schedule for the Regent Parrot (Eastern subspecies) Recovery Plan.

Action No:	Description	Priority	Stakeholders	Estimated Cost/yr. (in $1000)					Wages	In Kind	Cash	Total
				2006	2007	2008	2009	2010				
1.1	Monitor selected nests to determine, number of eggs laid, number of eggs hatched, number of chicks fledged and overall breeding success.	**3**	DEH, Universities.		6.4		6.8		9.2		4.0	13.2
1.2	Monitor selected colonies every two years to determine numbers of breeding pairs at each location.	**1**	DEH, community volunteers.	6.0		6.4		7.0	6.4	6.6	6.4	19.4
1.3	Monitor selected colonies every two years to determine number of breeding pairs of Regent Parrots at each location, determine the number of other species nesting within the colonies, total number of available nest hollows and the number of other species nesting in hollows formerly occupied by Regent Parrots.	**1**	DEH, community volunteers	6.0		6.4		7.0	6.4	6.6	6.4	19.4

Table 6.1: Implementation and costing schedule for the Regent Parrot (Eastern subspecies) Recovery Plan.

Action No:	Description	Priority	Stakeholders	Estimated Cost/yr. (in $1000)					Wages	In Kind	Cash	Total
				2006	2007	2008	2009	2010				
2.1	Identify and map potential mallee foraging areas (all blocks of mallee within 20km of known breeding colonies) for breeding Regent Parrots in South Australia.	**2**	DEH, community volunteers.		2.4	2.4	2.6	2.6	9.0		1.0	10.0
2.2	Identify and map treed flight corridors between breeding colonies and potential and known foraging areas.	**1**	DEH, community volunteers.		5.2	5.4	5.6	5.8	9.0	9.0	5.0	23.0
2.3	Identify the characteristics of known flight corridors.	**2**	DEH.		3.1				2.1		1.0	3.1

Table 6.1: Implementation and costing schedule for the Regent Parrot (Eastern subspecies) Recovery Plan.

Action No:	Description	Priority	Stakeholders	Estimated Cost/yr. (in $1000)					Wages	In Kind	Cash	Total
				2006	2007	2008	2009	2010				
2.4	Conduct spatial analysis on existing Regent Parrot nest colony distribution data to determine the relationships between distribution and size of Regent Parrot colonies; with the existence of flight corridors, the area of grazed and un-grazed mallee and agricultural land.	**1**	DEH.	3.1	5.4	5.6			11.1		3.0	14.1
2.5	Assess changes in land-use in the vicinity of the breeding colonies since 1990.	**3**	DEH.	2.1	2.2	2.3	2.4		9.0			9.0
3.1	Identify and assesses for restoration flight corridors that connect declining and recently abandoned nest colonies to large blocks of mallee.	**2**	DEH, landholders.		2.2	2.3	2.4		6.9			6.9

Table 6.1: Implementation and costing schedule for the Regent Parrot (Eastern subspecies) Recovery Plan.

Action No:	Description	Priority	Stakeholders	Estimated Cost/yr. (in $1000)					Wages	In Kind	Cash	Total
				2006	2007	2008	2009	2010				
3.2	Add unallotted Crown Land with Regent Parrot nest sites to the reserve system.	**3**	DEH.				3.0	3.5	6.5			6.5
3.3	Encourage landholders with Regent Parrot nest colonies on their properties to enter into Heritage Agreements to protect these sites.	**3**	DEH.		2.1	2.2	2.3	2.4	9.0			9.0
3.4	Support the decommissioning of non-essential watering points in the mallee to reduce grazing pressure and increase plant bio-diversity and native food items for Regent Parrots.	**3**	DEH, Regional Recovery Team, National Recovery Team.	0.5	0.5	0.5	0.5	0.5	2.5			2.5
4.1	Prevent clearing of any mallee within 20km of Regent Parrot nest colonies.	**1**	DEH, Regional Recovery Team, National Recovery Team, landholders.	0.5	0.5	0.5	0.5	0.5	2.5			2.5

Table 6.1: Implementation and costing schedule for the Regent Parrot (Eastern subspecies) Recovery Plan.

Action No:	Description	Priority	Stakeholders	Estimated Cost/yr. (in $1000)					Wages	In Kind	Cash	Total
				2006	2007	2008	2009	2010				
4.2	Improve local landholder awareness of Regent Parrot breeding habitat.	**2**	DEH, Regional Recovery Team.	1.5	1.6	1.7	1.8	1.9	3.5		5.0	8.5
4.3	Continue existing program of training agriculturalists to distinguish between Regent Parrots and other parrots particularly Yellow Rosellas and explain their low impact on crops.	**2**	DEH, Regional Recovery Team.	0.5	0.5	0.6	0.6	0.6	2.8			2.8
4.4	Implement the national 'Regent Parrot Grain Spill' strategy when finalised.	**3**	DEH, National Recovery Team.			0.6	0.6	0.6	1.8			1.8
5.1	Studies of the Regent Parrots breeding and foraging ecology and threatening processes are published in peer-reviewed journals.	**3**	DEH, Universities		1.6	1.7	1.8		3.6		1.5	5.1
5.2	Results / outcomes from programs are reported to interested community groups such as LAP groups and the South Australian Murray River Care Team.	**2**	DEH, Regional, Recovery Team.	0.5	0.5	0.6	0.6	0.6	2.8			2.8

Table 6.1: Implementation and costing schedule for the Regent Parrot (Eastern subspecies) Recovery Plan.

