

New records indicate that Austral Pygmy Owl *Glaucidium nanum* breeds in eastern Patagonia

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El Caburé Grande *Glaucidium nanum* se distribuye ampliamente en Argentina y Chile, siendo la Cordillera de los Andes su lugar de residencia conocido para todo el año. Presentamos nuevos registros y datos preliminares de la biología reproductiva del Caburé Grande para la Patagonia Argentina. Nuestras observaciones expanden su presencia permanente 300 km al este de su distribución conocida. Encontramos que *G. nanum* es un residente anual en la estepa patagónica, y consideramos que no posee movimientos migratorios, solo de dispersión. Creemos que es importante conocer cuáles son los factores ecológicos que intervienen en la residencia de la especie en la estepa patagónica.

Pygmy owls *Glaucidium* spp. comprise 31 species of worldwide distribution, except Australasia^{10,15}. Austral Pygmy Owl *G. nanum* occurs in southern South America from sea level to 2,000 m in Chile, from the southern Atacama to Tierra del Fuego and Cape Horn, and in Argentina to 1,500 m in the Andes, from Neuquén to Tierra del Fuego^{7,10,16,23}. It inhabits varied landscapes, from temperate forests, agricultural land with scattered trees, to parks and gardens^{7,10,15,16}. Trejo *et al.*²⁵ considered it a habitat generalist, but one that prefers to nest in forested areas. Austral Pygmy Owl is common in north-west Argentine Patagonia in winter^{6,10,15,23}, but König *et al.*¹⁵ noted that immatures of southernmost populations migrate to central Argentina in winter. Similarly, in Chile, *G. nanum* is speculated to migrate south to north (to the Atacama region). Nevertheless, in parts of the Patagonian Andes, it is considered a year-round resident^{6,12,15,26}. Its biology (e.g., breeding, diet and migratory status) is poorly known in Argentina^{2,24} and only basic descriptions exist for Chile^{10,13,15}. Here we present records of year-round resident Austral Pygmy Owls in southern Argentine Patagonia, which region was not previously considered part of the species' range, and discuss the species' migratory status.

Study area

We collected data on Austral Pygmy Owl in two localities: 'Seccional El Cuadro' and 'Seccional Cerro Horqueta' of the Bosque Petrificado Natural Monument (47°39.887'S 69°59.729'W; 200 m), a protected area of 570 km², in dpto. Puerto Deseado, Santa Cruz province, eastern Argentina. The area lies in the Patagonian Phytogeographic Province⁴ and tablelands with rugged cliffs and valleys dominate its landscape. Vegetation mostly comprises tussock grasses and low, dome-shaped, spindly shrubs²², with cover ranging from <10% in the most arid areas, to 60% in valleys and

lowlands. Dominant plant species in arid zones are *Azorela* spp., *Chuquiraga avellanadae*, *Nassauvia glomerulosa* and grasses mostly of the genus *Stipa*. Humid and sheltered areas in valleys are characterised by wet grasslands with dense herbaceous vegetation dominated by *Distichlis* spp. and *Schoenoplectus* (*Scirpus*) *californicus*, and arboreal species such as *Prosopis denudans*, *Berberis cuneata*, *Schinus* spp. and *Junellia* spp. Annual rainfall is 100–300 mm, falling mostly in winter. The climate is dry and cold, with strong westerly winds.

Observations

In September 1999 (austral spring), we observed an Austral Pygmy Owl in 'Seccional El Cuadro', and another was observed in September 2000 in 'Seccional Cerro Horqueta', c.17 km away. We placed three nest boxes in trees (*Populus* sp. and *Pinus* sp.) near houses, the first in April 2000 and the other two in October 2003. They were constructed according to the design proposed by Bortolotti³ for American Kestrels *Falco sparverius*, and were visited on average every six days during the incubation (mid October) and fledging (mid November or early December) periods. Austral Pygmy Owl was recorded annually (at all seasons) in both areas in 2001–06. We documented seven nesting attempts in 2000–06. Eggs were white and ranged from 30.2–31.5 mm in length (mean = 30.65, SD = 0.50, $n = 8$) × 25.1–26.8 mm in width (mean = 25.82, SD = 0.57, $n = 8$). Clutch size averaged 4.8 ± 0.84 eggs (range 4–6 eggs). Hatching success was 100% in 2000 ('Seccional Horqueta'), 60% in 2003 ('Seccional Horqueta'), 75% in 2004 ('Seccional El Cuadro'), 50% in 2005 ('Seccional Cerro Horqueta'), and 100% in 2006 ('Seccional El Cuadro') (Fig. 2). All nesting attempts we observed were successful and all chicks survived, resulting in 3.6 ± 0.89 fledglings per nest box. In 2001 and 2002, we also observed

