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#### EAR TUFTS IN FERRUGINOUS PYGMY-OWL (*GLAUCIDIUM BRASILIANUM*) AS ALARM RESPONSE

KEY WORDS: *Ferruginous Pygmy-Owl*; *Glaucidium brasilianum*; *ear tufts*.

Numerous owl species exhibit small feathers on the head that resemble horns or ear tufts that are visible when individuals are resting. This plumage feature is mainly observed in species of the genus *Bubo* and *Otus*, but also occurs in other genera such as *Asio*, *Ptilopsis*, *Ketuþa*, and *Lophotrix* (Duncan 2003, *Owls of the world: their lives, behavior and survival*. Firefly Books, New York, NY U.S.A.). Other owl species, however, have inconspicuous ear tufts that are not visible even when birds are captured and handled. Under stressful situations, these species erect lateral, post-ocular crown feathers up to a height that does not exceed the top of the head plane. These feathers are similar in length to the remaining head feathers and are erected in a continuous motion when birds change their body shape from rounded to oblong (Holt and Peterson

2000, in A. Poole and F. Gill [Eds.], *The birds of North America*, No. 494, The Academy of Natural Sciences, Philadelphia, PA and The American Ornithologists' Union, Washington, DC U.S.A.).

Although the ecological function of this display is unknown, it has been associated with concealment or camouflage that can disrupt bird coloration, making individuals less conspicuous. Holt and Peterson (2000) observed this reaction in Northern Pygmy-Owls (*Glaucidium gnoma*) when potential predators were placed before captive owls and in the wild when birds of prey or flocks of passerines were present. Human presence was reported to produce concealment reactions in both sexes of Boreal Owls (*Aegolius funereus*), and Northern Saw-Whet Owls (*Aegolius acadicus*; Catling 1972, *Auk*. 89:194–196).

a)



b)



Figure 1. Ferruginous Pygmy-Owl photographed in semiarid forest of La Pampa province (Argentina) displaying (a) normal-resting and (b) concealment postures.

Concealment posture has been reported for other owl species, such as Short-eared Owl (*Asio flammeus*; Holt and Leasure 1993, in A. Poole and F. Gill [Eds.], *The birds of North America*, No. 62, The Academy of Natural Sciences, Philadelphia, PA and The American Ornithologists' Union, Washington, DC U.S.A.), Elf Owl (*Micrathene whitneyi*), Boreal Owl, Northern Saw-whet Owl, and Northern Hawk Owl (*Surnia ulula*; Duncan 2003). Among pygmy-owls this behavior has been reported for Eurasian Pygmy-Owls (*G. passerinum*; Scerzinger 1970, *Zoologica* 41:1–130). However, it is uncertain whether concealment posture is common in the other 28 pygmy-owl species (Duncan 2003). We here report ear tufts and concealment posture in wild Ferruginous Pygmy-Owls (*Glaucidium brasilianum*) in South America and provide data on duration and frequency of this display in response to human presence.

We observed Ferruginous Pygmy-Owls displaying concealment posture in two areas of La Pampa province, Argentina: the Parque Luro Reserve (36°55'S, 64°16'W) and Jagüel del Monte (36°39'S, 65°56'W). Both areas are dominated by a xerophytic forest of *Prosopis caldenia* that is typical in Espinal biome in the semiarid pampas of Argentina (Cabrera 1994, *Regiones Fitogeográficas Argentinas*. Enciclopedia Argentina de Agricultura y Jardinería, Primera Reimpresión, Tomo II, Fascículo I, Editorial Acme, Buenos Aires, Argentina). In addition to field observations, we captured adult and fledging Ferruginous Pygmy-Owls in Parque Luro Reserve to examine plumage and corroborate absence of ear tufts. We captured adult pygmy-owls using bal-chatri traps (Berger and Müller 1959, *Bird-Banding* 30:18–26) and hatchlings by hand during the breeding season. We also examined museum skins

of Ferruginous Pygmy-Owls at the Museo Argentino de Ciencias Naturales "Bernardino Rivadavia," Buenos Aires.

We recorded the display of ear tufts and concealment posture in the Ferruginous Pygmy-Owl on four occasions: three during summer 1998 in Parque Luro Reserve and the remaining during autumn 2006 in Jagüel del Monte. In all cases, this posture was provoked only by the presence of observers, because potential avian or mammal predators or flocks of passerine birds were not present. Initial posture of Ferruginous Pygmy-Owls was that typical of a perched bird not displaying ear tufts (Fig. 1a). When the observer approached to a distance <8–10 m (mean =  $9.3 \pm 1.0$  m), pygmy-owls quickly changed shape to that described by Holt et al. (1990, *J. Raptor Res.* 24:59–63) and erected ear tufts (Fig. 1b). Owls kept this posture for 7–10 min (mean =  $8.1 \pm 1.0$  min) until the observers moved away. Presence of ear tufts was not detected in 20 museum skins we examined or in 10 wild pygmy-owls we captured (three adults and seven fledglings).

Although the adaptive significance of alarm calls and some plumage features in pygmy-owls (e.g., eye spots) relative to the size of predators and avian mobbing has been discussed (Suhonen 1995, *Anim. Behav.* 45:1193–1198; Deppe et al. 2003, *Auk* 120:765–771; Templeton 2005, *Science* 308:1934–1937; Negro et al. 2007, *Biol. J. Linn. Soc.* 90: 467–477), the function of concealment postures and ear tufts in small owls has not been evaluated. In the case of pygmy-owls, several hypotheses have been suggested, including intra- and interspecific visual recognition (Perrone 1981, *Condor* 83:383–384) and mimicking mammal's face and ears for predator avoidance (Myserud and Dunker 1979, *Anim. Behav.* 27:315–316). Concealment posture as a response to human presence has been reported only for

nestling and fledging Northern Pygmy-Owls (Holt and Petersen 2000). Our observations also suggested that this posture was adopted in response to humans. Furthermore, because our observations were recorded during both breeding and nonbreeding seasons, they supported Holt's suggestion that this posture was not associated with territory-defense displays adopted in response to the presence of other pygmy-owls.

We agree with Holt and Petersen (2000) that further study of these behaviors is needed to assess relationships with several environmental and individual factors, such as type and size of potential predators, age and sex of owls, and territorial status. It is also unknown whether or not this concealment posture is present in other South American species (*Aegolius* spp., *Strix* spp., *Pulsatrix* spp., *Ciccaba* spp. and *Asio flammeus*) that do not display ear tufts.

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