NOTES ON A POPULATION OF CHESTNUT-THROATED HUET-HUET *Pteroptochos castaneus* IN NEUQUEN PROVINCE: A NEW RHINOCRYPTID FOR ARGENTINA

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Notas sobre una población del Huet-huet Castaño *Pteroptochos castaneus* en la provincia de Neuquén: un nuevo Rhinocryptidae para la Argentina

RESUMEN. En Diciembre de 1999 fue encontrada una población de *Pteroptochos castaneus* (Rhinocryptidae) en la Reserva Forestal Turística Lagunas de Epulaufquen (36°50'S, 71°05'W), al noroeste de la provincia de Neuquén, Argentina. Esta especie era sólo conocida previamente para una restringida área adyacente de Chile. Se tomaron fotografías y se grabaron sus voces a 1450-1550 m. s.n.m., en un bosque aislado de *Nothofagus obliqua*. Los estudios de campo demostraron que *P. castaneus* y su especie hermana, *P. tarnii* son alopátricas en Argentina, estando separados por una distancia de 209 km, a lo largo de un área de pastizal estepario con parches de bosque disyuntos de diferente composición arbórea, aparentamente no aptos para ninguna de estas especies. Se discuten diferencias de comportamiento y voces de *P. castaneus* y *P. tarnii*, y se describen en detalle sus requerimientos de hábitat. Se realizan comentarios sobre la conservación de *P. castaneus* en la Argentina.

PALABRAS CLAVE: *Pteroptochos castaneus, Pteroptochos tarnii*, Argentina, distribución alopátrica, voces, bosques de *Nothofagus obliqua*.
KEY WORDS: *Pteroptochos castaneus, Pteroptochos tarnii*, Argentina, allopatric distribution, voices, *Nothofagus obliqua* forests.

INTRODUCTION

The three species of the genus *Pteroptochos* comprise the largest members of the family Rhinocryptidae, and are resident in the southern portion of Argentina and Chile (Hellmayr 1932, Goodall et al. 1946, Peters 1951). One species, the Moustached Turca *P. megapodius*, is endemic to the arid matorral and cactus scrub of central Chile, and the remaining two, Chestnut-throated Huet-huet *P. castaneus* and Black-throated Huet-huet *P. tarnii*, are mainly restricted to Ando-Patagonian *Nothofagus* forests.

P. tarnii has a large range stradling the southern Andean and sub-Andean region, in southern Chile and Argentina. In Chile this range extends from the Río Bío-Bío (37-38°S), with one recent record just north of this river (Chesser 1999, Fig. 1), south to northern Magellanes province (Ridgely & Tudor 1994). In Argentina, *P. tarnii* is generally considered to occur from Neuquén south to Santa Cruz province (Olrog 1979).

P. castaneus is regarded as being endemic to a relatively small area of southern-central Chile, and as such, was defined as a "restricted-range species"; ie. having a global breeding range below 50,000 km^2 (Stattersfield et al. 1998). It is known from Colchagua province south to Concepción and Bío-Bío provinces; its southern limit being defined from the mouth of the Río Bío-Bío, east to its confluence with the Río Laja and east along the north shore of the Laja (Behn 1944, Chesser 1999, Fig. 1) and into the Andean cordillera reaching an altitude of 1500 m. (Ridgely & Tudor 1994), to its southernmost limit, ca. 1 km south of the Río Laja in Parque Nacional Laguna del Laja (Pearman 1995).

Former controversy surrounding the specific status of *P. castaneus* and *P. tarnii* has been resolved through voice analysis (Howell & Webb 1995) and mitochondrial gene sequencing (Chesser 1999), both studies showing that the two forms are sister species. Differences in plumage have also been discussed in detail (Behn 1944, Ridgely & Tudor 1994, Howell & Webb 1995) but habitat descriptions have been vague in the literature.

