The Noisy Miner is a common sight throughout the woodlands of eastern Australia. Notorious for its unrelenting group aggression and belligerent behaviour, the Noisy Miner excludes nearly all small birds from the woodland remnants it occupies. Enormous personal energy by landholders and volunteers and many millions of dollars are spent annually on revegetation and regeneration projects to provide habitat for small birds and other animals. However the Noisy Miner continues to exclude small birds from revegetated areas.

The Noisy Miner was known from the accounts of the earliest Australian colonists for its bold temperament. Previous scientific and common names use the terms “garrulous” and “chattering”, and recount the bird’s unpopularity with hunters for sounding the alarm to other animals as they approached (hence one nick-name “soldier bird”). John Gould in the 1800s described the Noisy Miner’s habit of moving around in companies of from four to ten and a disposition of being restless, inquisitive, bold and noisy.

Most honeyeaters are aggressive, but the Noisy Miner is particularly feisty and infamous for the extreme nature of its communal aggression, directed at all bird species and many other animals. Groups of Noisy Miners exclude nearly all other birds from the territory they occupy.
THE GENUS MANORINA

The Noisy Miner is a member of the genus *Manorina*. Found throughout Australia, the *Manorina* are in the honeyeater (Meliphagidae) family. They belong to a largely insectivorous (short-beaked) group of honeyeaters that feed mainly on honeydew, lerp and insects. All members of the genus, apart from the endangered Black-eared Miner, display very similar traits. They are colonial and highly aggressive, benefitting from human changes to the landscape.

Paradoxically, the Black-eared Miner is critically endangered and its biggest threat is hybridisation with the Yellow-throated Miner, brought about by land clearing in the Mallee many years ago. The Yellow-throated Miner has benefitted from clearing of Mallee vegetation and has increased in range and abundance in some parts of Australia. Correspondingly, habitat changes that benefit Yellow-throated Miners have the potential to create further problems in fragmented landscapes.

NOISY MINER

Noisy Miners are found throughout eastern Australia. Yellow-throated Miners (map left) overlap with Noisy Miners in the western part of the Noisy Miner’s range, and are then found throughout Australia to the west coast. Map generated from the Atlas of Australian Birds database “birdata”, courtesy of Birds Australia.

YELLOW-THROATED MINER

Noisy Miners are found throughout eastern Australia. Yellow-throated Miners (map left) overlap with Noisy Miners in the western part of the Noisy Miner’s range, and are then found throughout Australia to the west coast. Map generated from the Atlas of Australian Birds database “birdata”, courtesy of Birds Australia.

WHAT IS A NOISY MINER?

The Noisy Miner *Manorina melanopephala* is regularly confused with the introduced Common (or Indian) Myna *Acridotheres tristis*. Both species are similar in size, distribution and behaviour — quarrelsome, noisy and aggressive. However, the Noisy Miner is a native Australian honeyeater, mainly grey in colour with a black mask (left), and the Common Myna is an introduced Asian starling, mostly brown with a dark head (right).

An ever increasing number of scientific studies throughout the Noisy Miner’s range in eastern Australia have shown that the Noisy Miner aggressively excludes other birds from the remnants it occupies, and that small insectivorous birds are particularly vulnerable to Noisy Miner aggression.

Ford (1981; 1986; 1995 etc)
Clarke *et al.* (1984; 2007; 2010 etc)
Loyn (1985; 1987 etc)
Catterall (1991; 2002 etc)
Barrett *et al.* (1994; 1995 etc)
Eyre *et al.* (2009)
Grey *et al.* (1997; 1998)
Piper (1997; 2003)
Major (2001)
Haslings & Beattie (2006)
MacDonald & Kirkpatrick (2003)
Maron (2005; 2007 etc)
Taylor *et al.* (2008)
Oldland *et al.* (2009)

In the 18 years between the 1984 Atlas of Australian Birds and the 2002 Atlas, there has been a worrying increase of between 10% and 15% in the reporting rate of Noisy Miners in some parts of the species’ range.

