MITIGATION OF THE IMPACT OF MYNAS ON BIODIVERSITY AND PUBLIC AMENITY

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Photo by Andrew Tatnell, Big Island Photographics

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SUMMARY

In Australia, the common myna, *Acridotheres tristis*, is a feral bird that reduces biodiversity through predation and aggressive competition with native wildlife, particularly hollow-nesting birds and mammals. Mynas also reduce public amenity through noise at communal roosts, and fouling, with attendant risk for human and domestic animal health. Canberra was myna-free until 1968, when about 100 birds were released, mostly in Forrest. Mynas now occupy all Canberra suburbs; in many areas there are more than 100 birds to the square kilometre. Numbers still appear to be rising, with escalating spillover effects into adjoining lands, much of which is anthropogenically modified woodland, the myna's preferred habitat. Many nature reserves have been invaded by mynas. Feral myna populations are similarly expanding in most parts of eastern Australia and many other parts of the world, notably the Pacific islands, where several endemic birds have become seriously threatened as a consequence. In 2000, the Common Myna became the most common feral bird in Canberra and the World Conservation Union (IUCN) declared *A. tristis* among "100 of the World's Worst Invasive Species". Clearly, reduction of myna numbers is desirable, but is it practicable? Poisoning, habitat modification and fertility control have all been considered as possibilities for controlling mynas. Poisoning is clearly undesirable because it is non-specific, habitat modification because it would require lopping or removal of roosting trees of a huge range of species. Fertility control seems impractical, at least at the present time.

The objective of the Minimising Mynas Project Phase 1 was to determine if myna numbers could be reduced by trapping in a way that was selective, safe for humans and the environment, and its humaneness was acceptable to a majority of the community. A multi-catch trap, that is selective for mynas and starlings (another feral species) and a euthanasia system that is considered to be humane by animal welfare authorities, have both been developed. Pilot trials have been conducted to evaluate the selectivity, effectiveness over long time scales and public acceptability of the prototype traps. Four such traps were constructed and operated in Canberra backyards from August 2001 – October 2002. The system was considered to be humane by an overwhelming majority of observers (many hundreds), and, given deployment of enough traps, appears to have the potential to substantially reduce myna numbers on a broader scale. Commercial manufacture of the traps has been organised to enable testing and refinement of the system on a broader scale. Plans are being finalised for an expanded trial in collaboration with Environment ACT and Canberra Ornithologists Group. Trials to reduce myna numbers are also being planned in other areas of Australia, in concert with local government and non-government organisations.

OBJECTIVE OF THE STUDY

The objective of the Minimising Mynas Project Phase 1 (ENV 99: 019) was to determine if myna numbers can be reduced in a way that is humane, selective and safe for humans and the environment. The ultimate aim of the study is to answer the question "Can people power beat the myna in a clean, green and humane way?"

INTRODUCTION - MYNAS IN CANBERRA

Nowhere in the world has the introduction and spread of mynas been better documented than in Canberra, primarily because the species has been viewed with increasing alarm by many resident biologists, because of the potential for adverse impacts on native wildlife. Canberra remained myna-free until the late 1960's, when "seed" birds were intentionally released from Sydney, reportedly by an afficionado of myna song (Gregory-Smith, 1985). By 1990 over half of all Canberra suburbs were occupied by mynas (Davey, 1991). In 1994 densities of around 100 birds per square kilometre were reported in two Canberra suburbs, with marked spillover effects into adjoining woodland areas (Tidemann and Pell, 1996; Pell and Tidemann, 1997a,b).

