

**FIELD OBSERVATIONS ON INCUBATION AND ROOSTING  
BEHAVIOUR OF THE GREATER GOLDEN-BACKED  
WOODPECKER, *CHRYSOCOLAPTES LUCIDUS*, IN THAILAND.**

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**INTRODUCTION**

During a brief visit to Khao Yai National Park, Thailand in December 1976 the occupied nest of a pair of Greater Golden-backed Woodpeckers, *Chrysocolaptes lucidus*, was discovered and watched during 10 and 11 December almost continuously. Some of the behaviour observed, particularly that concerning roosting, is additional and/or complimentary to that presented recently by SHORT (1973). Whilst Short has described clusters of holes of this species in a single tree, or group of trees, and birds roosting in them one to each hole, the roosting of more than one bird in a hole is reported here for the first time. Our observations support Short's suggestion that family parties maintain loose contact throughout the day vocally, and roost near to each other at night.

Identification of this species was confirmed by perfectly clear views of the bird's feet, enabling us to see the distinguishing character of four toes repeatedly. The character of a double black malar stripe (KING & DICKINSON, 1975; LEKAGUL & CRONIN, 1974) was, however, found to be far less clear in the field and was not observed clearly until after some considerable time. Although not noted during observations the iris colour of both sexes can be clearly seen to be a pale yellow, or ivory-yellow, in colour slides taken at the time.

The nest hole was located approximately 40 metres from a well-used road (at least at weekends and holidays), on a grassy hill at the very edge of dense secondary forest (Fig. 1). The occupied nest hole faced almost due east and was approximately 10 metres above the ground in a dead tree stump (Fig. 1: 1) which contained two other holes

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above and on the opposite side of the tree, facing almost due west (Fig. 1:4). Two nearby trees (both dead) also contained holes and the lowest one of five holes in one of these trees was utilised for roosting by woodpeckers (Fig. 1:2). This particular tree will therefore be referred to as the 'roost tree'. Three holes in this tree faced westward and another two (Fig. 1:5) faced northeast. A single hole in a tree a little further from the nest tree faced approximately southward (Fig. 1:6). All holes were somewhat vertically ovate in shape, as noted (and illustrated) for this species by SHORT (1973).

As one aim of presenting these observations is to give some indication of the incubation regime of the nesting pair, it is most convenient, and much clearer, to present our data chronologically in semi-tabular form, and to enlarge upon certain points thereafter. This enables the reader to more easily calculate periods of incubation and/or absence from the (local) times given. That the pair in occupation of the nest hole were incubating eggs is presumed, as the nest interior was not examined, but the behaviour of the birds leaves little doubt that this was in fact the case.

Unless otherwise stated all observations were made from our parked vehicle, approximately 85 metres from the nest, with the aid of field glasses. One of us watched the nest tree and the other watched the roost tree, thus enabling us to confirm certain behaviours beyond doubt.

### The observations

#### *10 December 1976*

- 16:15. Male seen on nest tree—flew away—returned and entered nest (Fig. 1:1).
- 16:27. Male departed.
- 16:30. Female arrived and entered nest.
- 16:45. Male arrived, female departed, male entered nest.
- 17:19. Male departed, calling in flight, foraged in nearby trees.
- 17:22. Male returned and entered nest.



17:25. A strange male landed on the nest tree and foraged about, apparently unaware of the nest hole until it came across it, when it peered in several times and then hopped away upwards. As this strange male ascended the nest tree the sitting male looked out of the nest, saw the strange male, and gave chase instantly (17:27). A fluttering/fighting spiral chase about the nest tree followed and the strange male broke off and flew to a nearby tree on the forest edge closely pursued by the defending male. On this tree trunk another brief fluttering/fighting spiral chase ensued which terminated low on the trunk by the strange male giving a 'wings drooped, shoulders out' posture quickly followed by fully extending his wings outward either side of the body. At this display the defending male returned to the nest tree, landing near the nest hole, and immediately preened his rump feathering conspicuously whilst, still on the forest edge tree, the strange male preened under his lifted wing. It is particularly worthy of note that, due to the relative positions of these two birds with their backs to each other, each bird's 'displacement' preening activity appeared to enhance their immediately previous roles; the rump preening of the territory owner enlarging and making more conspicuous the red areas of rump and crest, whilst the underwing preening of the displaced strange male predominantly hid the red areas of the rump and head but again presented the apparently submissive position of the wing with shoulder away from the body. Unfortunately the chasing and fighting of these birds was too rapid and fluttering to enable us to note any specific postures performed, other than noting that the crest and feathering of the defending bird appeared to be well erected.

