

**National Recovery Plan for the
Helmeted Honeyeater**
Lichenostomus melanops cassidix

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in conjunction with the Helmeted Honeyeater Recovery Team



Australian Government



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This is a Recovery Plan prepared under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*, with the assistance of funding provided by the Australian Government.

This Recovery Plan has been developed with the involvement and cooperation of a range of stakeholders, but individual stakeholders have not necessarily committed to undertaking specific actions. The attainment of objectives and the provision of funds may be subject to budgetary and other constraints affecting the parties involved. Proposed actions may be subject to modification over the life of the plan due to changes in knowledge.

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Cover photograph: A captive-bred Helmeted Honeyeater *Lichenostomus melanops cassidix* released to the wild at Bunyip State park. Photograph by Iain Stych, Healesville Sanctuary.

Detailed background information on the Helmeted Honeyeater and implementation detail of this Recovery Plan can be found in the document 'Background and Implementation Information for the Helmeted Honeyeater Lichenostomus melanops cassidix National Recovery Plan' available at www.environment.gov.au

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Introduction

The Helmeted Honeyeater *Lichenostomus melanops cassidix* population comprises about 20 breeding pairs and their recent offspring. Fourteen breeding pairs inhabit the Yellingbo Nature Conservation Reserve with a small re-introduced colony of 23 individuals, including 6 breeding pairs, at a site in Bunyip State Park, 30 km south-east of Yellingbo. There are also currently 15 pairs held in captivity at two locations — Healesville Sanctuary, 18 km north of Yellingbo, and Taronga Zoo, Sydney.

The Helmeted Honeyeater is listed as Threatened in Schedule 2 of Victoria's *Flora and Fauna Guarantee Act 1988* and is listed as Endangered under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

The Helmeted Honeyeater is one of Victoria's best-known vertebrates, and has been a focus of the wildlife conservation movement in Victoria since the early 1900s. This long history of concern and conservation action has been summarised by numerous authors, most recently by Backhouse (1987), Smales *et al.* (1990) and Menkhorst and Middleton (1991).

This third recovery plan for the Helmeted Honeyeater continues the emphasis on population management, particularly the establishment of new colonies in unoccupied habitat, but also refocusses attention on some difficult habitat rehabilitation problems. Its development has benefited from two independent reviews of the recovery program, the first (Baker-Gabb 2002) instigated by the recovery team, the second (Barrett *et al.* 2005) commissioned by the Port Phillip and Western Port Catchment Management Authority.

This recovery plan complements and is supported by the management plans for the two conservation reserves in which the Helmeted Honeyeater now occurs (Parks Victoria 1998, 2004), and by the relevant Biodiversity Local Area Plan (Mitchell 2006).

Species Information

Description

The Helmeted Honeyeater is a striking yellow, green and black, medium-sized honeyeater with distinctive yellow crown and ear tufts that contrast boldly with black sides of the head. The upperparts are greenish olive, and underparts yellow to greyish yellow. The forehead carries the distinctive short crest, or helmet, of upstanding yellow feathers which can be pushed forward when the bird is aroused.

The largest (weight 28–32 g) and brightest subspecies of the Yellow-tufted Honeyeater *Lichenostomus melanops*, the Helmeted Honeyeater is readily distinguished from the inland subspecies *L. m. meltoni* by its larger size, darker green and brighter yellow colouration and longer feathers on the forehead. However, field differentiation between the Gippsland subspecies *L. m. gippslandicus* and the Helmeted Honeyeater is problematic and cannot be reliably achieved by field observation.

Distribution

The Helmeted Honeyeater has always had a restricted, patchy distribution in the mid-Yarra and Western Port catchments of central southern Victoria (Smales *et al.* 1990, Menkhorst & Middleton 1991), in the South Eastern Highlands IBRA bioregion. Surveys undertaken early in the recovery program (Blackney & Menkhorst 1993) and genetic analyses (Damiano 1996, Hayes 1999) have supported previous understanding of the geographical extent of the Helmeted Honeyeater.

The current population is confined to a five km length of streamside remnant vegetation along two streams within the Yellingbo Nature Conservation Reserve (Yellingbo NCR), 50 km east

of Melbourne. A second wild population is being established in Bunyip State Park, 70 km east-south-east of Melbourne, through release of captive-bred birds (Figure 1).

