

The White-breasted Babbler *Stachyris grammiceps* of Java: natural history and conservation status, especially on Gunung Halimun

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The White-breasted Babbler *Stachyris grammiceps* is a very poorly known passerine endemic to Java. A review of literature and museum specimens reveals records from 22 more-or-less discrete lowland and hill forest patches across the island, but mainly in West Java (19 localities). In Gunung Halimun National Park (West Java) in 1994, this babbler was one of the commonest species in lowland forest in the western parts of the area, with densities as high as 4.3 birds per hectare. It was typically encountered in small flocks, either as part of larger mixed-species assemblages or in monospecific flocks, keeping to the middle and lower forest strata (0.5–17.5 m, mean=4.5 m), with a mean flock size of 11 birds (maximum=30). Birds forage by gleaning from leaves and vigorously probing leaf-tangles in relatively open understorey. Four vocalisations are known, of which the self-advertising *trrrrii* is commonest. Breeding may occur all year, possibly with a peak around May–June. In general, the species appears to be able to tolerate a certain degree of forest disturbance, and studies at Halimun suggest that areas with small-scale disturbance and light gaps are actually preferred. Even so, it is confined to forest on rugged terrain below 1,200 m and perhaps mainly below 1,000 m, and in only the wettest areas of Java. Forest at these elevations is under considerable pressure, including inside Gunung Halimun National Park, and the species's current IUCN Red List category of Near Threatened is deemed appropriate.

INTRODUCTION

White-breasted Babbler *Stachyris grammiceps* is endemic to the island of Java, Indonesia (Andrew 1992). In spite of its presence on the most populous island in the country, in forested areas close to cities where ornithologists and natural historians have dwelt for many decades, and notwithstanding a fairly long knowledge of its existence (it was described for science in 1828), it remains exceptionally poorly known, with not a single publication dedicated to it.

In this paper we profile the species for the first time, pooling our knowledge from various sources: SvB documented it during ornithological surveys of Java (van Balen 1999) in 1980–2002, DL studied it in the course of an expedition reviewing the status and ecology of the birds of Gunung Halimun in 1994, and, owing to the fact that it had previously been listed as threatened with extinction (Collar and Andrew 1988, Collar *et al.* 1994), SvB, NJC and Rudyanto accumulated and reviewed the literature, museum specimen data and unpublished records of the species.

METHODS

Museum data and mapping

In the course of preparing an information base for *Threatened birds of Asia* (BirdLife International 2001), NJC visited as many natural history museums as possible and compiled data from specimen labels of taxa then considered at global risk, including White-breasted Babbler. The species proved to be rather weakly represented in collections, with 65 specimens found in only nine museums out of over 30 visited or accessed with major international components: RMNH (Naturalis, Leiden) 41 (including the type), ZRCNUS (Zoological Reference Collection of the National University of Singapore) seven, MZB (Museum of Zoology, Bogor) six, BMNH (Natural History Museum, Tring) four, AMNH (American

Museum of Natural History) two, ANSP (Academy of Natural Sciences, Philadelphia) two, IRSNB (Institut Royal des Sciences Naturelles, Brussels) one, SMF (Senckenberg Museum, Frankfurt) one and ZSM (Zoologisches Staatsammlung, Munich) one. The singletons in IRSNB and SMF are essentially dataless, and were taken before 1850; but the great majority of the remaining specimens hold useful distributional information on their labels.

The distribution of the species was mapped (Fig. 1) using locality data from museum specimens and information in the published and unpublished literature and in the notebooks of various observers. Localities were traced using the gazetteer in BirdLife International (2001) or the sources cited for Indonesia in that publication.

Java-wide observations

Ornithological fieldwork of various types was carried out across Java by SvB in 1980–2002, during which all records of the species were noted, and on some occasions tape-recordings and notes on vocal and other behaviour made. SvB also contacted two veteran Dutch fieldworkers with experience of Java, J. H. Becking and G. F. Mees, for their further information.

Study area in Gunung Halimun National Park

Located between Ujung Kulon and Gunung Gede–Pangrango National Parks (Fig. 1), Gunung Halimun forms a massif of extinct volcanoes. The national park itself, declared in 1992, covers an elevation range of 500–1,929 m (up to Halimun's peak). It holds the wettest and largest unbroken montane rainforest on volcanic soil in all Java, with 130 km² of 'lowland' forest (but forest cover only starts at 750–1,000 m) and 230 km² of montane forest (MacKinnon and MacKinnon 1986, Thiollay and Meyburg 1988). The site had Priority I status for conservation in Indonesia in MacKinnon and MacKinnon (1986), and is considered the last remaining stronghold for the Javan gibbon *Hylobates moloch*