17:30. Male entered nest, leaving strange male foraging in nearby trees.

17:35. Female arrived at nest, flying closely past strange male and ignoring him, and replaced incubating male who flew off past, and ignoring, the strange male.

- 17:46. Male returned and replaced female on nest. Female went to top of nest tree and preened there for 2–3 minutes and then returned to nest and replaced male.
- 17:49. The male hopped to top of nest tree and preened.
- 17:50. Strange male stopped foraging in nearby trees and entered lowest hole in roost tree, 6 metres above the ground (Fig. 1 : 2). A Hill Myna, *Gracula religiosa*, was seen to be inside this hole and peering out of it only a few minutes prior to the strange male woodpecker entering it; presumably the myna had left the hole before the woodpecker entered it.
- 18:00. Sunset a few minutes ago, dusk progressing rapidly.
- 18:05. At this time the male returned to the nest hole and replaced the female. She then flew to the roost tree, hopped up to the roost hole (Fig. 1 : 2) and entered it directly, thus joining the strange male already therein. After three minutes she came out, hopped slowly to the very apex of the roost tree, called loudly twice, hopped down again slowly backward (i.e. with head uppermost) and again entered the roost hole still containing the strange male. Very close observation of both the roost and nest holes for a subsequent 30 minutes, until complete darkness, confirmed that none of the three birds left them.

*11 December 1976*

- 06:10. Started observations on nest (DWF) and roost (CBF) holes in nearly total darkness.
- 06:20. Female left roost hole, calling just prior to leaving tree. At this call male looked out of nest hole, 'bobbed' his head up and down for about a minute and then left the nest, hopped to top of nest tree—preened—and flew off. At this time (06:25) the strange male left the roost hole and joined the female and the male in a close feeding association on dead trees within 20 metres radius of the nest tree.
- 06:29. Incubating male returned to nest and entered, leaving the female feeding close to the strange male. (That the male which returned



to the nest at this time was in fact the same male previously in attendance at the nest is beyond doubt as each male was individually watched, the incubating bird by DWF and the roosting bird by CBF).

- 06:35. Female flew to nest hole and replaced male.
- 06:40. Female still in nest, males not in sight but can be heard calling on other side of road (see Fig. 1).
- 07:25. Female still in nest, males not in sight or to be heard.
- 08:15. Female left nest, hopped up nest tree, flew to closeby tree to forage.
- 08:18. Female returned to, and entered, nest.
- 08:39. Female left nest, hopped up to top of nest tree and called. Then to several adjacent trees calling almost continuously—then flew to trees across road calling and subsequently (08:42) flew further off calling.
- 08:46. Female returned to nest and entered, silently.
- 09:04. Male heard calling across road somewhere, at which female peered out of nest hole. Male flew to nest tree from across road, during which female left nest and flew away silently. Male landed on nest tree and entered nest.
- 09:20. We moved to within 20 metres of nest tree and sat in long grass, unfortunately flushing the male from the nest.
- 09:32. Male returned to nest tree, hopped about pecking now and then for two minutes, and left. Bird photographed during this visit.
- 09:38. Male returned to nest tree, hopped about it for one minute, entered nest and then called from within for about 40 seconds and then silent.
- 09:55. We moved to within 15 metres of nest tree, flushing male from nest in doing so.
- 10:10. Male in trees about nest tree since he last left nest, but too nervous to return—flew off across road at this time.

