

# Threatened Birds of Asia:

## The BirdLife International Red Data Book

Editors

N. J. COLLAR (Editor-in-chief),  
A. V. ANDREEV, S. CHAN, M. J. CROSBY, S. SUBRAMANYA and J. A. TOBIAS

Maps by

RUDYANTO and M. J. CROSBY

Principal compilers and data contributors

■ **BANGLADESH** P. Thompson ■ **BHUTAN** R. Pradhan; C. Inskipp, T. Inskipp ■ **CAMBODIA** Sun Huan; C. M. Poole ■ **CHINA** ■ **MAINLAND CHINA** Zheng Guangmei; Ding Changqing, Gao Wei, Gao Yuren, Li Fulai, Liu Naifa, Ma Zhijun, the late Tan Yaokuang, Wang Qishan, Xu Weishu, Yang Lan, Yu Zhiwei, Zhang Zhengwang. ■ **HONG KONG** Hong Kong Bird Watching Society (BirdLife Affiliate); H. F. Cheung; F. N. Y. Lock, C. K. W. Ma, Y. T. Yu. ■ **TAIWAN** Wild Bird Federation of Taiwan (BirdLife Partner); L. Liu Severinghaus; Chang Chin-lung, Chiang Ming-liang, Fang Woei-horng, Ho Yi-hsian, Hwang Kwang-yin, Lin Wei-yuan, Lin Wen-horn, Lo Hung-ren, Sha Chian-chung, Yau Cheng-teh. ■ **INDIA** Bombay Natural History Society (BirdLife Partner Designate) and Sálím Ali Centre for Ornithology and Natural History; L. Vijayan and V. S. Vijayan; S. Balachandran, R. Bhargava, P. C. Bhattacharjee, S. Bhupathy, A. Chaudhury, P. Gole, S. A. Hussain, R. Kaul, U. Lachungpa, R. Naroji, S. Pandey, A. Pittie, V. Prakash, A. Rahmani, P. Saikia, R. Sankaran, P. Singh, R. Sugathan, Zafar-ul Islam ■ **INDONESIA** BirdLife International Indonesia Country Programme; Ria Saryanthi; D. Agista, S. van Balen, Y. Cahyadin, R. F. A. Grimmett, F. R. Lambert, M. Poulsen, Rudyanto, I. Setiawan, C. Trainor ■ **JAPAN** Wild Bird Society of Japan (BirdLife Partner); Y. Fujimaki; Y. Kanai, H. Morioka, K. Ono, H. Uchida, M. Ueta, N. Yanagisawa ■ **KOREA** ■ **NORTH KOREA** Pak U-il; Chong Jong-ryol, Rim Chuyon. ■ **SOUTH KOREA** Lee Woo-shin; Han Sang-hoon, Kim Jin-han, Lee Ki-sup, Park Jin-young ■ **LAOS** K. Khounbolin; W. J. Duckworth ■ **MALAYSIA** Malaysian Nature Society (BirdLife Partner); K. Kumar; G. Noramly, M. J. Kohler ■ **MONGOLIA** D. Batdelger; A. Bräunlich, N. Tseveenmyadag ■ **MYANMAR** Khin Ma Ma Thwin ■ **NEPAL** Bird Conservation Nepal (BirdLife Affiliate); H. S. Baral; C. Inskipp, T. P. Inskipp ■ **PAKISTAN** Ornithological Society of Pakistan (BirdLife Affiliate) ■ **PHILIPPINES** Haribon Foundation for Conservation of Natural Resources (BirdLife Partner); N. A. D. Mallari, B. R. Tabaranza, Jr. ■ **RUSSIA** Russian Bird Conservation Union (BirdLife Partner Designate); A. V. Andreev; A. G. Degtyarev, V. G. Degtyarev, V. A. Dugintsov, N. N. Gerasimov, Yu. N. Gerasimov, N. I. Germogenov, O. A. Goroshko, A. V. Kondrat'ev, Yu. V. Labutin, N. M. Litvinenko, Yu. N. Nazarov, V. A. Nechaev, V. I. Perfil'ev, R. V. Ryabtsev, Yu. V. Shibaev, S. G. Surmach, E. E. Tkachenko, O. P. Val'chuk, B. A. Voronov. ■ **SINGAPORE** The Nature Society (Singapore) (BirdLife Partner); Lim Kim Seng ■ **SRI LANKA** Field Ornithology Group of Sri Lanka (BirdLife Affiliate); S. Kotagama; S. Aryaprema, S. Corea, J. P. G. Jones, U. Fernando, R. Perera, M. Siriwardhane, K. Weerakoon ■ **THAILAND** Bird Conservation Society of Thailand (BirdLife Partner); U. Treesucon; R. Jugmongkol, V. Kongthong, P. Poonswad, P. D. Round, S. Supparatvirkorn ■ **VIETNAM** BirdLife International Vietnam Country Programme; Nguyen Cu; J. C. Eames, A. W. Tordoff, Le Trong Trai, Nguyen Duc Tu.

