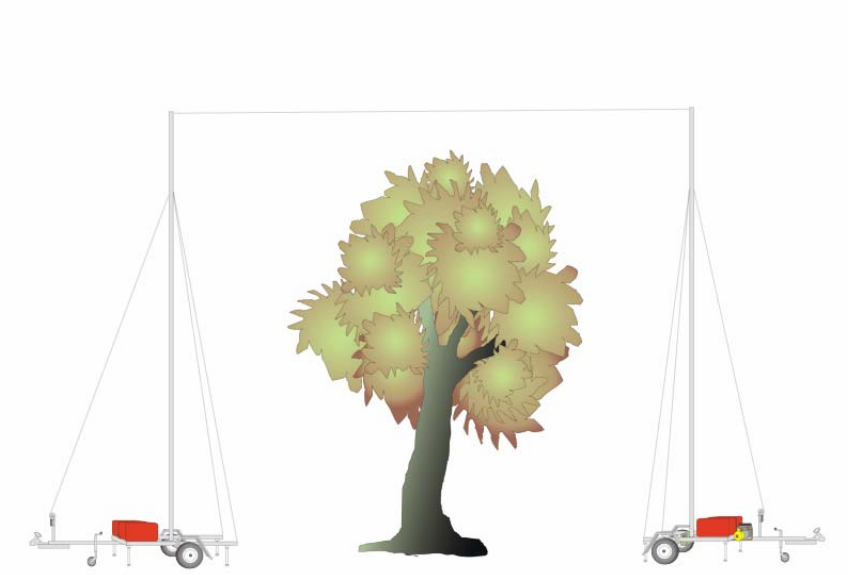
RESEARCHING THE EFFECTIVENESS OF MYNA BIRD (*acridotheres tristis*) ROOST TRAPPING AS A CONTROL METHOD

Final Report to
Department of Environment and Water Resources



A trailer-mounted system for catching and euthanasing roosting Mynas

25 November 2007

Table of Contents

Acknowledgements

The research described here was undertaken by Dr. Chris Tidemann from the Australian National University. The project was supported in part by a grant from the Department of Environment and Heritage, the Australian Rainforest Foundation (ARF), and grants from the Hermon Slade Foundation and the NSW Department of Environment and Climate Change.

Research facilities were provided by the Australian National University, the Australian Rainforest Foundation and Cairns City Council; technical assistance by Canberra Indian Myna Action Group, Toby Roscoe, Tim Ipkendanz, Daryl King, Resort Trailers and Mitchell Service Centre. Pictures were provided by Daryl King and C. Tidemann.

The report narrative is an extract (entire) from a final report to the ARF from Dr. Tidemann.

Front cover illustration: a trailer-mounted system for catching and euthanasing roosting mynas: Pic by Daryl King

Summary

The research described here was supported, in part, by a grant from the Department of Environment and Heritage Commonwealth (06 Feb 2006) and the Australian Rainforest Foundation. The project as funded has an end date of on 31 December 2007, with the project now in the post funding phase. Ongoing research is supported by grants from the Hermon Slade Foundation and the NSW Department of Environment and Climate Change.

The ultimate objective of the research was to minimise risk to native wildlife and human health and amenity by developing safe, humane and cost-effective systems for the control of Indian Mynas, *Acridotheres tristis*, especially at communal roosts.

The project follows the recent development of safe, selective and humane systems for trapping mynas at feeding areas – in small numbers. Earlier trials (pre 2006) indicate that feeding area traps are not effective at reducing myna numbers in high density situations, such as Cairns, where there are up to 1,000 birds per square kilometre.

To develop roost traps, field studies of behaviour were made at wild roosts, in parallel with experimental analysis of roosting preferences in controlled situations in a large, outdoor locations and avaries. These studies were located in Canberra - with a cool dry climate and in wet tropical Cairns.

The ultimate aims of the study are to determine if it is possible to successfully construct a super-attractive, mobile, synthetic roosts that can be used to trap roosting flocks of mynas - potentially hundreds of birds at a time – and to communicate information on best-practice myna control to stakeholders through documenting the results of the experiment for wider application.

Part way through the project it was decided that a synthetic roost was not the best method and a mobile net trap was developed.

Continuing post Commonwealth funding research will greatly inform and fine-tune myna control at a landscape level and will now include a mark-release programme, using colour bands, to track movements of whole roosts of birds – an impossibility prior to the development of the current trap.

The project also developed methodologies into moving roosting myna flocks from one tree to another to facilitate trap placement.

