

# Threatened Birds of Asia:

## The BirdLife International Red Data Book

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## WHITE-EARED NIGHT-HERON

### *Gorsachius magnificus*

Critical ☐ —

Endangered ☒ C1; C2a

Vulnerable ☐ A1c,d; A2c,d; D1



*This poorly known species qualifies as Endangered because it has a small, declining, severely fragmented population as a result of forest clearance and degradation, primarily for timber and conversion to agricultural land.*

**DISTRIBUTION** The White-eared Night-heron is known from the subtropical and tropical regions of south-east China, including Hainan island, and there is a single record from northern Vietnam.

■ **CHINA** The species is known by a few widely scattered records in south-east China, in the provinces and regions of Hubei, Anhui, Zhejiang, Fujian, Guangxi, Guangdong and Hainan. The only records since the 1960s are from Hubei, Guangxi and Guangdong, although there have also been recent sightings of birds “of a similar size and build” in the mountains of Hainan (J. MacKinnon in Kushlan and Hafner 2000). Records (by province and autonomous region) are as follows:

■ **Hubei Shennongjia Nature Reserve**, Fangxian, Xingshan and Badong counties, at Yutouhe reservoir, near Yangri village on the lower Gushui river, five seen and an adult and juvenile collected, May 1993, seven more collected, 1993–1999, old nest found, August 1999, the museum of the Scientific Commission of Shennongjia forest regions having obtained a total of 21 specimens of this species (Hu Hongxin 1999; see Threats); **Chongyang** (Chung Yang), January 1902 (female in BMNH);

■ **Anhui Huoshan** (Hwoshan), collected in May (year unspecified) (Cheng Tso-hsin 1987); “Chinteh” (untraced), on the south bank of the Yangtze, July 1901, two collected and two others seen while coming to roost in high trees, so that “by day they could not be seen” (Styan 1902, two females in BMNH);

■ **Zhejiang Tianmu Shan**, Lin’an county, collected near Chanyuan Temple on west Tianmu Shan, May 1954 (Yu Kuai *et al.* 1983, male and female in FUSCN), July 1957 (female in WUCN), but found during surveys of west Tianmu Shan in the early 1960s (Yu Kuai *per* Gao Yuren *in litt.* 1997);

■ **Fujian Jianyang** (Kianyang), May 1914, March 1915, “said to breed” (La Touche 1917, four specimens in MCZ and AMNH); **Shaowu**, December 1944 (female in ANSP); near **Fuzhou** (Foochow), male collected, October 1911, another seen by local collectors (La Touche 1913), 1913 (male and female in SNHMCN); near **Lingshi Si** (Ling-sioh Monastery), Fuqing county, pair seen, summer 1929, “evidently nesting” in a bamboo forest (Caldwell and Caldwell 1931);

■ **Guangxi Dayao Shan Nature Reserve** (Yaoshan, Yaoschan), Jinxiu county, “extremely rare”, male collected, April 1929 (Yen 1933–1934); **Daming Shan Nature Reserve**, Wuming county, one adult and two young birds, June 1994 (*Oriental Bird Club Bull.* 23 [1996]: 8–9, Fellowes *et al.* in prep.; see Remarks 1); **Xianhu reservoir**, Wuming county, in or near to Daming Shan Nature Reserve, one seen by the reservoir, October 1992 (Zhou Fang 1994; also *Oriental Bird Club Bull.* 23 [1996]: 8–9; see Remarks 2); **Luoxu** township, Wuming county, one seen in a rice paddy, January 1993 (Zhou Fang 1994; also *Oriental Bird Club Bull.* 23 [1996]: 8–9); **Pingshan** township, Longhu Shan, Long’an county, one seen by a stream, June 1990 (Zhou Fang 1994, *Oriental Bird Club Bull.* 23 [1996]: 8–9); near **Nanning**, live nestling

