

## EDWARDS'S PHEASANT

### *Lophura edwardsi*

Critical  —

Endangered  B1+2b,c,d,e; C1; C2a

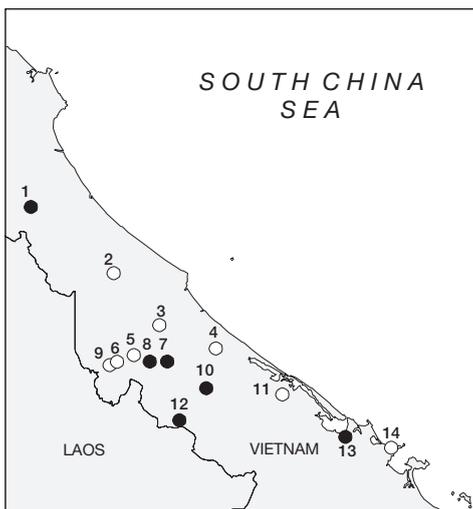
Vulnerable  A1c,d; A2c,d; D1



*This pheasant is classified as Endangered because it has a very small, severely fragmented range and population that are both continuing to decline, primarily owing to lowland deforestation. However, if habitat loss and hunting continue to operate, it may warrant upgrading to Critical in the very near future.*

**DISTRIBUTION** Edwards's Pheasant (see Remarks 1 under Vietnamese Pheasant *Lophura hatinhensis*) is restricted to forest in three provinces in central Vietnam on the eastern flank of the Annamite mountains. Initial attempts to relocate this species in Quang Tri and Thua Thien provinces were unsuccessful and most historical collecting localities were found no longer to support suitable habitat (Eames *et al.* 1992, Robson *et al.* 1993). However, more detailed information has subsequently come to light, and given recent records, the minimum current range of the species is c.2,000 km<sup>2</sup> (A. W. Tordoff *in litt.* 2000). Records, arranged approximately from north to south, are as follows:

■ **VIETNAM** in the west of **Bao Ninh** district, Quang Binh province, near to the Ke Bang limestone area, juvenile male collected, 1998 or 1999 (Do Tuoc *per* J. C. Eames *in litt.* 1999); **Vinh Linh**, Quang Tri, one male, 1922 (P. Jabouille's notebook, in Ciarpaglini and Hennache 1994); **Cam Lo**, Quang Tri, December 1923 and March 1924 (one male, one female in BMNH); **Hai Lang**, Quang Tri, two individuals, 1922 (P. Jabouille's notebook, in Ciarpaglini and Hennache 1994); **Mai Lanh** (possibly "Hai Lang"), Quang Tri, May 1924 (two males in MNHN), July 1925 or 1929 (one male in MNHN); **Lang Khoai** village, Quang Tri, November 1925, November 1929 (one male in AMNH, two males in BMNH); **Ba Long valley**, Ba Long commune, Dakrong district, Quang Tri, 50–300 m, four trapped by local hunters, December 1997 (Le Trong Trai *et al.* 1999); **Dong Che** area, Dakrong district, Quang Tri, two trapped



#### The distribution of Edwards's Pheasant

***Lophura edwardsi***: (1) Bao Ninh; (2) Vinh Linh; (3) Cam Lo; (4) Hai Lang; (5) Mai Lanh; (6) Lang Khoai; (7) Ba Long valley; (8) Dong Che; (9) Huong Hoa; (10) Phong My; (11) Hue; (12) Kreng; (13) Loc Dien commune; (14) Hai Van.

○ Historical (pre-1950) ● Recent (1980–present)

by local hunters, who reported seeing a flock of 8–10, 1997/1998 (Le Trong Trai *et al.* 1999); **Huong Hoa**, Quang Tri, February 1924 (one male in MNHN), presumed the same as Huong Hou, November 1923 (one male in BMNH); **Phong My** commune, at Lau stream near Hien Bac village, Phong Dien district, Thua Thien Hue, male and female trapped by hunters, August 1996, both birds later dying and retained at the headquarters of Bach Ma National Park (Nguyen Cu *in litt.* 1997, Eames and Tordoff *in prep.*), another male apparently being trapped and released in the same place, October 1996 (*Tragopan* 6: 2); two males, one female and four eggs taken by rattan collectors along the My Chanh river (unmapped), March 2000, one male held in captivity at Hai Lang District Forest Protection Department (A. W. Tordoff verbally 2000); c.50 km north-west of **Hue**, Quang Tri, several individuals collected, 1895 (Delacour 1977), and c.30 km north of Hue, 1895 (Oustalet 1898, Delacour 1977), January 1925 (one male in BMNH), April 1925 or 1926 (specimen in MNHN), December 1925 (one male in MCZ), December 1927 (one male in MNHN), May 1928 (one male in FMNH); **Kreng** village, Huong Hiep commune, Dakrong district, Quang Tri, one male trapped by hunters, December 1996, transferred to Hanoi Zoo (Eames 1997a); **Loc Dien commune**, Phu Loc district, 1 km north-east of the buffer zone of Bach Ma National Park, Thua Thien Hue, one individual captured, May 1998 (Nguyen Van Keo 2000); **Hai Van** pass (Col des Nuages), Thua Thien Hue, one male observed flying over a road at the top (no great elevation—JAT) of the pass, 1924 (Delacour and Jabouille 1925), 1935 (one female in BMNH); “Thuy Ba” or “Thay Ba” (untraced), 1929 (one female in AMNH).

