

# Threatened Birds of Asia:

## The BirdLife International Red Data Book

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**Recommended citation**

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

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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 **NatureBureau**, 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)

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## WHITE-NECKLACED PARTRIDGE

### *Arborophila gingica*

Critical ☐ —  
Endangered ☐ —  
Vulnerable ☒ C1; C2a



*This species is listed as Vulnerable because its severely fragmented population is assumed to be small, and it is continuing to decline because of ongoing habitat loss.*

**DISTRIBUTION** The White-necklaced Partridge is endemic to south-eastern China, where it is known from scattered localities in the mountain ranges in Zhejiang, Fujian, Jiangxi, Guangxi and Guangdong. Records (by province and autonomous region; see Remarks 1) are from:

■ **CHINA** ■ **Zhejiang Wencheng county**, undated (Zheng Guangmei and Wang Qishan 1998); **Wuyanling National Natural Reserve**, Taishun county, two males collected, August 1983 (Zhuge Yang 1990), nest found, April 1986 (Li Xiaohui *et al.* 1990), “uncommon”, two pairs seen and two birds heard, 900–1,000 m, April 1987 (King and Zheng Guangmei 1988), September 1997 (Ding Ping verbally 1997);

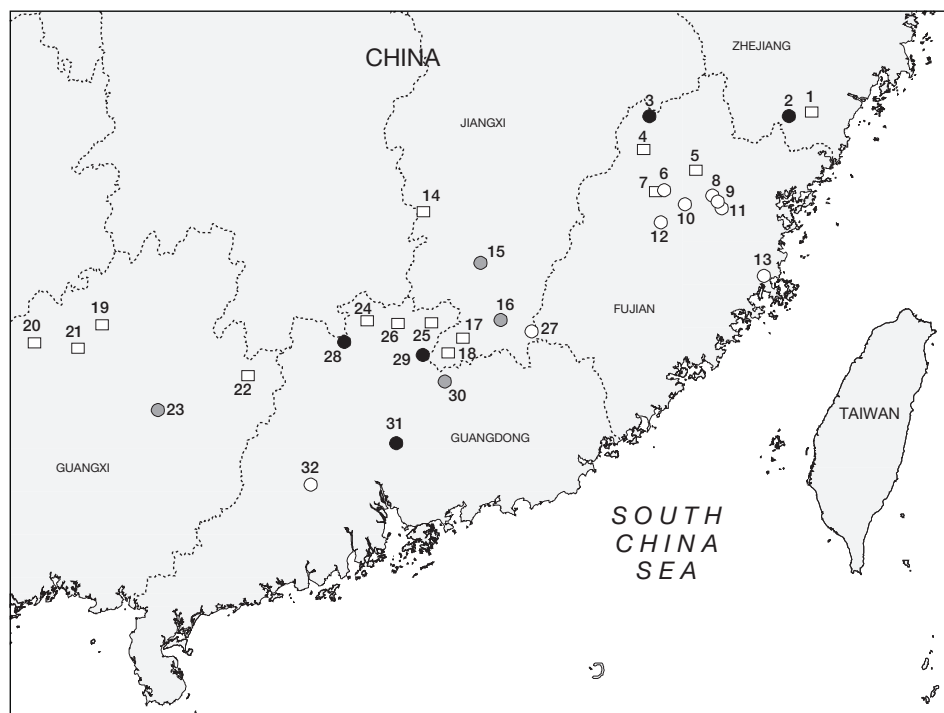
■ **Fujian Wuyi Shan Nature Reserve**, Jianyang, Chong’an, Guangze and Shaowu counties, heard at Guadun (Kuantan), Chong’an county, June 1986, 1,500 m (Lewthwaite 1996), singles heard daily, 1,200–1,500 m, May 1990, in primary forest (Lewthwaite 1996), heard, April–May 1993 (P. Alström, U. Olsson and D. Zetterström *in litt.* 2000), recorded in or near the reserve in Chong’an county (Qipanshi and Wuyi Shan city), August and September 1960 (two specimens in SCICN); **Shaowu county**, undated (Cheng Tso-hsin *et al.* 1981); **Jian’ou county**, undated (Li Xiangtao 1996); **Chung Lok**, October 1899 (female in BMNH); **Shunchang county**, undated (Li Xiangtao 1996); **Ah Ch’ung** (Hachong), 20 km from “Ching Fung Ling” (presumably Ching Feng), 700 m, February and December 1899, February–March 1900, December 1902 (Ogilvie Grant 1899, Rickett 1900a, 10 specimens in BMNH and MCZ); **Yamakan**, 11 km from “Ching Fung Ling”, hills 150 km north-west of Fuzhou, several collected in 1899, reported by local people to be “far from uncommon” (Ogilvie Grant 1899, Rickett 1900a, two specimens in BMNH); **Nanping city** (Yenping), June 1916 (Bangs 1921, male in AMNH); **Ching Feng**, December 1899 (male in BMNH); **Sha Xian county**, December 1943 (male in WUCN); **Fuqing county** (Futsing), 1912 (Bangs 1921, male in AMNH);