(estimated to be 4–8 weeks old) purchased, reported to have been captured near the city, May 1998 (Lee Kwok Shing 1998; see Remarks 1), with another juvenile purchased at Shajing town, a suburb of Nanning, June 1999 (Fellowes *et al.* in prep.); near **Nahuang Cun**, Fusui county, dead juvenile and several old nests found in a forest, 1999 (Fellowes *et al.* in prep.); **Biannian** village, Shangsi county, 200 m, where one live juvenile purchased in Datang village in August 1999 had been captured near Biannian at Fentinghe reservoir, an injured adult that had been shot at the reservoir was purchased in December 1999, and one was seen near Biannian, March 2000 (Fellowes *et al.* in prep.);

■ **Guangdong Chebaling National Nature Reserve**, Shixing county, a specimen in the reserve collection reported to have been netted at night by a local hunter in the Jiangkou or Mashi areas of Shixing county (near to the reserve) in mid-June 1998, with one reported to have been collected in the same area in 1993 (Gao Yuren 1999a), three juveniles found (one of which was captured and later released inside the reserve) near a stream at Daping town, Shixing county, August 1999, with an injured juvenile collected near a stream in the reserve, August 1999 (Gao Yuren 1999b, R. Griffiths *in litt.* 1999, Yu Yat Tung *in litt.* 1999), and two birds seen (and one photographed) at a site adjacent to the reserve on three consecutive evenings, April 2000 (Fellowes *et al.* in prep.); **Huashi Shan**, Yingde county, March 1960 (male in SCICN);



**The distribution of White-eared Night-heron *Gorsachius magnificus*:** (1) Shennongjia Nature Reserve; (2) Chongyang; (3) Huoshan; (4) Tianmu Shan; (5) Jianyang; (6) Shaowu; (7) Fuzhou; (8) Lingshi Si; (9) Dayao Shan Nature Reserve; (10) Daming Shan Nature Reserve; (11) Xianhu Reservoir; (12) Luoxu; (13) Pingshan; (14) Nanning; (15) Nahuang Cun; (16) Biannian; (17) Chebaling National Nature Reserve; (18) Huashi Shan; (19) Baisha county; (20) Wuzhi Shan; (21) Tianchi; (22) Hoa Binh.

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

■ **Hainan Baisha county**, April 1961 (Shaw Tsenhwang and Hsu Weishu 1966, Xu Longhui *et al.* 1983, female in BNHMCN); **Wuzhi Shan**, Qiongzong county, one (the type) collected, March–May 1899 (Ogilvie Grant 1900a,b, also Hartert 1910), two collected (undated) (Xu Longhui *et al.* 1983); **Tianchi**, Jianfengling Nature Reserve, Ledong county, November 1962 (female in SCICN, Xu Longhui *et al.* 1983);

*unknown locality*: “On a fairly high mountain, named Pen-kia-lin, not far from ‘Manchoei-ho’, on the road from Ho-Shan to Yng-Shan”, one collected, undated (Père Courtois in La Touche 1925–1934).

■ **VIETNAM** There is a single record: **Hoa Binh**, one collected, date unspecified (Vo Quy 1975, verbally 1997; see Remarks 3).

**POPULATION** There is very little information available on the population of this exceptionally poorly known forest heron. Caldwell and Caldwell (1931) reported that they “repeatedly found this bird singly or in isolated pairs in densely forested regions among the foothills”. The parts of Fujian in question have been largely deforested, as have similar areas of lowland and foothill forest elsewhere in south-east China (see Threats), and it is likely that its population has declined substantially and that it may be extinct in some parts of its former range. Rose and Scott (1997) estimated a total global population of only 10–100 birds, but there have been some more recent records that suggest that this is an underestimate. In the 1990s, several individuals were found at Shennongjia Nature Reserve in Hubei, near Nanning in Guangxi and at Chebaling National Nature Reserve in Guangdong (see Distribution), suggesting that each of these areas is likely to support a breeding population. Given the inconspicuous behaviour of this species and the relatively small number of field ornithologists working within its range, it is not unreasonable to suggest that other populations are likely to survive undetected in some other parts of south-east China or even in northern Indochina.