There is one unconfirmed locality: A Sau valley, A Luoi district, reported (although no material evidence provided) by tribesmen around Ke and Ka Kou villages, near Pass 41, 550 m, c.1985 (Robson *et al.* 1989, 1993). Faifoo was mentioned in Nguyen Cu and Eames (1993) as a Delacour site, leading to the suggestion that, since this was the old name for Hoi An, a trading port on the coast of Quang Nam province, specimens could have been bought from traders after being captured elsewhere in central Vietnam (A. W. Tordoff *in litt.* 2000). Indeed, since Delacour and Jabouille (1925) stated that the species is found “in the three provinces of Faifo, Thuathien (Hué) and Quangtri”, it may be that early records originated from the interior of Quang Nam.

**POPULATION** This pheasant was historically collected in at least eight localities and thought to be “fairly common” around Hue and Da Nang (Tourane). Indeed, the fact that 10 skins and 22 live specimens were snared in this region during an early collecting trip (Delacour 1977, Delacour and Jabouille 1925, 1927a, 1931) implies that this judgement was accurate. However, the species was described as “not common” in its limited range in central Annam (Delacour *et al.* 1928). At some sites, “dozens” were apparently caught by local trappers, while only two were observed in the field during several months’ collecting (Delacour 1977). In 1922, P. Jabouille stated in a notebook that “the natives consider them as rare as *Rheinardtius* [sic] *ocellatus*” (Ciarpaglini and Hennache 1994), although as the Crested Argus can be quite common this statement is difficult to interpret. In 1923, 22 individuals were snared in the “back hills” of Quang Tri province (Delacour 1977). When B. Björkegren collected around Thua Luu in 1938 he failed to encounter any Edwards’s Pheasant, suggesting that the species had already declined since Delacour’s expeditions a decade earlier; the Thua Luu region is now devoid of all suitable habitat (Eames and Ericson 1996).

The species went unrecorded from the 1920s to the 1990s. Eames *et al.* (1992) considered it extinct, and Assink (1995) announced that “we can be sure [it] only exists in captivity.” Shortly afterwards, it was rediscovered in Thua Thien Hue province (see Distribution). Since then, at least 10 individuals are known to have been captured by hunters in Phong Dien and Dakrong districts of Quang Tri and Thua Thien Hue provinces between August 1996 and the beginning of 1998 (Le Trong Trai *et al.* 1999), and it has recently been discovered in Bao Ninh district of Quang Binh province (J. C. Eames *in litt.* 1999) and Phu Loc district of Thua

Thien Hue province (Nguyen Van Keo 2000). It remains, nonetheless, extremely rare, and has undoubtedly suffered a major decline owing to deforestation in its limited range (Nguyen Cu *in litt.* 1997). The wild population was estimated at under 1,000 individuals on the basis of the extent of remaining habitat (McGowan *et al.* 1994), although recent evidence of 10 birds captured between August 1996 and early 1998 from Phong Dien and Dakrong districts suggests the species cannot be too rare in this area, and the total population is certainly likely to exceed 100 individuals (A. W. Tordoff *in litt.* 2000).

**Captivity** The species breeds well in captivity, and the captive collection stood at 690 birds in 1982 (Howman 1985), 734 in 1996 (Hennache 1997), and, currently, upwards of 1,000, although some of these contain genes from Swinhoe's Pheasant *Lophura swinhoei* (Hennache *et al.* 1998). This stock may derive from c.28 individuals, since these are the only ones documented as being exported from Vietnam, all between 1924 and 1930, and all going to France, England and Japan (Ciarpaglini and Hennache 1994).

**ECOLOGY Habitat** The species is reported to prefer "exceedingly damp forests of the mountains at low and moderate altitudes", and to be extremely wary, seldom leaving the "thick underbrush and liana-covered hillsides" (Delacour 1977). A few patches of tropical montane evergreen forest survive in the A Sau valley between 500 and 1,000 m (MacKinnon and MacKinnon 1986, Robson *et al.* 1989), but most good-quality habitat is above the presumed upper altitudinal limit of this species, given as 900 m by Delacour (1977) but previously estimated at 600 m (Delacour and Jabouille 1931). All collecting localities were in the flat forested lowlands and there is no definite evidence to support Delacour's belief that the species occurs at higher altitudes (Eames *et al.* 1992, Lambert *et al.* 1994). The individual captured in 1998 in Loc Dien commune was found at c.300 m in "regenerating forest with many scattered shrub trees and creepers" (Nguyen Van Keo 2000). A male hatched in captivity survived 22 years (DMNH label data).