Abundance

The population of the Helmeted Honeyeater declined steadily throughout the 1900s until the present recovery effort commenced in 1989. Former colonies at Cockatoo and Upper Beaconsfield died out as recently as 1983 following severe wildfires in February of that year (Menkhorst & Middleton 1991). The population reached a low of 15 breeding pairs and about 50 individuals in late 1989. Through implementation of the first two recovery plans the wild population peaked at about 120 wild individuals, including 27 breeding pairs (in March 1996). It has since declined to 13 breeding pairs at Yellingbo NCR with a small re-introduced colony of six breeding pairs at Bunyip State Park. There are also currently 15 pairs held in captivity at two locations — Healesville Sanctuary, 18 km north of Yellingbo, and Taronga Zoo, Sydney.

Habitat

The Helmeted Honeyeater is largely confined to dense riparian vegetation at low altitudes (20-120 m) and with relatively high and dependable rainfall (800-1200 mm per annum). All current sites are dominated by the Mountain Swamp Gum *Eucalyptus camphora* and may be inundated for a large proportion of the year. The understorey can be dominated by tussock grasses or a rich community of sedges (McMahon & Franklin 1993). Where the shrub layer is sparse, Helmeted Honeyeater territories are usually juxtaposed to other communities with a dense shrub stratum of *Leptospermum lanigerum* or *Melaleuca squarrosa* which provide nest sites and a secondary foraging substrate. In the past, Helmeted Honeyeaters have also inhabited Manna Gum riparian forest (Wykes 1985).

Most pairs of Helmeted Honeyeaters remain in their territories year round but some pairs and individuals undertake wider movements during autumn and winter to feed at flowering *Eucalyptus ovata* and *E. fulgens* on the adjacent slopes (McMahon & Franklin 1993, Runciman *et al.* 1995). Detailed studies of habitat utilisation (Pearce *et al.* 1994, Moysey 1997, Pearce & Minchin 2001) highlighted the importance of decorticating bark and the density of eucalypt stems in the *E. camphora* community, and the presence of dense shrubbery, as key elements in the habitat of the Helmeted Honeyeater.

Because the Helmeted Honeyeater population is so low, all habitat currently used in any way should be considered habitat critical to survival. This includes stands and isolated trees of *Eucalyptus ovata* and *E. fulgens* on the slopes adjacent to the floodplains of the Yellingbo NCR sections of Cockatoo and Woori Yallock Creeks. Further, all areas of *Eucalyptus camphora* Swamp Woodland, and associated riparian Ecological Vegetation Classes (EVCs), within the catchments of the Cockatoo and Woori Yallock Creeks, and Bunyip River, should be considered habitat critical to survival.

Within the Yellingbo NCR and its immediate surrounds, and within Bunyip State Park and its immediate surrounds, the following EVCs should be regarded as contributing to habitat critical to survival of the Helmeted Honeyeater (including mosaics or combinations of any of them):

- Swamp Woodland
- Swampy Riparian Woodland
- Swampy Riparian Complex
- Riparian Scrub
- Wet Heathland