**ECOLOGY Habitat** Most aspects of the ecology of this species are poorly understood. Caldwell and Caldwell (1931) saw it singly or in pairs and reported that “the conduct of this bird was more like a bittern than a heron. The bird seemed more concerned about what was on the ground than about what might be in the tree tops”. They found it in “densely forested regions among the foothills”, and saw a pair which were “evidently nesting in a bamboo forest”. Styan (1902) reported that two were shot when coming to roost in high trees in the evening. The recent records in Guangxi were from near streams and rivers, a reservoir and paddyfields, either in or adjacent to subtropical forests on the lower and middle slopes of mountains; at these sites, they were solitary and nocturnal, usually active at dawn and at dusk and roosting in forest during the daytime, although they were sometimes found to be active during the day (Zhou Fang 1994, *Oriental Bird Club Bull.* 23 [1996]: 8–9). It has been suggested (on the basis of these records) that in this part of Guangxi the species may breed in the Daming Shan mountains at c.1,200 m, and winter at altitudes below 500 m (*Oriental Bird Club Bull.* 23 [1996]: 8–9). The sites where the species has been found in Guangxi during the 1990s are all highly degraded after centuries of human habitation, leading to a tentative conclusion that pristine habitat is not essential for the species; however, all of these sites (and those in Guangdong) are within c.40 km of extensive primary forests, suggesting that core areas of relatively undisturbed forest may be required for populations to persist (Fellowes *et al.* in prep.). Fellowes *et al.* (in prep.) suggest that the optimal habitat is probably primary forest with adjoining ricefields, marshes and slow-flowing streams that constitute good foraging areas. Many of the recent records from Hubei were from the edge of a reservoir, where an old nest was found in an oak tree; a local person reported that this species was easier to find when the river became muddy following rain (Hu Hongxin 1999). The hunter who collected this

species near Chebaling National Nature Reserve in Guangdong reported that it is nocturnal, and best hunted at night (Gao Yuren 1999a). Sightings during surveys in 2000 were all after sunset, and the birds were totally silent (Fellowes *et al.* in prep.).

**Food** Zhou Fang (1994) reported that this species feeds on fish, shrimps and insects.

**Breeding** Caldwell and Caldwell (1931) saw a pair of White-eared Night-herons which they believed to be nesting in bamboo forest in Fujian in “summer”. One of the birds shot at Jianyang (Kianyang) in central Fujian was labelled “20 March 1915” and was reported to have its nest in a pine tree (La Touche 1925–1934). An old nest was found in a hole in an oak *Quercus acutissima* tree on the edge of a reservoir in Hubei in August 1999 (Hu Hongxin 1999). In Guangxi in 1999, a long-dead juvenile was found in a nest colony (of c.18 nests, “probably mostly Malayan Night-herons *Gorsachius melanolophus*”), in a shallow ravine on a shrub-covered hillside, within 500 m of paddyfields and a stream in the plain below the hill; the trees were mostly young broadleaf species, including *Breynia fruticosa*, *Litsea glutinosa*, *Cinnamomum porrectum* and *Macaranga denticulata* (Fellowes *et al.* in prep.). The nests were 4–10 m above the ground, positioned against the trunks, c.2 m from the tree-tops, each nest consisting of several hundred twigs arranged in a simple flat platform (Fellowes *et al.* in prep.). A suspected nesting site in Guangxi was in a *Pinus massoniana* plantation, c.50 m from a wide stream, where c.40 (heron) nests were placed 7–10 m above the ground in trees of 10–12 m in height (Fellowes *et al.* in prep.).

**Migration** The situation is unclear. Hancock and Kushlan (1984) stated that the dates of records “suggest that it is a summer visitor to the northern part of the known range, moving south in October to winter in Hainan”, and possibly also into South-East Asia (see King *et al.* 1975). However, there are records in Hubei in January, Fujian in December and March, Guangxi in January and Guangdong in March (see Distribution), which indicate that this theory is incorrect. Confusingly, however, a local person at the site where it was recently recorded in Hubei reported that it is present throughout the year “except for summer” (Hu Hongxin 1999), while Zhou Fang (1994) considered that it is non-migratory in southern Guangxi. The record from Vietnam, however, may refer to a migrant or vagrant.