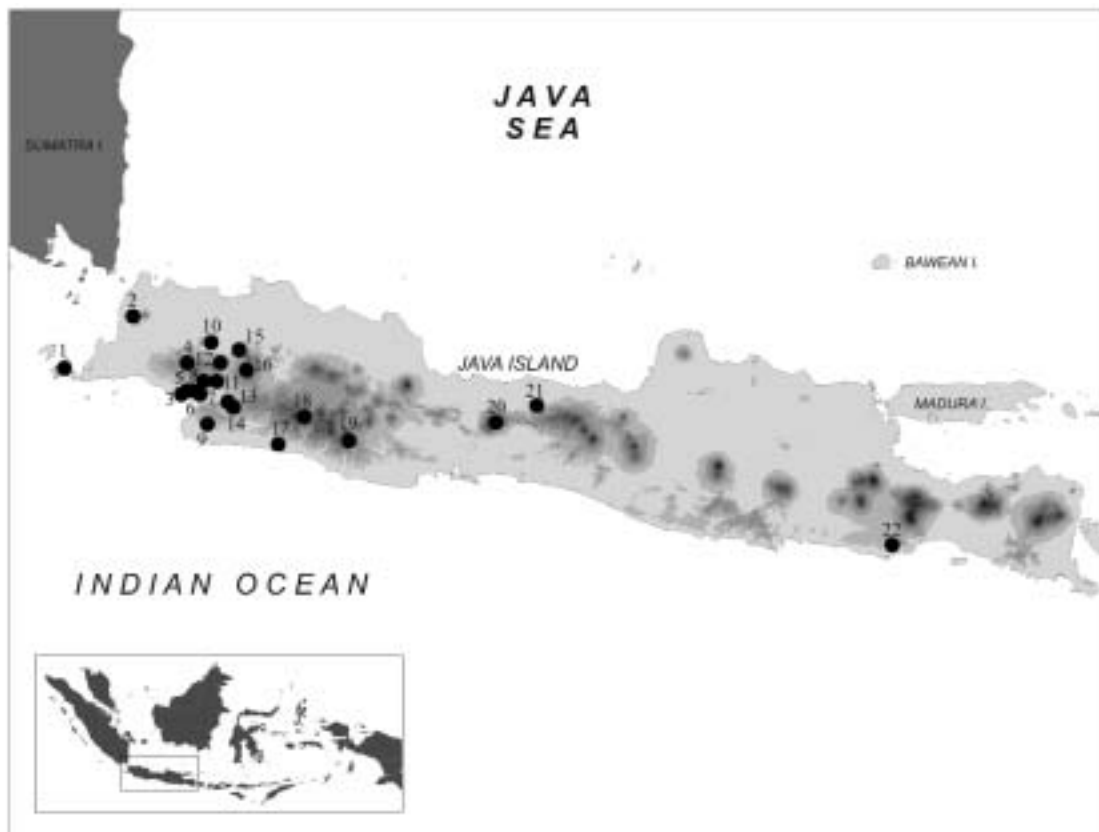


Figure 1. Distribution of records of White-breasted Babbler *Stachyris grammiceps* across Java. 1. Ujung Kulon; 2. Gunung Aseupan; 3. Cibareno; 4. Gunung Halimun; 5. Cisolok; 6. Cimaja; 7. Pelabuhan Ratu; 8. Cikiray; 9. Jampan Tengah; 10. Gobang; 11. Cipetir; 12. Gunung Salak; 13. Pasir Kananga; 14. Cibening; 15. Gunung Pancar; 16. Gunung Gede-Pangrango; 17. Ciodeng; 18. Gunung Patuha; 19. Cikajang; 20. Gunung Slamet; 21. Linggoasri; 22. Lebakharjo.

and grizzled langur *Presbytis comata* (Kool 1992), both of which, like several species of bird, are endemic to West Java and have been rated among the most threatened primate species in Indonesia (Eudey 1987).

Between July and October 1994, the University of East Anglia Halimun Expedition conducted fieldwork on the edge of Gunung Halimun National Park in secondary scrub, secondary forest, primary forest and paddyfield habitats. The study site was located to the west of the park, near the village of Ciusul, c.30 km north of Cikotok, and in an area, locally known as Cikuya, previously visited by the Biological Sciences Club of Jakarta (BScC). The human population immediately adjacent to the forest designated as the study area numbered 1,100. The habitats surveyed lay at 610–1,020 m.

Field methods in Gunung Halimun National Park

Study of the White-breasted Babbler formed part of a general avifaunal survey of the park, and the methods employed in the fieldwork were devised for this broader project. Thirty-four survey points were located in forest surrounding the camp. Points were set at intervals of 200 m along three transects, each commencing close to the edge of the forest and extending up to 2.5 km into the forest. Habitat and ornithological data were collected at each point. The following habitat variables were measured within a circular sample area of 14 m radius: (1) percentage cover (estimate of canopy, understorey and ground

flora); (2) mean visible distance (estimate of vegetation density at head height); (3) presence/absence of waterbodies, in or near the sample area; (4) leaf-litter; (5) dead wood; (6) slope angle and aspect; (7) tree size and density; (8) number of cut stumps; and (9) number of dead stumps. Methods for measuring leaf-litter, dead wood and tree size and density were as follows.

