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The Regent Honeyeater: a Flagship Species for Conservation

The Regent Honeyeater's strong reliance on ironbark forests has made it a flagship species for threatened Box-ironbark forests

AUSTRALIA IS A HOTSPOT FOR HONEYEATERS (family Meliphagidae) due to our prolifically flowering, nectar-rich trees. I have written about 'The Sweet Life of Nectivores' in previous articles (see references). In this article, I will focus on a special species. Of the 75 species in the Meliphagidea family, one of the most beautiful, but sadly, also the most endangered, is the Regent Honeyeater *Anthochaera phrygia*. Formerly *Xanthomya phrygi*a, it was changed to the genus *Anthochaera* based on molecular (DNA) evidence which groups honeyeaters with Australian chats and wattlebirds.

DESCRIPTION

The Regent Honeyeater is a visually striking bird. Predominantly black, it features lemon-yellow plumage on the back and a yellow and black-scaled breast. It has a pure pale-yellow lower belly, bright yellow patches on the wings, and a black tail with broad yellow feathers.

Sexes are easy to distinguish, as the male's eye is surrounded by yellow warty bare skin, whereas the female has only a small yellow patch of skin below the eye. Females are also smaller, have less black on the throat, and are not as brightly coloured as males. Younger birds resemble the female but are more brown in colouring, with a paler bill. The distinctive feature of Regent Honeyeaters is the bare, corrugated skin around the eye, reflected in its early common name of the Warty-faced Honeyeater.

At 20–24cm in body length, with a 30cm wingspan and weighing 35–50g, Regent Honeyeaters are medium-sized birds. They have a sturdy, slightly curved bill, adapted for foraging on flowers. Estimated lifespan is eight years.

DISTRIBUTION AND HABITAT

Historically, the Regent Honeyeater had a widespread distribution, ranging across eastern Australia from Rockhampton, Queensland to Adelaide, South Australia. Sadly, their range has been dramatically reduced, and today they are confined to eastern Victoria and New South Wales, with a patchy distribution.

They are predominantly found along the western slopes of the Great Dividing Range, in Capertee Valley, west of the Blue Mountains, parts of the Hunter Valley, and on the NSW Central Coast. The Regent Honeyeater is strongly associated with blossoming trees, so its main habitat is woodlands, especially Box-ironbark. These forests grow on wet, fertile soils, which often occur along creek flats and broad river valleys. The Regent Honeyeater may also occur in riperian River Oak *Casuarina cunninghamiana* forests, when its food plants (eucalypts and native Australian mistletoe) are blossoming. There are a few reports of this species visiting orchards and urban gardens.

Regent Honeyeater in captivity—*ex situ* conservation has been an important component in saving this species

P ODEKERKEN

Regent Honeyeater
Anthochaera phrygia

EDITOR'S NOTE

If you want to become involved with saving the Regent Honeyeater, contact the Regent Honeyeater Project on (03) 5761 1515 or see www.regenthoneyeater.org.au.

The Regent Honeyeater once inhabited four states, but because of habitat loss, it is now only found in small patches of Box-ironbark woodland, inland of the Great Dividing Range in New South Wales and Victoria. With the remaining wild population estimated at only 300–500 mature individuals. the decline of the Regent Honeyeater has had a huge impact on the greater ecosystem because these birds are major contributors to the pollination of native plant species.

Taronga Zoo has played a key role in the recovery program for the Regent Honeyeater since 1995, and during this period has bred and released to the wild 295 birds. Staff and volunteers also participate in habitat restoration initiatives and have helped plant over 30 000 trees in the Capertee Valley.

Key success indicators are the recent sighting of birds released since 2015.

In times of drought, Regent Honeyeaters will utilise lowland coastal forest. In the past 10 years, Regent Honeyeaters have been observed to forage in urban areas around Albury, where woodland tree species including Mugga Ironbark and Yellow Box were planted 20 years ago. This underscores that urban areas should not be overlooked as areas for conservation planting.