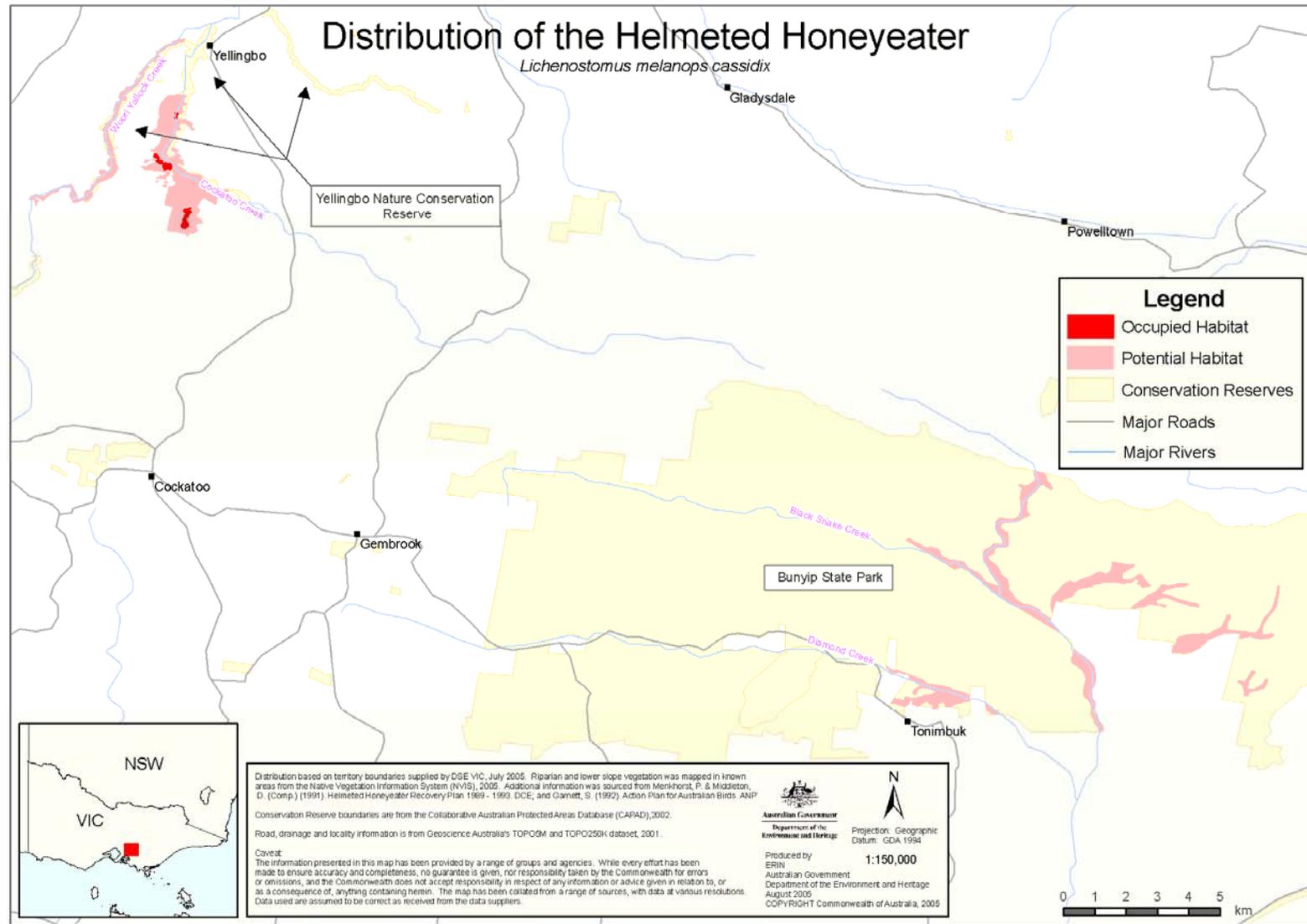


Figure 1. Current distribution of the Helmeted Honeyeater
Shaded areas indicate occupied and potential habitat, and reserved Crown land.

Threats

The primary threats to the Helmeted Honeyeater relate to the small population size and its concentration into a tiny geographic area and isolated linear habitat patches. Wildfire, drought, disease and climate change (Chambers *et al.* 2008) all have the potential to eliminate the Helmeted Honeyeater and are forces over which we have little immediate control.

Habitat Degradation

Die-off of stands of eucalypts and melaleucas in parts of Cockatoo Swamp has reduced the area of one important breeding colony by 50% in the last decade. The most likely cause of die-off is thought to be water-logging due to siltation caused by erosion of the streambed upstream (Craigie *et al.* 1998), but other factors including raised soil nutrient levels, fungal pathogens and insect attack may be implicated in some instances.

Another threat to the habitat is maturation of the *Eucalyptus camphora* Swamp Woodland and a lack of regeneration of *Eucalyptus camphora*. As the woodland matures its structure changes to a more open, taller woodland with a lower density of stems and reduced diversity of shrub and ground cover. Weed species including *Phragmites australis* and *Phalaris arundinacea* can become dominant. There is little evidence of regeneration of *E. camphora* and the situations that encourage regeneration are not clear (Pearce 2000).

Competition

Competition for space with colonies of the Bell Miner *Manorina melanophrys* was shown to reduce the breeding success of Helmeted Honeyeater pairs adjacent to Bell Miner colonies (Pearce *et al.* 1995) but this threat has been eliminated by the removal of selected Bell Miner colonies. However, the threat of re-invasion by Bell Miners requires constant monitoring of their occurrence close to Helmeted Honeyeater colonies.

Predation

The rate of predation of nest contents reduces population productivity (Franklin & McCarthy 1992) but not to the extent that it prevents population growth. However, population growth at Yellingbo has stalled in recent years and nest predation may be a significant factor in this. The identity of nest predators has not been established but is likely to include a suite of native mammals, birds and reptiles, as well as the introduced Cat, Red Fox and Black Rat (Bartlett 2003).

Recovery Information

Strategy for Recovery

The strategy for recovery of the Helmeted Honeyeater will be to continue to focus on population and habitat management.

1. Population Management

The Helmeted Honeyeater is one of the most intensively managed wildlife species in Victoria. Routine management includes monitoring of the outcomes of all breeding attempts, protection of nests from predators, establishment of new wild populations via release of captive-bred birds, supplementation of wild populations with captive-reared birds (by release of immatures or by addition of eggs or nestlings to wild nests), and minimisation of the risk of in-breeding via swapping of eggs or nestlings between populations. These actions will continue for the life of this Recovery Plan.