Leaf-litter. In traversing the mini-transects, leaf-litter depth was recorded at 3 m intervals from 0 m to 27 m, giving ten measures per mini-transect and 30 in total. Leaf-litter depth categories (measured in cm) were 0, <4, 4–10, 11–25, 26–50 and >50. Each category was given an index of 0–5 respectively. These indices were then summed to give a total index of leaf-litter abundance.

Dead wood. Traversing each mini-transect, dead wood was recorded wherever it crossed or touched the transect. Five size categories were used based on diameter of the wood (in cm): <4, 4–7, 8–20, 21–50 and >50, and each category was given an index (1–5 respectively). As with the leaf-litter, indices were summed to give a total index of dead wood abundance.

Tree size and density. Trees were grouped into size categories based on girth (in cm) at chest height: <10, 10–24, 25–63, and >63. All trees less than 10 cm were counted in a 2 m² quadrat. The size and density of all trees >10 cm girth were recorded as follows: beginning at 30° clockwise of the path direction, and working round the sample area in a clockwise direction, the girth and height of all trees was recorded. This continued until 30 trees of each category had been measured,

or 360° of the sample area surveyed, whichever was sooner. In the case of the former, a final bearing was recorded, allowing the area containing 30 trees to be calculated, and hence the density for that size category.

Each point was visited at least six times for ten minutes, and all sightings of White-breasted Babblers within this period were recorded. All such point counts were conducted between 06h00 and 10h00, and the starting point was alternated to ensure further points were not always visited towards the end of the time period. Whilst walking between the points the number of individuals seen within 3 m of the transect was recorded. The pace was kept constant, with ten minutes spent walking between points.

Ringling was conducted in forest and secondary growth habitats, but not all points were netted. Nets were placed around the points and never used in the same place for more than two days, thus avoiding birds familiarising themselves with net locations. For all points the length of net and number of hours of netting were recorded. The same nets, set at the same height, were used at all points. All birds caught were individually colour-marked using plastic colour rings. Unfortunately, catch rates were too low to allow density estimates to be calculated by mark/recapture techniques. However, the catch rates (metres of net × hours nets open, divided by number of individuals trapped) give an indication of relative abundance for understory species. In addition the following data were collected for all individuals trapped: wing length (maximum chord; after Svensson 1992); weight; and age.

RESULTS

Distribution

The species has been recorded at the following 22 localities, arranged in a west–east sequence and charted in the same sequence on Fig. 1 (sex and age of

museum specimens are given where indicated on the label):

(WEST JAVA) **Ujung Kulon**, in small flock, Ciklapabeureum, coast west of Gunung Cikuya, July 1955 (juvenile in MZB; Hoogerwerf 1969–1971), and south of Cijungkulon, north-east of Gunung Cikuya, where its advertising call (see Voice) was heard several times in forest, September 1989 (SvB); **Gunung Asepupan** at Carita, 3+ birds, tape-recorded, 100 m, September 1988 (SvB, confirming a report earlier in the year by D. A. Holmes), several groups seen, July 1989 (Lewis *et al.* 1989), 4–5 birds tape-recorded, 75 m, August 1989 (SvB), 3–4 birds tape-recorded, June 1990 (SvB), June 1991 (Heath 1991), flock of six, August 1994 (Tobias and Phelps 1994), several seen and heard, July 1995 (SvB and J. del Hoyo), and 3–4 pairs, October 1995 (SvB); **Cibareno**, March and August 1912 (♂, 3♀ in RMNH); **Gunung Halimun**, August 1922 (♂ in MZB), at forest edge in early 1980s (K. D. Bishop *in litt.* 1988), above Jajarpinang, Cikotok, 800–1,000 m, April 1995 (SvB; tape-recording), July–October 1994 (DL), at Gunung Kendeng, 1,000–1,200 m, undated (Prawiradilaga *et al.* 2003) and at Gunung Bedil, 1,070 m, undated (Prawiradilaga *et al.* 2003: 62, photograph); **Cisolok**, late November 1911 (♂ in RMNH), and Cisolok nature reserve, July 1990, with 2–3 birds in this small forest reserve amidst banana, ubi/ketela, etc., gardens and secondary wilderness, along the car road, near Karang Hawuh (J. H. Becking *in litt.* 2005); **Cimaja**, February 1910 (juvenile in RMNH); **Pelabuhan Ratu** (= Wijkoopsbaai), October 1898–January 1899 (♂ in ANSP), May 1904 (2♂♂, 2♀♀ in RMNH), coastal area, 30 m, March 1920 (♂, ♀ in AMNH; 2♂♂, 2♀♀ in BMNH; 4♂♂, 2♀♀, 1 juvenile in ZRCNUS; Robinson and Kloss 1924: 286), at km 4, north of Pelabuhan Ratu, pre-1988 (in Richards and Richards 1988), at Gunung Jayanti (north-east Pelabuhan Ratu), October 1978, 2–3 birds in heavily disturbed forest, very dry with belukar bush (J. H. Becking *in litt.* 2005), and at

Table 1. Habitat variables for points where White-breasted Babblers were recorded (n=15) and those where none was recorded (n=13); no differences were significant.