With contributions from: S. H. M. Butchart, D. S. Butler (maps), P. Davidson, J. C. Lowen, G. C. L. Dutson, N. B. Peet, T. Vetta (maps), J. M. Villasper (maps), M. G. Wilson

**Recommended citation**

BirdLife International (2001) *Threatened birds of Asia: the BirdLife International Red Data Book*. Cambridge, UK: BirdLife International.

© 2001 BirdLife International

Wellbrook Court, Girton Road, Cambridge, CB3 0NA, United Kingdom

Tel: +44 1223 277318 Fax: +44 1223 277200 Email: [birdlife@birdlife.org.uk](mailto:birdlife@birdlife.org.uk)

Internet: [www.birdlife.net](http://www.birdlife.net)

BirdLife International is a UK-registered charity

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, electrical, chemical, mechanical, optical, photocopying, recording or otherwise, without prior permission of the publisher.

ISBN 0 946888 42 6 (Part A)

ISBN 0 946888 43 4 (Part B)

ISBN 0 946888 44 2 (Set)

British Library-in-Publication Data

A catalogue record for this book is available from the British Library

First published 2001 by BirdLife International

Designed and produced by the **Nature**Bureau, 36 Kingfisher Court, Hambridge Road, Newbury, Berkshire RG14 5SJ, United Kingdom

Available from the Natural History Book Service Ltd, 2–3 Wills Road, Totnes, Devon TQ9 5XN, UK. Tel: +44 1803 865913 Fax: +44 1803 865280 Email [nhbs@nhbs.co.uk](mailto:nhbs@nhbs.co.uk)  
Internet: [www.nhbs.com/services/birdlife.html](http://www.nhbs.com/services/birdlife.html)

The presentation of material in this book and the geographical designations employed do not imply the expression of any opinion whatsoever on the part of BirdLife International concerning the legal status of any country, territory or area, or concerning the delimitation of its frontiers or boundaries.

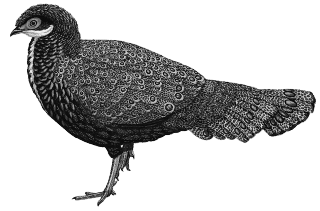
## BORNEAN PEACOCK-PHEASANT

### *Polyplectron schleiermacheri*

Critical  —

Endangered  C1; C2a

Vulnerable  A1c,d; A2c,d



*This elusive species's status is difficult to judge, but recent anecdotal evidence regarding its range and habitat indicates that it has a very small, fragmented and declining population, justifying its classification as Endangered.*

**DISTRIBUTION** The Bornean Peacock-pheasant (see Remarks 1) is endemic to the island of Borneo, where it has been recorded to date from Sabah and Sarawak, Malaysia, and Kalimantan, Indonesia. The following account has drawn extensively on a compilation of important new evidence by Sözer *et al.* (ms a), as part of the results of their “Kalimantan Pheasant Project”, and grateful acknowledgement is made here to the authors for free access to this material. Records are from:

■ **MALAYSIA** ■ *Sabah* (see Remarks 2) **Paitan river** (Paitan or Paitan Bay on some labels), July and December 1892 (Gore 1968, 10 specimens in AMNH, BMNH, with three more undated ones in SMF, SNMS; see also Population); **Tongod** (Ulu Tongod Forest Reserve), near Telupid, January 1996 (G. W. H. Davison *in litt.* 1999); near the Sukau river, recently, based on a guide recognising the species from a video of Malaysian Peacock-pheasant *Polyplectron malacense* and describing the differences correctly (J. Corder *in litt.* 1999), this record being treated here as provisional;

