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NOTE

About the geographic distribution of the Xinjiang Ground Jay (*Podoces biddulphi*)

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Abstract Considering a recent proposition on this journal that the endemic Xinjiang Ground Jay (*Podoces biddulphi)* would be expanding its range to Qinghai and Gansu, a previously overlooked statement has been found in old literature suggesting that this species has occurred in Gansu at least since the 19th century. The phreatophytic vegetation this desert bird requires likely constrains its distribution. Therefore, although the desert expansion the current global climate warming is producing may make the Xinjiang Ground Jay expand its range, only well-preserved desert might be colonized. Future research in apparently suitable areas, at present inhabited by the Mongolian Ground Jay (*P. hendersoni)* instead, might make the ecology of these two mutually exclusive species better understood.

Keywords Xinjiang Ground Jay, *Podoces biddulphi*, geographic distribution, Gansu, ecological constraints, desert expansion

Since Hume (1874) and Przheval'skii (Prejevalsky, 1879) independently described this species, the Xinjiang Ground Jay (*Podoces biddulphi)* has always been considered endemic in the basin of the Tarim River and its terminal, now dried-up, lake, Lop-nor. Przheval'skii named the species *Podoces tarimensis* on this belief, which is still supported by recent maps of recording locations (Ma, 2004; Ma and Kwok, 2004; Ma, 2011). These maps actually add the lower courses of independent tributaries of Lop-nor to the species' range, which is nevertheless still all within the Xinjiang Uygur Autonomous Region of China.

However, Ma (2011) points up a recent range expansion to the adjacent Qinghai and Gansu provinces, based on records in Collar et al. (2001) and Sun and Li (2009) respectively. The former finding is an unpublished single sighting M. Turton and G. Speight obtained near Golmud in Qaidam Basin in 1986 and still awaits confirmation. The latter concerns Dunhuang Xihu Nature Reserve, established along the course of the Shule River north of Dunhuang. A detailed map from A.M. Stein's 1906–1908 explorations (Sheet No.78 in Stein, 1921) shows this river, at those times richer in water, having an expansion named "Khara-nor" at about 40°28′N, 94°18′E, some 70 km west of present-day Xihu Village. A previous map in Przheval'skii (1888) reports the same lake with the alternative name of Khala-chi. In an expedition report first published in 1899, Przheval'skii's assistant P.K. Kozlov (Kozlov, 1963: 158) states: "Восточная граница географического распространения *P. Biddulphi* проходит чрез озеро Хала-чи, вблизи оазиса Са-чжоу.", i.e., "The eastern border of the geographic distribution of *P. biddulphi* intersects Khala-chi Lake, near to Sa-chow Oasis." Sa-chow means Dunhuang.

Kozlov's statement makes no reference either to observation or collection data, a possible reason for its having totally been overlooked till now. Therefore, Sun and Li's (2009) is an important finding, but more probably as a confirmation of the persisting presence of the Xinjiang Ground-jay in Gansu than a sign of recent range expansion to this province. Although this species rather than the other ground-jays may suggest the true desert bird because of more frequent occurrence on sand dunes, its nesting habits involve stands of

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desert poplars (*Populus euphratica* = *P. diversifolia)* and tamarisks (*Tamarix* spp.) (e.g., Ma, 2011). These plants are phreatophytes and thus, especially the poplars, are affected in their growth by the distance to groundwater (Gries et al., 2003). They take advantage of less deep groundwater under sandy, than under gravelly, surfaces, and thrive in periodically flooded areas. Maps in Stein (1921) show that desert poplars and tamarisks were widespread around Khara-nor Lake, but already at those times a salt-encrusted bare plain had formed a wide vegetation gap between this lake and Lop-nor. There are thus reasons to suppose that Dunhuang Xihu Nature Reserve hosts a relict, isolated population of the Xinjiang Ground-jay. The nearest recent sightings, on the east side of Lop-nor, do not reach 91°30′E (Ma et al., 2011).

The current desertification of Xinjiang, accelerated by destructive human activities and the irrational use of water resources, is adversely affecting the vegetation on which the Xinjiang Ground Jay depends (Li et al., 2004). If this species expanded its range as a consequence of such a rapid, in part man-dependent, desertification, it would be a very adaptable, not-threatened species. On the contrary, its ecology suggests the stenotopic species and, not far from its known range, apparently suitable habitats exist where it has never been recorded. The Ejina Basin in Inner Mongolia, where a formerly large lake has reduced its surface in historical times (Liu, 1992) and desert poplars still thrive on the sands, is an example. Ejina Basin is not separated from Tarim-Lop-nor Basin by high ridges — Qaidam Basin is — or bare deserts, possible barriers for the Xinjiang Ground Jay; on the contrary, these basins are linked together by the tectonic depression of the Hexi Corridor and its river system. The wider-ranging Mongolian Ground Jay (*Podoces hendersoni)* is the only ground jay recorded in Ejina Basin (distribution map in Cheng, 1987) and the usual ground jay in Qaidam Basin, where a higher altitude results in a colder climate and more stunted vegetation, with few desert poplars. The two species have recently been found (Londei, 2011; Ma, 2011) where climate is not obviously different, but soil conditions may produce different vegetation. The current global climate warming, a possible reason for an observed eastward expansion of several bird species in Xinjiang (Ma, 2010), might favor the Xinjiang Ground Jay over the Mongolian Ground Jay by raising the groundwater level in the desert. Thus the former might expand its range, provided that well-preserved deserts were available. Research in border areas might make the ecology of the mutually exclusive Mongolian and Xinjiang Ground Jays better understood.

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白尾地鸦（*Podoces biddulphi*）的地理分布

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摘要：本刊近期发表的文章认为中国本土的白尾地鸦（*Podoces biddulphi*）有东扩至青海及甘肃的趋势，然而文章忽略了一点：早期文献认为至少在 19 世纪该鸟种就已经存在于甘肃。白尾地鸦所依赖的浅地下水湿生植物很可能限制了其分布范围。因此，虽然当前全球气候变暖所引发的沙漠地域扩张，使得白尾地鸦的分布范围扩大，但它们可能只集中在植被保护较好的地区。然而，此类比较适合白尾地鸦生存的地区，目前正被黑尾地鸦（*P. hendersoni*）栖息利用。对这些地区进行深入研究，将更利于了解这两种相互排斥的鸟类。

关键词：白尾地鸦，*Podoces biddulphi*，地理分布，甘肃，生态约束，沙漠扩张