

## First Nest and Egg Description of the New Guinea Bronzewing *Henicophaps albifrons* and Its Phylogenetic Significance

FRANK E. RHEINDT

Harvard University, Department of Organismic and Evolutionary Biology, 26 Oxford St.,  
Cambridge, MA 02138, U.S.A. Email: [frankrheindt@yahoo.com.au](mailto:frankrheindt@yahoo.com.au)

**Ringkasan.** Marga *Henicophaps* merupakan anggota dasar dari kelompok burung merpati tanah di Australasia yang tersebar secara radial dan dalam bahasa Inggris diberi nama *Bronzewing*. Terkait dengan kelompok burung ini, tulisan tentang sarang dan telur Delimukan Tembaga *H. albifrons* ini akan memberikan informasi kunci dan deskripsi penting mengenai evolusi persarangan di dalam kelompok *Bronzewing*. Sarang panggung yang berbentuk mangkuk dari *Henicophaps* menambah dukungan kepada dugaan bahwa susunan sarang yang ditemukan pada beberapa jenis *Bronzewing* Australia di habitat terbuka barangkali tidak mencirikan cikal bakal dan karakteristik seperti kelompok burung *Bronzewing*.

The genus *Henicophaps* is the most basal member of an Australasian radiation of ground-dwelling doves that is generally known as the bronzewing assemblage. This bronzewing clade includes at least four other groups: (1) the *Gallicolumba* ground-doves and bleeding-hearts from Wallacea, Papua, Oceania and the Philippines; (2) a close-knit group from the Australian arid zone that comprises the *Petrophassa* rock-pigeons, and bronzewings of the genera *Phaps* and *Geophaps*; (3) the Wonga Pigeon *Leucosarcia melanoleuca* of eastern Australia; and (4) the Australasian zebra doves and allies of the genus *Geopelia* (Pereira *et al.* 2007). While groups 2 and 4 (i.e. *Petrophassa*, *Phaps*, *Geophaps* and *Geopelia*) live in open habitats, the three phylogenetically most basal bronzewing genera (*Henicophaps*, *Gallicolumba* and *Leucosarcia*) inhabit rainforests. Another such forest-inhabiting genus, *Chalcophaps* (emerald doves), has long been thought to be sister to *Henicophaps* (Baptista *et al.* 1997) but is unrelated to the bronzewing assemblage (Pereira *et al.* 2007). In contrast, the Crested Pigeon *Ocyphaps lophotes* from Australian arid and semi-arid habitats is probably a member of the bronzewing assemblage, but was not sampled by Pereira *et al.* (2007).

The genus *Henicophaps* comprises only two species which have often been united into a superspecies (Baptista *et al.* 1997; Mayr & Diamond 2001): (1) the New Guinea Bronzewing *H. albifrons* from New Guinea and neighbouring islands, (2) and the New Britain Bronzewing *H. foersteri* from New Britain. Little is known about breeding behaviour and phenology in either species. With respect to *H. albifrons*, Baptista *et al.* (1997) state that the nesting behaviour is

undescribed, but that breeding apparently takes place in the dry season and the early wet season based on the observation of juveniles and anatomical evidence. The only information available on *H. foersteri* is a number of local accounts suggesting that the nest is placed low in a shrub or a tree, and that two eggs are laid (Baptista *et al.* 1997).

In contrast to *Henicophaps*, nests and eggs are described for all other genera of the bronzewing assemblage. Indeed, in most genera (*Leucosarcia*, *Petrophassa*, *Geophaps*, *Ocyphaps* and *Phaps*), nests and eggs have been described for every constituent species (Baptista *et al.* 1997). In the remaining two genera, nesting information is only lacking for a number of obscure or rare island-inhabiting *Gallicolumba* species and for the Barred Dove *Geopelia maugei* from the Lesser Sunda Islands, which has been considered conspecific with other members of the genus and presumably resembles them in breeding behaviour (Baptista *et al.* 1997).