- 10:38. Male entered nest hole after considerable hesitation in nest tree vicinity. Gave one minute intensive calling from the hole, both with head visible in entrance and whilst out of sight—then silent.
- 11:12. Female heard calling in distance—30 seconds later she arrived on nest tree—called and gave a brief drum. Male called and left nest hole. Female entered nest (photographed). Male flew off calling (11:15).
- 12:05. Female heard lightly tapping nest wall for 20 seconds.
- 12:33. Female looked out of nest hole for one minute.
- 12:55. Female peered out of nest hole and then left silently to adjacent trees.
- 13:01. Female flew off across road calling loudly.
- 13:02. We left nest tree and returned to vehicle.
- 13:10. Female returned to nest tree calling and entered nest.
- 13:59. Female looked out of nest hole.
- 14:09. Male calling in return flight to nest—female peered out of nest and left prior to male landing on nest tree—female flew off calling as male entered nest.
- 14:10. Stopped observations for rest.
- 15:55. Commenced observations.
- 16:50. Call of the species heard in distance—female looked out of nest hole briefly.
- 17:12. Female peered out of nest for about one minute, following a loud barbet call.
- 17:20. Woodpecker (presumably the male or males) heard drumming in distance for the last 10 minutes.
- 17:21. Male returned silently and replaced female on the nest, female called just after leaving the nest—during which a third woodpecker heard tapping trees closeby.
- 17:24. Female still foraging in nearby trees, but she flew off at 17:25.
- 17:30. Male peered out of nest hole for three minutes.
- 17:33. Male left nest silently, to nearby trees and foraged.



- 17:42. Female flew silently directly to nest and entered—male still foraging in nearby trees and a third woodpecker heard tapping and calling at this time.
- 17:47. Two Hill Mynas, *Gracula religiosa*, which had spent the last 15 minutes in nearby tree top flew into highest hole in roost tree (Fig. 1 : 3).
- 17:51. Female left nest to nearby tree and foraged; the two roosting Hill Mynas hearing her tapping flew out of their hole and displaced her. The female flew into the lower hole in the roost tree (i.e. same hole she used on previous night = Fig. 1 : 2), and the mynas returned to their roost hole at top of roost tree.
- 17:59. Strange male flew to lower roost hole (Fig. 1 : 2), in silent flight from across road, and entered it—but hopped out immediately—again peered into roost hole but obviously reluctant to re-enter—female within the hole heard to tap roost hole wall which caused the strange male to fly to the nest tree (18:01) where he looked into the unoccupied nest (Fig. 1 : 1) but would not enter it—after some peering into the nest again he moved up the nest tree just as the incubating male arrived and entered the nest. Strange male then entered another hole further up, and on the opposite side, from the nest hole (Fig. 1 : 4).
- 18:00. Sunset—already dusk.
- 18:08. Strange male left hole in nest tree—flew to roost tree and peered into roost hole containing female who was again heard to tap roost hole wall causing the strange male to leap back suddenly with partly opened wings.
- 18:09. Strange male flew from roost tree back to nest tree and re-entered the hole above and behind the nest hole.
- 18:25. No further activity observed—very dark indeed. We left Khao Yai.

### Notes on some of the observations

Both male and female nearly always arrived at the nest tree by landing above the nest, usually a metre or so, and subsequently hopping down the tree in reverse (i.e. upright with head uppermost) to enter the nest hole. On one or two occasions, however, they did land beneath the nest hole and hop directly upwards and into it.

All references above to birds calling, either while perched or in flight, refer to a sound which appears to be the "Rattle Call" described by SHORT (1973), and the "hoarse, loud, prolonged call, uttered in both flight and from a tree, incessant and strident, such as might be made by a giant cicada." as described by SMYTHIES (1953).

The pair of birds engaged in incubation in the nest hole very obviously avoided each other when together on the same tree, and in particular in the nest hole area. One bird arriving at the nest hole before the sitting bird had departed would always retreat at least a foot away as the departing bird appeared in the entrance. Thereafter, until the relieved bird flew from the tree or the arriving bird entered the nest, the two birds would, as SHORT (1973) writes of *Dinopium javanense*, "move apart, usually to opposite sides of the tree. There is some 'peeking' around the tree, accompanied by Crest Raising, but the birds move up the trunk on opposite sides of the tree." SHORT (1973) also noted very similar behaviour in *C. lucidus*.