Action No:	Description	Priority	Stakeholders	Estimated Cost/yr. (in $1000)					Wages	In Kind	Cash	Total
				2006	2007	2008	2009	2010				
5.3	Develop educational fact sheets and posters that promote the conservation of Regent Parrots.	**2**	DEH, Regional Recovery Team, NPWS Community Ranger.	3.0		3.2			4.1		2.1	6.2
5.4	Report recovery program results to the local community, through the local media.	**3**	DEH, Regional Recovery Team.	0.5	0.5	0.6	0.6	0.6	2.8			2.8
5.5	Train and involve community volunteers in population survey work.	**3**	DEH.	1.3		1.4		1.5	1.7	1.5	1.0	4.2
5.6	Train and encourage landholders to identify Regent Parrots and report sightings.	**1**	DEH, Regional Recovery Team	0.5	0.5	0.6	0.6	0.6	2.8			2.8
6.1	Form a Regional Recovery Team that includes DEH River Corridor Threatened Fauna Officers, community members and wetland managers.	**3**	DEH, community members, wetland managers.	1.3	1.4	1.5	1.55	1.6	5.7		1.65	7.35

Table 6.1: Implementation and costing schedule for the Regent Parrot (Eastern subspecies) Recovery Plan.

Action No:	Description	Priority	Stakeholders	Estimated Cost/yr. (in $1000)					Wages	In Kind	Cash	Total
				2006	2007	2008	2009	2010				
6.2	Attend National Recovery Team meetings and update on research results and management actions undertaken.	**3**	DEH	1.1	1.1	1.2	1.2	1.2		3.0	2.8	5.8
Totals				**28.4**	**37.7**	**41.3**	**35.47**	**38.5**	**121.2**	**26.7**	**40.85**	**188.75**

7.0. BIODIVERSITY BENEFITS TO NON-TARGET SPECIES

The implementation of conservation measures for the Regent Parrot will result in a number of positive impacts on both habitats and other native fauna in riverine and mallee habitats. Baker-Gabb (2004) has noted that measures to protect large areas of intact mallee and woodland would benefit a wide range of nationally and state listed birds including Black-eared Miners *Manorina melanotis* and Malleefowl *Leipoa ocellata* (Table 2.2).

In addition conservation measures proposed in the National Recovery Plan and in this Regional Plan which include; protecting colonies, protecting both breeding and non-breeding foraging areas, protecting and revegetating flight corridors, replacing non-essential watering points with raised bird troughs where possible, adding to the reserve system, and implementing the national grain spill and pest poisoning protocols and community involvement in Regent Parrot studies, will also directly benefit a large range of native flora and fauna (Baker-Gabb 2004).

Table 7.1: **Species that will benefit from Regent Parrot conservation measures within South Australia (Source: Baker-Gabb 2004).**

Action Plan for Australian Birds listing follows Garnett and Crowley (2000), South Australian status, as listed under the *National Parks and Wildlife Act* 1972 (E = endangered, V = vulnerable, R = rare, NT = near threatened and LC = least concern).

Common name	Species	Action Plan	EPBC	SA Status
Emu	*Dromaius novaehollandia novaehollandiae*	**LC**		
Malleefowl	*Leipoa ocellata*	**V**	**V**	**V**
Bush Stone-curlew	*Burhinus grallarius*	**NT**		**V**
Major Mitchell's Cockatoo	*Cacatua leadbeateri leadbeateri*	**NT**		**V**
Scarlet Chested Parrot	*Neophema splendida*	**LC**		**R**
White-browed Treecreeper	*Climacteris affins superciliosa*	**NT**		**R**
Striated Grass Wren	*Amytornis striatus striatus*	**NT**		**R**
Redthroat	*Pyrrholaemus brunneus*	**LC**		**R**
Southern Whiteface	*Aphelocephala leucopis leucopis*	**LC**		
Black-eared Miner	*Manorina melanotis*	**E**	**E**	**E**
Hooded Robin	*Melanodryas cucullata cucullata*	**NT**		
Southern Scrub-robin	*Drymodes brunneopygia*	**LC**		
Chestnut Quail-thrush	*Cinclosoma castanotus castanotus*	**NT**		
Crested Bellbird	*Oreoica gutturalis gutturalis*	**NT**		

8.0. RELEVANT LEGISLATION

Commonwealth Legislation

Environment Protection and Biodiversity Conservation Act (EPBS Act) 1999: The Regent Parrot is listed as Nationally 'Vulnerable' under this act, which provides for the regulation of actions that can result in a significant impact on nationally listed threatened species and / or ecological communities.

South Australian Legislation

National Parks and Wildlife Act 1972: This act allows for the reservation, protection and management of natural areas and the flora and fauna contained within them. This act also has provision for the licensing of scientific investigation of these species. The Regent Parrot is listed as ''vulnerable'' under this act and has been recorded nesting in the following parks and reserves in the South Australian River Murray corridor, Murray River National Park, Chowilla Game Reserve, Loch Luna Game Reserve, Moorook Game Reserve and Morgan Conservation Park.

Native Vegetation Act 1991: This act allows for the protection of native vegetation on free hold land by providing incentives and assistance to land holders to conserve native vegetation, limit clearance, encourage revegetation and gives landholders the opportunity to enter into Heritage Agreements. Schedule 1 of this act states the principles of native vegetation clearance that relate to the conservation of biodiversity. In addition to making provision for the retention of significant flora and vegetation associationis, it also states—that native vegetation should not be cleared—if it has significance as a habitat for wildlife. In addition dead native trees, which provided nesting habitat for native fauna, were included as native vegetation under this act in August 2003.

Pastoral Land Management and Conservation Act 1989: This act provides for land management that provides sustainable yields while allowing for the monitoring of the grazed lands condition to prevent degradation. A lease can also contain conditions that provide for the rehabilitation of degraded land.

The Country Fires Act 1989: Provides for the clearing of vegetation for prevention and control of fires.

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