■ **Jiangxi** near Jinggang Shan, Jinggang Shan city, in or near **Jinggang Shan Nature Reserve**, undated (Liu Shiping 1994); **Gan Xian county**, male collected, November 1979 (Li Xiaohui and Liang Qihua 1985, Lui Shiping 1994); **Anyuan county**, three females collected at Gaoyun Shan and Shangwu, October–December c.1979 (Li Xiaohui and Liang Qihua 1985, Liu Shiping 1994); **Longnan county**, undated (Li Xiangtao 1996); **Quannan county**, undated (Li Xiangtao 1996);

■ **Guangxi Rongshui county**, undated (Li Xiangtao 1996); **Huanjiang**, undated (Li Xiangtao 1996); **Luocheng county**, undated (Li Xiangtao 1996); **Hexian**, undated (Li Xiangtao 1996); **Dayao Shan Nature Reserve** (Yaoshan), Jinxiu county, male collected at Luoxiang (Loshiang), 915 m, May 1929 (Yen 1930), male and four females, May and July 1931 (Yen 1933–1934, specimen in MNHN), March 1958 (Cheng Tso-hsin 1976, male in WUCN);

■ **Guangdong Lechang county**, undated (Zheng Guangmei and Wang Qishan 1998); **Nanxiong county**, undated (Zheng Guangmei and Wang Qishan 1998); **Renhua county**, undated (Zheng Guangmei and Wang Qishan 1998); **Longtoushan** (Drachenkopf), “common, one of the most characteristic birds”, 700–900 m, undated, in mountain forests (Mell 1922, 1923–

1925), summer (year unspecified) and October 1917 (three specimens in MCZ and ZMB); **Babao Shan Nature Reserve**, Ruyuan county, up to five seen and heard at 1,400–1,600 m in October 1993, May 1994, May 1995 and April 1996 (Lewthwaite 1996, L. Macauley *in litt.* 1999), family party with three young, May 1999 (*Oriental Bird Club Bull.* 30 [1999]: 50–58), with a record from Ruyuan county, undated (Li Xiangtao 1996), possibly referring to Babao Shan reserve and/or other sites in this county; **Chebaling National Nature Reserve**, Shixing county, specimens said to have been collected in the reserve on display in the site museum (Lewthwaite 1996), “rare” (Chen Wancheng *et al.* 1992), 1986 (Li and Tan 1990 in Li Xiangtao 1996); **Lianping county**, male collected at Xiagongtang and female at Heping, September 1959 (two specimens in SCICN); **Nankun Shan Nature Reserve**, Longmen county, undated (Chen Qinxong 1982), two, December 1993 (Lewthwaite 1996); **Zhaoqing city** (Siu-hang), December 1916 (Mell 1922; three specimens in ZBM); Zhangdongshui Nature Reserve (untraced), recorded in 1986 (Li and Tan 1990 in Li Xiangtao 1996); Tainjing Shan (untraced), 1,500–1,600 m, May 1986 (Li Xiaohui *et al.* 1990); Quellberg (untraced), “common”, 700–900 m, undated, in mountain forests (Mell 1922); Yin-shan (untraced), January, May and October 1917–1919 (five specimens in ZMB).