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METHODS

Previous field experience of *P. castaneus* was obtained during field trips to southern Chile in November 1991 and December 1998; and of *P. tarnii* during trips to southern Chile and Argentina in February 1989, February and November 1991, March 1997, June and December 1998. I used the published distributional data (see references) and 1: 250,000 topographical maps from the Instituto Geográfico Militar (sheets 3772-11, 3772-IV and 3972-II), to determine the possibility of occurence of *P. castaneus* in west Neuquén province, Argentina. These maps and other literature (Belver 1999) revealed a series of altitudinal passes ranging 1700-3100 m. between Argentina and Chile, with several disjunct native forest patches at 1450-1800 m. The reported observation of *P. tarnii* at Lagunas de Epulaufquen in January 1988 (A. Serret in Chebez et al. 1993), appeared to be incongruent with the poorly defined published distributional limits of *P. tarnii* in Argentina, and the fairly well defined distribution of *P. castaneus* in Chile (Behn 1944, Chesser 1999, Pearman 1995). Given the lack of suitable forest patches to the north of this locality (Belver 1999, Landsat images), I made a north to south search beginning at Epulaufquen and in seven field days surveyed accesible forest patches in northwest Neuquén province using pre-recorded tapes of both species in order to determine: a.) the possible presence and distribution of *P. castaneus* in Argentina; b.) the northern limit of *P. tarnii* in Argentina; c.) whether the two species are sympatric or allopatric in Argentina; and d.) how they differ from one another ecologically. Sound-recordings were analysed using Avisoft SASLab 1 and Gram Spectrogram 4.1.2. Sonagrams were produced with a 1300 Hz bandwidth to emphasize differences between the notably low-pitched voices of these *Pteroptochos* species.

STUDY LOCALITIES AND FIELD OBSERVATIONS

On 2 December 1999, I located a pair of *P. castaneus* holding a c.500 x 400 m. territory at 1450 m. in Reserva Forestal Turística Lagunas de Epulaufquen (36°50'S, 71°05'W), Minas department, northwest Neuquén province, Argentina (Fig. 1) and studied them daily from 2-5 December. Two other single individuals were located at the same locality at c.1500 m. and c.1550 m. on 3 and 4 December 1999 respectively. Tape-recordings (see Figs. 2 and 5) and field photographs were secured from this locality and provide the first evidence of the occurrence of *P. castaneus* in Argentina.

From 6-7 December 1999, I visited Caviahue (37°52'S, 71°04'W), where all forested habitats were surveyed from 1600-1800 m. (see Fig. 1). No *Pteroptochos* species could be found (see Habitat and Discussion).

On 7-8 December, I surveyed the mixed forest at Pino Hachado (38°39'S, 70°49') with an altitudinal range of 1450-1600 m. (see Fig. 1). This locality is the northernmost limit of the contiguous Ando-Patagonian forest in Argentina (Chebez et al. 1993, pers. obs.). Here, a territorial pair, and another single individual, of *P. tarnii* were tape-recorded and photographed.

HABITAT

At Lagunas de Epulaufquen, *P. castaneus* was found in *Nothofagus obliqua* forest with large boulders and rock-lined, vegetated stream gulleys. One pair frequented a steep slope with very little understorey, while the other two individuals were found in gently sloping forest interior with some *Chusquea culeou* bamboo understorey. At the same locality, no individuals could be found in similar forest with complete, or near complete, *Chusquea* understorey, nor in the extensive *Nothofagus antarctica* forest, or in a small area of *Nothofagus pumilio* forest.

At Caviahue, where no *Pteroptochus* species were found, the habitat varied from pure *Araucaria araucana* forest, mixed *Araucaria araucana-Nothofagus antarctica* forest, pure stunted *N. antarctica* woodlands bordering stream courses, unforested areas of *Chusquea culeou* bamboo stands, small areas of mixed *Araucaria-N. pumilio* forest and a stand of *Luma apiculata* on open scree slopes. Although this area of forest appeared superficially suitable for either *P. tarnii* or *P. castaneus*, only the pure *Araucaria araucana* forest was extensive and continued in smaller patches to the north, and in fairly large patches to the south, over areas of steppe-grasslands.

In contrast, *P. tarnii* shows more varied habitat requirements than *P. castaneus* over its considerably larger range. At the northernmost limit of its distribution in Argentina, Pino Hachado (see above and Fig. 1), the species was found in mixed *Nothofagus pumilio-Araucaria araucana* forest at 1600 m. Elsewhere in its range, *P. tarnii* occurs in *N. dombeyi, N. obliqua, N. antarctica* and mixed *Nothofagus* spp. forest with, or without, *Chusquea* understorey; and in secondary growth, pine plantations, open *Chusquea* bamboo thickets without tree cover, and even hedgerows dividing agricultural fields in Chile (pers. obs.).

