Threatened Birds of Asia:
The BirdLife International Red Data Book

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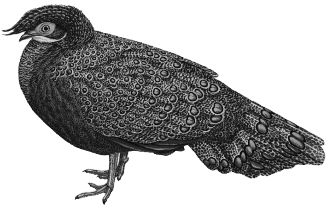
MALAYSIAN PEACOCK-PHEASANT
Polyplectron malacense



Critical □ —
Endangered □ —
Vulnerable ■ A1c; A2c; C1

This species qualifies as Vulnerable because it has undergone a rapid population decline and its small population is becoming increasingly fragmented with progressive erosion of its specialised lowland forest habitat.

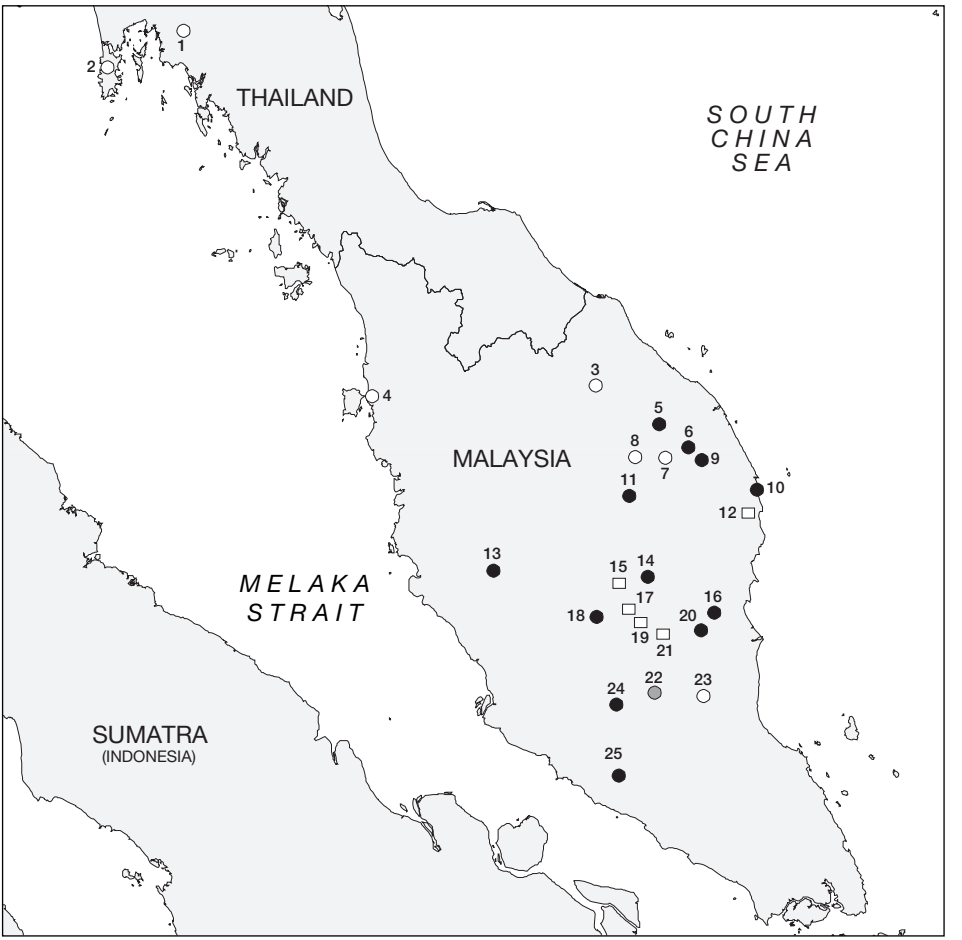
DISTRIBUTION The Malaysian Peacock-pheasant is now known with certainty only from Peninsular Malaysia. There are no confirmed records for Myanmar (Wells 1999; see Remarks 1) and it is almost certainly extinct in Thailand (P. D. Round *in litt*. 1998). The historical northern limit of the species was thought to coincide approximately with the transition from semi-evergreen to deciduous forest in Tenasserim (Taninthayi), Myanmar, around 14°N (Davison and Scriven undated), but with the rejection of all north Thai and Myanmar records this view can no longer stand, and the northernmost confirmed localities lie at around 9°N. A specimen in FMNH is labelled "Sumatra, Indonesia", but all reports of its presence on this island have been refuted (van Maarle and Voous 1988).