2. Habitat Management

The major focus of habitat management is to control erosion and re-institute a natural flood regime on the flood plain of the Cockatoo Creek within Yellingbo NCR, and to reduce silt deposition on the flood plain. Other priorities include the management of weeds and pest animals, re-vegetation of degraded areas within the reserve (McMahon *et al.* 1991, Bennetts *et al.* 2006) and the rehabilitation of habitat on private land adjacent to the reserve. Since its formation in 1989, the Friends of the Helmeted Honeyeater has pursued a vigorous revegetation program on private land surrounding the reserve (Gadsden & Ashby 1995), and at strategic sites within the reserve. Over 300,000 locally indigenous plants have been propagated from seed and planted out (Gadsden 2003).

Program Implementation

This Recovery Plan guides recovery actions, and will be managed by the Helmeted Honeyeater Recovery Team. Any technical, scientific, habitat management or education issue requiring skills not available within the Recovery Team will be referred to specialist organisations and individuals as appropriate. Implementation of individual actions will remain the responsibility of the relevant agencies and organisations identified in the Recovery Plan (subject to available resources), who will be responsible for preparing work plans and monitoring progress toward recovery within their own jurisdiction.

Program Evaluation

The Recovery Team will be responsible for informal evaluation annually. This recovery plan will be revised before the end of 5 years after the plan was adopted under the EPBC Act. An external reviewer will be appointed to undertake a formal review and evaluation of the recovery program.

Recovery Objectives

The **Long-term Objective** of recovery is to achieve a stable population of at least 1000 individuals in at least 10 separate but interconnected colonies dispersed along several creek systems in the mid-Yarra and Western Port catchments, and thus have the taxon removed from Schedule 2 of the *Environment Protection and Biodiversity Conservation Act 1999*.

Within the life span of this Recovery Plan, the **Specific Objectives** of recovery are to:

1. Increase the number and size of wild populations.

Performance Criterion: Attain a wild population of at least 200 mature individuals spread between at least two self-sustaining sub-populations, at least one of which is in a separate water catchment to the Cockatoo-Woori Yallock Creek system.

2. Maintain and enhance the value of Helmeted Honeyeater habitat in:

- i. Yellingbo Nature Conservation Reserve
- ii. Bunyip State Park
- iii. elsewhere throughout the former range.

Performance Criteria:

- i. expansion of population into currently unoccupied habitat.
- ii. establishment of a self-sustaining population along Diamond Creek, Bunyip State Park.
- iii. maintenance of habitat options for future population expansion and re-establishment.

3. Improve the management of stream flows, water quality and riparian environments throughout the Woori Yallock Creek catchment.

Performance Criteria:

- i. preparation and implementation of a Streamflow Management Plan for the Woori Yallock Creek.

- ii. re-engagement of the floodplain of Cockatoo Creek within Yellingbo NCR.

4. Manage the captive population of Helmeted Honeyeaters to provide insurance against the demise of the wild population and to meet the needs of the recovery program.

Performance Criteria:

- i. maintenance of a viable captive population to the standards of a Category 1 species under the Australian Species Management Program.
- ii. production of at least 15 young per year that are available for release.
- iii. maintain 95% of the wild heterozygosity in the captive population.

5. Maintain the genetic diversity and evolutionary potential of the Helmeted Honeyeater.

Performance Criterion: No decrease in effective population size, nor evidence of problems attributable to inbreeding, in either the wild or captive populations.

6. Improve public awareness of the Helmeted Honeyeater recovery program and public support for implementation of this recovery plan.

Performance Criterion: continuation of present levels of public goodwill towards the recovery program, and maintenance of membership levels of the Friends of the Helmeted Honeyeater.

7. Effectively administer the recovery effort to ensure that recovery plan objectives are met.

Performance Criterion: Progress towards meeting all objectives is efficiently achieved with high levels of community and Government support.

