The Indian Myna in Sandy Point

Summary

I volunteered for the Sandy Point Community Group (SPCG) intermittently from the 20th of November, 2014 to the 1st of March, 2015. The project also counted towards my Bachelor of Environmental Science (Environmental Management). My objective was to undertake an eradication program targeting the introduced Indian Myna bird in Sandy Point (SP). Extensive observations determined where I would target this species and trapping locations were chosen up to 2km from the residential perimeter of SP. I took notes regarding best practice while using the traps and different techniques employed to entice the birds closer to the trap including bait varieties and the use of a 'lure bird'. Visual observations and video cameras were used in order to gain a better understanding of the interactions between birds at trapping sites and on the Ash Avenue residential perimeter. I accessed Australian studies regarding levels of aggression displayed between native and introduced bird species to help me learn and apply this knowledge within SP. I also attempt to shed light on the way landscape ecology can determine how successful a pest species can be when invading a new area, and how this may be affecting the Indian Myna in SP. Based on my experiences during this program, a set of recommendations to the SPCG are listed below in regards to how SP may manage the Indian Myna bird in the future.

The Indian Myna in Sandy Point

Unique geographical characteristics and relative seclusion has allowed an extensive variety of birds to flourish in Sandy Point (SP). Within SP are significant patches of remnant vegetation that supports a number of highly diverse ecosystems. Coast banksia is plenty within the residential areas, while a substantial amount of coastal tea tree, coast wattle and dense, wind-pruned coastal scrub border the bay. The inevitable arrival of the Indian Myna bird has occurred due to the availability of food and nesting sites along the roads leading to SP from Foster and Fish Creek. The two towns have a larger residential population than SP and extensive modification by humans has occurred there. SP benefits from a natural oceanic barrier to the south and a large estuarine system to the east, giving the Indian Myna only one direction from which to enter the town. Benefitting from feedlots and available nesting sites in the area, large congregations of Indian Mynas can be seen as close as 2km from SP. Although the Indian Myna is typically an opportunistic omnivore, a pair in SP has been observed feeding on insects in surrounding pastureland. Blackbirds and English Starlings are also seen to exist in abundance in SP due to the insect-rich pastureland surrounding the residential area. After extensive observation and exploration, I am confident in assuming that a single pair of Indian Myna birds reside on the residential edge of SP.

The Indian Myna in Australia

In Australia, the Indian Myna is known to prefer spaces where native tree cover has been removed or fragmented by human modification. Parks and recreational areas associated with human development provide perfect habitat, while individuals tend to be less common as tree cover increases. The birds can also survive easily in agricultural landscapes where animal feed and farming infrastructure can easily provide for large flocks of Indian Mynas. In the ACT they have successfully invaded peri-urban woodland due to the availability of hollows, posing a significant threat to local biodiversity. However, research has suggested that the degree of which an Indian Mynas can persist in a particular forest habitat type varies from region to region. During a Sydney study on Indian Myna presence in semi-disturbed eucalypt woodland, authors observed a single Indian Myna being attacked and driven away by native Noisy Miners, Grey Butcherbirds and Australian Magpies. The

diversity, arrangement and aggression tendencies of local, native birds could explain why some areas remain un-colonised by the introduced species.