■ ***THAILAND*** The species at least historically occurred in forests of peninsular Thailand but judging its exact range is difficult as there are few confirmed records (see Remarks 2). Norapuck (1986) stated that it was "not difficult to find" in southern Thailand around 1970, with repeated captures made around Kien-za, Surat Thani Province, but these records remain unconfirmed. The species still appears from time to time in trade in Thailand and may therefore survive in remote sites (McClure and Chaiyaphun 1971, Davison and Scriven undated). The few confirmed records are as follows: **Khao Phanom Bencha** (Khao Bhanam Bencha), three males and two females, 1936, reportedly from 900 m (Meyer de Schauensee 1946) but doubtless from the lowlands (see Remarks 5 under Gurney's Pitta *Pitta gurneyi*); **Phuket** (Salanga, Tonka), one specimen (as Grey Peacock-pheasant *Polyplectron bicalcaratum*), undated (Müller 1882; also Gyldenstolpe 1920, Medway and Wells 1976); "Pattani States" (not mapped), this referring to all the territory now occupied by Pattani, Yala and Narathiwat provinces (D. R. Wells *in litt*. 2001), undated (Ogilvie-Grant 1906a).

Several unconfirmed records exist, including: Khlong Saeng Wildlife Sanctuary, reported (Nakhasathien 1987b); Tha Chana District, Surat Thani, one bird apparently acquired by a bird trader, January 1987 (P. D. Round *in litt*. 1998; see Remarks 3); Ton Yong, Narathiwat, three birds reported, January 1989 (P. D. Round *in litt*. 1998, see Remarks 4); Hat Chao Mai National Park, Trang, Hat Yong Ling and Hat Yao, one male, minimum of three females and 2–3 chicks reported in July–August 1998 (Mi Ciselet *in litt*. 1999), this record being surprising given the disturbed nature of the forest (bordering a beach), and further searches are deemed necessary to clarify the species's presence in the area (P. D. Round *in litt*. 1999).

■ ***MALAYSIA*** The species is restricted to a few lowland forest blocks in Peninsular Malaysia, as follows: **Sungai Kelantan**, August 1899 (female in UMZC); **mainland Penang** (as "Province Wellesley"), captive individuals (as Grey Peacock-pheasant) regularly on sale, 1884–1887 (Rickett ms a; also Hume 1879b); **Sungai Petuang**, Terengganu, 150 m, recorded during surveys between 1975 and 1982 (Davison and Scriven undated); **Sungai Kenyir** (Kenyir dam), Terengganu, 1985 (Siti Hawa Yatim 1993); **Sungai Aring** (Sungai Arong), Kelantan, September 1899 (male in UMZC, Bonhote 1901); Sungai Lebeh, here presumed to be **Sungai Lebir**, Kelantan, August 1899 (Bonhote 1901, female in UMZC); **Jerangau Forest Reserve**, June

1998 (G. W. H. Davison *in litt*. 2000); **Bukit Rengit**, Lanchang, 1986 (Siti Hawa Yatim 1993); **Taman Negara National Park**, Pahang/Kelantan, commonly reported from the main trail system around Kuala Tahan (e.g. Davison and Scriven undated, J. Izzard *in litt.* 1990, Siti Hawa Yatim 1993, T. Carlberg, M. Rodgers and B. Wright *in litt*. 1999), also at Kumbang hide (Harrap 1986a, T. Carlberg *in litt*. 1999), Sungai Gagau (Kuala Sungai Gagau) in 1984 and 1992, Kuala Keniam and Kuala Trenggan, 1992 (Siti Hawa Yatim 1993), Bukit Indah and Bumbun Blau, April 1993 (Wartmann 1993), Kuala Koh, May–June 1996 (*Suara Enggang* 1996 4 no.3), Sungai Relau Kuala Jeram area, February 1997 (*Suara Enggang*, February–March 1997), and Kuala Trenggan, June 1998 (T. Carlberg *in litt*. 1999), plus Gunong Tulang