Indian Mynas (*Acridotheres tristis*) generate amenity, health and biodiversity problems in Australia and many other parts of the world. This report is the endpoint of parallel investigations into myna roosting behaviour in tropical and temperate Australia – and euthanasia methods.

The end product of these investigations is a system to catch and euthanase roosting flocks of mynas at the highest levels of operator safety and environmental and animal welfare. This is the first time, anywhere in the world, that such a system has been built. Other information on the research is provided by Tidemann (2006 a,b,c; 2007a,b).

The new trapping/euthanasia system consists of :
(1) a remotely-operated, mast-supported, net to enclose sleeping mynas in their communal roosts;

(2) a drafting system to move mynas from the netting enclosure, via a race, into holding pens;

(3) a euthanasing system to quickly and painlessly kill the trapped birds.

Construction of the prototype trap and euthanasia system is now ready for vetting by the *ANU Animal Experimentation Ethics Committee*. Pending approval from the Committee, trials of the completed prototype will be initiated in early 2008.

Communal myna roosts

Communal myna roosts can be easily located by listening for roosting birds near dusk. Roosts of a hundred or so birds generate a very loud noise – of the order of 120 dB, as measured by a Bruel and Kjaer 2250L sound level meter – and, consequently, are not difficult to find. A cross-season and location investigation of >200 myna roosts, and a similar number of non-roosts (see Tidemann 2006a,b,c; 2007a,b) established that mynas show little preference for roosting in particular species of trees. This means that there is little future in attempting to recreate a synthetic version of a preferred species of roost tree, as was originally considered. Instead, a more profitable avenue of enquiry was deemed to be to trap roosting birds in roosts that they had chosen themselves. Research into myna roosting ecology is ongoing under grants from the Hermon Slade Foundation and the NSW Department of Environment and Climate Change, and will be reported in detail separately.

Trapping mynas at Communal Roosts

The Catching and Drafting System

The Catching and Drafting Systems, with the onboard Euthanasing System, are moved between trapping sites on two piggyback trailers (a master and a slave). The prime mover also carries 800 litres of water that can be pumped into ballast tanks on the trailers to stabilise the masts.

The Master trailer supports a 15 m mast, that is stabilised, when erected, with 2 x 200 litre ballast tanks. It has a 50 amp hour 12 volt battery that operates electric winches to load the slave trailer, raise the mast and operate the rigging – trap headgear. The master trailer has ramps to enable loading of the slave trailer for towing.

The Slave trailer supports a 15 m mast, that is stabilised, when erected, by 2 x 200 litre ballast tanks. It has a 50 amp hour 12 volt battery to operate electric winches to raise the mast and operate the rigging. The slave trailer is also fitted with a 20 HP, air-cooled motor to generate euthanasia gas – and drive a fire-fighting pump that is used to move ballast water between the prime mover and the trailers.

.

***Figure 1**: **the trapping and euthanasing rig** is moved from site to site on two purpose-built trailers towed by a prime mover. Both trailers are registered for use on public roads; for towing, the slave trailer rides atop the master. Pic by C. Tidemann*

***Figure 2**: **The Master Trailer** supports a 15 m mast, stabilised with extendable legs and 400 litres of ballast water. On site, to stabilise the 15 m masts, water is pumped from a storage tank in the prime mover into ballast tanks on the trailers. Pic by Daryl King.*

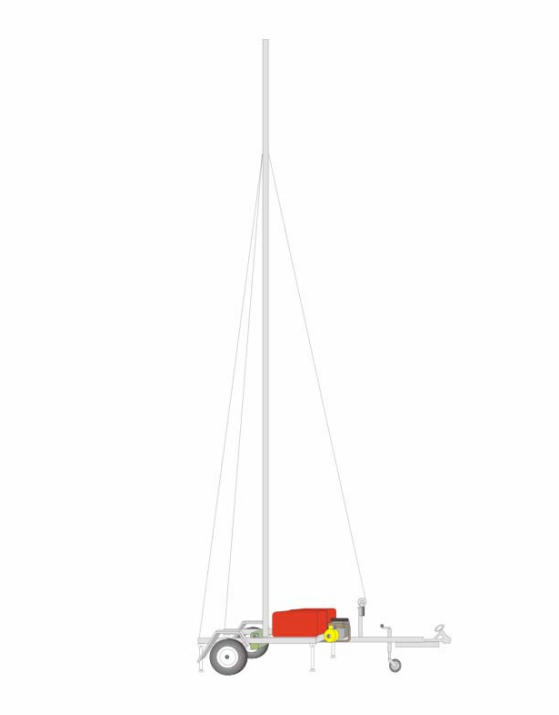


***Figure 3**: **The Slave Trailer** supports a 15 m mast stabilised with 400 l of ballast water, and is fitted with a 20 HP stationary motor and a pump to move water between the prime mover and the ballast tanks. The motor also delivers exhaust gas to the euthanasia system. Pic by Daryl King.*