**THREATS** The White-eared Night-heron occurs in both the “South-east Chinese Mountains Endemic Bird Area” and the “Hainan Endemic Bird Area”, threats and conservation measures in which are profiled by Stattersfield *et al.* (1998). Further information relevant to its conservation is given in the accounts for the other threatened species that occur in the forests of south-east China (White-necklaced Partridge *Arborophila gingica*, Cabot’s Tragopan *Tragopan caboti*, Elliot’s Pheasant *Syrnaticus ellioti* and Brown-chested Jungle-flycatcher *Rhinomyias brunneata*) and Hainan (Hainan Partridge *Arborophila ardens* and Hainan Leaf-warbler *Phylloscopus hainanus*).

**Habitat loss** Forest clearance and fragmentation is almost certainly the most important threat to this species, especially as the forest in the foothills which appears to be its preferred habitat is extremely vulnerable to human activities (Hancock and Kushlan 1984). Its known range in south-east China is in one of the most densely populated regions in the world, and most of the natural forest has been cleared or modified as a result of the demands for agricultural land and timber; rapid forest loss has taken place in most provinces in south-east China in the past fifty years, for example in Fujian, where timber reserves declined by 50% between 1949 and 1980 (Smil 1984, see Tables 1 and 2). On Hainan, Zhou Guangyi (1994) estimated that the area of natural tropical forest decreased from 16,920 km<sup>2</sup> in 1943 to 3,000 km<sup>2</sup> in 1994, mainly as a result of excessive timber extraction, the replacement of forest by rubber plantations, slash-and-burn agriculture and the unrestricted cutting of wood for fuel and other uses. Collins *et al.* (1991) estimated that forest cover declined from 8,630 km<sup>2</sup> (25.7% of the island) in 1949 to about 2,420 km<sup>2</sup> (7.2%) in 1991 (see also Smil 1984). Much of the remaining forest is probably disturbed and not of full stature, so is not capable of

**Table 1. Changes in the extent of natural habitats within this species's range in south-east China.** The data in these tables are reproduced from MacKinnon *et al.* (1996), and show the estimated areas (both original and remaining in km<sup>2</sup>) of presumably suitable habitats within this species's known range, and the area of each habitat estimated within existing protected areas. However, it is important to note that this only gives an indication of the extent of reduction (or increase) of presumed habitats, as there is no information on the time-scale over which they have been lost, and this species does not necessarily occur throughout each habitat in these two regions of China. It is also important to note that the increase in subtropical conifer cover represents plantations, much of which is unlikely to be suitable for the species.

Habitat	Original	Remaining	%	Protected	%
deciduous/evergreen broadleaf forest	229,575	22,838	10	8,151	3.6
subtropical coniferous forest	93,137	165,323	178	16,581	17.8
subtropical evergreen broadleaf forest	682,066	45,298	7	19,839	2.9
tropical limestone forest	16,300	1,630	10	0	0
tropical semi-evergreen forest	69,698	3,707	5	240	0.3

**Table 2. Changes in the extent of natural habitats within this species's range on Hainan.**

Habitat	Original	Remaining	%	Protected	%
subtropical evergreen broadleaf forest	7,480	832	11	108	1.4
lowland wet evergreen forest	7,192	754	10	72	1.0
tropical semi-evergreen forest	9,288	1,612	17	336	3.6

supporting many of the specialised forest birds (W. Bleisch *in litt.* 1993). Although Longhu Shan in Guangxi is a reserve, local people have begun to dig for gold in recent years on the lower reaches of a small river on the mountain, severely damaging the heron's feeding habitat; deforestation has severely degraded the habitat at Nada in Wuming county, although the other recent sightings in this county were from areas that retain better forest cover (*Oriental Bird Club Bull.* 23 [1996]: 8–9). In the degraded habitats where this species has recently been found in Guangxi, much of the remaining forest is monospecific pine plantation, highly susceptible to pathogens such as the pinewood nematode *Bursaphelenchus xylophilus*, which destroyed many *Pinus massoniana* monocultures in Guangdong and Hong Kong in the 1980s and 1990s, and is spreading towards Guangxi (Fellowes *et al.* in prep.). In Vietnam, habitat loss is also likely to be a threat to this species (Nguyen Cu *in litt.* 1997).