The Regent Honeyeater's strong reliance on ironbark forests has made it a flagship species for threatened Box-ironbark forests. Through efforts to save Regent Honeyeaters, other species also tied to this habitat will benefit, including the threatened Swift Parrot, Superb Parrot, Brush-tailed Phascogale, Squirrel Glider and Painted Honeyeater. These habitats are also known to support an especially high abundance and diversity of native birds.

BEHAVIOUR

Like most Meliphagids, Regent Honeyeaters are gregarious, feeding and moving in flocks when population numbers allow. They roost communally, and rarely use the same trees for foraging as they do for roosting. Their nomadic behaviour is tied to their diet, following the spatio-temporal blossoming of their key food trees through the seasons.

Banding studies have revealed Regent Honeyeaters are highly mobile and may travel large distances as they track the flowering of select *Eucalyptus* species. However, the regularity and extent of long-distance movements require further research. Regents are arboreal and seldom come to the ground, except to bathe in puddles and pools.

Distinct from the harsh calls of other *Anthochaera*, their call is a soft, metallic bell-like song, made while bobbing their heads. Unlike many birds, they are more vocal during the non-breeding season.

DIET

The Regent Honeyeater is an omnivore, with its diet predominantly comprising nectar from a restricted set of *Eucalyptus* species and mistletoe, as well as other plant-derived exudates (such as manna, the sugary sap of Manna Gums). They also feed on the sugary exudates produced by insects (lerps and honeydew). To a lesser extent, they feed on insects and spiders—important for nestlings—and native and cultivated fruits. Regent Honeyeaters mainly forage within foliage but will also sometimes hawk for insects. Depending on availability, nectar comprises 10–90% of their diet. Both the nectar and fruit of mistletoe are utilised.

Due to their nectivorous nature, Regent Honeyeaters are important pollinators. Much of their time is spent feeding on nectar from Mugga Ironbark, White Box and Yellow Box, Swamp Mahogony and Blakeley's Red Gum. In some regions, Lower Hunted Spotted Gum, Stringybark species, and Broad-leaved Ironbark can be important. Regent Honeyeaters are highly reliant on this vegetation which provides higher, reliable nectar flows, preferring to forage in trees that are taller with wider diameters, that produce greater nectar flows than smaller trees.

BREEDING

Regent Honeyeaters lay their eggs in cup-shaped nests of sticks and thick bark, lined with softer material like grass and wool. Nests are made in high tree forks in the canopy. Nesting occurs in mature eucalypts and sheoaks in Box-ironbark woodlands and riparian gallery forest as well as in mistletoe haustoria.

The breeding territory consists of the nesting tree and surrounding feeding areas, which extend 5–40m from the nesting tree. Pairs often nest solitarily, but some nest in loose congregations, with distances between nests ranging from 40–110m.

A pair produces clutches of 2–3 eggs. Both male and female contribute to the rearing of their offspring, with the female incubating the eggs, and both feeding the offspring. Incubation takes 14 days and for the next 16 days until fledging both parents feed the chicks at an average rate of 23 times per hour.

Timing of Regent Honeyeater breeding varies by location coinciding with mass flowering of its two main food types, eucalypts and mistletoes, mostly from August to January. Most pairs return to the same location to breed, but some change sites between seasons, nesting up to 85km from where they bred the previous year. If there is a nest failure, a pair may re-nest either in the same location or a different one.

Today there are only three known breeding regions—at Chiltern-Albury in north-east Victoria and at Capertee Valley and the Bundarra-Barraba region in NSW.

POPULATION DECLINE

The Regent Honeyeater has undergone severe declines in distribution and abundance and is listed as Critically Endangered both at the federal government level and on the IUCN Red List of Threatened Species. The driving cause of this is loss of native vegetation. Clearing and degradation of the most fertile, nectar-rich stands of eucalypts, largely for animal agriculture, has deprived Regents of food resources. Livestock grazing also prevents regeneration. Key food plants most affected are fertile Yellow Box-White and Box-Blakely's Red Gum woodlands. Loss of key nectar sources is compounded by competition for remaining blossoms with other, more aggressive, honeyeater species (especially the Noisy Miner *Manorina melanocephala*, Noisy Friarbirds Philemon *corniculatus* and Red Wattlebirds *Anthochaera carunculata*). Native nest predators such as Pied Currawongs *Strepera graculina* may also be contributing to population decline.