The distribution of Malaysian Peacock-pheasant *Polyplectron malacense*: (1) Khao Phanom Bencha; (2) Phuket; (3) Sungai Kelantan; (4) mainland Penang; (5) Sungai Petuang; (6) Sungai Kenyir; (7) Sungai Aring; (8) Sungai Lebir; (9) Jerangau Forest Reserve; (10) Bukit Rengit; (11) Taman Negara National Park; (12) Padang Siul Forest Reserve; (13) Sungkai Wildlife Reserve; (14) Tekam Forest Reserve; (15) Jerantut; (16) Gambang; (17) Gunung Senyum Forest Reserve; (18) Kerau Wildlife Reserve; (19) Jengka; (20) Lepar Forest Reserve; (21) Bukit Gebuk; (22) Tasek Bera; (23) Sungai Rompin; (24) Pasoh Forest Reserve; (25) Sungai Dusun.

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

Rabong, Kelantan, 200 m, 1975–1982 (Davison and Scriven undated); **Padang Siul Forest Reserve**, undated (Davison and Scriven undated); **Sungkai Wildlife Reserve**, Perak, common, 1987 (Siti Hawa Yatim 1993); unspecified localities on the Pahang river, undated (Beebe 1918–1922); **Tekam Forest Reserve** (Sungai Tikham; Sungai Tekam Forestry Concession), Pahang, "half-way down the Pahang river, over the divide in Pahang itself", present in "fair numbers", undated (Beebe 1918–1922), April 1979–June 1981, prior to but not after logging (Johns 1986; also Davison and Scriven undated), this area now apparently cleared of forest (Wells 1999); **Jerantut**/Maran, undated (Siti Hawa Yatim 1993); **Gambang**, Pahang, 1987 (Siti Hawa Yatim 1993); **Gunung Senyum Forest Reserve**, undated (Siti Hawa Yatim 1993); **Kerau** (Krau) **Wildlife Reserve**, Pahang, at Kerau river, October–November 1913 (Robinson and Kloss 1915, specimen in NRM and ZRCNUS), at Gunung Benom, lower slope, undated (Davison and Scriven undated), and at Kuala Lompat, 50 m, recorded during surveys in 1975–1982 (Davison and Scriven undated), with two nests found in low-lying forest at this site, March and April 1981 (Wells 1986), another female found incubating in August 1984 (Wells 1990b), 1985 (Siti Hawa Yatim 1993), with sightings also at Kuala Cenderoh (Senderoh), c.7 km west of Kuala Lompat, 50 m, 1975–1982 (Davison and Scriven undated); **Jengka**, undated (Siti Hawa Yatim 1993); Ulu Lepar (Lepar headwaters), Pahang, 1985 (Siti Hawa Yatim 1993), and in this region at **Lepar Forest Reserve** (Lepar Hilir), 1987 (Siti Hawa Yatim 1993) and **Bukit Gebuk**, undated (Siti Hawa Yatim 1993); near Fort Iskandar, in region of **Tasek Bera**, Pahang, December 1962 (Medway and Wells 1963); **Sungai Rompin**, Pahang, adult male, June 1902 (Riley 1938); **Pasoh Forest Reserve**, Negri Sembilan, one caught in regenerating forest, regularly recorded at around 50 m, 1975–1982 (Davison and Scriven undated), June 1978–May 1980 (Wong 1985), and subsequently seen by many observers (e.g. Harrap 1986a, B. Wright *in litt*. 1999); **Sungai Dusun** (Dasun), thus within Sungai Dusun Wildlife Reserve, Selangor, 1983 (Siti Hawa Yatim 1993); Cheras (not mapped), Ulu Langat, September 1908 (Morioka and Yang 1996); Larut (not mapped), Perak, September 1918 (Morioka and Yang 1996); Pondok Tanjong Forest Reserve (not mapped), August 1926 (Morioka and Yang 1996); Rawang (not mapped), Selangor, July 1912 (Morioka and Yang 1996); Ulu Jelebu (not mapped), Negri Sembilan, August 1908 (Morioka and Yang 1996).

