Breeding Ecology of the Green Iora

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Introduction

Breeding behaviour of the Green Iora *Aegithina viridissima* is poorly known. Wells (2007) states that nests are neat cups. Both pair-members incubate and tend nestlings but incubation and fledging period unknown (Wells 2007; Wells 2020). I have had an opportunity to observe two Green Iora nests and report the observations here.

Nest One 2014

Nest Observation Disclosure: I observed the nest building activities for less than 45 minutes. To give the birds a break from my presence, I left and returned three times in the 45 minutes. I was situated quite far away at the foot of a hill, separated from them by a ravine, a stream and thick canopy. Nest building was not interrupted during my presence.

The first nest was seen on 13 April 2014 on a trail through primary forest at the Kledang Saiong Forest Reserve, Ipoh, Perak, Malaysia. I spotted a pair of Green Ioras collecting nesting material (Plate 1). They were approximately 10 meters up stripping fibre from the bark of a dead branch; I observed three episodes of nest material collection. Both the male and female were equally involved. I also observed them collecting spiderwebs.

Plate 1: Green Ioras collecting nesting material, 13 April 2014, Ipoh, Perak, Malaysia.

I managed to follow them in the canopy and found their nest. It was located on the outer branch of a tall tree on a slope of a hill, approximately 12 meters high. The nest was close to completion and was a small cup, built into 4 small branches, with a small downwards extension, very much like some flycatchers (Plate 2). In addition to adding material, they also would sit in the cup to shape it.

At the time I was not able to follow up on the nest due to work and location constraints.

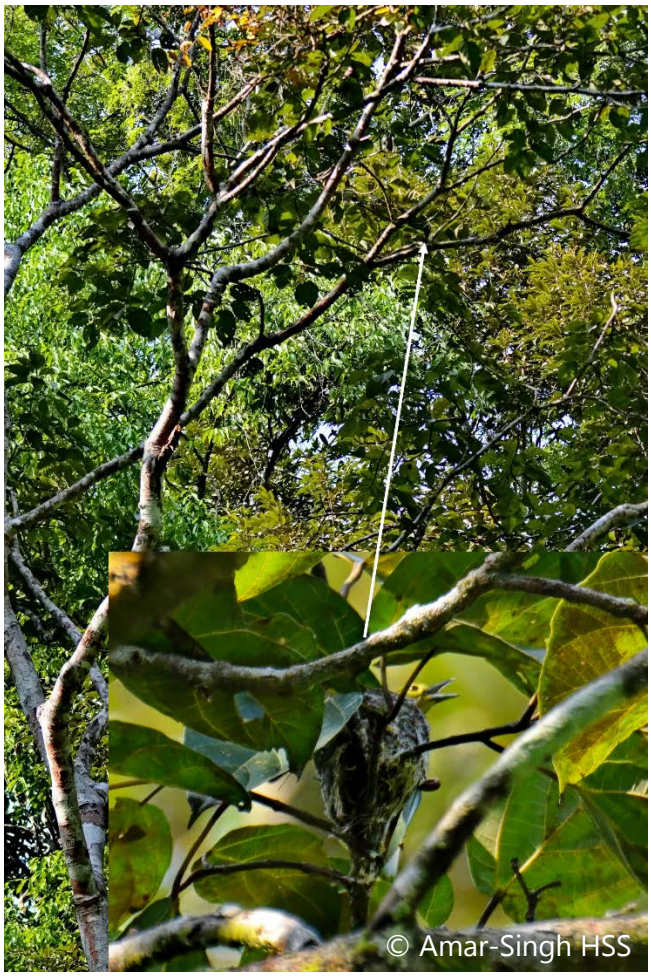

Plate 2: Green Iora nest and site, 13 April 2014, Ipoh, Perak, Malaysia.

Nest Two 2024

Nest Observation Disclosure: I observed the nest using an 800 mm long lens in DX format (equivalent to 1200 mm) from more than 15 meters from the nest. Often, long video recordings were used while I walked away from the site. At no time did the birds appear distressed by my presence. I returned every two to three days to the site. I avoid observation on weekends and public holidays as there were nature visitors to the area and I did not want to bring attention to the nest in case of harm. At times observations were not possible due to closure of the forest area.

Timelines and Key Observation Dates

13 June 2024	Nest building in final stages observed.
20 June 2024	Both pair-members incubating with some continued nest building.
25-27 June 2024	Incubation in progress.
01 July 2024	Adults seen feeding chicks, possibly very young and just hatched in past one to two days.
11 July 2024	Two chicks being fed actively; at times sitting on the edge of the nest.
14 July 2024	No chicks in the nest (presumed fledged).

Nest Location and Structure

I first observed a pair of Green Ioras bringing nesting material to the crown of a Malayan Teak *Vitex pinnata* located in an open space of a recreational area in the Kledang Saiong Forest Reserve, Ipoh, Perak, Malaysia on 13 June 2024. Surrounding the area was primary forest and I have frequently seen social groups of Green Ioras here, often with juvenile birds. The nest was extremely difficult to locate as it was in the crown of the tree 8-9 meters high and hidden by many leaves and branches with moss and lichen (Plate 3). The nest was a neat cup built into a confluence of at least three branches, one being a fork on the branch. The nest had a small hanging extension below. The nest material appeared to be made up of strips of bark and fibre, held together with spider silk (Plate 4).

Plate 3: Overview of nest location in crown of a *Vitex pinnata* tree (arrow shows the location).