As a rule, members of the bronzewing assemblage build scant to substantial platforms made out of twigs and other plant material, and placed on branches, roots, forks and stumps up to 5 m above the ground – rarely higher – or on the ground. However, in some species of open habitat, such as *Petrophassa* rock-pigeons, *Geophaps* bronzewings and the Flock Bronzewing *Phaps histrionica*, nests are reduced to hollows or scrapes on the ground, often lined with grasses. Most members of the bronzewing assemblage lay two white (sometimes cream-coloured) eggs, but clutches with one egg have been reported in five out of ten *Gallicolumba* species for which this information is available (Baptista *et al.* 1997). In view of their basal phylogenetic position within the bronzewing assemblage, breeding information on the genus *Henicophaps* offers potential to shed light on the evolution of nesting biology within the assemblage.

### **Nest and egg of *H. albifrons***

The following observation took place on 3 September 2008 during ornithological fieldwork around the village of Woos (02° 50-59' S, 132° 40-49' E; 20-30 m asl) in alluvial swamp forest along the road from Fakfak to Bomberai on the Fakfak Peninsula in Papua Barat (West Papua, Indonesia). At about 11:00 hrs, as I was jumping across a slow stream, I noticed a peculiar bare branch reaching almost all the way across the water. On the branch, at about 1.5 m above the water level, I discerned a nest with a large pigeon sitting on top of it. The pigeon was instantly recognizable as a New Guinea Bronzewing *H. albifrons* on account of its large size, unusually long dark bill, contrasting white forehead and general sooty purple colouration. Upon crossing the stream, I slowly walked towards the nest site, but accidentally approached it too closely, thereby flushing the bird, which flew about 10-20 m to the other side of the stream, landed on the forest floor and walked off into the dense vegetation.

The nest was a cupped platform made out of twigs and small branches (Plate 1). Its diameter was c. 30 cm, while its average height was c. 5-10 cm. It

contained a single bright white egg of an estimated length of 4 cm. After taking a photograph of the nest, I immediately left the area to avoid further disturbance. Since the nest was only 400 m away from the village, I briefly visited it again the next morning, but found it unattended, with the single white egg still positioned the same way as on the previous day.



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**Plate 1.** Nest and egg of New Guinea Bronzewing *Henicophaps albifrons*, FakFak Peninsula, West Papua.

### Evolutionary history of nesting biology in bronzewings

This report constitutes the first full description of a nest belonging to a member of the genus *Henicophaps*. The record falls within the local dry season (*vide* villagers), although local seasonality is becoming confused according to the villagers' statements that the dry seasons of the past four years have been equally humid as wet seasons. The nest is typical for members of the bronzewing assemblage in that it comprised a cupped platform made of twigs and was placed on a branch in the low stratum. Although a number of more recently evolved bronzewing genera of open habitats (e.g. *Petrophassa*, *Phaps* and *Geophaps*) are characterized by reduced nest structures placed on the ground, the *Henicophaps* nest underscores that platforms made of twigs and placed in trees or bushes are probably an ancestral trait of the bronzewing assemblage.

In terms of clutch size, the current finding is somewhat surprising. With the exception of a number of *Gallicolumba* species that lay a single egg, all members of the bronzewing assemblage invariably lay two eggs. Even in the congeneric *H. foersteri* from New Britain, anecdotal evidence suggests a clutch size of two (Baptista *et al.* 1997). Field observations of one egg such as documented above can be equivocal in that they may occur at a time when the hen has only laid the first of two eggs. Indeed, this may have been the case in the documentation of single-egg clutches in some of the *Gallicolumba* species, such as the Mindanao Bleeding-heart *G. criniger*, where the observation of a clutch size of one was also

based on a freshly laid egg (Baptista *et al.* 1997). On the other hand, the combination of single-egg and double-egg clutches is known only from the two most basal genera of the bronzewing assemblage (forest-inhabiting *Henicophaps* and *Gallicolumba*). This variation may suggest that the strict adherence to double-egg clutches in some of the more derived genera of open habitats is not an ancestral condition, but may have been favoured by conditions in arid environments.

I would like to thank Pak Yoel of Woos Village for accommodating me during my stay. Warm thanks also go to Pak Dominggus of Woos Village for accompanying me along the forest trails. Bruce Beehler, Richard Noske and Jared Diamond deserve warm thanks for helpful comments on the manuscript.

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