

Podoces ground-jays and roads: observations from the Taklimakan Desert, China

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Introduction

The ground-jays are Central Asian desert birds forming a genus with four species: the Iranian Ground-jay *Podoces pleskei* endemic to Iran, Turkestan Ground-jay *P. panderi*, Mongolian Ground-jay *P. hendersoni* and Xinjiang Ground-jay *P. biddulphi*, the last endemic to north-western China. These corvids have obvious specialisations to ground-living in deserts (e.g. Londei 2004). Their typical habitat is barren ground interspersed with scrub, as they need some vegetation for the seeds and small animals that form their diet, as well as for shelter and nesting. Their water sources are little known. They are still little-studied birds and their conservation status is generally poorly known, except for the assumption of a common decrease in numbers owing to habitat degradation (Marzluff 2009).

As usual with animals of habitats difficult for humans to access, the status of these birds has mainly been assessed by roadside counts. However, roads may affect the abundance of animal populations, and if so, the inference of their regional status by this method may be biased by their local patterns. In a review of 79 quantitative studies of the effects of roads on animal abundance across various taxa (Fahrig & Rytwinski 2009), the documented negative effects, essentially from habitat loss and traffic mortality, outnumbered the documented positive effects, from increased resources and decreased predation, by a factor of five. However, the authors acknowledged that their estimate might be biased by researchers having purposely selected study species and situations in which they expected a negative effect. An opposite example is ground-dwelling birds that benefit by roads in desolate regions (Li Zhong-qiu *et al.* 2010). The positive effects of roads on animal abundance may more easily be detected in deserts than in more productive biomes, because along a road animals may find important resources that are scarce elsewhere in the desert, such as food and water aimed at human use.

The attraction of ground-jays to roads is probably of ancient origin, at least since the various routes of the so-called Silk Road were established. In the nineteenth century, Scully (1876) noticed the habit of Mongolian Ground-jays coming down to the path along which the horses had gone, to feed on the dung (probably to obtain both grains and beetles). He also reported on a local name of this species, '*Kil yurgha*, which has reference to the bird running in the

trail of horses'. A 'definite preference for caravan paths' has also been reported for Turkestan Ground-jays feeding on dung, garbage and dropped grains (Dementiev & Gladkov 1954), while Iranian Ground-jays have been observed in the early morning and late afternoon running in search of spilt grains on roads between villages (Hamedanian 1997). Here I report an exploratory study that might make the basis for more structured studies aiming at both the status of the ground-jays and their possible use in road ecology.

Study area and methods

Attendance at a road of recent construction has been observed in the Xinjiang Ground-jay, found around temporary car parks, garbage stations and road maintenance camps along the Tarim Desert Highway (Ma Ming & Kwok Hon Kai 2004). This highway, which crosses the Taklimakan Desert for about 500 km, was constructed from 1993 to 1995, and between 2003 and 2005 it was provided with a vegetal multi-belt protection against sand drift (Li Sheng-yu *et al.* 2008). The planted genera (*Calligonum*, *Haloxyylon* and *Tamarix*) are irrigated through a continuous system served by a number of water-pumping stations set at regular intervals. During a tour by bus in August 2009, I surveyed two major-road transects (Figure 1) where, respectively, Mongolian and Xinjiang Ground-jays were expected to occur based on a map of relatively recent (1983–2003) distribution of both species (Ma Ming 2004). A further reason for choosing these transects was to include the presumably best times in a day, early morning and late afternoon, when the birds would be expected to be most active. Thus the first road transect (inset A: 125 km from Yutian to Minfeng on the southern rim of the Taklimakan) was surveyed on 15 August from 15h30 to 19h00 local time (GMT+6hr). The second road transect (inset B: 250 km along the cross-desert highway from Tazhong northwards to the end of the desert near the Tarim River) was surveyed in two days: on 16 August from 17h00 to 18h30, and after a night's rest at a water-pumping station, on 17 August from 07h00 to 08h30. Only those birds seen on the very margins of the road, or on the road itself, were considered for counts, because maintenance work along the southern road—in fact the construction of a new road beside it—and the well-grown vegetal belts along the cross-desert highway hampered observation further away from the road-line. This count