■ *Sarawak* Trusan river, by report (Moulton 1914); near (on a footpath leading down from) **Bario**, in the late 1970s (D. Labang *per* P. J. K. McGowan *in litt.* 2000, also McGowan and Garson 1995; see Remarks 3); central Sarawak “well up toward the Dutch border” (Beebe 1918–1922), probably the upper Rejang (and hence above **Belaga** in Smythies 1957), in which area the local people (Punan Busang) in the Danum–Linau area at 300–1,000 m claim to know the species (Fogden 1965, Harrisson 1965, Smythies 1981, van Balen and Holmes 1993, Smythies and Davison 1999; but see Remarks 4); **Nanga Gaat**, c.100 km from Kapit, around 1990 (Z. Dahaban *in litt.* 2000, following a report in McGowan and Garson 1995; see Remarks 3); Batang Ai National Park, where in 1992 “small cleared areas were occasionally noted, which may be the display areas of the Malaysian peacock-pheasant (*Polyplectron malacense*)” (Meredith 1995);

■ **INDONESIA** *Kalimantan* ■ *East Kalimantan* (see Remarks 5) “Kemawen”, i.e. **Kihammawon**, September 1969 (male in MZB; also van Balen and Holmes 1993); **Danumparoy** in the Ratah river headwaters, c.160 m, feathers shown of a bird taken some years before January 1996 (Sözer *et al.* ms a); **Ma’au**, 75 m, near tributaries of the Ratah, three birds trapped, July–September 1996 (Sözer *et al.* ms a); **Sungai Wain Nature Reserve**, March–April 1998 (G. Fredriksson *per* SvB, and in Sözer *et al.* ms a), with a dead male, apparently eaten by a civet, 120 m in primary dipterocarp forest, May 2000, and an apparent female along a track on a ridge near the same spot, July 2000 (G. Fredriksson *in litt.* 2000); **Sungai Apa**, a small tributary of the upper Marikoi river, near Tumbang Korik village, 150 m, feathers shown of one of three birds taken in or around April 1996 (Sözer *et al.* ms a); **Balikpapan Bay**, February 1909 (Smythies 1981, specimen in USNM); ■ *Central Kalimantan* **Tumbang Maruwei**, on the Barito river, c.70 km north of Muara Teweh, where two males and a bundle of male tail feathers were collected in September–November 1915 (Voous 1961); **Muarateweh** (type locality), on the Teweh river, mid-1870s (Brüggemann 1877, 1878), with a male and female collected there in the late

1870s (von Pelzeln 1879, 1880; see Remarks 6); **Sungai Marikoi**, 150 m, feathers shown of a bird taken in July 1996 (Sözer *et al.* ms a); **Kualakurun**, (100 km north of) Palangkaraya, March 1979 (specimen in MZB; see Remarks 7, also Remarks 6); **Sungai Ewang**, between the Senamang and Bemban rivers, feathers shown of a bird taken in 1990–1991 (Sözer *et al.* ms a); **Kiham Batang**, 200 m, upper Senamang river, November 1996 (T. O'Brien *in litt.* 2000, Sözer *et al.* ms a); Barito Ulu, by local report, 1989 (Dutson 1990); ■ **West Kalimantan** (see Remarks 2) Danau Sentarum, by local report (Hood 1993, van Balen 1996c, O'Brien *et al.* 1998b), with five birds trapped north-north-west of **Danau Sentarum National Park**, 150 m, March 1998 and August 1999 (Sözer *et al.* ms a); **Nangapinoh** within the Pt Erna Timber Concession, 120 m, a total of 14 birds trapped for trade between December 1997 and August 1998 (Sözer *et al.* ms a); **Muara Penyalayan**, 150 m, November 1997 (Sözer *et al.* ms a); **Sopan Unke**, 140 m, near the Penyalayan river, feathers found of a bird taken in November 1997 (Sözer *et al.* ms a); between Pontianak and Banjarmasin, 1948–1949 (Delacour 1977).



**The distribution of Bornean Peacock-pheasant *Polyplectron schleiermacheri*:** (1) Paitan river; (2) Tongod; (3) Bario; (4) Belaga; (5) Nanga Gaat; (6) Kihammawon; (7) Danumparoy; (8) Ma'au; (9) Sungai Wain Nature Reserve; (10) Sungai Apa; (11) Balikpapan Bay; (12) Tumbang Maruwei; (13) Muarateweh; (14) Sungai Marikoi; (15) Kualakurun; (16) Sungai Ewang; (17) Kiham Batang; (18) Danau Sentarum; (19) Nangapinoh; (20) Muara Penyalayan; (21) Sopan Unke.