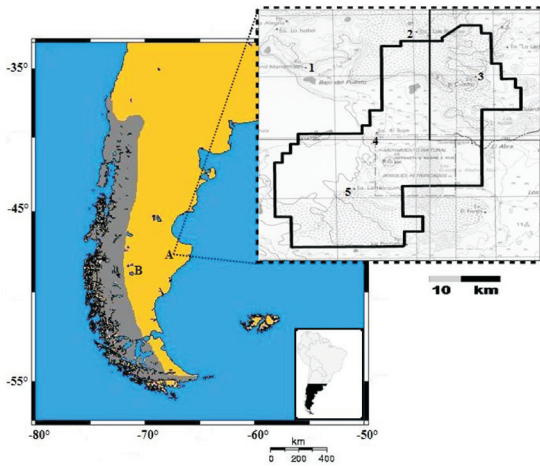


Figure 1. Location of Bosque Petrificado Natural Monument (A) and Estancia La Angostura (B), outside the range of Austral Pygmy Owl *Glaucidium nanum* in Narosky & Yzurrieta¹⁸ and König *et al.*¹⁵. The inset shows 1: Estancia Laguna Manantiales; 2: Estancia Las Piedras; 3: Seccional 'El Cuadro'; 4: Puesto El Bajo; 5: Seccional 'Cerro Horqueta'.

Austral Pygmy Owls nesting away from the boxes, but no young were raised (Table 1). During the 2005–06 breeding seasons (November–December), the species' presence was confirmed outside the park at Estancias Laguna Manantiales (47°34'S 68°17'W) and Las Piedras (47°31'S 68°33'W), 20–30 km away. In addition, a pygmy owl was observed in a *Schinus* sp. tree in April 2004 at Puesto El Bajo (47°40'S 68°08'W) (Fig. 1).

Discussion

Our records represent the first breeding data for the species in Argentina. Clutch size in the Patagonian steppe was higher than in Chile (3–5 eggs) and reported for Ferruginous Pygmy Owl *Glaucidium brasilianum* (4–5 eggs) in northern Argentina^{5,14}. Previous avifaunal studies in this protected area did not record Austral Pygmy Owl^{8,9}, which was considered restricted to Patagonian Forest in

Table 1. Nesting success of Austral Pygmy Owl *Glaucidium nanum* at Bosque Petrificado Natural Monument, Argentina, in 2000–06. (a) = not in nest boxes, (b) = clutch lost.

Year	Clutch size	No. hatched	No. fledged
2000	4	4	4
2001 (a)	-	-	0
2002 (b)	-	-	0
2003	5	3	3
2004	4	3	3
2005	6	3	3
2006	5	5	5
Mean	4.8	3.6	3.6



Figure 2. Nestlings of Austral Pygmy Owl *Glaucidium nanum* in a nest box at Seccional 'El Cuadro', Bosque Petrificado Natural Monument, Argentina, December 2006 (Diego E. Procopio)

the Andes^{6,7,10,15,18}. Bellati¹ did not consider the Patagonian steppe as habitat for Austral Pygmy Owls, but, recently, Christie *et al.*⁶ and Veiga *et al.*²⁶ reported the species in such habitat in Río Negro and Neuquén provinces (northern Patagonia), and Martínez & Gonzalez¹⁶ now consider the species resident throughout Patagonia. Darrieu *et al.*⁸ and S. Imberti (unpubl.) remarked that it is present in the Andes, as well as in central Santa Cruz province (Estancias La Angostura and Las Tunas) and near the Atlantic coast (Estancia Cabo Buen Tiempo, Monte León National Park and Río Gallegos). Based on our records and the observations of resident park guards, the range of Austral Pygmy Owl extends c.300 km further east than previously assumed, and the species can be considered a year-round resident in southern Patagonia in Bosque Petrificados Natural Monument and neighbouring farms. The availability of sight records year-round supports the hypothesis that the species does not undertake migrations. Our records, those of Darrieu *et al.*⁸ (Estancia La Angostura) and the unpublished observations of S. Imberti (Monte León National Park and Río Gallegos) suggest the species disperses in the Patagonian steppe or in some cases is truly resident²¹. This owl generally requires tree cavities for nesting sites, limiting its distribution¹⁰. Nest box provision is influential in the selection of breeding sites and enhances habitat suitability for cavity-nesting species in general^{19,20}. Thus, our use of nest boxes might explain the species' breeding in the study zone, and nest boxes might prove important to this owl's ability to persist in arid zones, along with other factors such as tree-planting by humans, as with some other Patagonian birds^{11,17}.

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