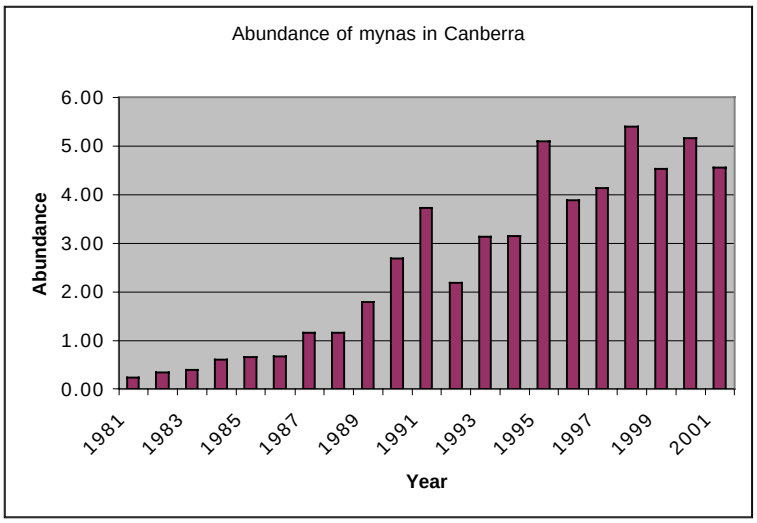

Figure 1: Data from Canberra Ornithologists Group, Garden Bird Survey showing changes in relative abundance of Common Mynas, 1981-2001

By 1997 Common Mynas had spread to virtually all Canberra suburbs. Densities were still rising between 1997 and 2001 (Overs, 1997; Veerman, 2002, Figures 1 and 2). By 2000, about 30 years after its arrival in Canberra, the Common Myna had become the most commonly recorded feral bird in the Canberra Ornithologists Group Garden Bird Survey (P. Veerman, personal communication).

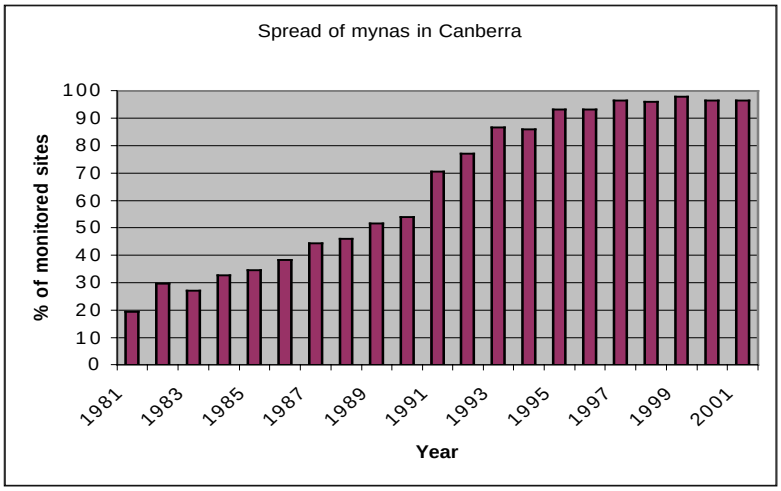

Figure 2: Data from Canberra Ornithologists Group, Garden Bird Survey showing % of monitored sites at which Common Mynas were recorded, 1981-2001

Why minimise mynas?

A facultative commensal, the Common Myna specialises in the colonisation of woodland, particularly anthropogenically modified areas; feral mynas are now widely recognised as a serious concern for biodiversity at a global level (Pell and Tidemann, 1997a,b; Feare and Craig, 1998). In 2000, the year that the Common Myna became the most commonly recorded feral bird in Canberra, the species was listed among 100 of the Worlds Worst Alien Invasive Species by the World Conservation Union (IUCN, 2000). The Common Myna has been described as a "serious pest bird" in Australia (Bureau of Rural Sciences, 2002). Concern about the impact of mynas on biodiversity in woodland nature reserves has been expressed during several recent community consultations (Environment ACT 1999; 2002; 2003).

Quite apart from, but often in addition to growing concerns about biodiversity, the Common Myna generates strong disfavour with many in the Australian community. Principal reasons given are noise associated with communal roosts and fouling of public, commercial and private premises, with attendant nuisance and health impacts. An overwhelming majority of public enquiries about Common Mynas stem from a desire to reduce their numbers (Myna Home Page, 2003; Environment ACT, Parks and Conservation Service, Graham Blinksell, personal communication).

Can mynas be minimised?

The objective of this project was to investigate whether mynas could be minimised in line with community aspirations to mitigate their impacts on biodiversity and public amenity. Several investigators, primarily in Canberra and Singapore, have explored various options for controlling myna numbers. Resource removal and habitat modification have been examined as a potential means of controlling mynas in Singapore (Kang et al., 1990; Yap et al, 2002) and in Canberra (Slocum (1995; Politi, 1998). These studies have recommended limiting food supply, by restricting access to human

waste and domestic animal food, but in each case it has been noted that this strategy is very difficult to implement because the species is highly adaptable and so is not restricted to any one food supply.