○ Historical (pre-1950) ◐ Fairly recent (1950–1979) ● Recent (1980–present) □ Undated

A combination of these recent results with the older records and with anecdotal evidence provided by reliable local witnesses results in roughly 17 clusters of sites in Kalimantan within which the Bornean Peacock-pheasant is felt likely to be present, as follows: (*East Kalimantan*) Ratah river; Pari and Maribu rivers; Gunung Lumut; Gunung Beratus–Balikpapan Bay–Lawa river–Kedang river; upper Kedangpahu river; upper Kelau river; (*Central Kalimantan*) Senamang river; upper Kahayan river; Murui river; south of the upper Barito river; upper Barito, Murung and Maruwei rivers; (*South Kalimantan*) Pitap river (Gunung Besar); (*West Kalimantan*) north-west of Danau Sentarum; Sandai-Nangatayap; west of Bukit Baka and Bukit Raya; Nanganinoh; and Serawai river (Sözer *et al.* ms a).

**POPULATION** Throughout Borneo the species has been judged “extremely rare” (Smythies 1981, Mann in prep.). The total population was reckoned to be under 1,000 in 1995 (McGowan and Garson 1995). The problem with assessing its status is that it is likely to be patchily distributed according to a particular and as yet weakly understood habitat preference or circumstance (see Measures Proposed). Quantification of decline in this species has been attempted, but this exercise was greatly hampered by paucity of data: eight localities were traced, seven before and one after 1970 (i.e. none shared) (McGowan *et al.* 1998a). In the present review, 21 localities have been identified, eight before and 13 after 1980. Nevertheless—and notwithstanding the numbers estimated for Kalimantan below—the decline of this lowland forest species must have been precipitate in the past few decades owing to habitat loss compounded by other human pressures (see Threats).

**Malaysia** Searches of the Paitan area of Sabah, 1938–1939, drew blank (Smythies 1957), which may possibly be interpreted as evidence of local extinction (but see Measures Proposed). According to local people (Punan Busang) in the Danum–Linau area at 300–1,000 m, the species is (or was) “uncommon” (Fogden 1965) or “present in small numbers” (Harrison 1965), but this may all or in part refer to the wrong species (see Remarks 4). A single bunch of feathers from a trap near the Dutch border was all Beebe (1918–1922) could obtain when searching for pheasants in Sarawak, and, since he could get “no reliable information” from the many dayaks he encountered, he concluded that “this species must be exceedingly uncommon for them to be so ill-acquainted with it”. A survey of hunting at 17 sites in Sabah and Sarawak failed to detect any birds (in O’Brien *et al.* 1998b), although it is not clear if the sites in question were in appropriate habitat. Eight years spent in primary forest in the interior of Sarawak, 1988–1996, produced no records (S. Sreedharan *in litt.* 1997).

**Indonesia** Two parallel but partly overlapping investigations into the status of the Bornean Peacock-pheasant were undertaken in the second half of the 1990s, (1) by Sözer *et al.* (1997, ms a) and (2) by O’Brien *et al.* (1998b).

(1) Initial surveys in the period 1995–1996 led to preliminary population estimates of 525–2,100 birds in East Kalimantan and 2,450–9,800 birds in Central Kalimantan (Sözer *et al.* 1997). Revision of the species’s (very low) population density, based on trapping success rate, to 0.229–0.915 birds per km<sup>2</sup>, and use of a new estimate of remaining lowland forest throughout Kalimantan of 89,200 km<sup>2</sup>, resulted in an estimate of 20,427–81,618 birds, although if only the summed area of forest remaining at sites where birds were found is used (i.e. 17,840 km<sup>2</sup>), a total Indonesian population of 4,085–16,324 birds is determined (Sözer *et al.* ms a). However, if (as is thought possible, despite the record from Kihammawon) the species is practically absent in the area north of 1°20’N in East Kalimantan, its actual range would be roughly three times the survey area used in the last calculation, i.e., 53,520 km<sup>2</sup>, thus yielding a population in the range 12,246–48,971 (Sözer *et al.* ms a). It is generally judged that even in optimal areas the species probably occurs at densities of under one individual per km<sup>2</sup>, and is thus naturally rare (Sözer *et al.* ms a; see Remarks 8).