BEHAVIOUR AND VOICE

The behaviour of *P. castaneus* and *P. tarnii* has been described in some detail (Behn 1944, Johnson 1967, Ridgely & Tudor 1994, Howell & Webb 1995) but distinctions have not been made between the two species. *P. castaneus* at Epulaufquen was observed on several occasions in exposed situations on large boulders in open forest. This behaviour has not been previously reported for either *P. tarnii* or *P. castaneus*, and is seemingly more analogous with *P. megapodius* (pers. obs.). The position in which the tail is held in *castaneus* and *tarnii* varies with activity, and is most obvious when birds are alarmed; individuals run and pause briefly with the tail cocked in a vertical position. Similar behaviour can sometimes be observed in other Rhinocryptid genera eg. *Melanopareia, Rhinocrypta* and *Teledromus*.

Song of *P. castaneus* and *P. tarnii* is delivered from a rock or tree branch from 0.5-6 m.-up, and both species may jump or fly to higher perches when agitated, or in response to playback; usually remaining in shaded foliage. Both species emit considerably low-pitched songs varying from 420-550 Hz in *castaneus*, and 400-490 Hz in *tarnii* (Figs. 2, 3 and 4). The song of *castaneus* in Argentina was delivered in duet at dawn and dusk, sporadically through daylight hours and up to an hour after dusk. It comprised a series of hollow, *Grallaria*-like, "kU" notes (4-5 per second), with a few softer, slower introductory notes, the phrase gradually speeding up and ending abruptly. Song in Chile is identical (cf. Figs. 2 and 3). The equivalent song of *tarnii* (Fig. 4) is a lower-pitched series which is slower overall (3-4 notes per second) and slows towards the end, with the final notes becoming softer and descending in pitch; the opposite of *castaneus* (cf. oscillograms in Figs 2, 3 and 3). The number of notes in the series appears to be insignificant (contra Howell & Webb 1995) as I have tape-recorded 22-32 notes in *tarnii* and 22-31 in *castaneus*.

P. tarnii has a second song type which is a slower series of 11-19 softer "wok" notes (at 2 per second) descending considerably in pitch (from 1000-580 Hz in 6.5 secs), and becoming barely audible at the end.

The most commonly heard voice of *P. castaneus* and *P. tarnii* is the alarm which is given as soon as one gets fairly close to a bird; a similar behaviour is apparent in *Chamaeza* antthrushes. The onomatopaeic "huet-huet" alarm calls are fairly similar in the two species and differences have been described in detail (Howell & Webb 1995). These calls of *castaneus* were frequently heard and tape-recorded at Lagunas de Epulaufquen.

Howell and Webb (1995) described several other voices including "a single, loud, slightly hollow huuk!" note in *tarnii*, and in *castaneus* another

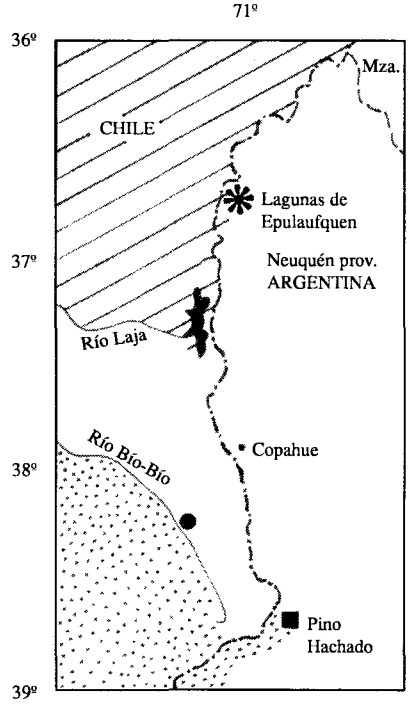
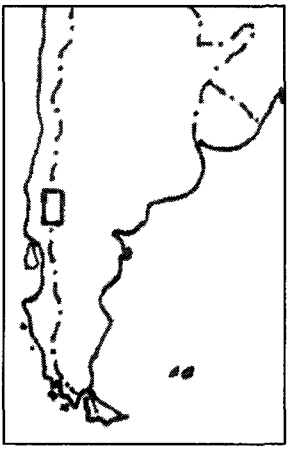


Figure 1. Eastern range of ***Pteroptochos castaneus*** *(hatched) and location of Argentine population (asterisk). North-eastern range of* ***P. tarnii*** *(stippled) showing unique record north of Río Bío-Bío (solid circle) and northern limit in Argentina (solid square).*