Note: A summary of the recovery plan actions is provided here. Detailed implementation information can be found in the supporting document 'Background and Implementation Information for the Helmeted Honeyeater Lichenostomus melanops cassidix National Recovery Plan' available at www.environment.gov.au

Recovery Objectives, Performance Criteria and Actions – Summary

Objective	Performance Criteria	Actions
<p>1. Increase the number and size of wild populations.</p>	<p>Attain a wild population of at least 200 mature individuals spread between at least two self-sustaining sub-populations, at least one of which is in a separate water catchment to the Cockatoo-Woori Yallock Creek system.</p>	<p>Population Monitoring</p> <p>1.1 Continue to use the territory mapping technique and searches for begging fledglings to estimate number of breeding pairs and production of fledglings.</p> <p>1.2 Closely monitor all new naturally-established colonies, using colour-banding if necessary, to ensure that the maximum information on colony establishment is gathered.</p> <p>1.3 Institute a program of bi-annual population simulations using the most appropriate modelling techniques available and the most recent demographic data, to predict the impact of a range of management scenarios.</p> <p>Control of Bell Miners</p> <p>1.4 Continue to exclude Bell Miners from areas adjacent to existing Helmeted Honeyeater colonies and from areas of suitable habitat that may be available for colonisation by Helmeted Honeyeaters. Monitor Helmeted Honeyeater usage of areas from which Bell Miners have been removed and maintain these areas free of Bell Miners.</p> <p>1.5 Develop a strategy for landscape-scale vegetation management to reduce the spread of colonies of the Bell Miner. Investigate novel and ethical methods for reducing the impact of Bell Miners, including catchment-wide vegetation and stream management.</p> <p>Re-introduction</p> <p>1.6 Develop a clear strategic plan for re-introduction works over the life of this plan.</p> <p>1.7 Continue to trial techniques for establishing new colonies, using an adaptive management approach, and utilising both captive-bred birds, and direct transfer of eggs or nestlings from either the wild population at Yellingbo or the captive population. Reinforce the incipient colony at Tonimbuk as necessary to ensure it becomes a viable group of at least 20 breeding pairs by the year 2008/09.</p> <p>1.8 Review the protocol aimed at minimising risks of disease transfer between populations.</p> <p>1.9 Consider the establishment of a third colony at the most appropriate site outside the Woori Yallock – Cockatoo Creek system.</p>
<p>2. Maintain and enhance the value of Helmeted Honeyeater habitat in:</p>	<p>i. Expansion of population into currently unoccupied habitat.</p>	<p>2.1 Liaise with the Port Phillip and Western Port Catchment Management Authority to ensure the future protection and rehabilitation of riparian vegetation and quality of</p>

<p>i. Yellingbo Nature Conservation Reserve</p> <p>ii. Bunyip State Park</p> <p>iii. elsewhere throughout the former range.</p>	<p>ii. Establishment of a self-sustaining population along Diamond Creek, Bunyip State Park.</p> <p>iii. Maintenance of habitat options for future population expansion and re-establishment.</p>	<p>2.2 Facilitate the implementation of Flora and Fauna Guarantee Action Statement number 130 – Sedge-rich <i>Eucalyptus camphora</i> swamp.</p> <p>2.3 Further refine the habitat suitability index for the Helmeted Honeyeater and use it to identify and rank areas of potential habitat throughout the former range of the Helmeted Honeyeater.</p> <p>2.4 Review and update the revegetation strategy (McMahon & Carr 1993) for Yellingbo NCR; expedite its implementation. Experiment with untried revegetation techniques.</p> <p>2.5 Provide support and encouragement for the revegetation efforts of the Friends of the Helmeted Honeyeater, both within and outside the Yellingbo NCR.</p> <p>2.6 Continue to investigate the causes of eucalypt dieback throughout Yellingbo NCR. Develop a protocol for monitoring vegetation succession in the dieback-affected areas.</p> <p>2.7 Foster research into the regeneration biology of <i>Eucalyptus camphora</i>.</p> <p>2.8 Review the regional fire plan to assess its adequacy for protecting key habitat within and outside Yellingbo NCR.</p> <p>2.9 Develop a fire response plan specifically for the Helmeted Honeyeater.</p>
<p>3. Improve the management of streamflows, water quality and riparian environments throughout the Woori Yallock Creek catchment.</p>	<p>i. Preparation and implementation of a Streamflow Management Plan for the Woori Yallock Creek.</p> <p>ii. Re-engagement of the floodplain of Cockatoo Creek within Yellingbo NCR.</p>	<p>3.1 Collaborate with Melbourne Water to produce a Streamflow Management Plan for the Woori Yallock Creek system.</p> <p>3.2 Reduce sediment and nutrient loads in the Cockatoo and Woori Yallock Creeks.</p> <p>3.3 Re-establish a natural flood regime across the floodplain of the Cockatoo Creek within the Yellingbo NCR..</p>
<p>4. Manage the captive population of Helmeted Honeyeaters to provide insurance against the demise of the wild population and to meet the needs of the recovery program.</p>	<p>i. Maintenance of a viable captive population to the standards of a Category 1 species under the Australian Species Management Program.</p> <p>ii. Production of at least 15 young per year that are available for release.</p> <p>iii. Maintain 95% of the wild heterozygosity in the captive population.</p>	<p>4.1 Maintain the captive population at a minimum of 15 breeding pairs with a suitable age and sex structure to allow adequate recruitment into the breeding population.</p> <p>4.2 Investigate causes of low breeding success in captivity.</p> <p>4.3 Review the contingency plan for emergency evacuation of birds from Healesville Sanctuary.</p> <p>4.4 Review and update the captive husbandry manual.</p>
<p>5. Maintain the genetic diversity and evolutionary potential of the Helmeted Honeyeater.</p>	<p>No decrease in current levels of heterozygosity, nor evidence of problems attributable to inbreeding, in either the wild or captive populations.</p>	<p>5.1 Produce an overview of the results of the genetic studies undertaken between 1989 and 2006, and develop recommendations for future priorities.</p> <p>5.2 Use microsatellite assays to track genealogies under the regime of incomplete sampling of the population which is a consequence of no longer maintaining a fully-banded</p>