(2) In a questionnaire survey involving 97 villages across Central Kalimantan, only seven villages reported no knowledge of the species, and of the remainder two-thirds described it

as rare or very rare but one-third considered it fairly common (“often”) (O’Brien *et al.* 1998b). Moreover, interviews with 295 people in 50 villages distributed among nine survey blocks in the province resulted in two-thirds claiming that the species could be found within a day’s walk (c.20 km) of the village, although 85% of all interviewees felt that a decline had occurred (O’Brien *et al.* 1998b). In the late 1980s the extent of appropriate habitat (the two lowland types described below) in Central Kalimantan was 67,000 km<sup>2</sup> (of which only 1% is protected), with 150,000–200,000 km<sup>2</sup> of such habitat throughout Borneo, but much of this was subsequently lost (O’Brien *et al.* 1998b).

The longer field experience in search of the species by Sözer *et al.* (ms a) caused them to believe that many local people in Borneo, eager to appear hospitable by providing encouraging answers, can distort the record with misinformation, and that the questionnaire work above in Central Kalimantan may have fallen victim in this case (Sözer *et al.* 2000), since in their own studies most local people living in or near the habitat of the species proved to be unfamiliar with it (Sözer *et al.* ms a; also 2000; but see also Kinnaird and O’Brien 2000).

Local reports suggested that the species was rare at Barito Ulu, Central Kalimantan (Dutson 1990).

**ECOLOGY Habitat** This is a bird of lowland dipterocarp and alluvial forest, ranging from sea-level to 1,000 m (Mann in prep.), and its favoured habitat has been thought to be riverine forest, a severely threatened forest type (van Balen and Holmes 1993). By contrast, local people report this species to occupy lowland primary forest but seemingly keeping clear of wetter substrates in swamp forest or near waterbodies, and GIS analysis of these records suggests that the habitat is lowland plain and lowland dipterocarp forest on moderately fertile soils (O’Brien *et al.* 1998b). Despite misgivings about the sources of this information (see Population), in general other parallel studies have yielded the same results: recent confirmed records come from secondary and primary lowland dipterocarp forest along rivers, the lower parts of primary hill (but still under 200 m) dipterocarp forest, and temporarily dry swamp forest, with the species preferring forest on the black, more fertile (alluvial) soils and always being trapped near smaller rivers or streams (Sözer *et al.* ms a). Calling heard in Sabah, August 1998, came from close to a small stream flowing into a larger river, typical of habitat of Malaysian Peacock-pheasant (J. Corder *in litt.* 1999)—but the caller may have been a kingfisher (see Remarks 2). In Sarawak there is a record from “steep slope forest” (McGowan and Garson 1995).

**Food** The species is presumed to be a litter-gleaning insectivore and frugivore (Smythies and Davison 1999). Local people report fallen fruit, rattan fruit and ants in the diet (O’Brien *et al.* 1998b).

**Breeding** Clutch size in 15 instances to date (all captive) was one; no nest is made, the bird laying usually on bare soil at the foot of a tree or beneath small bushes (Sözer *et al.* ms a, R. Sözer *in litt.* 2000). Reliable reports and observations of juveniles indicated egg-laying dates of late October to mid-November and mid-March, with captive-laid eggs virtually all year round (February, March and May–September) (Sözer *et al.* ms a, R. Sözer *in litt.* 2000). A male in BMNH from July (Sabah) is juvenile. Local people reported three nests in primary forest and one in recently cleared fields, with three on the ground and one on a fallen log, and a clutch size of two (O’Brien *et al.* 1998b); this suggests confusion with Great Argus *Argusianus argus* (R. Sözer *in litt.* 2000).

**THREATS Habitat loss** This is one of three threatened bird species known exclusively from the lowland forests of Borneo, and while it is the only one of these three which also suffers from hunting pressure (see below) it is considered here as the primary victim among them of lowland forest loss on the island, and indeed (with the possible exception of Rueck’s Blue-flycatcher *Cyornis ruecki*) it seems possibly by far the most threatened representative of the

entire lowland Sundaic avifauna. The two other endemics are Blue-headed Pitta *Pitta baudi* and Bornean Wren-babbler *Ptilocichla leucogrammica*, and there is a fourth threatened endemic—Wattled Pheasant *Lobiphasis bulweri*—which may depend on lowland forest for part of its life cycle (see relevant account). Deforestation in the Sundaic lowlands—biologically one of the most diverse biomes of the world—has proceeded at catastrophic speed in the past few decades, seriously compromising the future of every one of the uncountable multitude of primary-forest life-forms in the region, including that of this particular species (e.g. Paitan, now completely logged: O'Brien *et al.* 1998b), even inside key protected areas (for an outline of the crisis, see Threats under Crestless Fireback *Lophura erythrophthalma*).