In the 18 years between the 1984 Atlas of Australian Birds and the 2002 Atlas, there has been a worrying increase of between 10% and 15% in the reporting rate of Noisy Miners in some parts of the species’ range.
The Noisy Miner has a widespread distribution, occurring in eucalypt forest and woodland throughout temperate and sub-tropical eastern Australia, typically where eucalypts occur adjacent to grassy clearings. Domination of remnant woodland within its range has increased substantially. Historic European settlement of Australia resulted in large-scale clearing and modification of the land, creating narrow corridors, remnants and habitat edges favoured by Noisy Miners. Widespread grazing by introduced sheep and cattle has modified the structure and composition of ground-layer and mid-storey shrubby vegetation. The Noisy Miner can tolerate fragmentation and has benefitted from these changes that have in effect created more of its preferred habitat. Surveys for the most recent Australian Bird Atlas show that the Noisy Miner is increasing in abundance within its range.

It is a striking example of a native species that has benefitted from human alterations to woodland and forest habitat, enabling it to increase in abundance and distribution. In short, the Noisy Miner has become an overabundant species.

Throughout eastern Australia the Noisy Miner has been associated with the decline and absence of birds in remnant forest and woodland, in particular small, insectivorous birds, already profoundly affected by loss of habitat through clearing.

Woodland remnants where Noisy Miners are present have fewer bird species than equivalent remnants where Noisy Miners are absent. In landscapes where the Noisy Miner is scarce or absent, small remnants are used by a wide range of birds.

Noisy Miners typically occur where eucalypts are adjacent to grassy clearings or are interspersed within a grassy woodland. Noisy Miners will occur throughout suitable grassy eucalypt woodland on fertile soils, but can also be found on the edges of forests or shrubby woodlands abutting pasture. Clearing for agriculture and the creation of open urban parklands have created millions of hectares of habitat ideal for Noisy Miners.

Although Noisy Miners spend much of their time gleaning insects from the branches and leaves of eucalypts, they can often be seen feeding in paddocks or parks on the ground, adjacent to eucalypts. This is in contrast to nearly all other kinds of honeyeaters, that rarely feed on the ground.

When feeding on the ground, they show a strong preference for feeding where the grass is short (< 5cm), typically as a result of grazing by sheep or cattle, or mowing to maintain neat parklands. Noisy Miners appear to avoid foraging in dense, tall grass or shrubs.

They usually restrict this ground feeding to within 25 m of a nearby eucalypt and fallen timber on the ground, upon which they perch looking out for intruders into their territory.

Promoting the growth of structurally complex understorey vegetation (for example more shrubs and grasses) has the potential to make a site less attractive to Noisy Miners.

Promoting the growth of structurally complex understorey vegetation (for example more shrubs and grasses) has the potential to make a site less attractive to Noisy Miners.
The Noisy Miner is typically thought of as a species that inhabits fragmented landscapes, particularly small remnants, corridors and the edges of larger remnants. However, it also occurs throughout the Brigalow Acacia harpophylla Belt bioregion of southern Queensland in contiguous remnant woodlands covering several million hectares. In a Queensland study, the Noisy Miner was abundant throughout 90% of the intact woodland in the region.

The extensive eucalypt forests of southern Queensland should be useful refugia for many bird species, but have been disturbed by grazing, logging and burning, thereby simplifying the habitat structure. The Noisy Miner dominates, with consequent detrimental effects on the rest of the bird community. Noisy Miners can dominate forest blocks several hundred thousand hectares in size and are often recorded more than 20 km from the nearest forest-agriculture edge.

Small birds, many of which are threatened or declining, are more abundant at sites with extensive understorey, low grazing pressure and few Noisy Miners. These sites have also often experienced less frequent burning and are commonly dominated by Callitris. Managing Noisy Miners in extensive Queensland forests is a conservation challenge, as they have the ability to dominate whole landscapes.

REVEGETATION LESSONS

The highly fragmented Buloke Allocasuarina luehmannii woodlands of Victoria’s Wimmera are heavily grazed and invaded by weedy grasses. Nevertheless, Noisy Miners are infrequently recorded and the remnants support a diverse assemblage of small woodland bird species, such as Hooded Robin, Varied Sittella and Brown Treecreeper.