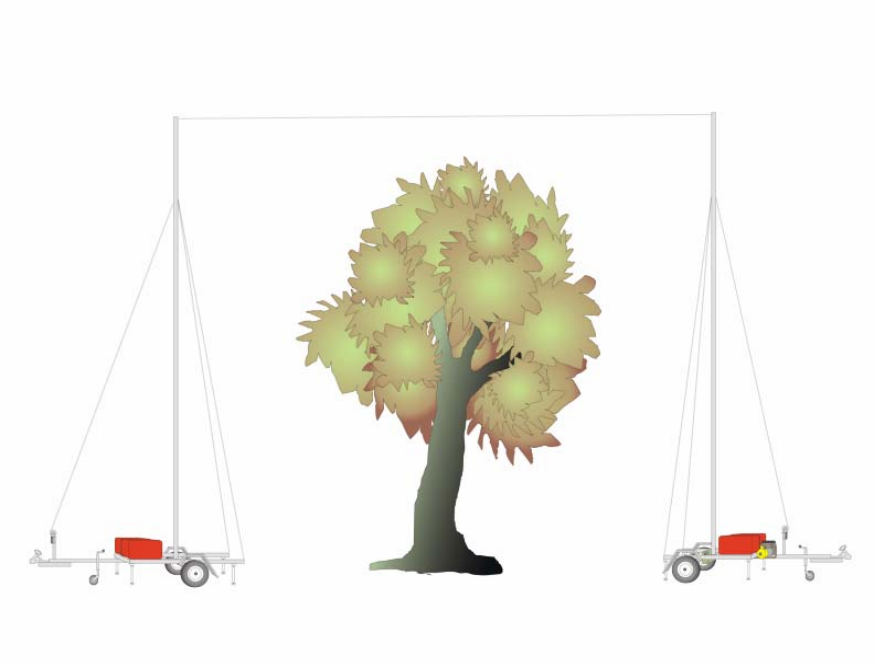


***Figure 4: Master and Slave trailers** are positioned on either side of the selected roost tree in preparation for catching the roosting birds. Pic by Daryl King.*

Catching and Drafting Mynas

The Master and Slave Trailers are positioned on either side of the roost tree. A 15 m mast is erected on each trailer and stabilised with 400 l of ballast water. The two masts support a central cable suspended above the roost tree. The central cable supports two yardarms, each suspended from a travelling truck. Two lateral cables are stretched between the yardarms to support a travelling net curtain, that can be positioned above the roost and remotely lowered once all the birds are inside. The whole roost tree (and roosting flock) is eventually completely enclosed by a 25 mm mesh netting curtain that reaches to the ground. Birds can leave this enclosure via a nose-piece in the netting curtain (similar to that in a fyke net), that leads to a shade-cloth-covered drafting race. Birds move from the enclosure, through the drafting race, following a wind current of 55 m^3 of air per minute from a 200 watt fan. Groups of 20-30 birds at a time are drafted from the race into 200 litre wire mesh (25 mm) holding cages until all birds have left the roost enclosure.

Figure 5: The front end of the slave trailer. *A 20 HP air-cooled four-stroke motor (right, in protective mesh cage) powers a fire-fighting pump (yellow) that can be used to move ballast water between the prime mover and the ballast tanks on the trailers (red). The motor also delivers exhaust gas to the euthanasia system. Pic by C. Tidemann.*