An untraced locality is Batu Sawar, listed without details by Siti Hawa Yatim (1993). An unconfirmed record stems from Bukit Tunku, April 1994 (Hope 1997 *per* M. Kohler *in litt*. 1999), thought to be inaccurate given that the site contains secondary scrub on a small hill in suburban Kuala Lumpur (G. W. H. Davison *in litt*. 2000).

POPULATION The species is local and sparse to more or less common (Wells 1999). It was previously found in forest from southern Peninsular Thailand and through most of Peninsular Malaysia, but is now probably extinct in the former (Round 1988a) and found in only a few forest blocks in the latter (Wells 1999). Despite the persistence of large numbers at a few sites, the overall population must have declined enormously with the loss of lowland forest in the Thai-Malay peninsula.

Thailand Earlier this century the species was speculated to be possibly "quite common" in Pattani (Robinson and Kloss 1921–1924). After no confirmed records for over a decade (Wells 1999)—although none after 1936 was found in this study—it is either actually or very nearly extinct (P. D. Round *in litt*. 1998).

Malaysia Given that the species does not appear to be evenly distributed through all available lowland forest (McGowan 1994), the area it actually occupies is likely to be smaller than the amount of lowland forest in its range. For instance, it was not recorded during a long-term census of Sungai Kinchin, southernmost Pahang, up to July 1989, although habitat appeared superficially ideal (Wells 1990d). As lowland forest is still being logged in Peninsular Malaysia (see Threats) it may only survive in a few well-protected areas within its range,

such as Taman Negara, Pasoh Forest Reserve and the Kerau Wildlife Reserve. It is not known whether the populations are fragmented within these areas or if indeed they are viable (McGowan and Gillman 1997, McGowan *et al*. 1999). However, less than a decade ago the species was described as "common" at a long list of sites by Siti Hawa Yatim (1993), and this certainly seems to be true at Taman Negara and Pasoh. Population estimates based on calling males gave a mean population density of one male per 3.4 ha at Kuala Lompat, Kerau Wildlife Reserve, although male territories tended to be in clusters (Davison and Scriven undated, Davison 1983a).

ECOLOGY ***Habitat*** The species has been described as an extreme lowland specialist (Wells 1985) whose range does not extend beyond the terrain break at the foot of slopes (Wells 1999). It probably occurs exclusively below 300 m (or perhaps even 150 m) in Malayasia (McGowan 1993, Johnsgard 1999), although it has been reported locally from "small hills" (Wells 1999). It shows a strong preference for mature primary and secondary dipterocarp forest on level, low-lying and often temporarily wet sites (other than peat-swamp) near streams (Wells 1999), although the presence of rivers is not an important factor (Davison and Scriven undated). It frequents sites with a dense understorey, typically rich in small palms (*Iguanura*, *Pinanga*, etc.), Maranthaceae and other monocots (Davison 1983a). Surveys of 37 sites in Peninsular Malaysia found this pheasant restricted to level or gently sloping ground; indeed, where this adjoined steep slopes the cut-off point in the species's distribution matched the change in topography, and at the steepest site birds tended to frequent narrow valleys between hills rather than the hills themselves (Davison and Scriven undated). All records were from lowland dipterocarp forest and the species was equally abundant in logged forest (Pasoh II, 10.5 males/km^2) and unlogged forest (Pasoh I, 11.6 males/km^2); it was absent from both gelam forest over alluvial riverine terraces and extensive areas of gently sloping ground with shale and lateritic soils (Davison and Scriven undated).