On two occasions we were able to observe a bird within the nest or roost hole perform a 'cryptic' posture. The first example of this was brought about by a car full of people stopping close to the roost hole in which the strange male had been for some time. At this event the bird peered out of the hole in a normal fashion with the bill protruding outward in the direction of the car, which was to the extreme right of its field of view from the entrance of the hole. The car then reversed toward our parked vehicle, stopping directly in front of the roost tree. At this the bird pointed its bill tip straight upwards, the bill thus appearing as a vertical line across the roost hole. This peculiar posture would appear to enable the bird to continue observing the potential



threat while hiding the bright red colouration of the forehead and presenting a somewhat cryptic appearance. This behaviour was also later performed by the incubating female in the entrance to her nest in response to our close approach.

The nest tree contained three woodpecker holes in all: the nest (Fig. 1 : 1) and two holes above and behind it (Fig. 1 : 4). The roost tree contained five holes : the roost hole (Fig. 1 : 2), the mynas' roost hole (Fig. 1 : 3), one hole midway between these two holes, and two more on the opposite side of the tree located approximately as indicated by no. 5 in Figure 1. In addition, one hole was seen half way up the trunk of another dead tree nearby (Fig. 1 : 6). Thus there were nine holes in the nest tree and two trees very close to it. It is possible other nearby trees contained holes, but these were not searched.

#### Discussion and Conclusions

SHORT (1973) has described a number of Greater Golden-backed Woodpecker nests and/or roosting holes in clusters similar to that found at Khao Yai. In one tree in Thailand he found a series of five cavities of the species, used separately as roosting holes by members of a family of five birds on March 27 (two presumed adults and three presumed young birds). At another Thai locality he found three birds roosting, each in a separate hole, among a cluster of four holes. Furthermore, in the Sukna area, India, he found four trees, each bearing a cluster of four to seven holes clearly made by the Greater Golden-backed within an area of 300 by 150 metres. SHORT (1973) suggests that the Greater Golden-backed may use the same nesting tree for several years, and that the juveniles remain in the area and excavate roosting holes for themselves in the nesting trees or trees very close to it. On the other hand, SHORT also suggests that the parents may excavate new nesting holes in the previous nesting, or adjacent, tree from year to year, thus making roosting holes available for other birds.

In view of SHORT's observations and suggestions (1973) concerning family roosting groups it would seem likely that the strange male we observed was in fact an offspring of the nesting pair of the previous



breeding season. In addition our observations in this respect would, thus, appear to support SHORT's suggestion that "Family parties may maintain loose contact throughout the day vocally, then roost near one another at night." If the strange male we observed really was an offspring of the previous breeding season, it would be particularly interesting to know if this family relationship continued after fledging of the subsequent brood.

From our observations of the three Greater Golden-backed Woodpeckers at Khao Yai it was established that in these birds:

- (1) The male incubated at night, as is usual in woodpeckers (STEINBACHER, 1964).
- (2) The incubating male defended the nesting territory against another bird in adult male plumage, but the defended area appeared to consist of little more than the nest tree, as both the male and female took no notice of another male feeding in trees close to the nest tree. This may have been due, however, to the feeding male being an offspring of the breeding pair.
- (3) The female roosted in the same roost hole, in a tree close to her nest tree, on two consecutive nights; on the first night by joining a male to which she was not mated (communal roosting), but on the second night by entering the roost hole first and subsequently preventing her roost companion of the previous night joining her.
- (4) The strange unmated male roosted in a hole higher up in the same tree than the occupied nest hole, having been evicted from his roost hole of previous night by the female (with whom he roosted the night before).
- (5) In view of the fact that the incubating pair were involved in very early breeding activity for the season, and that the plumage of the strange male was identical to the breeding male, it is obvious that the strange male was not a young of the season. It is possible it was a young of the nesting pair from the previous season.