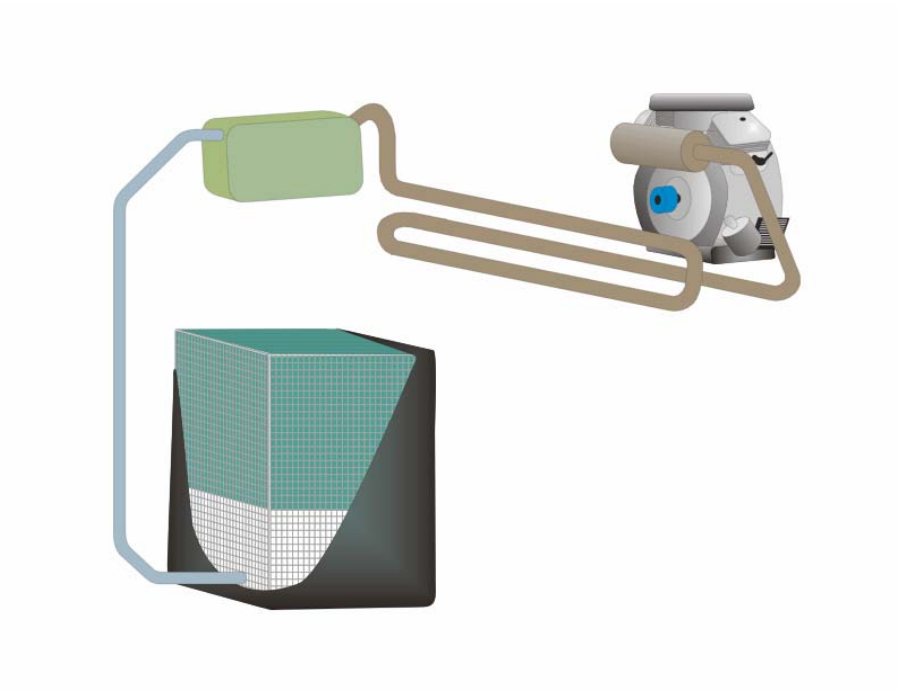


Figure 6: The euthanasia system*. Exhaust gas from the 20 HP motor (top right) is cooled by passing it through a condensor (top centre) and irritants (Nitrogen Oxides, NO_x) removed by passing it through a water scrubber (top left), before being led to the euthanasia cage enclosed in a canvas shroud (bottom left). Pic by Daryl King.*

Euthanasing Mynas

Trapped birds can be euthanased immediately on site or transported in covered holding cages for off-site euthanasia. For euthanasia, the holding cages are enclosed in canvas shrouds and exhaust gas is led from a 20 HP air-cooled motor on the slave trailer, through a condensor to cool the gas and reduce its volume, and a water scrubber to remove irritants (such as oxides of nitrogen NO_x). The system delivers 200 litres/minute of cooled, scrubbed gas, 9% carbon monoxide (CO) (Coda exhaust analyser; Coda Products, Newcastle, Australia 2033). The cooled, scrubbed gas generates unconsciousness in mynas in 20 seconds and death in 120 seconds.

Disposal of dead mynas

Dead mynas can be disposed of at landfill sites, as with other animal carcases. There is no risk of secondary poisoning of other animals from consumption of mynas that have been euthanased with carbon monoxide. Many backyard operators of Myna Magnet and other myna valve traps dispose of small quantities of dead mynas by composting (Bill Handke, personal communication).

Further Research

Further research that will greatly inform and fine-tune myna control at a landscape level can now include a mark-release programme, using colour bands, to track movements of whole roosts of birds – an impossibility prior to the

development of the trap. Public reporting of banded birds will be enhanced by nominating reward bands to community organizations, such as Canberra Indian Myna Action Group. Also planned is further research into moving roosting myna flocks from one tree to another to facilitate trap placement. Preliminary work has already established that flocks can be "pushed" from an occupied tree with mobbing calls – and a 60 μwatt green laser – and "pulled" to another tree by playback of roost chorus calls.

References

Tidemann, C.R. (2006a). Researching the effectiveness of myna bird (*Acridotheres tristis*) roost trapping as a control method. Progress Report No 1 to the Australian Rainforest Foundation, April 2006. The Australian National University, Canberra.

Tidemann, C.R. (2006b). Researching the effectiveness of myna bird (*Acridotheres tristis*) roost trapping as a control method. Progress Report 2 to the Australian Rainforest Foundation, October 2006. The Australian National University, Canberra.

Tidemann, C.R. (2006c). Researching the effectiveness of myna bird (*Acridotheres tristis*) roost trapping as a control method. Progress Report 3 to the Australian Rainforest Foundation, December 2006. The Australian National University, Canberra.

Tidemann, C.R. (2007a). Researching the effectiveness of myna bird (*Acridotheres tristis*) roost trapping as a control method. Pre-Final Report to the Australian Rainforest Foundation, June 2007. The Australian National University, Canberra.

Tidemann, C.R. (2007b). Researching the effectiveness of myna bird (*Acridotheres tristis*) roost trapping as a control method. Interim Report to the Australian Rainforest Foundation, August 2007. The Australian National University, Canberra.