It is probably the peacock-pheasant and the wren-babbler which are most disadvantaged by habitat loss, since they appear the least able to disperse through inappropriate habitat to exchange genes with other populations; and the peacock-pheasant is the more disadvantaged of the two for living at such exceptionally low densities (but see Measures Proposed), which means that the increasing isolation of populations through deforestation could seriously inflate the risks accruing to the species from hunting, trade, stochastic events and inbreeding.

Several areas in Kalimantan from which the species has recently been recorded are under threat. Along the Marikoi river there is both logging and shifting cultivation, with a timber concession soon to become active; at Ma'au there is illegal logging and a newly constructed logging road; Nangapinoh has been for at least three years in an active logging concession area; and Sungai Wain Nature Reserve was badly damaged by fire in the past five years (Sözer *et al.* ms a).

**Hunting** Apart from habitat loss through logging, hunting with snares (increasingly to supply meat to logging camps) is the other primary threat to the species; this is certainly true in Central Kalimantan (O'Brien *et al.* 1998b; also McGowan and Garson 1995). While local consumption of ground-dwelling birds as bushmeat is likely to be sustainable, trapping to supply logging teams represents a serious danger, as this is no longer a subsistence but rather a commercial issue (Sözer *et al.* ms a).

**Trade** In the late 1990s field investigations resulted in the discovery of an organised illegal trade in the Bornean Peacock-pheasant, with as many as 14 birds being trapped within the Pt Erna Timber Concession in West Kalimantan, December 1997–August 1998, and sold to a trader in Jakarta, and with five birds trapped north-north-west of Danau Sentarum National Park, March 1998–August 1999, and again sold to a trader in Jakarta (Sözer *et al.* ms a). A report to TRAFFIC-Southeast Asia (possibly partly derived from the foregoing) indicated that at least six birds left Kalimantan for Singapore during 1998, apparently intended for captive breeding purposes in Singapore or the USA (C. R. Shepherd *in litt.* 2000). Wild-caught birds do not survive well in captivity, with high mortality in the process of capture and trade (R. Sözer *per* R. F. A. Grimmett *in litt.* 2000).

**Disease** It appears that *Polyplectron* pheasants are rather susceptible to poultry diseases, and it is feared that *schleiermacheri* may suffer local extinctions as farmers at the forest edge give their chickens free range in adjacent areas (Sözer *et al.* ms a).

**MEASURES TAKEN** The species was protected under Indonesian law in 1979 (van Balen and Holmes 1993), and under Sarawak law in 1990 (Smythies and Davison 1999). In 1995 it was placed on Appendix II of CITES, and enjoyed protected status in Kalimantan (under the name *P. malacense*) and Sarawak (McGowan and Garson 1995). However, as with Storm's Stork *Ciconia stormi*, the upgrading of the taxon *schleiermacheri* to species level means that only Malaysian Peacock-pheasant *P. malacense sensu stricto*, which does not occur in Indonesia, is on Indonesia's list of protected species, so that Bornean Peacock-pheasant is left with no formal protection (R. Sözer *in litt.* 1999). A questionnaire and interview survey of parts of Central Kalimantan in July–November 1996 (O'Brien *et al.* 1998b) was a response to a general recommendation in McGowan and Garson (1995).

The only real conservation this species has experienced is, however, through protected areas (in which category “forest reserves” do not fall). This species was recently determined as present in no protected areas (McGowan *et al.* 1999). However, it has now been recorded in Sungai Wain Nature Reserve, Danau Sentarum National Park and near if not within Bukit Baka–Bukit Raya National Park, all in Kalimantan (see Distribution).

**MEASURES PROPOSED** Urgent concerted survey of and conservation effort for major tracts of extreme lowland primary forest in the Sundaic region is called for in the equivalent section under Crestless Fireback.