		<p>5.3 Maximise genetic diversity in the captive colony and in the re-introduced populations. Monitor heterozygosity in the wild population using DNA extracted from blood samples from fostered young.</p> <p>5.4 Continue to estimate effective population size using a range of techniques.</p> <p>5.5 Continue the search for variation in mitochondrial DNA and in microsatellite loci from Helmeted Honeyeaters and the other subspecies of <i>Lichenostomus melanops</i>. Apply these techniques to amplified DNA from selected museum skins to determine the loss of variation since the late 1800s. Clarify the taxonomic relationships between <i>L. melanops</i> subspecies.</p>
6. Improve public awareness of the Helmeted Honeyeater recovery program and public support for implementation of this recovery plan.	Continuation of present levels of public goodwill towards the recovery program, and maintenance of membership levels of the Friends of the Helmeted Honeyeater.	<p>6.1 Maintain community awareness of the recovery effort and its achievements through all forms of mass media and local regional media.</p> <p>6.2 Where possible support the public education activities of the Friends of the Helmeted Honeyeater, particularly their program of talks to school groups.</p> <p>6.3 Ensure that information presented on the DSE, Parks Victoria, Zoo's Victoria and Friends of the Helmeted Honeyeater websites is up-to-date and accurate.</p> <p>6.4 Distribute information on significant habitat patches and the appropriate management actions to government and community groups such as shire planners, fire fighting organisations, utility providers and landholders.</p> <p>6.5 Establish a Helmeted Honeyeater exhibit at Healesville Sanctuary showing a colony of Helmeted Honeyeaters in a simulated natural habitat and incorporating details of the natural history of the Helmeted Honeyeater and the recovery effort.</p>
7. Effectively administer the recovery effort to ensure that recovery plan objectives are met.	Progress towards meeting all objectives is efficiently achieved with high levels of community and government support	<p>7.1 Continue to use the Recovery Team as the primary focus for coordination and review of priorities and progress.</p> <p>7.2 Continue to use the Operations Group to facilitate close collaboration between the Flora and Fauna Program of DSE, Parks Victoria and Zoos Victoria in operational aspects of implementing the recovery plan.</p> <p>7.3 Employ a full-time field ornithologist to monitor the wild population and its habitat, assist with re-introduction, and maintain databases.</p> <p>7.4 Collaborate closely with the Friends of the Helmeted Honeyeater to ensure that the efforts of both the Friends and the Recovery Team remain focussed on the priority actions detailed in this plan</p> <p>7.5 Recruit, train and encourage specialist volunteers to assist the recovery program.</p>

Cost of the Recovery Plan

The estimated cost of the recovery program is \$2.44 million over five years.

	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Totals	\$449,500	\$555,500	\$495,500	\$514,500	\$425,500	\$2,443,500

Role and Interests of Indigenous People

The Yellingbo NCR lies within the traditional lands of the Wurundjeri-balluk clan of the Woiwurung language-speaking group of Indigenous people, and Bunyip State Park lies within the traditional lands of the Balluk-Willam clan of the Wiowurung. These communities will be advised, through the relevant DSE Regional Indigenous Facilitator of this Recovery Plan. Indigenous communities will be invited to be involved in the implementation of the Recovery Plan.

Biodiversity Benefits

Conservation of the Helmeted Honeyeater will necessitate greatly improved catchment management within the former range of the taxon. Attempts to conserve the Helmeted Honeyeater are already directly responsible for the reservation, intensive management and revegetation of significant remnant vegetation in the Yellingbo region. The primary habitat of the Helmeted Honeyeater, sedge-rich *Eucalyptus camphora* Swamp, is greatly depleted in Victoria. The largest and most intact example, comprising the main breeding habitat of the Helmeted Honeyeater, is itself classified as of National Significance and listed as a threatened community under the *Flora and Fauna Guarantee Act 1988*. Implementation of this recovery plan will closely complement implementation of the Action Statement for this community (Turner 2003).