In locations once dominated by slow-growing Buloke, habitat restoration programs have often resorted to planting Eucalyptus and Acacia species because they are fast-growing and easier to establish.

Noisy Miner occupancy of a remnant is strongly associated with the presence of eucalypts and as few as five eucalypts per hectare is an excellent predictor of Noisy Miner presence in revegetated Buloke and eucalypt woodlands.

Surprisingly, even weed-infested and degraded woodland remnants which contain few resources for Noisy Miners, such as pure Buloke, have high conservation value for small birds. Boree (Weeping Myall Acacia pendula) and Murray Pine Callitris glaucophylla remnant woodlands with few eucalypts may be similar. However, injudicious addition of eucalypts to such habitats can result in undesirable changes.
Since European settlement, an estimated 80% - 90% of temperate woodland has been cleared throughout the Box-Ironbark region of Victoria. In this region, Noisy Miners dominate nearly all corridors, small remnants and edges of many larger remnants. Aerial views highlight the clearing, not always evident from eye level.

Small, degraded woodland remnants are able to support small insectivorous birds when Noisy Miners are removed. The magnitude and types of changes that occur after culling Noisy Miners can be dramatic, with increases in bird numbers of 1½ – 40 times and the number of species increasing by ½ to 10 times in some places. Small insectivorous birds, like those below, gained the greatest benefit.

The endangered Regent Honeyeater and many small birds belonging to the threatened temperate-woodland bird community used woodland remnants for stepping stones, feeding and nesting following the removal of Noisy Miners. Small migratory and nomadic species were prominent in Noisy Miner-free remnants.

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**REMOVING NOISY MINERS**

Monthly bird surveys at two matching Box-Ironbark remnants show the remarkable differences in the bird communities after Noisy Miners were removed from one remnant (top) (removal time indicated by the arrow), but not the other (bottom).

(Squares) bird abundance; (diamonds) species richness; (circles) number of Noisy Miners.

Similar results occurred in five other matching pairs of remnants. Some remnants supported small birds and remained Noisy Miner-free for 10-15 years following removal of Noisy Miners.

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**CLOCKWISE FROM TOP RIGHT: REGENT HONEYEATER, YELLOW-TUFTED HONEYEATER, SOUTHERN WHITEFACE, JACKY WINTER, SCARLET ROBIN, RUFOUS WHISTLER.**
THE NOISY MINER IN FRAGMENTED LANDSCAPES

Noisy Miners do not occur everywhere along the edges of larger remnants, such as this 300 ha Box-Ironbark remnant. Noisy Miners are strongly associated with:

- Corners of remnants
- Corridors of vegetation extending into a paddock from the remnant edge
- Clumps of trees in a paddock within 100 m of the remnant edge
- These findings are applicable in several different habitats (for example Box-Ironbark woodlands, Forest Red Gum woodland) but also the Grey Box Grassy and Box-Gum Grassy woodland Endangered Ecological Communities.

Noisy Miners penetrate into the interior of large remnants 300 metres, or more if the habitat is suitable. This effectively removes a large portion of a remnant as habitat for other birds

Noisy Miners prefer to occupy corners along remnant edges, but they are not found at every corner

Corners that are more attractive to Noisy Miners have deeper, more fertile soils. Attractive corners are sites with higher proportions of Yellow Gum *Eucalyptus leucoxylon* and White Box *Eucalyptus albens*, which are *reliable* and *prolific* producers of nectar.

REVEGETATION STRATEGY IN FRAGMENTED EUCALYPT WOODLANDS

When designing revegetation we should be mindful of the types of edges Noisy Miners are likely to exploit and whenever possible revegetate in a way that discourages Noisy Miner colonisation. For example, this design (right) shows the edge of a large woodland patch with two protrusions: (A) a projection (corner) and (B) a clump of paddock trees. The dotted lines highlight the perimeter of the proposed revegetation which will extend into the paddock, enclosing both protrusions, and smoothing the remnant edge, creating less favourable habitat for Noisy Miners.

