

Status of the Xinjiang Ground Jay: population, breeding ecology and conservation

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Abstract The Xinjiang Ground Jay (*Podoces biddulphi*) is a bird species endemic to China. It has a restricted range, living only in the Taklimakan Desert, southern part of Xinjiang. So far, little information has been known of the status and ecology of the bird in the world. Since 1988, I have been taking field investigations on the distribution, population size and breeding ecology of the Xinjiang Ground Jay in the desert. In this thesis, the desertification in relation to the eastward expansion of the ground jays was discussed.

Keywords Xinjiang Ground Jay, breeding ecology, population size, conservation, Taklimakan Desert

Introduction

Among the four species of ground jays (*Podoces*) in the world, two are found in the west of China (Qian et al., 1965; Cheng, 1987): the Xinjiang Ground Jay (*P. biddulphi*) (Fig. 1) and the Mongolian Ground Jay (*P. hendersoni*). Xinjiang Ground Jays occur only in the Taklimakan Desert, the southern part of Xinjiang. Since the species was established by A. Hume in 1874, little has been known of its status and ecology. The current essay describes such information based on a long-term field survey.

Distribution

The ground jays are residents at the center of the Taklimakan Desert (37–42°N, 77–94°E, 790–1500 m elevations; Fig. 2). Most of distribution range of the species falls within Xinjiang, with a few extending to the east, e.g. the Qaidam Basin in Qinghai Province and Dunhuang in Gansu Province (Collar et al., 2001; Sun and Li, 2009). Interestingly, Mongolian Ground Jays are distributed around the range of Xinjiang Ground Jays (Fig. 2). Such a pattern should be a result of inter-species competition. There is evidence showing that the ground jays are expanding their range from west to east during recent decades (Ma, 2010).

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
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Fig. 1 The Xinjiang Ground Jay in the Lopnur Desert (Photo by Ming Ma)

Habits

Ground jays are well adapted to desert and semi-desert regions (Ludlow and Kinnear, 1933). Compared with crows or choughs, ground jays are sandy in plumage, presumably providing protection from desert predators (Londei, 2004). As their names indicate, ground jays spend much of their time on the ground. The strong legs should

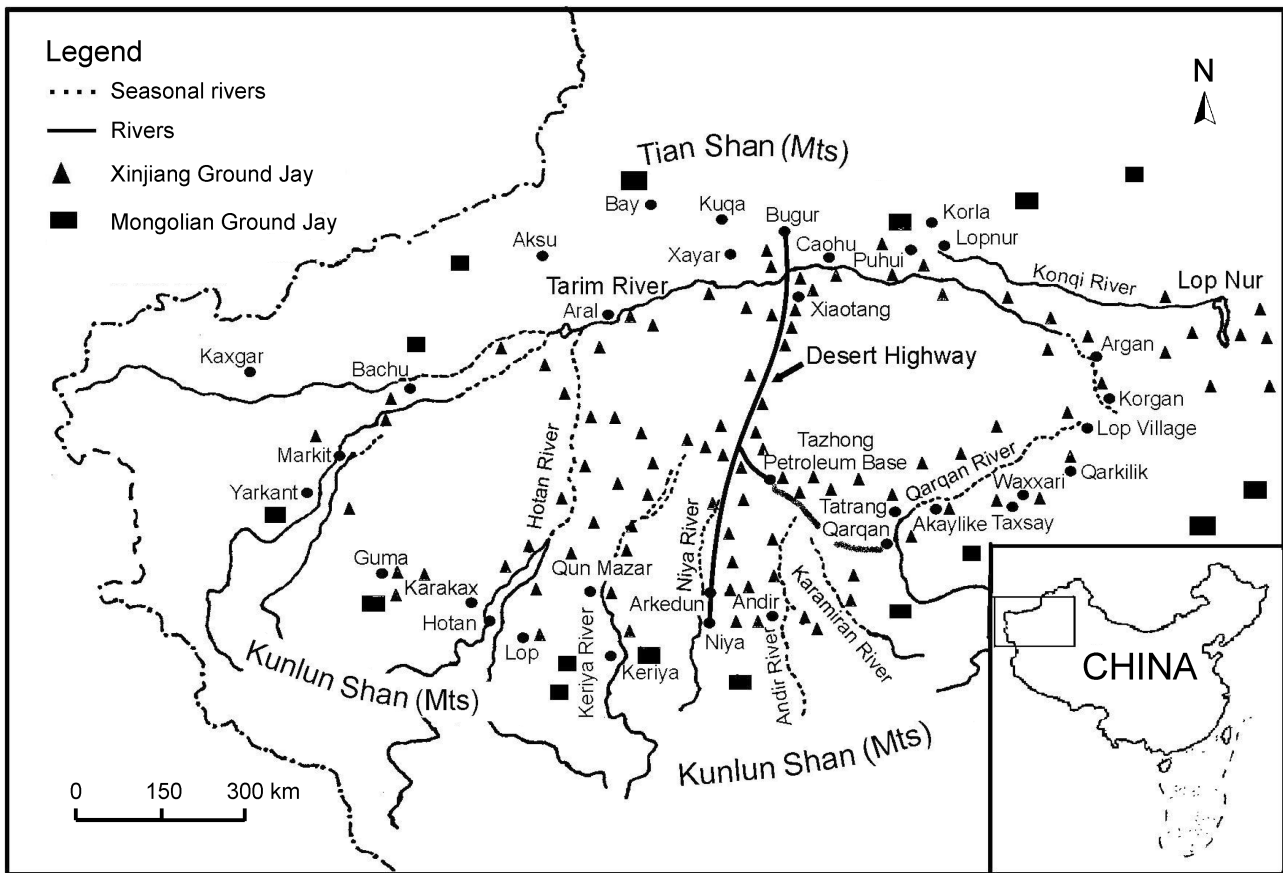


Fig. 2 Distribution of the Xinjiang Ground Jay and the Mongolian Ground Jay in the Taklimakan Desert