Sedge-rich *Eucalyptus camphora* Swamp and adjacent vegetation also supports the only remaining lowland population of Leadbeater's Possum, and the Swift Parrot (both listed under EPBC Act as endangered). This habitat also supports populations of species of State significance, notably Pale Swamp Everlasting *Helichrysum* aff. *Rutidolepis* (Lowland Swamps), Lewin's Rail, Powerful Owl and Swamp Skink, and regionally significant populations of Spotless Crake, Southern Emu-wren, Glossy Grass Skink and Showy Willow Herb.

Affected Interests

Implementation of this plan is the joint responsibility of two Victorian Government agencies – Parks Victoria and the Department of Sustainability and Environment. The Port Phillip and Western Port Catchment Management Authority also has a critical role through the provision of grant money from its Regional Catchment Investment Plan and through implementation of the Regional Catchment Strategy (PPWPCMA 2004). The Shire of Yarra Ranges has a significant role through its powers to limit the destruction of critical habitat on freehold land under the Planning Provisions of the *Planning and Environment Act 1987*. The Bird Observers Club of Australia has been directly involved in the conservation of the Helmeted Honeyeater for over 50 years, as have Birds Australia and the Friends of the Helmeted Honeyeater in more recent times. These community groups reflect the considerable support for the recovery program within the Victorian community. There are no records of archaeological sites within the reserve but further survey is warranted.

Social and Economic Impacts

Because the Helmeted Honeyeater occurs almost entirely within Crown land conservation reserves, the social and economic impacts of implementation of this plan are few, and mostly beneficial because they will result in improved stream health and vegetation management

within the district. Thanks mainly to the success of the Friends of the Helmeted Honeyeater, the honeyeater has become a focal species for conservation activities within the mid-Yarra and Bunyip catchments, and has stimulated a great deal of habitat protection, revegetation and catchment management work.

Strict application of vegetation clearance controls on lands surrounding the Yellingbo NCR will limit the capacity of adjacent landholders to clear native vegetation, including paddock trees. However, these clearance controls should be applied regardless of the presence of Helmeted Honeyeater habitat. Application of vegetation clearance controls may limit opportunities for the development of intensive horticulture on some parcels of land, but such cases are likely to be unusual.

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References

- Backhouse, G.N., 1987. Management of remnant habitat for conservation of the Helmeted Honeyeater *Lichenostomus melanops cassidix*. Pp 287-294 in 'Nature Conservation: the role of remnants of native vegetation.' Ed by D.A. Saunders, G.W. Arnold, A.A. Burbidge & A.J.M. Hopkins. Surrey Beatty & Sons, Sydney.
- Baker-Gabb, D. 2002. Major project review of Helmeted Honeyeater *Lichenostomus melanops cassidix* recovery program 1999-2003. Unpublished report to Environment Australia and Department of Sustainability and Environment. Elanus P/L, St Andrews.
- Barrett, G. Freudenberger, D. and Nicholls, A. O. 2005. A template for threatened species management: learning from the Helmeted Honeyeater (*Lichenostomus melanops cassidix*). Unpublished report to Port Phillip and Western Port Catchment management Authority by CSIRO Sustainable Ecosystems, Canberra.
- Bartlett, L. J. 2003. Helmeted Honeyeater (*Lichenostomus melanops cassidix*) nest success: the effect of nest site and the identity of nest predators. BSc Hons thesis, Department of Zoology, The University of Melbourne.
- Bennetts, K., Cook, D. and Osler, D. 2006. Vegetation restoration plan, and baseline vegetation monitoring, for the degraded section of Cockatoo Swamp, Yellingbo Nature Conservation Reserve. Unpublished report to Melbourne Water. Australian Ecosystems Pty Ltd, Patterson lakes, Victoria.
- Blackney, J.R. and Menkhorst, P.W. 1993. Distribution of subspecies of the Yellow-tufted Honeyeater in the Yarra Valley region, Victoria. *Emu* 93: 209-213.
- Chambers, L. E., Quin, B. R., Menkhorst, P., Franklin, D. C. and Smales, I. 2008. The effects of climate on breeding in the Helmeted Honeyeater. *Emu* 108: 15-22.
- Craige, N. M., Brizga, S. O. and Condina, P. 1998. Assessment of proposed works to ameliorate the effect of hydrological processes on vegetation dieback at Cockatoo Creek Swamp, Yellingbo Reserve. Unpublished Report to parks Victoria by Neil M. Craige Pty Ltd, Croydon.