**The distribution of White-necklaced Partridge *Arborophila gingica*:** (1) Wencheng county; (2) Wuyanling National Natural Reserve; (3) Wuyi Shan Nature Reserve; (4) Shaowu county; (5) Jian'ou county; (6) Chung Lok; (7) Shunchang county; (8) Ah Ch'ung; (9) Yamakan; (10) Nanping city; (11) Ching Feng; (12) Sha Xian county; (13) Fuqing county; (14) Jinggan Shan Nature Reserve; (15) Gan Xian county; (16) Anyuan county; (17) Longnan county; (18) Quannan county; (19) Rongshui county; (20) Huanjiang; (21) Luo Cheng county; (22) Hexian; (23) Dayao Shan Nature Reserve; (24) Lechang county; (25) Nanxiong county; (26) Renhua county; (27) Longtoushan; (28) Babao Shan Nature Reserve; (29) Chebaling National Nature Reserve; (30) Lianping county; (31) Nankun Shan Nature Reserve; (32) Zhaoqing city.

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

**POPULATION** There have been few studies of the population of this species. In the early twentieth century, it was described as “not uncommon” in the wooded hills of central Fujian (La Touche 1925–1934) and “fairly common” in northern Guangdong (e.g. Mell 1922). It is now considered to be rare throughout its range, and no longer found in some mountain areas, with a total population of probably less than 10,000 individuals (McGowan *et al.* 1995, Li Xiangtao 1996). Its numbers must have been substantially reduced because of the widespread clearance of its forest habitat, and many of the remaining populations must be small and isolated because of habitat fragmentation (see Threats). However, it has recently been reported to be locally common in northern Guangdong and in Wuyi Shan Nature Reserve in Fujian (e.g. Lewthwaite 1996), so its population may prove to be larger than the recent estimates. Surveys in northern Guangdong and at Wuyanling in Zhejiang in 1986 found a density of c.0.31 individuals per km<sup>2</sup> in both areas (Zheng Guangmei and Wang Qishan 1998). In Guangdong, the encounter rate along transects was 0.94 individuals per hour at Chebaling Nature Reserve, and one individual per hour at Mt Tainjing (Li Xiaohui *et al.* 1990).

**ECOLOGY** *Habitat* The typical habitats of this species are broadleaf forest and mixed broadleaf and coniferous forest, and bamboo and scrub just above the treeline, at 500 to 1,900 m in the higher mountains of south-east China (Cheng Tso-hsin 1987, Li Xiaohui *et al.* 1990, P. Alström *in litt.* 1993), similar to those of Cabot's Tragopan *Tragopan caboti* (see relevant account). It is confined to densely forested areas, where it stays on the ground in heavy undergrowth all day but roosts communally in trees, prior to which it is very noisy (Rickett 1900a, Caldwell and Caldwell 1931).

*Food* The main foods are fruits and seeds, and also some insects and other small animals; in spring and summer the birds move to higher altitudes to look for fruits, and in autumn they move lower to find seeds; stomach contents examined in September–December contained 97.3% seeds, of *Casilanopsis hystrix*, *Poxicodendron sylvestra*, *Lindera stryeni*, etc., 2.2% ants and chrysalises and 0.45% small snails, and in summer they like to feed on *Litesa cubela* (Li Xiaohui *et al.* 1990).

*Breeding* The males become territorial in February, and the eggs are laid in April–May; the nest is on the ground in a depression in the leaves at the foot of a shrub or by a stump or log, and the clutch size ranges from five to seven, possibly more (Caldwell and Caldwell 1931, Li Xiaohui *et al.* 1990). A family party with three young was seen in Babao Shan Nature Reserve, Guangdong on 26 May 1999 (*Oriental Bird Club Bull.* 30 [1999]: 50–58).

**THREATS** The White-necklaced Partridge is one of four threatened bird species that are entirely restricted to the “South-East Chinese Mountains 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 similar habitats in south-east China, White-eared Night-heron *Gorsachius magnificus*, Cabot's Tragopan, Elliot's Pheasant *Syrnaticus ellioti* and Brown-chested Jungle-flycatcher *Rhinomyias brunneata*.

*Habitat loss* The main threat to this species is the continuing loss and fragmentation of its forest habitat (McGowan *et al.* 1995). Its 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 Table 1); at Wuyanling in Zhejiang there were large areas of undisturbed evergreen broadleaf forest before 1950, but in 1958, during the “great steel making” movement in China, large areas of this forest were logged (Sun Yuehua 1995).