**Disturbance** At Longhu Shan in Guangxi, this species is threatened by disturbance from increased levels of tourism, as 300,000 tourists were estimated to have visited this 20 km<sup>2</sup> mountain between September 1993 and September 1994 (*Oriental Bird Club Bull.* 23 [1996]: 8–9).

**Hunting** Hunting is an additional threat to this species both in China and Vietnam, even inside nature reserves (Nguyen Cu *in litt.* 1997, J. Fellowes *in litt.* 1999; also *Oriental Bird Club Bull.* 23 [1996]: 8–9). The hunting pressure is intense in agricultural areas, and the methods used involve a combination of shooting and trapping with baited nooses at nest sites or in feeding areas (Fellowes *et al.* in prep.). The bird found in Nanning market in Guangxi in 1998 had presumably been collected for food, although this species was not a special target for hunters as the traders could not distinguish it from Malayan Night-heron *G. melanolophus* (B. Hau *in litt.* 1998). It may be particularly vulnerable to hunting when nesting, as villagers in Fusui county in Guangxi, where empty nests were found in 1999, reported that they had killed the adult birds on the nests the previous year (Zhou Fang *per J.* Fellowes *in litt.* 1999). The colony in question appeared to have been abandoned in 1999 because of this hunting pressure (Fellowes *et al.* in prep.).

**Pesticides** Levels of pesticide and fertiliser use are very high in China, and it is possible that this species is affected by these chemicals when it forages in paddyfields (although there is currently no direct evidence) (Fellowes *et al.* in prep.).

**Scientific collecting** The recent collection of so many specimens of so rare a species, especially inside a nature reserve, is a cause of considerable concern, and a recommendation is made under Measures Proposed. However, it needs to be stressed that the material in question may have been confiscated from hunters.

**MEASURES TAKEN Legislation** The White-eared Night-heron is a nationally protected species (second class) in China (Zheng Guangmei and Wang Qishan 1998).

**Protected areas** It has been recorded in or near several protected area in China: Shennongjia Nature Reserve in Hubei (705 km<sup>2</sup>, forests in very good condition), Tianmu Shan National Nature Reserve in Zhejiang (11 km<sup>2</sup>, forests apparently in good condition), Dayao Shan Nature Reserve in Guangxi (2,022 km<sup>2</sup>, forests apparently in moderately good condition, covering c.58% of the reserve; but see below), Daming Shan Nature Reserve in Guangxi (649 km<sup>2</sup>, forests apparently in quite good condition, covering c.47% of the reserve), Chebaling National Nature Reserve in Guangdong (76 km<sup>2</sup>, apparently including some very good areas of primary and mature secondary forest, while significant areas of important forest lie outside the reserve boundaries), Jianfengling Nature Reserve in Hainan (77 km<sup>2</sup>, forests apparently rather disturbed and “too small”) and Wuzhishan Nature Reserve on Hainan (134 km<sup>2</sup>, forests on upper slopes apparently in good condition but lower slopes seriously degraded) (see Distribution; protected areas size and condition from MacKinnon *et al.* 1996). However, the actual forest cover for the whole of Dayao Shan Nature Reserve is now far lower than c.58%, and although there is good forest cover in some areas (J. Fellowes *in litt.* 1999), mature forest appears to be largely confined to the hilltops (G. J. Carey *in litt.* 2000). There are many other protected areas in south-east China and on Hainan which contain tracts of subtropical forest which could support populations of this species (see Li Wenhua and Zhao Xianjing 1989, MacKinnon *et al.* 1996).

**Research** During the 1990s, several surveys of this species were conducted in potential habitats (and wildlife markets) in Guangxi and Guangdong provinces, resulting in a number of sightings, local reports and live specimens being found, plus some new information on its ecology (Kushlan and Hafner 2000, Fellowes *et al.* in prep.). Hu Hongxin (1999) completed a preliminary investigation of the status of this species in the Shennongjia forest region of Hubei in 1999, and intends to develop a major research project on it in the future.