The species is unevenly distributed throughout available lowland forest in Malaysia and it is not yet clear how, or indeed whether, its range is determined by habitat characteristics (McGowan 1994). However, riverine areas are apparently not used for calling, a fact that may be related to an increased diversity of microhabitats away from rivers (McGowan 1994). Calling areas tended to be clustered around sites rich in palms (both in terms of species and individuals) but poor in small-girth trees, ground flora, pandanus and termite mounds (McGowan 1994). It is speculated that variable vegetation type in a small area allows access to a wider array of food items during calling seasons, and thus populations might be denser where the habitat is variable (McGowan 1994). Radio-tracking data suggested that females occupy a core area within a fairly small home range while males range much more widely and do not utilise a core area except when calling (McGowan 1991). In favoured habitat, the several hectares occupied by adult males include some space defended by threat and aggression (Davison 1983a). Adults roost alone on slender, 1–2 cm thick horizontal branches or climbers 4–6 m above the ground, moving site from night to night (Wells 1999). Although Beebe (1918–1922) reported encountering the species in pairs, with five birds seen together on one occasion, subsequent observations suggest that the species is generally solitary (Robinson and Chasen 1936); 51 of 55 sightings at Pasoh related to single individuals (Davison 1983a).

Food Dietary information is scant, but the common foraging technique involves digging (or rather scratching with the feet) in leaf-litter, implying that birds are seeking hidden invertebrates (Wells 1999) and possibly seeds. Beebe (1918–1922) reportedly shot two birds that he had watched apparently eating land snails from their shells, but an inspection of their crop proved that they had been taking fly larvae and their pupae that had themselves fed on the dead molluscs. This type of behaviour has, however, not been confirmed in many hours of subsequent observation (G. W. H. Davison *in litt*. 2000). Calling rates and the number of scrapes maintained are apparently higher in mast–fruiting years, when invertebrate levels

increase, suggesting that both sexes are limited in their reproductive output by food supply (Davison 1983a).

Breeding The mating system is polygynous, adult males (and perhaps only a proportion of these) clearing display arenas, or scrapes, at which they display to visiting females (Davison 1983a,b, Wells 1999). Calling stations appear to be clustered, with scrapes maintained within these clusters (McGowan 1994), sometimes for successive seasons (Johnsgard 1999). The few recorded visits of females to calling arenas have been to males spending much time at their scrapes and calling persistently; in general the only interaction between the sexes appears to be brief and in the vicinity of these scrapes (Davison 1983a). Occasional pairs encountered away from scrapes suggests a possible alternative strategy in which some matings are obtained by males without scrapes, or that pair associations are sometimes more prolonged (Davison 1983a). In 24 months in the field at Kuala Lompat there were four calling periods, each lasting less than a month; thus, if one calling period equates to one breeding attempt, the species presumably breeds twice a year (McGowan 1994). However, there is no direct evidence that calling and breeding are linked. Eggs have been found on 15 March, 8 April and 4 and (abandoned) 28 August (Wells 1999). Four nests at Kuala Lompat are the only ones recorded in the wild (Wells 1986, 1999). One hen was nearly enclosed by overlying leaves as she incubated in a slight hollow on top of a 1.4 m high weathered *Macrotermes* termitarium, while two others were found nesting on the open ground among dead leaves (Wells 1986, 1999); a fourth was found incubating against a recently fallen tree-trunk in August 1984 (Wells 1990b, 1999). All four nests contained single-egg clutches, a statistic corroborated by data from captive pairs; this is the only pheasant species known to lay a single-egg clutch (McGowan 1994), with the possible exception of the Bornean Peacock-pheasant *P. schleiermacheri* (Johnsgard 1999). Incubation apparently lasts 22–23 days in captivity (Bruning 1977, 1983 in Johnsgard 1999), or 25 days (Wells 1999). A captive male chick erupted flight feathers six days after hatching and flew after 23 days (Wells 1999). The fact that as many as 44% of the males stored in BMNH collection are in less than fully adult plumage suggests that maturity is deferred or delayed (Wells 1999). One female in captivity laid her first egg when only eight months old (Bruning 1977, 1983 in Johnsgard 1999).