**Food** Nothing is known about the diet of this species in the wild.

**Breeding** A very young juvenile was collected on 15 April 1925 or 1926 at Hue (specimen in MNHN). All other information derives from observations of captive birds. Eggs tend to be laid between March and May; the first clutch recorded comprised five eggs that took 21 days to hatch; as a rule individuals breed only after they are two years old (Delacour 1977).

**THREATS** Edwards's Pheasant is one of two threatened members of the suite of (now) four bird species that are entirely restricted to the "Annamese Lowlands Endemic Bird Area", threats and conservation measures in which are profiled by Stattersfield *et al.* (1998). In common with other galliforms endemic to this EBA, the species has presumably declined largely as a result of deforestation; although hunting has been identified as a causative factor in the decline of other galliforms in Vietnam, there are no data to support this assertion for this species (J. C. Eames *in litt.* 1999), but the likelihood seems high.

**Habitat loss** The remaining forests of Vietnam face a variety of threats including commercial logging, firewood collection, charcoal production and the continued clearance of land for cultivation (Nguyen Cu and Eames 1993). An assessment of rates of forest loss throughout Vietnam is in Wege *et al.* (1999) and the relevant section under Crested Argus *Rheinardia ocellata*. Until recently, all historical collecting localities of Edwards's Pheasant were thought to have been denuded of primary forest (Eames *et al.* 1992). While this has not proven to be the case (see Le Trong Trai *et al.* 1999), forest loss in the range of this species has nevertheless been dramatic, and the last forest areas known to support the species are subject to continuing degradation (J. C. Eames *in litt.* 1999). In the past this was caused by heavy use of defoliant during the Vietnam War (Eames *et al.* 1989a,b), but more recently has largely been due to clearance for agriculture (J. C. Eames *in litt.* 1999). For example, the A Sau valley was of strategic importance and suffered heavy herbicide spraying, followed by

clearance for agriculture; forest still remains in this valley but mostly at an altitude considered unsuitable for the species (Robson *et al.* 1989). Similarly, in Bach Ma National Park, low-lying primary forest has been all but destroyed by a combination of herbicide spraying during the Vietnam War, and subsequent logging and clearance for agriculture (Eames *et al.* 1992); logging (at least until 1989) and encroachment by wood-cutters has continued (Robson *et al.* 1991). Lowland forest in Quang Tri and Thua Thien Hue provinces has been significantly reduced by human exploitation and the defoliation of vast tracts during the Vietnam War. Only small fragments now remain, in Phong Dien and Dakrong districts, which are proposed as nature reserves (Le Trong Trai *et al.* 1999). Small-scale cutting of timber is widespread and many locals use the forest for hunting and gathering. Shifting cultivation is still practised in the area (Le Trong Trai *et al.* 1999).

**Hunting** Any populations of Edwards's Pheasant remaining in Bach Ma National Park are likely to be threatened by uncontrolled disturbance by palm and rattan collectors, whose presence has been noted more frequently since 1990, and who often snare terrestrial birds for food (Eames *et al.* 1992). Snaring is indiscriminate, and because it is targeted at the relatively large populations of other ground-dwelling birds, e.g. Red Junglefowl *Gallus gallus*, it continues even when numbers of *Lophura* pheasants have been severely reduced (A. W. Tordoff verbally 2000).

**Competition** If the process of deforestation has forced different *Lophura* species to co-exist within the shrinking tracts of habitat remaining, it is feasible that the least specialised forms or those with any competitive advantage would displace others; thus as the endemic *Lophura* pheasants are likely to be more specialised than Silver Pheasant *L. nycthemera* and Siamese Fireback *L. diardi*, it is possible that they are declining through competition (Eames *et al.* 1994) and conceivably even hybridisation (see, e.g., Remarks 1 under Imperial Pheasant *L. imperialis*). However, all gamebirds are probably snared and hunted to such low population densities that any competitive effects are minimal.

**Captive breeding** There are problems with inbreeding and hybridisation in the captive population (Hennache 1997). The large number of individuals (70–80% of the worldwide stock) kept by private collectors fall outside the current studbook programme owing to language barriers, legislative constraints and the “often self-imposed isolation” of many western breeders (Hennache 1997).

**MEASURES TAKEN** **Legislation** The species is included in the Vietnamese Red Data Book and is listed on CITES Appendix I.