**Surveys** Searches for the species throughout Borneo can now be conducted with the advantage of tape-recordings of certain distinctive calls from captive birds (Sözer *et al.* ms a). Such work is clearly needed in the Ulu Tongod reserve and along the Sukau river, Sabah (see also below). In Sarawak the upper Rejang (indicated as an area for the species by local people) was, in 1965, “a vast uninhabited jungle” (Harrisson 1965), and it is important to determine the current status of habitat there. Surveys are also needed in other areas where the species has been recorded or might be likely to occur, including Batang Ai National Park (see Distribution), Gunung Palung National Park in West Kalimantan, and the Danum Valley Conservation Area and Tabin Wildlife Reserve (but see Threats under Blue-headed Pitta) in Sabah (McGowan and Garson 1995). More recently, for Kalimantan alone it has been speculated that the species might be present in (*East*) Kutai National Park; (*Central*) the entire area between 1°N and 2°S; (*South*) the Meratus range; the Pleihari Martapura Nature Reserve (but see Threats under Black-browed Babbler *Malacocincla perspicillata*); (*West*) Gunung Niut Nature Reserve; Gunung Kenepai; the area east of Sintang and south of Putussibau; the Berangin–Saran–Rangga mountain complex south of Sintang; and (again) Gunung Palung (Sözer *et al.* ms a). Moreover, the 17 clusters of sites identified in the last paragraph under Distribution by Sözer *et al.* (ms a) require systematic investigation by fieldworkers also addressing the conservation needs of the entire Bornean suite of species confined to extreme lowland dipterocarp forest in the Sundaic region (for birds see Threats under Crestless Fireback).

**Ecological studies** There is a crucial need to understand the resource partitioning that exists between this species and other galliforms in Borneo, particularly as so many of the others are threatened or Near Threatened. A clear understanding of the way these sympatric species use habitats and food resources will help assure their conservation through confident decisions on their management. Moreover, it seems very likely that in areas of optimum habitat each species will prove to be commoner than the overall evidence suggests (the fact that at least 10 specimens of Bornean Peacock-pheasant were taken at Paitan, Sabah, apparently in two months, or that 14 birds were trapped for trade in eight months at Nangapinoh, Kalimantan, suggests that the species may be patchily common, i.e. that it has some quite specific niche). Therefore a dedicated research programme is needed to investigate ecological niches at one or two sites which are known to hold the complement of relevant galliforms.

**New protected areas** There is a proposal to create a major protected area in the Sebuku-Sembakung region of East Kalimantan, adjacent to the frontier with Sabah, and the Bornean Peacock-pheasant has been predicted to be present there (Momborg *et al.* 1998). The inclusion of the proposed extension of the Bukit Raya National Park would increase the area of protected lowland forest in Central Kalimantan by 7,590 km<sup>2</sup>, a factor of 10 (O’Brien *et al.* 1998b).

**Protection within concessions** A requirement that logging companies actively enforce the existing legal ban on hunting within their concessions would help contain the current pressure on the species (O’Brien *et al.* 1998b, R. Sözer *in litt.* 2000).

**Captive breeding (and control of trade)** It has been asserted that the species (which has never been represented in avicultural collections or bred in captivity) has no need of captive



breeding, which might in fact be counter-productive by stimulating the market (O'Brien *et al.* 1998b), and it is certainly the case that no captive breeding is needed to produce birds for re-introduction, since what is needed is habitat conservation (R. F. A. Grimmett *in litt.* 2000). The evidence above strongly suggests that the species is by no means as terminally at risk as may have been feared, and that therefore any breeding scheme would waste precisely as much as it costs; and it would almost certainly cost a great deal, in terms of time, money and most importantly birds (Sözer *et al.* ms a). However, it is possible that, as with some other pheasants, from a very small stock a large number of offspring could be bred which would quickly glut (not create) the very small and specialised market, and which would therefore have the effect of eliminating the current trade threat (Sözer *et al.* ms a). Naturally, broad agreement over and understanding of any such proposal would be required before it could be implemented; it could be done as a commercial venture, thus requiring no input of conservation money, but would still need to be regulated to ensure no “laundering” of wild-caught birds took place (R. F. A. Grimmett *in litt.* 2000).

**REMARKS** (1) The treatment of this species as a subspecies of Malaysian Peacock-pheasant *Polyplectron malacense* (e.g. Delacour 1977; hence Collar and Andrew 1988) has masked its real morphological distinctiveness (which also applies to chicks: R. Sözer *in litt.* 2000; and for voice see Remarks 2). There is now widespread agreement that it should possess species status (e.g. Johnsgard 1986, Sibley and Monroe 1990, Collar *et al.* 1994, McGowan and Garson 1995).