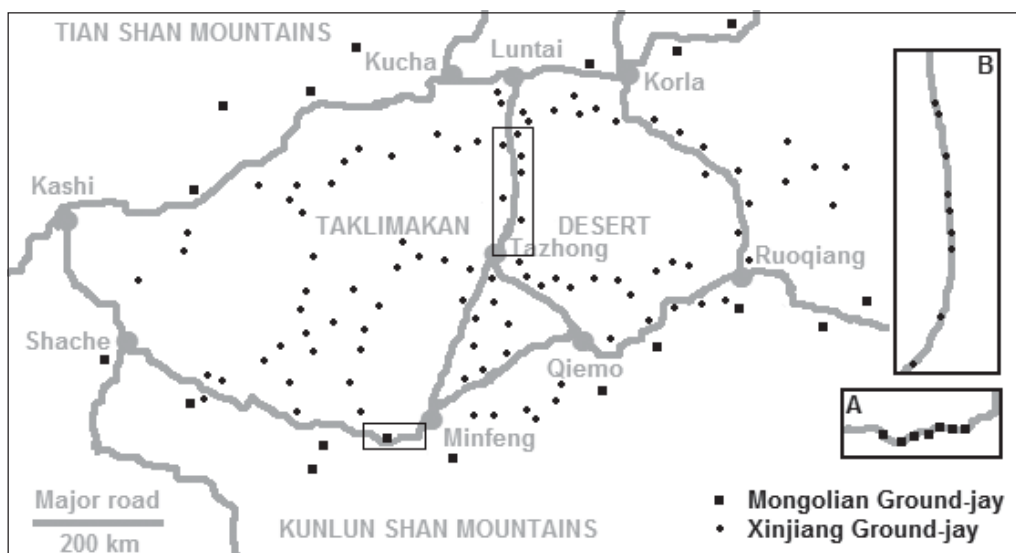


Figure 1. Locations of the Mongolian and the Xinjiang Ground-jays around and in the Taklimakan Desert, as mapped in Ma Ming (2004) from the records obtained by various observers in 1983–2003. Insets: locations recorded during the present study, 15–17 August 2009.

restriction also served to minimise possible effects of variation in speed of the vehicle (although such variation was fairly low). The data were collected en route following the methods of Londei (2010).

Results and discussion

I observed a total of eight Mongolian Ground-jays in seven locations from 36°44'N 82°05'E to 36°53'N 82°32'E along 104 km of the first road transect (inset A), equating to 7.7 birds per 100 km, and 12 Xinjiang Ground-jays in nine locations from 39°17'N 83°46'E to 40°44'N 84°17'E along 188 km of the second road transect (inset B), equating to 4.8 birds per 100 km. The foraging birds, mostly in adult plumage, showed little fear of approaching vehicles and road workers (Plate 1); Xinjiang Ground-jays also attended the rubbish dumps behind the water-pumping stations, and early in the morning I found a bird drinking from the irrigation system (Plate 2). As far as the number of recorded locations was concerned (Figure 1), only the Mongolian Ground-jay showed an increase compared with previous records. However, comparable recent counts of the number of birds only exist for the Xinjiang Ground-jay. Ma Ming & Kwok Hon Kai (2004) listed 34 observation transects of 500-m fixed width and specified length between specified locations, driven (or occasionally walked) along various routes in and around the Taklimakan. I assigned 22 of these transects, for a total of 3,865 km, to 'major

roads' (see Figure 1) and 12, totalling 1,263 km, to 'minor roads' (from secondary roads to tracks). A detailed recent map of the region (Gizi Map: Xinjiang Uygur Autonomous Region 1:2,000,000; 2005) served this purpose. Despite the observations being influenced by variation between years (1988–2003), season, time of day, number of observers, and speed of travel, there was a significant difference between the number of birds (mean \pm SE per 100 km) observed on major (3.4 ± 1.0) and minor roads (19.0 ± 9.8) (two-tailed Mann-Whitney U test: $U=45$, $P=0.002$). Slower traffic and fewer vehicles on minor roads probably offers the ground-jays more food and less disturbance.

The encounter rate for Xinjiang Ground-jay on the cross-desert highway falls between the estimates for major and minor roads, but my transects were much narrower. If I had been able to survey transects as wide as these authors, my result would probably have been closer to the estimates for minor roads. Since the years of its construction, the cross-desert highway may have increased the population density of Xinjiang Ground-jays in its vicinity by offering drinking water from the irrigation system, plus shelter and nesting sites in the planted vegetation. The present encounter rate for Mongolian Ground-jay is rather high compared with that from less heavily altered desert (Londei 2000), but the cause is probably different: in 2009 the southern road probably provided temporary attraction to an unusually high number of Mongolian Ground-jays because the maintenance works resulted in increased food for the birds, owing both to the garbage produced by numerous road workers and to increased spillage from the vehicles, this due to the temporarily poor condition of the road.

Overestimating animal abundance in deserts may be a risk when making counts along new major roads, as well as on minor roads in general, as these roads appear to attract animals. On the other hand, the following comparison of the status of Mongolian Ground-jays in past and present times suggests that long-standing major roads involve the opposite risk. Always a peripheral species as far as the Taklimakan is concerned, the Mongolian Ground-jay used to be common on both northern and southern rims, and indeed it was more frequently reported from the north (references in Hellmayr 1929, Ludlow & Kinnear 1933) and this is perhaps the reason why Cheng (1987), although mentioning Shache (=Yarkand) as the type locality, omitted any other reference to the southern rim of the Taklimakan. However, while counts made by Scully (1876) along the southern rim, totalling 35 birds between Sanju and Karghalik (=Yecheng, a minimum distance of 120 km), are reasonably still comparable with my count on the southern main road, the once-frequent records (unfortunately with no bird count) on the northern rim have no correspondence with the recent complete failures to find this species along the northern main road (Grimmett & Taylor 1992, Londei 2000, pers. obs. from Kucha to Korla in August 2009). This change may be attributable to the northern main road now traversing a more heavily altered desert in a zone of more advanced economy than its southern counterpart. As less heavily altered desert still exists further away from the road-line (pers. obs.), counts along the northern main road might now underestimate regional ground-jay abundance.