Variable	Babblers recorded				Babblers not recorded			
	Mean	se	max	min	Mean	se	max	Min
% canopy cover	34.0	4.6	60.0	10.0	30.8	5.5	80.0	5.0
% understory cover	51.7	4.0	80.0	25.0	49.2	5.2	70.0	10.0
% ground flora cover	63.0	7.7	95.0	20.0	66.2	7.9	90.0	10.0
Mean visible distance (m)	2.1	0.2	4.0	1.0	1.8	0.2	3.0	1.0
Dead wood index	92.6	8.2	148.0	48.0	97.3	12.1	216.0	44.0
Mean height of trees >63 cm girth	25.1	0.9	30.0	19.5	26.9	1.4	33.9	16.9
Mean height of trees 25–63 cm girth	13.9	0.6	18.1	10.4	14.6	0.6	17.9	10.4
Mean height of trees 10–24 cm girth	6.7	0.2	8.0	5.5	7.0	0.2	8.1	5.8
Tree seedling density (/m ²)	22.8	3.4	47.0	10.0	22.5	2.6	36.0	10.0
No. trees/ha >63 cm girth	272.8	19.0	373.0	81.0	225.9	18.7	373.0	130.0
No. trees/ha 25–63 cm girth	448.5	34.7	664.0	162.0	425.8	67.4	808.0	130.0
No. trees/ha 10–24 cm girth	1295.0	194.7	3579.0	530.0	1168.2	261.8	4078.0	357.0
Leaf-litter index	34.1	1.0	41.0	28.0	33.8	1.2	41.0	27.0
No. cut stumps	2.7	0.8	11.0	0.0	2.8	1.0	10.0	0.0
No. dead stumps	8.0	1.2	20.0	1.0	9.2	1.8	20.0	0.0
Altitude (m)	837.2	21.2	1021.0	712.0	830.5	22.9	966.0	705.0

Gunung Tangkuban Perahu reserve, April 1994, 4–5 birds in the 33 ha disturbed forest on the hill behind Guha Candi bat cave near the old military airport, 100 m (J. H. Becking *in litt.* 2005); **Cikiray**, October 1910 (2♂♂, 1♀, 1 juvenile in RMNH); **Jampang Tengah**, March, May and September 1903 (6♂♂, 1♀, 1 juvenile [from September] in RMNH), at Bojonglopang, 600 m, July 1940 (2♂♂, 1♀ in MZB), and at Lengkong, April 1994, 4–6 birds in a large primary forest fragment in a very rugged area with deep valleys along the road just west of Lengkong (J. H. Becking *in litt.* 2005); **Gobang** (at Gunung Cijengkol), 450 m, August 1948, and in forest at source of Ciguha river, west of Cipayung and north-west of Gobang, 250 m, November 1948 (G. F. Mees *in litt.* 2004); **Cipetir**, January 1897 (♀ in RMNH); **Gunung Salak** at Ciomas tea estate, northern slope, 800 m, July 1947 (Hoogerwerf 1948, G. F. Mees *in litt.* 2004); **Pasir Kananga**, Jampang, 420–480 m, January 1905 and July 1906 (1♂, 2♀♀ in RMNH; also Bartels 1906: 402); **Cibening**, February 1913 (♂ in RMNH); **Gunung Pancar**, c.600 m, 3–4 birds, December 1991 (SvB and P. Jepson); **Gunung Gede-Pangrango**, November 1893 (specimen in RMNH), September 1903, November 1907 (2♀♀, two juveniles [latter both November] in RMNH; also Bartels 1906: 402), at Cimungkat, undated (Hoogerwerf 1948: 131), in the Cibodas river valley, undated (Hoogerwerf 1949: 91), at Tapos, 900 m, 3–4 birds, March 1993 (SvB, P. Jepson and N. Brickle), and again 900 m, in a mixed-species flock, November 1993 (SvB and R. Dennis), and at Bodogol, almost certainly heard, June 1997 (SvB); **Ciodeng**, c.1 km west of Pasirdatar, July 1923 (♂ in RMNH); **Gunung Patuha**, foothills, Kole Beres, common in edge along primary forest, undated (Bartels 1931: 337); **Cikajang**, Banjarwangi Estate, 900 m, June 1941 (♂ in MZB);

(CENTRAL JAVA) **Gunung Slamet**, southern foothills, 750–1,500 m, December 1925 (2 specimens in ZMA; also Voous 1948), and at Baturaden, 800 m, June 1995 (SvB and V. Nijman); **Linggoasri**, Dieng Mountains, 700–850 m, not uncommon, with four records of 2–3+ birds, some tape-recorded, June 1995 (SvB and V. Nijman), and mist-netted during a field study in 2001–2002 (N. Sodhi *in litt.* 2002);

(EAST JAVA) **Lebakharjo**, Sengkaringan, 4–5 birds with fledgling, tape-recorded October 1989 (SvB).