Extreme adaptability in choice of communal roost sites by Common Mynas (Politi, 1998; Yap et al., 2002) also suggests that, without removing large numbers of trees, it would be difficult, if not impossible to reduce myna numbers by restricting the availability of this resource. Nonetheless, lopping of roost trees has been implemented in some parts of Singapore (Kang et al., 1990; Yap et al., 2002), although, so far at least, the benefits have not been obvious. Poisoning, historically probably the most common method of controlling pest birds, is considered to be undesirable, particularly in built-up areas, because of effects on non-target species (potentially including children and domestic animals). Fertility and biological control both seem impractical, at least at the present time (Bomford and Sinclair, 2001).

Is it possible to develop a "smart" trap that catches only mynas?

Is it possible that myna numbers could be reduced by trapping in a way that is humane, selective for mynas, and safe for humans and the environment - the main public prerequisites of public acceptability for a control program (Myna Home Page, 2003)? Trapping has commonly been used to reduce numbers of some other vertebrate pests, eg pigs, dogs (Olsen, 1998); perhaps it could be used to reduce myna numbers. Several biological factors give some cause for optimism: the myna is a relatively slow-breeding species, birds do not breed until two and they are also of very low mobility, rarely moving further than a few kilometres from roosts (Wilson, 1973; Kang, 1992). Trapping at roosts, which usually include only mynas (and in Australia, European Starlings, another pest species), has been considered as a possible means of myna control, but so far there has been little development of this concept (ie, the "shroud" trap) beyond a preliminary investigation (Mock, 1998; Politi, 1998).

The present study concentrated on developing a system for selective trapping of mynas at feeding areas. Mynas are highly intelligent and adaptable birds that are capable of learning to avoid dangerous situations by observing the behaviour of others and the species has a highly sophisticated communication system (Mock, 1998). Hence, it is not difficult to catch small numbers of mynas in many types of trap, eg rat-traps, snares etc, but once a few birds have been caught, others in the area avoid the trap, particularly if the trapped birds emit distress calls. Accordingly, a trap was designed that would be selective for mynas (and the closely related pest species, the European Starling) and which would minimise avoidance behaviour by maximising the comfort and welfare of trapped birds.

The trap was made in two sections, a catching section base and a roost section, where undercover perches and food and water were provided, thereby mimicking conditions in natural roosts. The catching section of the trap was designed to permit entry only to mynas and starlings by means of apertures (valves) through which mynas and starlings would pass freely, but not other species likely to be attracted to the dog-food bait (eg, magpies, magpie-larks, currawongs). Two types of valves were developed to ensure selective passage of the target species: one through which mynas and starlings would walk into the catching section to access the food and a second through which they could climb into the roost section (Figure 3). The roost section was made removable from the catching section of

the trap, so that the base could be left set up on-site to continue free-feeding, while trapped birds could be taken off-site for euthanasia with carbon dioxide.

Photo by Ann Connolly

Figure 3: Prototype trap with trapped mynas and starlings

Four prototype traps were constructed and tested during 2001-early 2003. The objectives of the test were to establish (1) if the traps would selectively catch mynas and starlings and exclude other species (2) if the traps would keep catching mynas in the longer term, ie didn't generate avoidance (3) how many traps could comfortably be serviced by a single individual and (4) if the procedures were acceptable to the community. Several public demonstrations of the trap were also made to further assess public acceptability.

Single traps were operated at two sites in urban Canberra for around 18 months each and at another 9 sites for around two weeks each. Monitoring, other than of birds caught, was not possible because of limited resources, although robust monitoring procedures for establishing myna density are well

established (Davey, 1991; Slocum, 1995; Tidemann and Pell, 1996; Pell and Tidemann, 1997a,b, Politi, 1998, Veerman, 2002).