**Protected areas** It is listed as occurring at only one site in a network of protected areas for galliforms in East Asia: Bach Ma National Park (McGowan *et al.* 1999). However, while this protected area lies in the historical range of the species, and although there is a recent record from close by (Nguyen Van Keo 2000), there has not yet been a confirmed record of it within the park boundaries (Nguyen Cu *in litt.* 1997). The BirdLife International Vietnam Programme and the Forest Inventory and Planning Institute, Hanoi, have assessed the feasibility of upgrading 600 km<sup>2</sup> of Phong Dien and Dakrong Watershed Protection Forests to nature reserve status (Le Trong Trai *et al.* 1999). These areas include several of the recent locations where the species has been trapped (Phong My commune, Ba Long valley, Kreng village and Dong Che area), and contain the best example of lowland forest within the Annamese Lowlands EBA: as one of the last refuges for Edwards's Pheasant (Le Trong Trai *et al.* 1999) they are in urgent need of strict protection (Wege *et al.* 1999).

**Research** The first-ever surveys for the species were conducted in 1988 and 1991 by an ICBP/Forest Birds Working Group (Eames *et al.* 1989a,b, Eames *et al.* 1992). In 1996 and 1997 in the Bach Ma National Park area, 500 posters were distributed depicting a male Edwards's Pheasant alongside a plea for information regarding the species's whereabouts (Eve 1997).

**Captive breeding** In 1923, J. Delacour shipped 15 birds to France and bred from four males and three females, and the captive stock has subsequently increased dramatically (Howman 1985). The collection at Hanoi Zoo now contains wild-caught individuals captured in the late 1990s (A. W. Tordoff verbally 2000). A studbook was first developed in the 1960s, and abandoned in the 1970s owing to lack of resources, although efforts were renewed in the 1990s (Hennache 1997).

**MEASURES PROPOSED** **Protected areas** The need for a reserve in the range of this species was highlighted by Nguyen Cu and Eames (1993). Investment (management) plans for the proposed Phong Dien Nature Reserve and adjacent Dakrong Nature Reserve will be completed by BirdLife and FIPI in 2000 (J. C. Eames *in litt.* 1999). The two sites proposed cover 34,406 ha and 35,072 ha respectively, and together would constitute the largest protected area in the Annamese Lowlands EBA (Le Trong Trai *et al.* 1999). They should be established at the earliest opportunity, particularly as they are likely to be the last refuge of this species (Le Trong Trai *et al.* 1999). However, creating viable nature reserves there will not be easy, owing to the high human population living close to the proposed nature reserve boundaries (Le Trong Trai *et al.* 1999). Assessments of five areas that are suggested for inclusion in the nature reserves should be conducted, and their proposed boundaries altered accordingly. The government's ongoing agroforestry programme should be re-oriented toward the establishment of silviculture areas (using native species) as buffer zones, and a number of local people should be hired, trained and equipped to act as guards for the nature reserves; funding and approval should come from the Ministry of Agriculture and Rural Development and the Ministry of Investment and Planning, and more detailed socio-economic and forestry studies of the communities near the proposed protected areas are required (Le Trong Trai *et al.* 1999). According to Timmins *et al.* (1999), the Forest Inventory and Planning Institute (FIPI) is currently preparing a proposal to the Vietnamese government to declare 106,813 ha of the Ke Bang limestone area, along with Phong Nha Nature Reserve, as the Phong Nha-Ke Bang National Park (147,945 ha). However, the Ke Bang area has yet to receive any management or protected area infrastructure, although the WWF Indochina Programme has initiated a project to support the development of the Phong Nha-Ke Bang proposed National Park (Timmins *et al.* 1999). FIPI is also preparing a proposal to the World Heritage Commission to have the Phong Nha-Ke Bang area inscribed as a World Heritage Site (A. W. Tordoff verbally 2000).

**Control of trapping** Forest protection department staff should be charged with removing snares from throughout the range of this species (A. W. Tordoff verbally 2000).

**Captive breeding** Although re-introduction is not an alternative to protecting the species in the wild through direct conservation, it is a useful management tool which can be used with caution in exceptional circumstances (Eames 1996a) and, indeed, was recommended for this species, albeit at a time when it was believed extinct in the wild (Assink 1995). However, given the recent discoveries of wild populations, *in situ* conservation is feasible and re-introduction is currently not necessary (A. W. Tordoff verbally 2000). The view that the captive population, held since the 1920s, may prove too inbred to survive in the wild in areas where hunting and predation are threats (Eames 1996a) is important to consider, although recent evidence that some birds are outbred with Swinhoe's Pheasant (Hennache *et al.* 1998) suggests another problem relating to re-introduction (if re-introduced birds might be expected to come into contact with wild birds).