A single locality, 'Gunung Andir, Cibeber', based on a specimen in MZB taken on 30 March 1923 by Siebers, remains untraced.

It is worth noting that seven of these 22 traced localities (32%) are based entirely on otherwise unpublished information from museum specimen labels—further evidence of the extraordinary value of museum specimens to conservation assessment (see Collar and Rudyanto 2003).

Bare parts, biometrics and moult

The plumage of both sexes of White-breasted Babbler was described by Sharpe (1884), and bare-part coloration was noted by Bartels (1915–1931) from living or freshly dead specimens. He gave the eye colour of three male specimens as 'beautiful dark red' or 'reddish-brown', the upper mandible as black, the lower as blue-grey (once pale, once dark) with blackish distal half, the feet light bluish-grey, soles (on two) yellowish, nails (pale) bluish-grey, (some) with horn-white tips; around the eyes is an area of bare blue skin (in two cases specifically: pale or cobalt-blue before and above the eye, darker, more ultramarine behind and below the eye). Some of these features can be seen in Plates 1 and 2.

Biometric data and moult condition were noted from 16 mist-netted specimens examined between 11 August and 23 October 1994. Of these, at least three were certainly more than one year old (AHY = after hatch year), and these three were all in full moult (August); nine were certainly in their first year (HY = hatch year), and at least six of these were noted to be in body moult (August and October). No mensural differences between older and younger birds were apparent. Wing measurements were 55–60 mm (57.1 ± 0.41 , $n=15$), weights 10.9–15.0 g (12.5 ± 0.24 , $n=15$) (DL). Means are given ± 1 standard error.

Density, flocking and habitat use in Gunung Halimun National Park

On transects the White-breasted Babbler was the commonest species recorded at Halimun. Density was calculated by the formula: (length of transect \times 6 m \times



Plate 1. White-breasted Babbler *Stachyris grammiceps* (year of hatching) in the hand, Gunung Halimun National Park, 13 August 1994. Photo: D. Liley.



Plate 2. White-breasted Babbler *Stachyris grammiceps* (after year of hatching) in the hand, Gunung Halimun National Park, 11 August 1994. Photo: D. Liley.

number of times walked) ÷ (number of individuals observed). A total length of 47.8 km of transect resulted in 86 individuals being recorded within 3 m of the transect, giving an estimated density of 331.8 birds per km² (3.3 birds per ha). However, in the course of 219 point counts conducted within the forest, nine flocks of White-breasted Babblers, involving a total of 67 individuals, were recorded. All sightings were within 14 m of the point, so 14 m is used as the radius by which to calculate the area surveyed. A total of 67 individuals gives a density of 432 birds per km² (4.3 birds per ha). During mist-netting, the species was the second commonest (exceeded only by Little Spiderhunter *Arachnothera longirostra*), with 16 birds trapped in c.13,000 m net-hours within the forest.

A total of 23 encounters of monospecific flocks was made during line transects and point counts, with mean number of birds per flock 10.5 ± 1.28 , range 3–30. These monospecific flocks fed in the understorey at a mean height from the ground of 4.5 ± 1.00 m, range 0.5–17.5 m. The species was virtually always present also in large, multi-species assemblages.

There was no significant difference between the main habitat variables measured for points where babblers were recorded and those where they were not (Table 1). Principal component analysis (PCA) was used to combine the habitat variables measured to give two variables, which together accounted for 59% of the variation between points. The first principal component (PCA 1) was negatively weighted particularly by tree height, hence points with a low PCA 1 score were those points with a high canopy; by contrast PCA 2 was particularly negatively weighted by the percentage cover of the understorey and mean visible distance, hence points with a low PCA 2 score were those with a high density of understorey, often where either bamboo or a gap was present in the forest. By plotting the PCA 1 and 2 scores for each point (Fig. 2), the secondary growth/scrub points at the edge of the forest can be clearly seen as a cluster of six points with a high PCA 1 score. The remaining points represent a range of forested points, with those with the higher PCA 2 scores being those with the most secondary growth/dense understorey. It can be seen that babblers were recorded from the range of points within the forest.