Current Situation

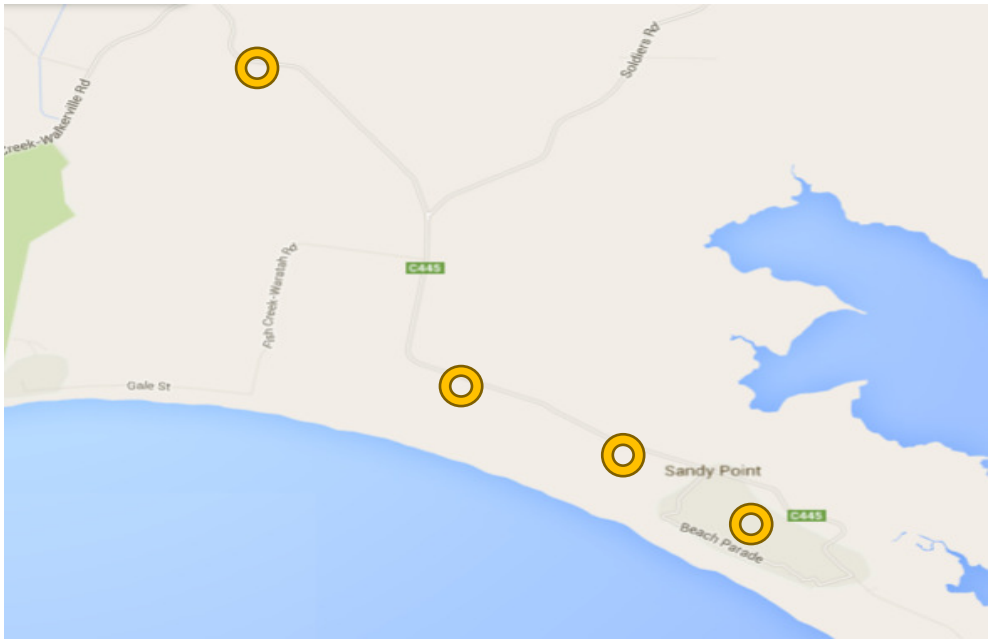
A natural barrier of vegetation on the fringes of SP may be acting to repel the Indian Myna birds seen on the roads leading out of Waratah Bay. The natural arrangement of coastal tea tree, banksia woodland and other indigenous plant species along with a relatively low amount of open grassy areas could reduce the likelihood of Indian Myna birds moving further into SP. In other parts of Australia, the Indian Myna has been observed nesting within remnant vegetation, however the area has been surrounded by an urban matrix. The farmland surrounding SP is unlikely to provide enough food resources to support dense populations of Indian Myna bird as seen in more urban areas. The slighter levels of habitat modification within SP should benefit the area in the future in regards to preventing the Indian Myna from establishing an abundant population within SP, due to the lesser availability of nesting sites.

Landscape Ecology in SP

A subject called Landscape Ecology taught me about how organism dispersal in an area fluctuates depending on how connective a landscape is, which can affect a number of variables including the probability of colonisation. A 'hard' and 'abrupt' landscape barrier or 'ecotone (habitat) change' can reduce connectivity and some species may be negatively impacted on by what is called an 'edge effect'. A good example of this is the sudden change in tree cover where the pastureland meets residential land on Ash Avenue affecting which birds are observed in one landscape and not the other (e.g Cape Baron Goose). Blackbirds, European Starlings and Australian Magpies are seen to benefit from the presence of this landscape edge and are commonly seen in both habitat types. The Indian Myna is not necessarily negatively impacted upon by this edge, but the species may not be entirely suited to the habitat type presented in Ash Avenue and surrounding residential areas in SP. An edge can cause variances in 'microclimate' like light, temperature and moisture content, and as previously stated - abundance and distribution of organisms. It is possible that the movement pattern of the Indian Myna bird will not extend south beyond Ash Ave.

Trapping Notes

Unfortunately, no Indian Myna birds were caught within the SP area throughout the trapping period. Sites used for trapping were identified based on observed and reported presence of Indian Myna birds. Specific trapping locations are as defined on the map below.



Map 1 - Targeted sights for trapping as marked by ◎.

Traps

Although the green cloth helped the trap blend into the pasture in most locations, its obscurity in a semi-natural landscape may have deterred potential approaches from Indian Myna birds. Tent pegs were required at roadside locations to prevent traps from being blown over or onto the road on most days. It seems evident that the particular design of trap owned by the SPCG is designed to succeed in areas where Indian Myna birds are more abundant, and possibly more suited to feeding amongst artificial structures. A variety of baits were used including bread, dry dog food and chicken pellets, however none seemed to provoke curiosity among the Indian Myna birds. Captive Indian Myna birds used as a lure did not fare well in the containing chamber of the trap.

Use of a lure bird

Hoping to increase chances of trapping Indian Myna birds in SP, a juvenile bird caught in Melbourne was used in an attempt to coax wild birds into the trap. Careful measures were taken to ensure the captive bird did not escape in SP. Once inside the trap, wayward sharp wire ends inflicted several minor injuries on the captive bird as it contemplated its escape. At times, the bird did seem calm as it was roosting in the holding chamber, however it often displayed stressful behaviour by flapping its wings and moving quickly around the trap. Surprisingly, the captive bird was observed diving through the tunnel opening connecting the two chambers, proving the birds are intelligent enough to escape if caught. Measures to ensure the birds comfort were taken, including several checks on the bird throughout the day whilst it was being used in the field. Unfortunately, the bird had perished within three days of its original capture. The day the bird perished, it was 22 degrees Celsius with gentle winds and significant cloud cover, suggesting weather did not play a factor in the birds' death. Ample water and food remained in the holding cage when the bird was discovered. It is more likely that because the bird was a juvenile and had endured significant stress since its capture was the reason it did not survive. Indian Myna fledglings are fed by their parents for up to three weeks after leaving their nest, it is possible that the juvenile was still in this stage when it was caught.