Migration Although females are apparently more mobile than males (Davison 1983a), the species is essentially resident (Johnsgard 1999, Wells 1999).

THREATS ***Habitat loss*** The population in Thailand was probably never large, and massive reductions in the area of forest available must have had a severely deleterious impact (Ngampongsai 1986, Round 1988a). An overview of deforestation in the lowlands of peninsular Thailand is in the equivalent section under Gurney's Pitta *Pitta gurneyi*. McGowan and Gillman (1997), in their review of South-East Asian galliform distributions, found that this species is currently only known from 54% of historic localities (although they apparently included Myanmar records). Furthermore, forest cover in Peninsular Malaysia had fallen from 90% at the end of the nineteenth century to an estimated 43% by 1990 (Collins *et al*. 1991). The impact has been especially acute in the level lowlands (Davison 1981b), such that the avifauna of this area is considered to be the most seriously threatened bird community in the Sunda subregion (Wells 1985); see the equivalent section under Crestless Fireback *Lophura erythrophthalma*. As the Malayan Peacock-pheasant is essentially confined to this area, the reduction in available habitat is estimated to be the largest for any South-East Asian galliform, and a source of serious concern (Davison 1981b, McGowan and Gillman 1997). There is no certainty that suitable habitat will be maintained for any purpose on the plains, and the species is apparently destined to rely on small patches of habitat in protected areas (Wells 1999). Although Davison and Scriven (undated) found it equally commonly in pristine and lightly logged forest, Johns (1986) recorded it (albeit in less than 0.5% of sample) in primary forest prior to selective logging at Sungai Tekam, but not subsequently (April 1979–June

1981). The suggestion is that, while this pheasant can tolerate a small degree of habitat disturbance in some areas, it is nevertheless susceptible to local extinction even if logging is moderate.

Hunting and trade Ngampongsai (1986) listed the species amongst those adversely affected by overhunting in Thailand. It is occasionally traded (e.g. seven birds were counted in Bangkok Sunday Market between 1967 and 1969: McClure and Chaiyaphun 1971). Hunting for food, sport and the bird trade presumably contributed to its probable extinction in Thailand (Round 1988a). Davison and Scriven's (undated) review of 37 Malaysian sites detected this species in areas with and without hunting, suggesting that it was not particularly sought after by hunters, although it is highly susceptible to snaring. It has nevertheless been speculated that its absence from superficially ideal habitat at Sungai Kinchin, Pahang, might be due to the former occupation of the valley by indigenous people (Wells 1990d).

MEASURES TAKEN The species is listed on CITES Appendix II.

Thailand None is known, although several protected areas have been established in peninsular Thailand that may support populations of the species (e.g. Hala Bala Wildlife Sanctuary).

Malaysia The species has recently been determined present at five protected areas, of which Kerau Wildlife Reserve (520 km^2) and Taman Negara National Park (4,343 km^2) are considered irreplaceably important for the long-term protection of East Asian galliforms; the third is Pasoh Forest Reserve (McGowan *et al*. 1999). In the account above it is also recorded from Sungkai Wildlife Reserve (25 km^2), Ulu Lepar Wildlife Reserve (40 km^2) and Sungai Dusun Wildlife Sanctuary (43 km^2); its presence in forest reserves (e.g. Padang Siul and Gunung Senyum) is of little importance as these areas are reserved for logging rather than conservation. A Galliforms Committee has been set up to coordinate all *in situ* and *ex situ* conservation initiatives in Malaysia, with plans for analysis of DNA samples, field surveys and experimental re-introduction projects (*Tragopan* 11: 5).