The highest densities were recorded from those points with scores in the mid-range of PCA 2 (Fig. 3). Thus points with some small-scale disturbance, including gaps in the forest with some secondary growth, seem to be the preferred habitat. All sightings at Halimun were between 750 and 1,100 m, representing the availability of suitable forest habitats and the altitudes visited. However, fieldwork was not carried out higher than this at Ciusul, so the species may quite possibly be present at higher altitudes. It was not recorded in secondary growth habitats outside of forest.

Habitat in general

The White-breasted Babbler seems to prefer forest with some degree of disturbance, presumably where light-gaps in the canopy and edges allow a more luxuriant lower vegetation to flourish. Lewis *et al.* (1989) reported it from highly disturbed forest, and Bartels

Table 2. Characteristics of principal components from PCA analysis of habitat variables.

Characteristic	PCA 1	PCA 2
Eigenvalue	12.27	3.75
Proportion of variance	0.45	0.14
Cumulative variance	0.45	0.59
% canopy cover	-0.147	0.281
% understorey cover	-0.070	0.220
% ground flora cover	-0.188	-0.378
Mean visible distance (m)	0.061	0.368
Dead wood index	-0.176	0.145
Mean height of trees >63 cm girth	-0.265	-0.012
Mean height of trees 25–63 cm girth	-0.256	0.040
Mean height of trees 10–24 cm girth	-0.242	0.037
No. trees/ha >63 cm girth	-0.223	0.183
No. trees/ha 25–63 cm girth	-0.198	0.279
No. trees/ha 10–24 cm girth	-0.158	0.175
Leaf-litter index	-0.229	-0.055
No. dead stumps	-0.166	-0.101
No. cut stumps	0.125	-0.118

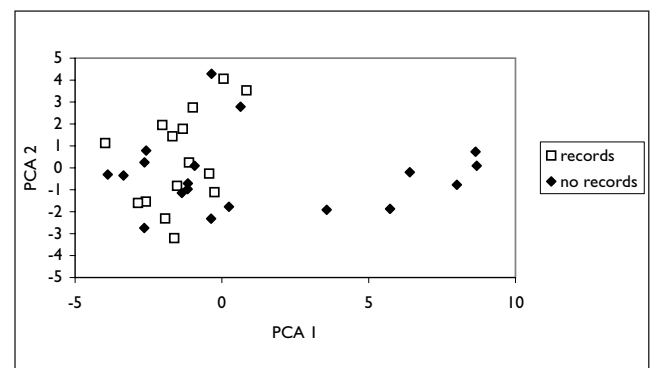


Figure 2. The first two principal component scores for all points surveyed where White-breasted Babblers were present and for points where they were not present.

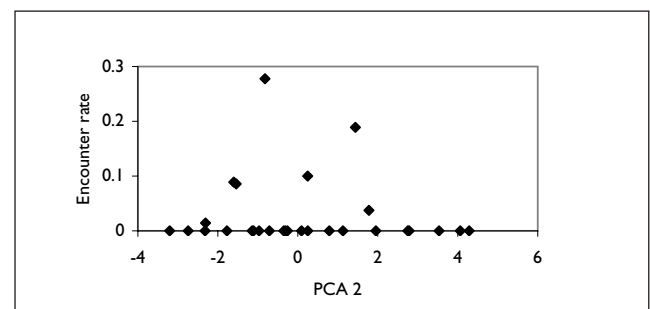


Figure 3. White-breasted Babbler encounter rate per point and PCA 2 score. The encounter rate is taken from the point count data and is the number of individuals recorded at each point divided by the time (in minutes) spent at each point.

(1931: 337) found it along streams in open areas. However, it appears that such habitat must be adjacent to and perhaps contiguous with tall, heavy forest, with or without emergent trees. Moreover, G. F. Mees (*in litt.* 2004) found it foraging at 1.5–4 m above the ground in relatively open undergrowth of rather dark

forest, not in the dense shrubbery of more open-canopy forest. Other records are from lightly disturbed forest with rattan, bamboo and ginger; from the edge of damar *Agathis* sp. plantation and mixed rainforest (Gunung Slamet); inside or along the edge of the forest in low shrubbery along trails (Linggoasri); and other dense undergrowth (sources: all SvB).

The species has mainly, if not always, been found in undulating to rugged areas in the wettest parts of Java, with at least 20–40 or more rainy days during the four driest consecutive months of the year (see van Steenis 1972: 11). The need for rather steep terrain may help explain its absence from most of the northern plain of Java, and its low densities in areas like Ujung Kulon National Park (which has much level and little rugged rainforest), but relatively high densities in the rainforests of Halimun and the Dieng Mountains. Although well to the east, Lebakharjo has tropical rainforest, a rugged topography, and lies well within the wettest climatic zone of van Steenis (1972).