I regretted that the captive bird was subject to this treatment. Although an adult Indian Myna bird may possibly display less stress and be more suited to the holding cage, in the interests of animal welfare I decided not to use a lure bird again.

Camera footage

The installation of a camera at the Ash Avenue trapping site was intended to provide more details on how the Indian Myna birds received the trap. The camera footage revealed that non-target species began using the bait as a regular food source. Resident Australian Magpies were filmed picking the bait from the trap on an almost daily basis. European Starlings, Blackbirds and unidentifiable rodents were also seen to be attracted to the trap. After a trap had been erected for several days, rodents were sometimes spotted bounding away as I approached the trap. After observing this several days in a row, I began to wonder whether the traps would indirectly attract snakes. After seeing a large tiger snake on Ash Avenue moving through a residential lot close to the trapping site, I decided to only use one trap in the area instead of three. Footage never showed any Indian Myna bird coming into contact with a trap on Ash Avenue.

A resident of Ash Avenue I spoke to was knowledgeable of the movements of the Indian Myna.. He believes that several pairs have nested in a pine tree near his property. He confirmed that he had not seen the Indian Myna inspecting or feeding at the trap and suggested that they seem wary of artificial structures. The wider implications of this information is discussed further on in this piece.

Behaviour of Indian Myna birds in SP

The Indian Mynas in SP are not likely to be accustomed to easy food opportunities like their urban dwelling compatriots. Instead of scavenging, the local Indian Mynas seem to be feeding naturally on insects in the pastureland. Observations revealed the SP pair spend extensive periods feeding in the pastureland surrounding Ash Avenue and Telopea Drive. The birds would frequently return to a roosting branch around a large pine tree, situated near Ash Avenue. This area seemed to be roosting and nesting area of the pair, likely to be using one of two prime hollows halfway up the pine tree.

The most likely native bird species in SP to suffer from direct competition with the Indian Myna are the Magpie Lark, Willy Wagtail and Crimson Rosella. The Magpie Lark and Willy Wagtail are likely to be impacted upon through competition at feeding locations, while the Crimson Rosella has been shown to be negatively effected through competition for nesting hollows. This has been confirmed by several studies and research groups around Australia. Impacts on the Willy Wagtail and Magpie Lark are likely to be absent while the population density of Indian Myna birds in SP remains low. The same applies to the Crimson Rosella, as nesting sites will remain available in the area if Indian Myna numbers stay low. Pastureland and landscape modification decreases as one moves south-east down the point, benefitting the Crimson Rosella by providing less opportunities for Indian Myna birds to establish a nesting site.

Map 2 – Suggested range within SP of the resident pair of Indian Myna birds

Using a research template taken from a study trying to determine aggression levels of native and invasive bird species in regional Sydney, I undertook a series of behavioural observations in the area around the pine tree regarding interactions between all birds within a 20m radius. Observational details are included below.

Interactions between Indian Myna birds and other birds at Ash Avenue trapping site

Behavioural observations were undertaken from inconspicuous spots around the pine tree in the farmland boundary behind Ash Avenue. Observations that were not continuous, due to birds leaving the site or disappearing from view, were not counted. A timeframe of 5-10 minutes was perfect to continuously observe interactions between species. Obviously, the aim was to determine how aggressive the Indian Myna birds were towards the variety of other species using the area. An act of aggression was defined by moving a previously undisturbed bird from its original position through direct contact, swooping or bullying behaviour. Overall, 3 hours and 20 minutes worth of observations were made over a period of 36 days.

Throughout the entire observational period, the Indian Myna birds were not recorded exhibiting acts of aggression toward any native species. A reason for this may have been that the Indian Myna birds had ceased their nesting phase and entered a less aggressive seasonal phase of their breeding cycle when observed. The Indian Myna birds did however, on three occasions, display aggressive behaviour toward European Starlings, many of which also roost in the higher branches of the pine tree. The Australian Magpie and Willy Wagtail were observed exhibiting acts of aggression towards native species on several occasions, with the victim on most occasions being the Galah or the Grey Fantail.