Being emblematic animals for desert conservation, ground-jays might help highlight the possibility that initially positive road effects on the abundance of animals in deserts change to negative effects as human settlements multiply along the road and these animals lose their basic habitat requirements over an increasing area.

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Plate 1. A Mongolian Ground-jay *Podoces hendersoni* feeding on a stretch of main road under repair on the southern rim of the Taklimakan Desert, August 2009. Photograph: T. Londei.



Plate 2. A Xinjiang Ground-jay *Podoces biddulphi* drinking from a pipe of the shelterbelt irrigation system along the cross-desert highway, August 2009. Photograph: T. Londei.



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Records of Black-breasted Parrotbill *Paradoxornis flavirostris* from Manas National Park, Assam, in north-east India

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The Black-breasted Parrotbill *Paradoxornis flavirostris* is a globally threatened bird and is listed as 'Vulnerable' owing to a small population, inferred to be declining rapidly as a result of extensive loss and degradation of grasslands (BirdLife International 2009). It is also a 'restricted range' species (Stattersfield *et al.* 1998). Its known historic range was restricted to the plains of the Brahmaputra and Barak Rivers in Assam, Arunachal Pradesh and northern West Bengal in India and north-eastern Bangladesh (BirdLife International 2001). Recent records come from a handful of sites only: Jaldapara Wildlife Sanctuary, northern West Bengal (BirdLife International 2001), Dibru-Saikhowa National Park, Assam (Choudhury 1994), D'Ering Memorial Wildlife Sanctuary, Arunachal Pradesh (Singh 1999) and Kaziranga National Park, Assam (BirdLife International 2001).

The occurrence of Black-breasted Parrotbill in Manas National Park was not reported in BirdLife International (2001, 2009). However, Choudhury (2006) reported a secondary record of two birds seen in 1997, south of Mathanguri (Bibhuti Lahkar, pers. comm.). I here report recent observations on the species from Manas National Park in western Assam (Figure 1).

On 26 May 2007, while negotiating tall elephant grass jungle on the banks of a shallow river formed by the Doimari and Rabang *nullahs*, in the Bhuyanpara Range area of Manas National Park, I heard the call of Black-breasted Parrotbill at 16h55 (c. 26°45'N 91°04'E). The site was west of Kanchanbari Forest Camp and south-west of Makhibaha Forest Camp. Since I was familiar with its distinctive call (heard in Dibru-Saikhowa National Park), it took no

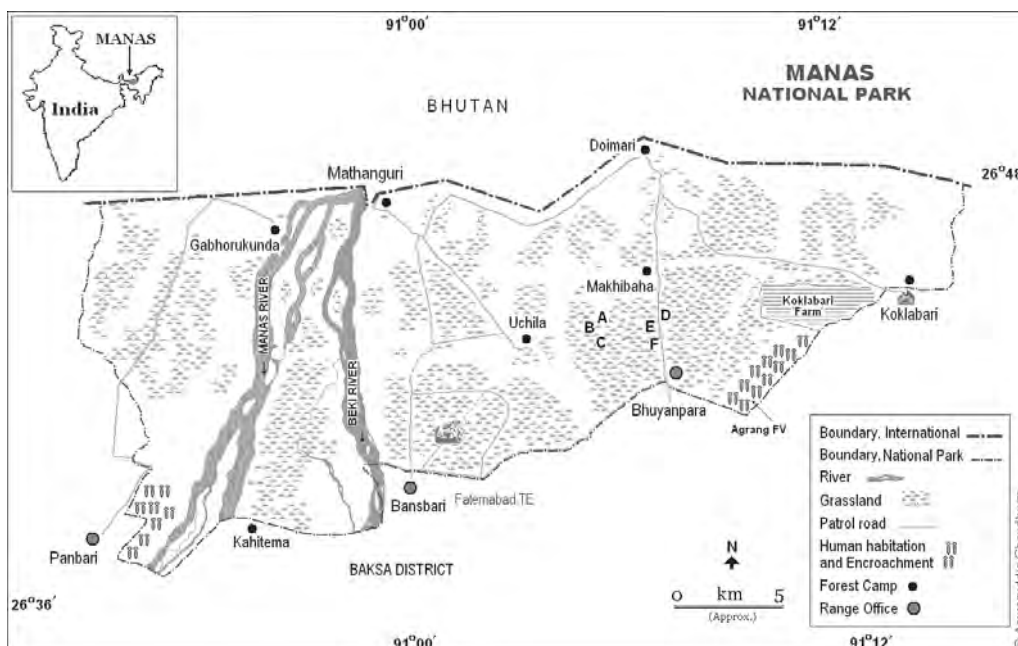


Figure 1. Map of Manas National Park showing the sites of observation of Black-breasted Parrotbill (marked A, B, C, D, E, F).