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Conservation of Tengmalm's Owl and Sichuan Wood Owl in Lianhuashan Mountain, Gansu, China

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The Lianhuashan Mountain is located in south Gansu province, China, and the coniferous forest is dominated by spruce *Picea asparata* and fir *Pinus tebulaeformis*. The coniferous forest along the Qinghai-Tibet Plateau is an important biodiversity area inhabited by many endemic birds, such as the Chinese Grouse *Bonasa sewerzowi*, Sichuan Jay *Perisoreus internigrans*, Sichuan Wood Owl *Strix davidi* and Tengmalm's Owl *Aegolius funereus beickianus*.

Natural nests of Tengmalm's Owl were found in cavities in dead firs (Sun *et al.* 2004). At Lianhuashan, historic selective logging of large trees before 1998 resulted in few large diameter trees suitable as owl nesting sites. Consequently, we started an owl nest-box project in 2002 within the Lianhuashan Nature Reserve. In 2002 and 2003, 67 small nest boxes for the Tengmalm's Owl and 48 large boxes for the Sichuan Wood Owl were placed in coniferous trees at 4–6 m above the ground. Nest boxes were designed to imitate natural nests and contained no nest materials. We placed nest boxes in relation to forest cover. In 2003, four pairs of Tengmalm's Owl bred for the first time in the nest boxes. From 2003–07, 4–7 nest boxes have been occupied each year by Tengmalm's Owl.

The Sichuan Wood Owl, listed as a vulnerable species, was first found in Lianhuashan in 1995 (Sun *et al.* 2001). A playback transect line census in 2007 found only 2–3 pairs in an area around 500 ha. In 2005, the first pair of Sichuan Wood Owls was found in a large nest box along with two eggs. The laying date was estimated between 15–20 April. Both young fledged on 21 June and the elder juvenile survived until the winter (Fang *et al.* 2007). We placed video equipment inside the nest box to monitor their life history and behaviour. In 2007, a pair of Sichuan Wood Owls laid 3 eggs in the same nest box. The laying date

was estimated to occur between 29 March – 3 April. All three young fledged successfully by 3 June, but died 20 days later.

The five young Sichuan Wood Owls from the 2005 and 2007 nests fledged in June but because of bad weather conditions (cold, rainy) and high human disturbance, only one young survived to its first winter. During the owl breeding season, local people collect medicinal materials and bamboo in the breeding habitat of the owls. The increased human activity has badly affected the landscape of Lianhuashan, including the owl's habitat. Improved communication between local government and residents is needed.

Meanwhile, there is a need to establish additional nest boxes, especially large boxes for the Wood Owl, so that the study area can be extended to cover more habitats possibly used by the owls.

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