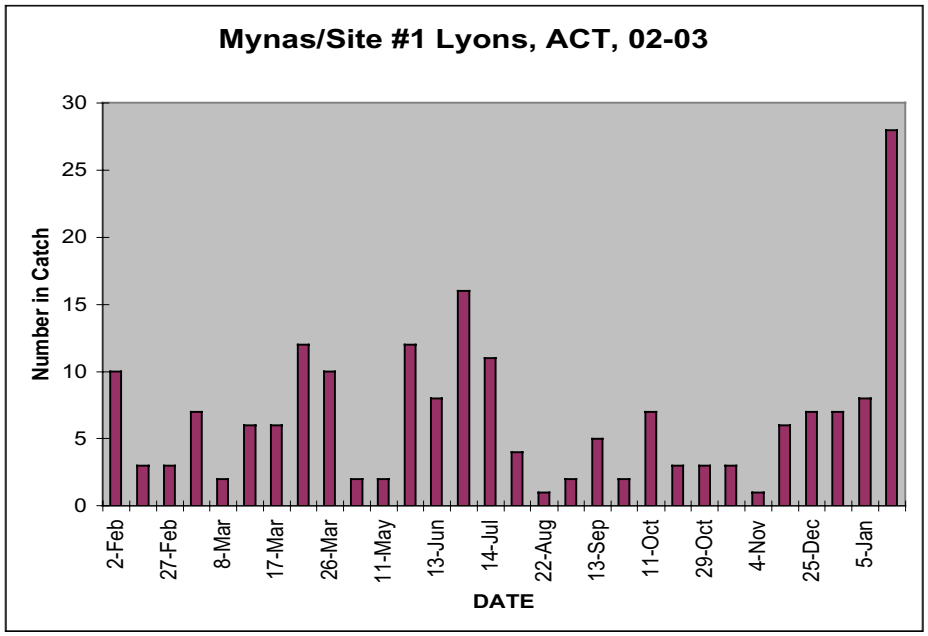

Figure 4: Myna catch from trap at Lyons from June 2001-February 2003. 350 mynas and 200 starlings were removed from this site over 18 months

More than 300 mynas were caught at each of the two long-term sites over about 18 months of trapping, suggesting a low degree of avoidance behaviour. The pattern of the myna catch from one long-term trap is shown in Figure 4; 200 starlings were also removed from this site. Mynas were trapped at all except one of the short-term sites, the catch varying from 3-53 birds (mean±SD, 18.5±15.4). Three magpies and two currawongs were also caught, but were released without harm, leading to the conclusion that the trap is highly selective. Harassment of trapped birds by cats appeared to be a probable cause of zero or low catches, leading subsequently to the use only of sites where cats were excluded by a resident dog. Optimal catches appeared to come from cycles of around 6 days of free-feeding followed by one of trapping, and the maximum number of traps that could be serviced by one individual appeared to be around 10-20 traps, depending on commuting distance, although these criteria require refinement through further testing.

Public approval of the trapping system was very high, with extremely little opposition and many expressions of interest from potential trap users, following demonstrations and print and electronic media coverage of the trial. Formal support for trials into myna minimisation has been expressed by several non-government organizations, including Birds Australia, Birds Queensland, Canberra Ornithologists Group, Conservation Council of Canberra and the South-east Region, and the Royal Society for the Prevention of Cruelty to Animals (ACT).

Photo by Debbie Claridge

Figure 5: Commercially constructed myna trap

Can mynas be reduced by trapping?

Resources available for this, the preliminary trial, were not adequate to permit testing of whether traps can effectively reduce the myna population, nor the number of traps required to achieve a particular population reduction. Answers to these questions would require a controlled, replicated trial with more traps and formal monitoring of the myna population. Only further trials will enable this question to be adequately answered *sensu* Braysher (1993; 2002), Tidemann (2002). One major difference between mynas and most other vertebrate pests is that mynas are strongly commensal and their impacts have more to do with lessening the quality of life than measurable economic considerations. The logic behind the Minimising Mynas study is that if technology to reduce their numbers can be made available and enough people use it people power may indeed be able to beat the myna, at least on a local scale.

Results from the pilot study seem encouraging enough to suggest the worth of a larger trial and planning for this is underway with Canberra Ornithologists Group, the Wildlife Research and Monitoring Unit, Environment ACT and the Parks and Conservation Service, Environment ACT. One

factor that initially constrained the setting up of an expanded trial was that the traps used in the pilot study were handmade. Commercial construction of myna traps has now been arranged (Figure 5).

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