**Table 1. Changes in the extent of natural habitats within this species's range in south-east China.** The data in this table 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 in south-east China, 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 this region 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

**Hunting** Hunting for food and market trading is also a threat to this species (King 1987a, Zheng Guangmei and Wang Qishan 1998).

**MEASURES TAKEN** *Protected areas* White-necklaced Partridge has been recorded in or near to several protected areas in its breeding range in China: Wuyanling Nature Reserve in Zhejiang (190 km<sup>2</sup>, forest apparently in moderately good condition), Wuyi Shan Nature Reserve in Fujian (565 km<sup>2</sup>, forest apparently in very good condition), Jinggang Shan Nature Reserve in Jiangxi (155 km<sup>2</sup>, forests apparently in fine condition), Dayao Shan Nature Reserve in Guangxi (2,022 km<sup>2</sup>, forest apparently in moderately good condition, and covers c.58%), Babao Shan Nature Reserve in Guangdong, Nankun Shan Nature Reserve in Guangdong (19 km<sup>2</sup>, forests apparently in quite good condition but small), Chebaling National Nature Reserve (76 km<sup>2</sup>, and apparently including some very good areas of primary and mature secondary forest, but with significant areas of important forest outside the reserve boundaries) and Zhangdongshui Nature Reserve in Guangdong (sizes and condition from MacKinnon *et al.* 1996). It may also occur in some of the other protected areas in or near to its range that contain subtropical forests (see Li Wenhua and Zhao Xianying 1989, MacKinnon *et al.* 1996).

*Captive breeding* The South China Institute for endangered animals has had some success in breeding it in captivity, but egg fertility and chick survival are very low (Zheng Guangmei and Wang Qishan 1998; also McGowan *et al.* 1995). It is, however, by no means clear that this initiative is needed, since captive breeding must have the goal of re-introduction (for which see IUCN/SSC 1998), and for this to happen there must be suitable habitat. The most important activity must therefore be habitat conservation.

**MEASURES PROPOSED** *Legislation* Zheng Guangmei and Wang Qishan (1998) proposed that this species should be listed as a nationally protected species in China.

*Protected areas* Although White-necklaced Partridge has been recorded in several protected areas, its status in most of them is poorly understood and a review of areas of suitable habitat is required throughout its range, to determine which are the key sites for its conservation, whether there is a need to upgrade the status of any reserves or to extend their boundaries to include additional areas of forest, whether measures are necessary at some sites to rehabilitate and restore suitable habitat, and whether some new protected areas need to be established (McGowan *et al.* 1995, P. J. K. McGowan *in litt.* 1999).

MacKinnon *et al.* (1996) made the following recommendations for the protected areas where this species has been recorded: at Wuyanling Nature Reserve, strengthen protection; at Wuyi Shan Nature Reserve, enlarge reserve and link over the border with the Jiangxi (Wuyi Shan) reserve; at Jinggang Shan Nature Reserve, link up with Taoyuandong Nature

Reserve in Hunan and the Suichuan Chuizhou area further south to form part of Nanshan Tiger Conservation Unit, and revegetate where necessary; at Dayao Shan Nature Reserve, control illegal logging and the planting of star anis *Illicium verum*; at Nankun Shan Nature Reserve, enlarge to c.40 km<sup>2</sup>; and at Chebaling National Nature Reserve, redesign reserve borders to include surrounding good forest, and extend into Hunan and incorporate into Nanshan Tiger Conservation Unit.

**Research** As described above (and see Remarks 1), further extensive surveys should be conducted throughout the range of this species, with the objective of reviewing the effectiveness of the existing protected-area system for its conservation (and for the conservation of the other threatened forest birds of south-east China: see above), and determining whether new (or modifications to existing) reserves are required (McGowan *et al.* 1995, P. J. K. McGowan *in litt.* 1999). Studies are also needed of its habitat requirements, to help develop appropriate management practices for its conservation in protected areas.

**REMARKS** (1) Many of the published records of this species (and of other galliforms in mainland China) are given by county, and they often do not include the actual localities where birds were found, the type of records (specimens collected, sight records, reports by local people, etc.), the number of individuals recorded or the dates. Such records are very important for the understanding of the overall distribution of a species, but are of limited value for assessing its conservation status and in helping to decide where to target conservation actions. The collection and publication of more detailed information is necessary to improve understanding of the conservation status of this and other Chinese birds.