- Damiano, J. D. 1996. Microsatellite analysis of genetic variation within the Helmeted Honeyeater *Lichenostomus melanops cassidix* and between the related subspecies *L. m. gippslandicus* and *L. m. meltoni*. unpublished BSc Hons thesis, Department of Genetics and Human Variation, La Trobe University, Melbourne.
- Franklin, D. and McCarthy, M., 1992. A cost/benefit analysis of protection of Helmeted Honeyeater nests. Unpublished report to the Helmeted Honeyeater Recovery Team.
- Gadsden, G. 2003. Nursery News. Friends of the Helmeted Honeyeater Newsletter 15(2): 7-8.
- Gadsden, G. & Ashby, M. 1995. Revegetation of habitat for the Helmeted Honeyeater *Lichenostomus melanops cassidix*, in the Yarra Valley. *The Victorian Naturalist* 112: 116-121.
- Hayes, V. 1999. Genetic insights into the taxonomy and conservation of the Helmeted Honeyeater (*Lichenostomus melanops cassidix*) using microsatellites. BSc (hons) thesis, La Trobe University, Melbourne.
- McMahon, A.R.G. and Franklin, D.C. 1993. The significance of Mountain Swamp Gum for Helmeted Honeyeater populations in the Yarra Valley. *The Victorian Naturalist* 110: 230-237.
- McMahon, A.R.G., Carr, G.W., Race, G.J., Bedggood, S.E. & Todd, J.A. 1991. The vegetation and management of the Yellingbo State Nature Reserve with particular reference to the Helmeted Honeyeater (*Lichenostomus melanops cassidix*). Report to Department of Conservation and Environment. Ecological Horticulture Pty Ltd, Clifton Hill, Victoria.
- Menkhorst, P. & Middleton, D. 1991. Helmeted Honeyeater Recovery Plan. Department of Conservation and Environment, Victoria.
- Mitchell, S. 2006. Woori Yallock Creek Sub-catchment Biodiversity Local Area Plan: Conserving the natural habitat. Department of Sustainability and Environment, Box Hill.
- Moysey, E. 1997. A study of resource partitioning within the Helmeted Honeyeater *Lichenostomus melanops cassidix* during the non-breeding season. *Emu* 97: 207-219.
- Parks Victoria, 1998. Bunyip State Park Management Plan. Parks Victoria, Melbourne.
- Pearce, J. 2000. Mountain Swamp Gum *Eucalyptus camphora* at Yellingbo State Nature Reserve: Habitat use by the endangered Helmeted Honeyeater *Lichenostomus melanops cassidix* and implications for management. *The Victorian Naturalist* 117: 84-92.
- Pearce, J., Burgman, M.A. & Franklin, D. 1994. Habitat selection by Helmeted Honeyeaters. *Wildlife Research* 21:53-63.
- Pearce, J., Menkhorst, P. & Burgman, M.A. 1995. Niche overlap and competition for habitat between the Helmeted Honeyeater and the Bell Miner. *Wildlife Research* 22: 633-646.
- Pearce, J.L. and Minchin, P.R. 2001. Vegetation of the Yellingbo Nature Conservation Reserve and its relationship to the distribution of the helmeted honeyeater, bell miner and white-eared honeyeater. *Wildlife Research* 28(1): 41 – 52.
- PPWPCMA. 2004. Port Phillip and Western Port Regional Catchment Strategy, 2004-2009. Port Phillip and Western Port Catchment Management Authority, Frankston.
- Runciman, D., Franklin, D. & Menkhorst, P.W. 1995. Movements of the Helmeted Honeyeater during the non-breeding season. *Emu* 95: 111-118.

- Smales, I.J., Craig, S.A., Williams, G.A. & Dunn, R.W. 1990. The Helmeted Honeyeater: decline, conservation and recent initiatives for recovery. Pp. 225-238 in *Management and Conservation of Small Populations*. Eds T.W. Clark & J.H. Seebeck. Chicago Zoological Society, Chicago.
- Turner, V. 2003. Flora and Fauna Guarantee Action Statement Number 130: Sedge-rich *Eucalyptus camphora* Swamp. Department of Sustainability and Environment, Melbourne.
- Wykes, B. J. 1985. The Helmeted Honeyeater and related honeyeaters of Victorian woodlands. Pp 205-217 in *Birds of Eucalypt Forests and Woodlands: Ecology, Conservation and Management*. Ed by A. Keast, H.F. Recher, H. Ford and D. Saunders. Surrey Beatty & Sons, Sydney.