Parental Involvement in Nest Construction

Both parents assisted in nest construction but I am unsure of the proportion of involvement as I observed the late stages of nest building. The pair-members would go out together to get nesting material and come back together to build the nest. On one occasion I observed the female using her body to shape the interior of the nest. A video of two nest building activities (13 June 2024) by the adult female is available here: https://youtu.be/xqW223PBXBE

On 20 June 2024, despite incubation in progress, the female brought spider silk to enhance the external integrity of the nest.

Plate 4: Closer view of nest: Left female nest building 13 June 2024; right male incubating 20 June 2024.

Incubation and Fledging Periods

I am unsure how many eggs were laid but two chicks were seen in the nest. One appeared younger and may have hatched a day later. The incubation period is more than 10 days and shorter than 16 days. The fledging period is between 11 to 13 days. Plate 5 shows a series of images of chicks over time. Plate 6 shows a chick close to fledging. A video of the two chicks close to fledging is available here: https://youtu.be/HXz91qN-0rs

Plate 5: Video grab serial images of chicks on 06, 09, 11 July 2024, Ipoh, Perak, Malaysia.

Plate 6: Dominant chick close to fledging, 11 July 2024, Ipoh, Perak, Malaysia.

Parental Responsibilities for Incubation and Nestlings

Both parents incubate eggs and feed nestlings. However, the adult male appears to play a larger role. Every early morning that I visited the nest (eight occasions), during incubation and once the chicks had hatched, the male was the one sitting on the nest. In addition, I observed more feeding episodes by the male than the female of young nestlings. On two mornings I observed the male calling out, possibly to the female, for a change in incubation responsibility. When the female did not show, the male left, presumably to feed, and returned shortly after to continue incubation. On two other occasions I saw the male leave the very young chicks to get food and return with prey shortly after; the female was not in attendance. I have also seen the female leave and not wait for the male to arrive while the chicks were still very young. There were other observations where the male called out and the female did respond by arriving at the nest to take over responsibilities. Note that all my observations were in the 0730 to 1130 hrs periods and I cannot be sure of behaviour at other times.

Feeding Behaviour, Frequency and Food Items

Adults often landed on a branch about 0.5 meters away from the nest and checked for safety before approaching the nest to feed the young. Younger chicks, one to five days old, were seldom left unattended. Older chicks were left unattended while parents went to forage for prey. Foraging for prey by the adult female was observed 20-30 m from the nest site but usually they were further away.

Extended video recording assessments, when the chicks were approximately six days old, showed that the feeding frequency in the morning (0800 to 1100 hrs) was, at peak intensity, every three to six minutes. But could range from 30 seconds (adults coming one after the other) to gaps of 20 minutes. The feeding intensity was higher after 0900 hrs. The ratio of male to female feeds was 5:3 when nestlings were young but appeared equal when they were older. A video of some feeding episodes (from 01-09 July 2024) is available here: https://youtu.be/oMFgUUAwJHY

Food items brought to nestlings were not always easy to identify due to the height and foliage. The majority were invertebrates and insects (Plate 7). They included caterpillars, spiders, moths, plant hoppers, beetles and a possible Leaf-rolling Cricket Nymph (*Gryllacrididae*). No fruit items were brought to nestlings but I have observed adults feeding on fruit in the past. Once the adult female appeared to be regurgitating four feeds at one time but the food item was small and could not be seen. On one occasion, after feeding the chicks, the female picked up a number of insects from around the nest, possibly ants, and fed them to the chicks.

Plate 7: Video grab image of various prey brought to nestlings, Ipoh, Perak, Malaysia.

Faecal Sacs and Removal

Both adults collected faecal sacs (Plate 8). Often, after feeding, adults would wait expectantly at the nest edge to see if nestling produced a faecal sac. When nestlings were still young the faecal sac was collected and eaten by the adults. When the nestlings were older, the faecal sac

was taken far away from the nest, presumably for disposal. Video recording assessments, when the chicks were about six days old, showed two faecal sac removal in a duration of 60 minutes.

Plate 8: Video grab image of an adult male Green Iora collecting a faecal sac, 06 July 2024, Ipoh, Perak, Malaysia.

Interaction with Other Birds

On a few occasions I observed Spectacled Bulbul *Rubigula erythropthalmos*, Red-eyed Bulbul *Pycnonotus brunneus*, Velvet-fronted Nuthatch *Sitta frontalis* and Pin-striped Tit-Babbler *Mixornis gularis* come within 0.75 to 1m of nest to forage but they were not chased away.

Prior Observations of Feeding of Fledged Juveniles

I have often seen Green Ioras in small family groups of two adults and two juveniles, or in social groups of six to seven with adults and two to three juveniles. Both adult males and females feed fledged juveniles. Plate 9 shows a few food items given to fledged juveniles, all observed at the Kledang Saiong Forest Reserve, Ipoh, Perak, Malaysia, close to the second nesting site. I have also observed an adult with a Leaf-rolling Cricket Nymph (*Gryllacrididae*) that was fed to a fledged juvenile.

Wells (2020) notes that nest-building, incubation and nestlings have been recorded in April and May. The two nests I observed had nest building in April and June, with nestlings in July (second nest). I have seen fledged, dependent juveniles in August on four occasions, suggesting a second breeding season later in the year.

Plate 9: Food items given to fledged juveniles: 1-caterpillar, 2-caterpillar, 3-winged insect, 4-spider.

Discussion

A literature and online search, including the Macaulay Library, for Green Iora nests did not reveal any other reports of nests apart from unverified accounts (Well 2020). There are three videos online of Iora nests labelled as Green Iora but all three are of the Common Iora *Aegithina tiphia*. These observations offer some information about the breeding ecology of the Green Iora. Further observations are required to ascertain more accurately incubation and fledging periods and as to which cuckoo species, if any, use them as a brood host.

References

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