Estimating Regent Honeyeaters' population size is a challenge due to their nomadic nature, and a better understanding of their movement patterns is needed. This species is not naturally rare, given historic accounts from the 19th century described Regent Honeyeaters being 'immense' in numbers, occurring in 'very large flocks' of thousands of birds. Yet recent estimates suggest there are only 350–400 birds overall, and they are now seen only individually, in twos, or occasionally small groups. The population in NSW has declined precipitously, from 1000 birds in 1997 to only 40 birds in 2009. The total population of Regent Honeyeaters has undergone a decline of over 80% in just three generations.

CONSERVATION

Fortunately, actions have been implemented to improve the conservation status of this splendid species and a recovery plan created. Scientists have recognised the urgency of the need to protect this species, and it is one of 20 bird species nationwide prioritised for recovery funding by the Australian government. Zoos and wildlife sanctuaries have been active in raising awareness about Regent Honeyeaters. In NSW and Queensland, Regent Honeyeaters are listed in conservation prioritisation programs, and Birdlife Australia is delivering government-funded initiatives in Capertee Valley. Collaborations between these organisations and the community through national Landcare and Green Army programs has been proposed to achieve good value-for-money outcomes for the species.

Recovery strategies promoted by the NSW Government's Saving Our Species program include:

- maintaining a captive breeding population;
- providing landholders and community members with information on the ecology of Regent Honeyeaters;
- encouraging landholders to manage key areas for Regent Honeyeaters through incentives;
- preventing loss of mature nectar tree species and minimising mistletoe removal;
- encouraging landholders to remove stock from sensitive areas;
- protecting and enhancing key breeding and foraging habitat;
- a tree-planting program;
- preventing loss of known habitat throughout the species' range;
- conducting research on habitat selection and on long-distance movement; and
- investigating impacts of competition for resources, and nest predation, with native birds.

The Regent Honeyeater's recovery depends on preventing further habitat loss and improving the quality of its woodland habitat.

Reducing the threat of competition with Noisy Miners is also important. Current conservation efforts are focused on protecting and restoring preferred habitat as frequently used sites, as well as planting habitat to increase the availability of habitat overall, captive breeding, and raising awareness about the plight of this endangered species.

Wildlife centres and zoos play a pivotal role in allowing the public to have the privilege of observing Regent Honeyeaters in real life, raising awareness about the plight of this species, as well as enacting captive breeding and release programs. Taronga and Melbourne Zoos both participate in highly successful captive breeding and release programs.

As an insurance policy against the extinction of Regent Honeyeaters in the wild, 20 individuals were taken into cavity at wildlife institutions. Diligent husbandry has resulted in these birds thriving in captivity, breeding prolifically and captive-bred birds being released in the wild.

Eighty captive-bred individuals had been released, mainly in north-eastern Victoria by late 2012. Close monitoring of released birds for several months revealed that they survived well, exhibited appropriate behaviour for their species, and one pair successfully reared a fledgling. This is all positive evidence that several generations in captivity have not impaired their natural behaviours and ability to survive in the wild. Moreover, seven birds released in 2010 were re-sighted 10–23 months later at a number of sites in Victoria and southern NSW, indicating they were adopting natural nomadic foraging behaviour and dispersing to new sites. Captive-bred females have successfully bred with wild males and, in 2018, a released captive-bred male and wild female raised two chicks together successfully in a release site in the Chiltern-Mt Pilot National Park, Victoria.

Preparation for release in the wild includes playing audio of wild Regent Honeyeaters to allow integration into wild populations. Husbandry involves ensuring that the Regent Honeyeaters experience conditions in captivity similar to that in the wild, including providing them with natural nesting materials (including collecting fresh black house spider webs) and feeding them natural diets.