Sody (1956) reported an altitudinal range of 600–3,000 m for the species; for the lower part of this range he apparently did not take into account the records at Pelabuhan Ratu (down to 30 m), whilst his upper value is most likely based on a mistaken reading of '3000 ft' given by Bartels (1906). Also the range of 2,500–5,000 m for the species on Gunung Slamet as reported by Voous (1948), based on two specimens labelled thus in ZMA, is evidently the result of a similar confusion of feet for metres, as the summit of Slamet only reaches 3,418 m. Our data suggest an altitudinal range for the species of 30–1,500 m, with most records from elevations below 1,000 m.

Flocking, feeding and other behaviour in general

White-breasted Babblers are quiet and unobtrusive, but can be inquisitive, approaching human observers and raising their white-streaked crown feathers whilst inspecting them. They move in small monospecific groups and/or in mixed-species flocks. Bartels (1931: 337) mentioned monospecific flocks of about ten birds, but in SvB's experience such flocks rarely, if ever, exceed six birds: all his observations except one involved more than one bird, and even the observation of a singleton, in a small bird wave, may easily have missed a second bird. Sometimes the species associates with a single other species of babbler. SvB has more than once seen the behaviourally very similar Grey-cheeked Tit Babbler *Macronous flavicollis* associating in flocks with White-breasted, as well as Crescent-chested Babbler *Stachyris melanothorax* and, at altitudes above 1,000 m, Chestnut-fronted Shrike Babbler *Pteruthius aenobarbus*. J. H. Becking (*in litt.* 2005) reports other babblers, such as Large Wren Babbler *Napothera macrodactyla*, Horsfield's Babbler *Malacocincla sepiarium*, and possibly Temminck's Babbler *Pellorneum pyrrogenys*, as associates in mixed-species flocks.

White-breasted Babblers move rather freely in the vegetation, certainly not skulking, typically at 3–5 m above ground. Bartels (1915–1931) wrote of them working their way through undergrowth and the thick crowns of mid-storey trees. Sometimes, however, they move into the canopy, especially on steep hills in tall primary forest, and also, apparently, when associating

with Chestnut-fronted Shrike Babblers, which are typical canopy-feeders (the Crescent-chested Babbler is known to leave the undergrowth only when it joins mixed flocks: van Balen 1987).

Foraging is typically timaliine, with much gleaning of leaves and probing of decaying fronds and tangles. Bartels (1915–1931) captured the birds' behaviour well (our translation and rendition): 'They work very hard, searching very carefully here and there in thorny lianas or in fallen leaves that have gradually accumulated in small piles in plant tangles of the primary forest, within which insects commonly hide. If they cannot reach them from above or from the side, they try to grip from the underside of the leaf-tangles, and in doing so they hang upside-down like a titmouse and then work on them skilfully.' Food appears to consist mainly or exclusively of insects; only grasshoppers (Tettigoniidae) have been reported as prey items (Becking 1989).

Voice

Bartels (1915–1931), who had an intimate knowledge of the habits of this babbler, did not know its song, only its call, which it did not, in his experience, give very often. Hoogerwerf (1969–1971), another well-travelled ornithologist on Java, was not even familiar with its call. During surveys by SvB a number of different calls and song types were transcribed and tape-recorded, of which a summary follows.

Advertising call. A single, loud trilling *trrrriiii* or *trrrreeee* (repeated at long, irregular intervals), increasing in volume, but at the same pitch; this call has been heard in the months June, August, September and October (SvB). G. F. Mees *in litt.* (2004) reported similar calls in July (a continual *krrriieie...* *krrriieie...* from birds in a small mixed-species flock) and in August (a rather strong *tschrrrrrie* from a single bird).

Begging call. A thin *ti-ti-ti-ti*, with first three notes rising in pitch, appeared to be a begging call or some call associated with courtship (birds were chasing each other); a loud *ti-ti-ti-ti*, dropping in pitch, from birds in a group including a youngster, in October, may be the same call.

Flock contact call. A *chrr chrr...* was heard from birds foraging high in the canopy in October. A throaty *cheek cheek* from a small group with other babbler species in March, and a flowerpecker-like soft *tik* heard from a flock in September, may also be the same call.

Flight call. In flight, a *chup chup* was heard in June. The (presumed) advertising call (or song)—the long trill—bears a resemblance to that of the far more widespread (but not on Java) Grey-throated Babbler *Stachyris nigriceps*, a species which also shows some morphological and ecological correspondence (small size, white-streaked crown, use of submontane habitat), and to which the White-breasted Babbler may be most closely related. The harsh, scolding and rolling notes so characteristic of other *Stachyris* babblers have not been heard from birds on Java.

