Managing refugial Common Myna nests at the landscape scale

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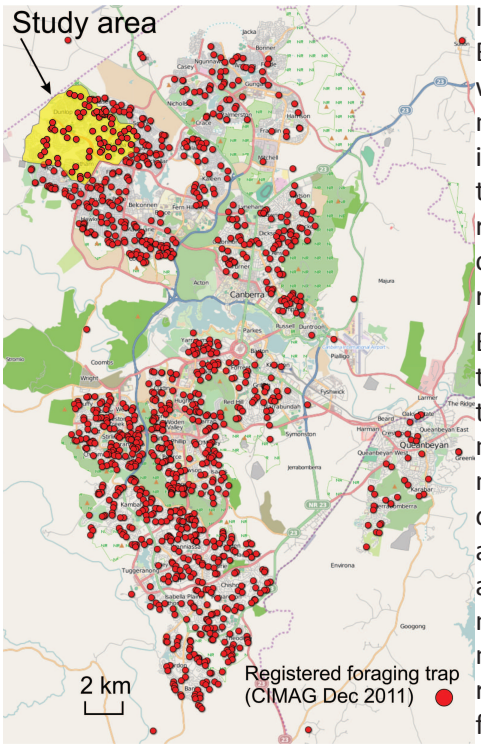
The importance of managing refugial nests

Ongoing myna control programmes are commonly focused on reduction of local populations through forage trapping. Trapping is typically initiated in response to a local increase in myna numbers. Ongoing trapping can significantly reduce these populations, but it may also mask the cause of the increase – a successful, secure nest.

Controlled myna populations quickly become wary of control measures such as trapping, and experienced survivors are increasingly inconspicuous in the landscape. Inconspicuous breeding populations may persist at low density by permanent occupation of just a few secure nests that succeed in most breeding seasons ("refugial" nests). The presence of mynas in the landscape may be apparent only during the breeding season as the new cohort of juveniles forms conspicuous foraging groups.



In a long-term study of a low-density, controlled, wary myna population in Belconnen, ACT (map at left after King, 2012), twenty-six per cent of nests were identified as refugial. Juvenile groups foraged exclusively near successful nests, and their recurrence at the same locations year after year was a reliable indicator of the locations of refugial nests. After six years of myna control, trapping effort had become concentrated at those same locations, and registered trap sites were reliable indicators of both the location and the age of individual refugial nests. One or more trap sites had been active near each refugial nest for an average of 5 breeding seasons.

Evidence of persistent breeding success at refugial nests, despite an ongoing trapping programme, indicates that a range of strategies is required to reduce the viability of refugial nests. The ecological importance of refugial nests is not confined to an annual local increase in the number of foraging mynas. By maintaining local breeding populations, refugial nests are a permanent source of colonists for invasion of new breeding areas and for reinvasion of eradicated areas. In Belconnen and in other parts of suburban ACT, many refugial nests are in hollow trees where they impose an opportunity cost on native hollow-nesting birds and mammals. Direct action that prevents experienced, wary mynas from continuing to use a nest cavity is the only certain way to prevent regular breeding success at refugial sites. Control programmes can only be fully effective when they address refugial nests.

Detecting refugial nests at the landscape scale

Ideally, control of refugial nests would be undertaken at the scale of a whole city landscape. The Belconnen study suggests that refugial breeding areas might be detected and monitored at the landscape scale by desktop analysis of population data collected by an existing network of foraging trap sites, such as the volunteer network coordinated by the Canberra Indian Myna Action Group (CIMAG).

The CIMAG network (map above) includes more than 1,200 foraging trap sites established over seven years throughout urban ACT at an average density of 3.7 sites/ km^2. From the evidence in Belconnen, it is apparent that the establishment of each trap site (a response to local population increase) is, in effect, a response to local breeding success. The distribution and history of trap sites in the network is, therefore, a record of nest success in space and time. Those trap sites where annual population increase no longer occurs indicate where nests have failed, and trap sites where juvenile foraging groups continue to form each year indicate that a refugial nest has been established nearby. The network participants are experienced in myna observation and handling, and many are accustomed to providing regular reports of myna captures to a central database. The potential of the network to detect and monitor refugial breeding areas would be enhanced by also collecting observational data at trap sites. In Belconnen, one or more trap sites are located within a median distance of 149m from each refugial nest. At that distance, observers at trap sites can readily hear myna calls at the nest, and would be likely to see mynas even if none was trapped.

In the ACT, and as myna control programs are established elsewhere, consideration should be given to developing nest-management measures in parallel with population-control measures such as forage trapping. The potential of trapping networks to provide landscape-scale data to guide refugial nest management should be further developed.

Reference: King, D. H. (2012) Breeding ecology of a managed wild population of Common Mynas (*Acridotheres tristis*). http://dl.dropbox.com/u/82997108/Mynas%20-%20Belconnen/Myna%20breeding%20ecology%20workingdraft%20June2012.pdf