I was honoured to have the opportunity to observe Regent Honeyeaters at both Currumbin Wildlife Sanctuary on the Gold Coast and at Taronga Zoo in Sydney. At Taronga Zoo I was delighted to come face-to-face with a Regent Honeyeater which alighted on a twig right in front of me while I was walking through an aviary. I will never forget the experience of being so close to such a beautiful and endangered species. We must all work together to support conservation efforts so future generations are not deprived of such experiences.

EATING AWAY AT THE PROBLEM

It is evident that the driving cause of diminishing populations in this spectacular honeyeater is loss, fragmentation and degradation of their eucalypt forest habitat and their high-quality nectar trees as food resources. Due to the unpredictable timing of mass-blooms, Regent Honeyeaters require multiple large, intact forests. It is also likely that they suffer from what are known as 'Allee' effects—declines in individual fitness at low population size or density which leads to an extinction vortex of further declines. This is not only due to inbreeding. As migratory birds, it is likely that knowledge of key migratory routes and valuable food resources are passed on between individuals and generations. When individuals are lost, this detailed knowledge of previous feeding hotspots is lost from the species' collective knowledge.

While the captive breeding and release of Regent Honeyeaters has proven successful, overall success for the species relies on healthy habitat, and the birds being able to locate it. The Regent Honeyeater Recovery Team has undertaken major efforts to protect key habitat, and extensively replant and rehabilitate habitat, especially in Victoria and Capertee Valley. As locations are often on private land rather than reserves, everyday people—landowners and consumers—play a crucial role.

Expanding agriculture has resulted in a massive 85% of Box-ironbark woodlands being cleared. Whereas this ecosystem was once one of the most extensively distributed, today it is one of the most threatened in Australia. Moreover, of that remaining, much is on less fertile soils, suboptimal habitat for Regent Honeyeaters.

As well as grazing preventing regeneration, cattle are also contributing to soil salinity and nutrient overloading, causing eucalypt dieback. It is thus vital we prevent any further livestock expansion. Livestock farming contributes greatly to climate change, releasing more greenhouse gas emissions than all vehicles combined! We are already experiencing increased drought, reduced rainfall, and higher temperatures as a result of climate change, which has also been revealed to reduce the nutrient quality of nectar.

According to the National Climate Change Adaptation Research Facility Policy Guidance Brief 4 (2012-2013), average temperatures across Australia have increased by 0.75°C since 1910. They are expected to increase by 1°C (above 1990s temperatures) by 2030, when rainfall is projected to decrease by 2–5% across Australia, with more frequent and hotter heatwaves likely and drought frequency and intensity of storms expected to increase.

Eliminating meat from your diet will go a long way to reducing your carbon footprint and mitigating climate change. In addition you can be involved in conservation of the Regent Honeyeater by protecting remnant native woodland in your community or on your own private land, participating in tree-planting days, and joining nature-based organisation like Green Corps or the Australian Trust for Conservation Volunteers.

Habitat loss for mining is also of concern. Recent surveys conducted by Birdlife Australia's NSW woodland bird program discovered evidence of Regent Honeyeaters only breeding at one site in NSW, where nesting birds and chicks were observed within the Tomalpin Woodlands, in the Hunter Economic Zone (HEZ). This site has been flagged for a coal-fired power plant proposal. Not only is it ridiculous to be building more coal-fired plants where we should be decommissioning them in light of climate change, and switching to renewable energy, this would wipe out this vital breeding habitat for this Critically Endangered bird.

It is crucial that this site be protected by legislation. Birdlife Australia CEO Paul Sullivan has expressed the severity of the situation, saying: 'Allowing this critical piece of habitat to be zoned for industrial development is akin to endorsing the extinction of the Critically Endangered Regent Honeyeater'. These woodlands are also important habitat for many other species, including other Critically Endangered species like the Swift Parrot *Lathamus discolor*.

CONCLUSION

The striking beauty of the Regent Honeyeater and its status as a flagship species has garnered attention. Partnerships between government and non-government agencies, zoos and wildlife parks, scientists, community groups, landholders and stakeholders have been active in protecting the Regent Honeyeater and its habitat. It's time for us to also play our part. We cannot afford to lose this stunning species.

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