(2) Several records involve calls heard which sounded exactly like Malaysian Peacock-pheasant, with which Bornean Peacock-pheasant used to be lumped, and which therefore understandably caused the observers (familiar with *P. malacense*) to assume to have been given by *P. schleiermacheri*. In December 1991 a call was heard at Sungai Pawan, between Sandai and Nangatayap (about 20 km from the eastern boundary of Gunung Palung National Park), West Kalimantan (Holmes 1982, 1989, Holmes and Burton 1987); and in August 1998 a call was heard close to the Borneo Rainforest Lodge in Danum Valley, Sabah (J. Corder *in litt.* 1999). However, it transpires that the explosive cackling call of *P. malacense* is very similar to one made by the Stork-billed Kingfisher *Pelargopsis capensis* (independent discovery of this phenomenon was made by B. F. King verbally 1998 and J. M. Lammertink verbally 1999); moreover, eight captive *schleiermacheri* closely monitored over more than two years have never given such a call, merely a harsh loud double *cack-cack* (R. Sözer *in litt.* 2000).

(3) Both the Bario and Kapit (Nanga Gaat) records were treated as confirmed in McGowan and Garson (1995), but as provisional in Smythies and Davison (1999). The Bario record was confirmed by a preserved tail feather definitely belonging to a peacock-pheasant (P. J. K. McGowan *in litt.* 2000). The Nanga Gaat record involved the sighting of a female once in the course of a two-year field study (Z. Dahaban *in litt.* 2000).

(4) Despite apparently being close to Beebe's locality, a record from the Danum–Linau area (Smythies 1981)—this having nothing to do with Danum Valley in Sabah—is not accepted here: it involves testimony from people living at a generally inconsistent elevation, c.300–1,200 m, and seems almost certainly to refer (at least in part) to another species, since Yong (1997) believed that the people questioned by Fogden (1965) had in fact been talking about the Bornean Ground-cuckoo *Carpococcyx radiatus*. Indeed, according to these people, the call is a “deep mournful *hor-hor*” (Fogden 1965; hence Smythies 1981), a description which conforms both with a supposed call (“*koohoo*”) of *Carpococcyx* reported in Davison (1979) and with the onomatopoeic Iban name for the species, *toktor* (D. Yong *in litt.* 1995). Smythies and Davison (1999) were less convinced by this notion, however, and retained the Danum–Linau evidence as certain.

(5) Sözer *et al.* (ms a) regarded some records of their own (or received from others) as provisional, and all are from East Kalimantan, as follows: between Laham and Long Uray

on the south bank of the Mahakam river, 50 m, December 1995; Lebangan on the Ratah river, 75 m, January 1996; and Muara Dason, between the Dason and Jeromai rivers, 150 m, March 1996.

(6) The locality in von Pelzeln (1879) is Banjarmasin, but von Pelzeln (1880) was able to clarify that the collector, Breitenstein, was in fact stationed at Muarateweh, like the previous collector Fischer, and that Muarateweh is at the confluence of the Teweh and Barito. There is, incidentally, a female specimen in NHMW dated 1888 whose locality (evidently in manuscript on the specimen label) was communicated by F. Steinheimer as “Tuoeb”, interpreted here as Teweh. Although some documentary evidence in Vienna may be able to clarify the matter, it is impossible here to be certain whether this is the Teweh river, which meets the Barito river at Muarateweh, or Tewah, which lies just upriver from Kualakurun. Both localities are plausible, since they lie adjacent to confirmed sites for the species; neither is mapped.

(7) This is “Muara Karum” in van Balen and Holmes (1993) and McGowan and Garson (1995), and the record was given the date 1973 in O’Brien *et al.* (1998b).

(8) Despite the enormous value of the fieldwork and the extrapolations that provide the population ranges in this paragraph, the view is taken here that a great deal of caution is appropriate in assessing the status of a species which has proved so extraordinarily difficult to locate for so many explorers and observers. The absence of records from areas where other lowland Bornean endemics have been recorded (see maps for Blue-headed Pitta *Pitta baudii* and Bornean Wren-babbler *Ptilocichla leucogrammica*) suggest a curious patchiness that may indicate a significant constraint on population size. Therefore, pending further evidence, it is here precautionarily assumed that the total global population does not exceed 2,500 mature individuals.