Breeding

No nest has been reported, and no other information is available (Hellebrekers and Hoogerwerf 1967: 113). However, the observation of advertisement calling in

September and a fledgling in a flock in October (SvB), plus museum skins of juveniles collected in February (one), March (one), July (one), September (one), October (one) and November (two), suggest a rather extended and perhaps all-year breeding season, but the retention of juvenile characters may be so protracted that this evidence is uninterpretable. DL's mist-netted specimens in Halimun were in body or full moult in August–October, suggesting that a peak in breeding may have occurred several months earlier, around the middle of the year (May–June).

CONSERVATION STATUS

Owing to its confinement to now highly reduced forest, mainly in the westernmost quarter of Java, the White-breasted Babbler was formerly treated as a threatened species (Collar and Andrew 1988, Collar *et al.* 1994), but this evaluation was revised to 'Near Threatened' in recent reviews (BirdLife International 2000, 2001), largely as a result of evidence of abundance generated by one of us (DL) during fieldwork in Gunung Halimun National Park (see above). The earlier assessments were prompted by remarks such as that in Hellebrekers and Hoogerwerf (1967: 113) that the species was very rare. What emerges from this review is that its rarity is perhaps more a matter of localised distribution and unobtrusive behaviour: it must have been this latter factor which led Vorderman (1901) to miss it, despite his surveys of at least three localities (Gunung Salak, Gunung Gede, Pelabuhan Ratu) where the species is known to occur.

Even so, the conservation status of the White-breasted Babbler is, on the evidence assembled here, somewhat difficult to determine. On the one hand, (1)—the point just made—it has a range which is now known to extend as far east as Lebakharjo in East Java, suggesting that populations have been overlooked by earlier explorers in certain parts of Central and western East Java (and there are still some wholly unexplored forests in the wettest parts of East Java); (2) it is known to be common in at least two sites (Gunung Halimun in West Java and Linggoasri in Central Java), and may well prove to be so at others, once studied more intensively; and (3) it appears to select partly disturbed habitat, has been found in badly degraded areas, and has survived for years in forest fragments as small as 25 ha (Gunung Pancar) (SvB). On the other hand, if the elevations of the species generally only take it to 1,000 or 1,200 m (there is only one record at 1,200 m, and only one at 1,500 m, and the latter is fairly vague), then it must have lost, and must be continuing in places to lose, a considerable amount of forest habitat within its preferred range, forcing it ever upwards towards its upper elevational limits. Its former stronghold, the forest fragments along Pelabuhan Ratu and adjacent to the Jampang forests, is now more fragmented than ever, and some of its former haunts appeared vacant in more recent times. The species has not recently been found at Gunung Salak and is very possibly extinct there, perhaps because no forest now remains there below 1,200 m. Linggoasri in the Dieng Mountains is a stronghold, but lowland and hill forest in this range is

under extreme logging pressure (SvB); indeed, in most of East and Central Java forest has disappeared below 1,000–1,500 m. Whether it occurs further east, at Meru Betiri, which holds rugged forest at the appropriate elevations but which is on the fringe of the wettest zone, remains to be determined: the site has been surveyed, but not fully. Meanwhile, as with several other Javan endemic species—Javan Trogon *Apalharpactes reinwardti* springs most immediately to mind (see Collar and van Balen 2002)—Gunung Halimun emerges from this review as almost certainly the most important site of all for the species.

At Gunung Halimun the very inaccessibility of the site has helped to maintain its forest in a relatively undisturbed condition. Conservation takes the form of managed production forests in a buffer zone between the local human population and the reserve. However, the local human population has grown, access is improving, and anthropogenic degradation has increased. Other threats come from logging for local use (e.g. for fuel, and timber for housing) and for sale. In 1994, the human population adjacent the study area was heavily reliant on the forest, and people were regularly encountered cutting and removing timber for building materials and firewood. Timber for building was squared off *in situ* and left for later collection, sometimes stacked in clearings along the trails.

It seems unlikely that trade in the species is a significant issue, but on Java, where birds are trapped for the cage-bird trade with an intensity that is probably unmatched anywhere else in the world (Morrison 1981, Nash 1993), it is unwise to be complacent. In the Dieng Mountains, SvB was told that the White-breasted Babbler—which even had a local name, *pacétan*, although this could also refer to other *Stachyris* species—was occasionally caught, but the birds were not hardy and would quickly die in cages. Nevertheless, the species has already reached Europe, as exemplified by a recent avicultural article (Kleefisch and Scholtz 2001) which regrettably failed to make any reference to the conservation status of the species.

The species is currently classified on the IUCN Red List as Near Threatened, almost meeting criteria A2c; A3c; B1a+b(i,ii,iii,iv,v) on the basis that its population is declining at a rate approaching 30% in ten years, and that it has a small, declining and severely fragmented Extent of Occurrence (BirdLife International 2005). On balance we believe that this classification is correct. However, we also feel it would be wise to monitor known and seek new populations of the White-breasted Babbler throughout its range, in order to strengthen the dataset on which future evaluations of its status can be made.

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