**MEASURES PROPOSED Protected areas** MacKinnon *et al.* (1996) made the following recommendations for the protected areas where this species has been recorded in China: at Shennongjia Nature Reserve, develop carefully integrated management and control tourism (and prohibit any further specimen collection unless involving confiscations); at Tianmu Shan National Nature Reserve, enlarge and link with Longwang Shan Nature Reserve; at Dayao Shan Nature Reserve, control the planting of star anis *Illicium verum* and illegal logging; at Daming Shan Nature Reserve, extend northwards to Xunjiang river to include a karst landscape and south-westwards to include forested hills north of Nanning, and develop a management plan for the enlarged reserve; at Chebaling National Nature Reserve, redesign reserve borders to include surrounding good forest, and extend into Hunan and incorporate into Nan Shan Tiger Conservation Unit; at Jianfengling Nature Reserve, enlarge the reserve to link up with the rest of the South-west Hainan Conservation Unit; at Wuzhishan Nature Reserve, reconstruct forest corridors to link this reserve with Qizhiling Nature Reserve in the south.

**Research** Surveys and ecological studies of this species should be conducted in south-east China and on Hainan to identify further priority sites and habitats for protection (Kushlan and Hafner 2000). Its year-round habitat requirements need to be assessed, and the results used to help to prepare an inventory of potentially suitable areas of habitat within its known range (Kushlan and Hafner 2000, Fellowes *et al.* in prep.). Radio-tracking studies may help



to improve understanding of its ecological requirements and migratory movements, but, given the rarity of the species, great care should be taken to ensure that such studies do not reduce breeding success (Kushlan and Hafner 2000). In Vietnam, surveys are required in remaining areas of habitat in Hoa Binh, Cao Bang and Lang Son provinces (Nguyen Cu *in litt.* 1997, Eames and Tordoff *in prep.*). The calls of White-eared Night-heron are not documented, but the closely related Japanese Night-heron *Gorsachius goisagi* and Malayan Night-heron both have distinctive nocturnal or crepuscular vocalisations during the breeding season (Sonobe 1982, Lekagul and Round 1991), and it presumably also has calls that could be used to detect and census it during surveys. However, all of the birds seen during surveys in 2000 were totally silent (Fellowes *et al.* *in prep.*).

**Scientific collecting** While birds confiscated from hunters should certainly be salvaged for science, any direct targeting of this species for museum collections would currently appear unnecessary and incautious, and should be strongly discouraged.

**Education** Promotion of conservation awareness is an important component of projects to protect this species, both to help prevent hunting and to promote improved protection of its habitats (Kushlan and Hafner 2000, Gao Yuren *in litt.* 1997; also Fellowes *et al.* *in prep.*). This type of campaign has already been used to complement the present field surveys, to help locate populations of this species (J. Fellowes *in litt.* 1999). However, it is important to recognise that publicising the rarity of the species without engendering a conservation ethic towards it could lead to an increase in price and demand (birds recently obtained from markets were sold at similar prices to commoner species) and therefore increased hunting pressure (Kushlan and Hafner 2000).

**REMARKS** (1) This bird was purchased alive in a market, reared in quarantine and released (in good condition) into the nearby Daming Shan Nature Reserve in August 1998 (Fellowes *et al.* *in prep.*, B. Hau *in litt.* 1998, R. Griffiths *in litt.* 1999). (2) Nada reservoir, which is very close to Xianhu reservoir, has been listed as a locality where this species was sighted between 1990 and 1994 (*Oriental Bird Club Bull.* 23 [1996]: 8–9), but Fellowes *et al.* (*in prep.*) state that there had been no previous records at this site. (3) Although the single Vietnamese specimen was reportedly deposited at the University of Hanoi collection, it could not be located during a recent search (Nguyen Cu *in litt.* 1997). (4) A specimen in NMS is labelled “Yokohama” (collected by H. E. Dresser in 1883), but it was presumably not collected there.