be adaptive to the habit. However, ground jays nest in shrubs and trees, a characteristic similar to that followed by the *Corvids* species.

Breeding ecology

Information on breeding ecology of Xinjiang Ground Jays is very limited. A total of 20 ground jay nests were recorded in Niya and Qarqan from 2003 to 2004. The birds placed their nests on the small desert-poplar tree *Populus diversifolia* and *Tamarix* spp. bushes, averaging 1.09 ± 0.15 m (range = 0–2.30 m, $n = 18$) above the ground (Fig. 3). The nests were composed of sheep wool, camel's wool, horse's hair, dead leaves, dry grass, and the soft cottony growth of reeds, with poplar skin, twigs and small sticks being lined at the base. The external diameter of the nest is 35.75 ± 2.30 cm (range = 16–55 cm, $n = 16$), the internal diameter of the nest is 12.82 ± 0.85 cm (range = 9–20 cm, $n = 14$), and depth of the nest is 9.50 ± 1.00 cm (range = 5

–16 cm, $n = 13$) and the height is 20.88 ± 1.33 cm (range = 12–35 cm, $n = 16$) (Fig. 4a). Clutch size varied between 1 and 3 eggs (1.89 ± 0.31 eggs, $n = 9$), the diameters of the eggs are 32.88 ± 0.83 mm \times 23.48 ± 0.09 mm, and the

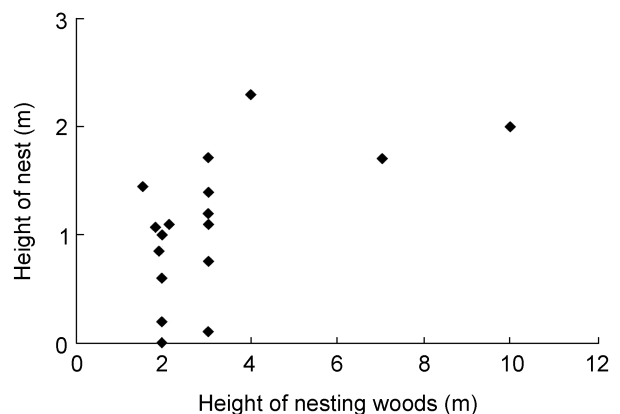


Fig. 3 Nest height above the ground in relation to nesting bush height of the Xinjiang Ground Jays



Fig. 4 Breeding ecology of the Xinjiang Ground Jay. (a) The local guide in the field work, showing the nest built on a *Tamarix* bush; (b) The egg; (c) Feeding the chicks; (d) Nearly fledging chicks (photos by Ming Ma).

weight of egg is 8.33 ± 0.88 g ($n = 4$). The color of egg is pale green and grayish white with brown spots scattered all over the surface, rather more densely at the broad end (Fig. 4b). The parents fed the young (Fig. 4c) more than 42 times during one day for one nest located in the middle March (Ma, 2004). After fledging, family flocks of 4 to 6 birds were encountered between early May and July. These data suggested that the ground jays laid eggs from late February to April.

Population status and conservation

Based on the transect counting conducted from 1988 to 2011, the density of ground jays was to be 3–5 pairs per 100 km². It was estimated to have 4100–6700 pairs of ground jays over the species' range of 135000 km².

The ground jay populations seemed to drop during

recent decades (Grimmett, 1991; Madge and Burn, 1994; Ma, 1998). However, with the intensified desertification in western China, the jays have a tendency to expand to the east. For example, there were some of new records in Gansu and Qinghai provinces (Collar et al., 2001; Sun and Li, 2009; Ma, 2010). Arguably, this bird is an indicator species of desertification and climate change.

Human activities such as oil industry, ecotourism, land exploitation and overgrazing should be responsible for the population decline (Ma, 2001; Ma and Kwok, 2004). The restricted range and special requirements for nesting habitats suggest an urgent conservation need for this species. Now, although the bird is classified as “near-threatened” (Collar et al., 2001), no protection measures have been in practice (Zheng and Wang, 1998).

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白尾地鸦种群、繁殖生态及保护现状

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摘要: 白尾地鸦 (*Podoces biddulphi*) 仅分布于新疆塔克拉玛干沙漠沙漠之中, 为中国特有物种。目前有关这个种的现状和生态报道较少。自1988年以来, 作者在塔克拉玛干沙漠腹地对白尾地鸦种群状况、分布、繁殖生态等进行了系统的研究。并对沙漠化造成白尾地鸦“东扩”进行了分析和讨论。

关键词: 白尾地鸦 (*Podoces biddulphi*), 繁殖生态, 种群数量, 保护, 塔克拉玛干沙漠