MEASURES PROPOSED ***Habitat conservation*** Strict protection for all reserves supporting populations of this species is an obvious priority, but the preservation of as much remaining lowland forest currently outside reserves is no less urgently to be wished for (see equivalent section under Crestless Fireback).

Research Forest in southern Thailand should be thoroughly surveyed to determine the current status of the species in the area. In Malaysia, the long-term viability of existing populations should be estimated; in particular, distribution and status in key protected areas (such as Taman Negara National Park and Kerau Wildlife Reserve) should be established (P. J. K. McGowan *in litt*. 1999). Furthermore, habitat analyses should be attempted when undertaking distribution surveys in key protected areas, including sites such as Endau-Rompin where the absence of Malaysian Peacock-pheasants appears odd: these data would allow a more accurate appraisal of habitat trends underlying distribution patterns throughout its range, information of use in the formulation of effective management proposals (P. J. K. McGowan *in litt*. 1999). Field surveys should make use of the distinctive calls of the species, described by Davison (1983a) as a short two-note whistle given every minute or so for half-hour bouts, a rasping *tchorr* repeated every few seconds for up to three minutes, and an explosive cackle running into a prolonged series of low clucks. Although females are thought perhaps to be silent (Davison 1983a, Wells 1999), captive hens have been heard giving a similar, if less emphatic, cackle (McGowan 1991).

Captive breeding and re-introductions A studbook is maintained by WCS with a view to potential future re-introductions into areas where the species has disappeared. Translocation from existing wild populations might be preferable; however, high mortality on previous trapping projects suggests that the Malaysian Wildlife Department may not agree (G. Robbins

in litt. 1999). The habitat at Sungai Kinchin, Pahang, is superficially ideal for the species and, for this reason, Wells (1990d) proposed the site for future re-introduction or translocation schemes. However, McGowan's work (1993, 1994) on the ecology of the species suggests that its habitat preferences are complex and areas known to have once supported populations should be considered first.

REMARKS (1) The presence of this species in the evergreen forests of extreme southern Tenasserim, Myanmar (Smythies 1986), is apparently based on a female and clutch of two eggs received by Baker (1921–1930, 1922–1930), the former of which has disappeared, while descriptions of the latter more closely resemble Grey Peacock-pheasant *Polyplectron bicalcaratum* eggs (Wells 1999). A further record reported by Smith (1942) of two birds shot in Tavoy district (Dawe), February 1925, was also presumably mistaken. Reports that this species occurred historically in Pakchan Reserved Forest, and may perhaps still survive there (FAO 1983), presumably rest on these earlier misidentifications. (2) A c.1914 Gyldenstolpe (1916) *P. malacense* specimen from Khun Tan (Koon Tan), north Thailand, evidently refers to *bicalcaratum* as the author specifically mentioned outer rectrices with ocelli on both webs (Robinson and Kloss 1921–1924, Riley 1938). Historical records from Ratburi and Petchaburi provinces (Gairdner 1914) are also the result of misidentifications (Robinson and Kloss 1921–1924, Riley 1938). In addition, a bird listed from Nakhon Si Thammarat (Riley 1938) has been re-identified as a Grey Peacock-pheasant collected at a site further north on the Thailand–Tenasserim divide (Wells 1999). (3) This was the site of the last extensive remnant of lowland forest in peninsular Thailand, estimated at 910 km^2 in 1985 (Round 1988a), although it had been almost entirely devastated by January 1987 (P. D. Round *in litt*. 1998). Although Tha Chana was perhaps the northernmost site for *P. malacense* in Thailand, it should be noted that E. G. Herbert collected Grey Peacock-pheasants as far south as the next province north (Chumphon province; at c.10°40′N), so there is an outside possibility of confusion with that species (P. D. Round *in litt*. 2000). (4) Although a small tract of forest still exists at Ton Yong, this is the site of a Royal Palace and it seems likely that these three birds (which have not been unequivocally confirmed as *malacense*) had been donated and then released (P. D. Round *in litt*. 1998).