Noisy Miners may dominate this regeneration from paddock trees not included inside the regeneration perimeter fence.

Box-Gum grassy woodlands on fertile soils in the Holbrook District, NSW have been extensively cleared. Remaining remnants are attractive to Noisy Miners.
THE NOISY MINER AND RURAL DIEBACK CASCADING EFFECTS

- Noisy Miners are frequently associated with remnants suffering rural dieback. Defoliation by insects is common during the final stages of tree death
- Noisy Miners appear to disrupt the control of insects by other insectivores, thus exacerbating rural dieback
- Removal of Noisy Miners results in an influx of small insectivorous birds
- These small birds have the potential to assist in the recovery of dieback-affected remnants by consuming large numbers of insects
- In remnants where Grey Box Eucalyptus microcarpa was the dominant canopy tree, there was a significant decrease in leaf damage caused by insects when small birds occupied remnants following the removal of Noisy Miners.
- General tree health at remnants from which Noisy Miners were removed also showed a steady improvement.

FURTHER INFORMATION


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THE VALUE OF CORRIDORS

Small degraded remnants, corridors and paddock trees (even when dead) are vital components of the landscape and crucial to the survival of many species. Even if corridor planting inadvertently creates Noisy Miner habitat, many studies have shown that connections between fragmented vegetation remnants are important for other animals such as small mammals, reptiles and insects.

However, if corridors are narrow, they are likely to be of limited value for woodland birds where Noisy Miners occur.

NARROW OR DEGRADED CORRIDORS PROVIDE HABITAT FOR MANY ANIMALS

NOISY MINERS ARE OFTEN ASSOCIATED WITH RURAL DIEBACK

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MANAGING THE NOISY MINER PROBLEM
THE SCIENCE POINTS TO A NEED FOR ACTION

1. There is an extensive body of evidence that Noisy Miners prevent many small insectivorous birds and threatened bird species from utilising small or degraded woodland remnants in many vegetation types throughout eastern Australia.

2. There is strong evidence that Noisy Miners are increasing in abundance and expanding the extent of their range.

3. Noisy Miners on the edges of larger eucalypt woodland and forest remnants will penetrate large distances into the interior if the habitat is suitable.

4. Noisy Miners are more likely to colonise peninsulas and clumps of eucalypts protruding from and adjacent to the edges of larger remnants in Box-Ironbark and Forest Red Gum woodlands than straight edges of remnants.

5. Noisy Miners appear to dominate the more productive parts of the landscape with more fertile soils.

6. Noisy Miners exhibit a preference for remnant woodland where the shrub-layer has been disrupted by grazing, mowing or fire.

7. Noisy Miners spend a substantial proportion of their time foraging on the ground; therefore, promoting the growth of structurally complex ground-layer vegetation has the potential to make a site less attractive to Noisy Miners in southern parts of their range.

8. Removal of Noisy Miners results in increased bird diversity, a significant decrease in insect damage to leaves of Grey Box Eucalyptus microcarpa trees, and a measurable improvement in tree health in small woodland remnants.

9. Culling is the most humane, practical, cost-effective and time-efficient method of reducing the impact of Noisy Miners, as translocation simply moves the problem to a new locality and causes the displacement of other birds.

10. Noisy Miners are a protected species in all States of Australia and the ACT, and may only be culled with a permit from the appropriate State or Territory wildlife agency.

11. Noisy Miner removal should be accompanied by revegetation and rehabilitation designed to provide habitat for colonising bird species and other fauna.

12. Inappropriate habitat restoration, such as adding eucalypts to Buloke woodland remnants, may lead to Noisy Miners colonising previously Miner-free remnants. Some habitat regeneration and restoration programs run the risk of creating additional Noisy Miner habitat.

13. There is no appropriate “one size fits all” habitat restoration practice to deter Noisy Miners. Habitat restoration should be tailored to specific vegetation types, remnant sizes and remnant shapes and to accommodate a wide range of animals, not just birds. An element of “learning by doing” (adaptive management) must be involved.

14. The steep decline of many woodland birds requires urgent action on Noisy Miners, as part of a broader strategy to restore the diversity of our woodlands.

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