The Noisy Miner

It is worth noting that the Noisy Miner is gaining attention from researchers who are proposing that they are more detrimental to local bird diversity than the Indian Myna. The two birds are more or less equally adaptive, however it has been noted that the Noisy Miner is typically more aggressive than its Asian cousin. The Noisy Miner aggressively defends its territory from intruders and there is now a substantial body of research from different geographical areas in Australia demonstrating that Noisy Miners act as a 'reverse keystone species' structuring bird communities in the human-modified environments in which they are most common. Research in Sydney predicted that native insectivores such as the Willie Wagtail and the Magpie-lark would be most likely to compete directly with the Indian Myna. Results of the study indicated that aggression levels displayed by the Indian Myna were lesser than those displayed by the native Noisy Miner, Australian Magpie and Red

Wattlebird. The overall recommendations of the study claimed that culling efforts of the Indian Myna were misdirected and resources would be better directed to improving natural habitat quality in order to increase species richness. In SP this would likely mean encouraging the 'planting out' of lawn areas on the north-west fringes of the community.

Noisy Miner Article – *'Do Common Mynas significantly compete with native birds in urban environments?',* Grey et al. 1997; Major et al. 2001; MacDonald and Kirkpatrick 2003; Piper and Catterall 2003; Clarke and Oldland 2007; Maron and Kennedy 2007.

Recommendations

As previously mentioned, improving habitat quality around the fringes of SP may be the most effective way of preventing the Indian Myna from establishing a larger population in the area. However, to target individual birds or pairs, the following techniques could prove successful.

Indian Mynas are monogamous and pairs use the same territory each year. If I am correct about the current population level of only two birds within SP, I believe the SPCG could employ certain techniques specific to removing individual birds, rather than targeting numerous birds through setting traps. For this advice I asked to friend to get advice from an expert Ornithologist from Monash University.

To target individual pairs, nesting boxes can be installed on tree trunks in the hope that the artificial structure will encourage the Indian Myna birds to use it as a nesting site. Once a pair has established a nest inside the nesting box, and has been observed entering the box, it is just a matter of covering the entrance and removing the nesting box from the tree. The optimal location for the nesting box would be around the middle of the Ash Avenue fringe, where the birds are seen roosting. The nesting box would need to be within reasonable reach of whomever is observing and eventually trapping the birds inside the nesting box.

Another option is to mount a length of PVC pipe on the underside of a north-facing balcony (facing the farmland – where the birds feed) along Ash Avenue, again preferably around the middle of the street. Once a pair has established a nest within the pipe, one can cover the ends and remove the birds that way. An extremely crafty tactic would be to prick any eggs that are laid, ensuring the birds will continue to exert energy attempting to hatch the chicks. This method requires more attention and commitment to the process, however the advantage is that no new birds enter the immediate area as the resident pair continues to defend their territory.

The problem with these techniques to control the nesting habits of the Indian Myna birds is that they rely heavily on the bird initially deciding to use the space for its nesting period. As previously stated, the resident pair of birds display very natural feeding and nesting habits, so they may be unmotivated to leave their current natural hollow.

End Statement

I believe I could have elaborated further at certain points during this article, however as this is a long-term management issue for SP and the SPCG there is more time for this information to be explored if need be. I am extremely happy to have been given the opportunity to be involved with the SPCG and I would like to remain a part of this management program and eventually become more involved with the SPCG in the future. Thanks to Anne, Neil and the rest of the committee for this opportunity and the support. If anyone would like to contact me in regards to this piece, my contact details are listed below.

Thanks again, Miles.

Miles Thomson
SPCG Volunteer
Mob: 0403 546 094
email: milest.50@hotmail.com

Below is a table of every bird I was able to identify around residential areas during my time in SP in 2014/15 (not including Shallow Inlet or Waratah Bay coastline). This is obviously an incomplete list, however I gave it my best shot!

Little Wattlebird	Australian Magpie	Welcome Swallow
Red Wattlebird	Little Raven	White-browed Scrubwren
Eastern Yellow Robin	Laughing Kookaburra	Black-shouldered Kite
Blackbird	Eastern Spinebill Honeyeater	Gang-gang Cockatoo
Galah	New Holland Honeyeater	Grey Currawong
Superb Blue Wren	Crescent Honeyeater	Grey Shrikethrush
Hooded Robin	Brown Falcon	Olive Whistler
Cape Baron Goose	Spotted Pardalote	Willy Wagtail
Crimson Rosella	Magpie Lark	Grey Fantail
Yellow-tailed Black Cockatoo	English Starling	Grey Butcherbird
Wedge-tailed Eagle	Striated Thornbill	