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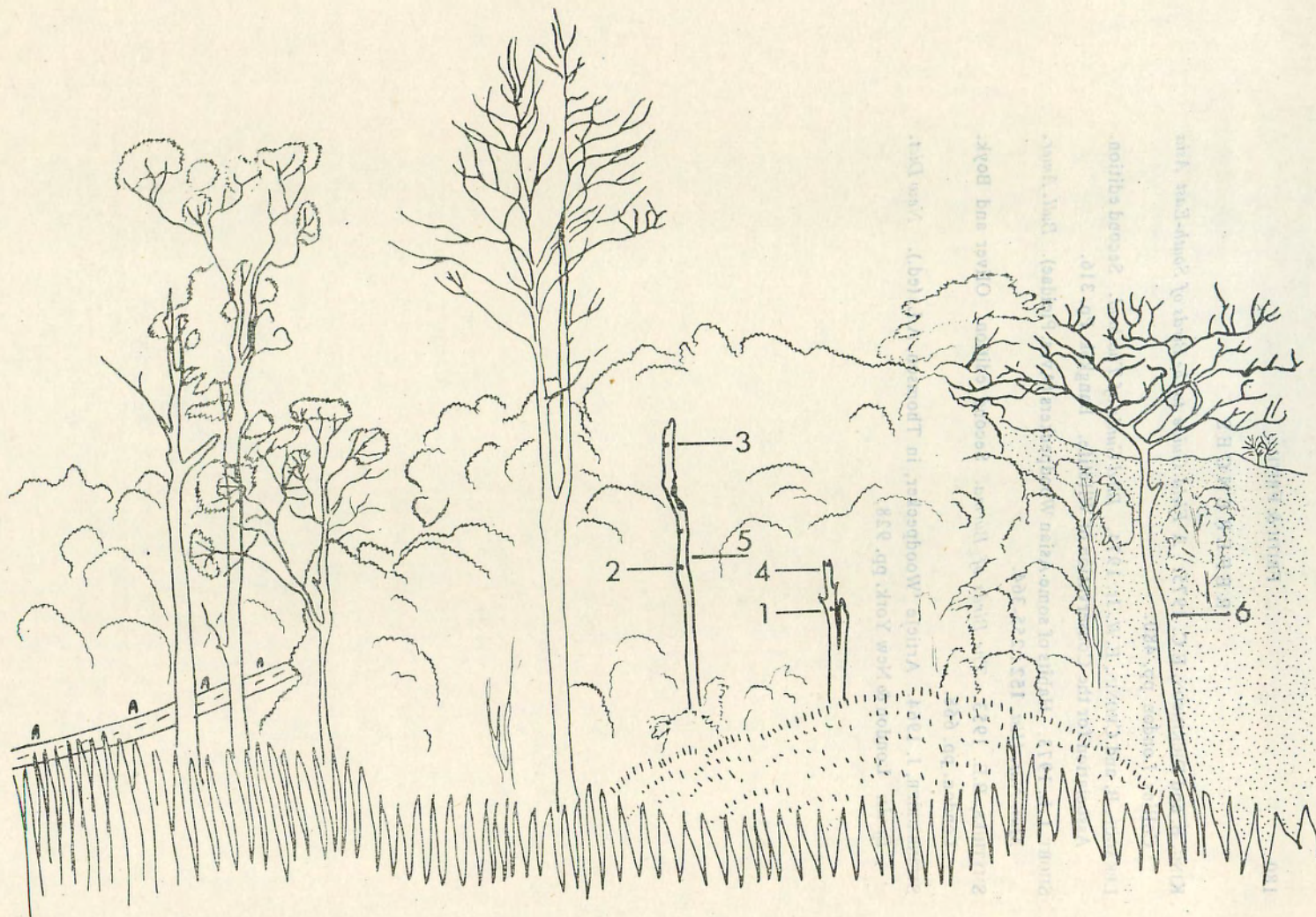


Figure 1 : Diagrammatical sketch of the location of a nest of the woodpecker *Chrysocolaptes lucidus* at Khao Yai National Park, Thailand. Extreme foreground—long grass. Stippled area—grassy slope and distant ridge. Road on left. 1 = the nest hole in dead tree stump, on grassy hillock. For explanation of other numbers see text.

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