"heard [ ] only once in 1992: a sharp nasal note followed by a steady of pace of hollow hoots, wehk! wook wook wook". The "wook" calls of the latter phrase appear to be a variation of the alarm call, but the other single "wehk" note described, was heard frequently in December 1999 at Lagunas de Epulaufquen. These notes are delivered singly or repeated at intervals; every 3.3-8.6 seconds in *castaneus*, and every 2.1-4.8 seconds in *tarnii*. The call in *tarnii* is similar to the "huet" notes it uses in the alarm series (cf. Fig. 6 with Fig 2 in Howell & Webb 1995) while the equivalent call in *castaneus* is very distinctive, shows a broader frequency range (Fig. 5), and sounds much like a childs' squeaky toy. It has a strong nasal quality and tone, and is suggestive of a voice given by Ochre-flanked Tapaculo *Eugralla paradoxa*. The function of these calls is unknown but, in all three species, they are given by territorial birds on the ground, and could serve as contact notes or curiosity calls.

DISCUSSION AND CONSERVATION IMPLICATIONS

The field study shows that *P. castaneus* and *P. tarnii* are allopatric in Argentina, being separated by a distance of 209 km. (Fig. 1). In Chile, allopatric distribution has been accepted by all authors but the Bío-Bío/ Laja triangle still requires further investigation (see Behn 1944, Chesser 1999 and Fig. 1). *P. tarnii* extends some 1380 km southwards in Argentina from Pino Hachado (this study) to PN Los Glaciares, south-west Santa Cruz province (Pearman in prep.). The lack of continuous forest to the north appears to impede its further dispersal in that direction, and this is confirmed by Landsat images 3772-IV and 3972-II.

Nothofagus obliqua appears be the important habitat requirement for *P. castaneus* in Argentina, and it is noteworthy that *castaneus* was only found in forests with a fairly open understorey and without extensive *Chusquea* bamboo cover. The presence of rock-strewn stream gullies and boulders may also be important. In Chile, *P. castaneus* occurs in the interior of *N. obliqua* forest with sparse *Chusquea* understorey and in semi-open drier *Austrocedrus chilensis* forest (pers. obs.). It is important to note that *N. obliqua* is the most drought-resistant tree of its genus (Dimitri 1972) and this supports the distinction between the more arid habitats of *P. castaneus*, by virtue of latitude (Howell & Webb 1995), versus the more humid forests inhabited by *P. tarnii*.

Logging of taller *Nothofagus* woods, eg. *obliqua* and *pumilio*, in Minas department, Neuquén has a long history and has been indiscriminate at some of the former isolated woodlands adjacent to the Andean cordillera (Belzer 1999, I. Belzer pers. comm.). This may have caused the local extinction of *P. castaneus* in some unprotected areas. Fortunately, the Argentine population of *P. castaneus* inhabits a 7,500 hectare provincial reserve where all native forest is protected. The park is also grazed by cattle in the summer months between November and April, and uninhabited during the rest of the year. Part of the sub-cordilleran region of western Minas department, including grassland areas within Reserva Forestal Turística Lagunas de Epulaufquen, are being forested with pine plantations. This may eventually help *P. castaneus* to expand into such habitats if it is able to adapt in the manner of *P. tarnii* (see Habitat). Forest fires present the greatest threat to *P. castaneus* and a large fire could easily devastate or exterminate the Argentine population. The creation and maintenance of suitable firebreaks would therefore seem the most appropriate conservation step at Lagunas de Epulaufquen.

More surveys are needed to determine if any other populations of *P. castaneus* exist in northwestern Neuquén province, and these will be conducted in the region between Epulaufquen and Caviahue, sparsely inhabited by cattle farmers during the summer months. The population of *P. castaneus* at Epulaufquen appears to be small in that only four individuals could be found in four days, although it should be noted that some areas of suitable forest were innaccesible and could not surveyed. However, the existence of *P. castaneus* at this site suggests that the population should be sufficiently large in order to be sustainable. The *Nothofagus obliqua* forest at Epulaufquen appears not to be contiguous with similar forests in Chile, but Landsat images show some semi-conected forest patches stretching across the Andean chain. Although inaccessible, the patches likely refer to stunted *N. antarctica*, and remains to be determined if this habitat is suitable for *P. castaneus* and could allow gene flow between Chilean and Argentinian populations (apparently identical in plumage and voice). The general lack of suitable forest patches in northwestern Neuquén province is due to climatic differences as a result of the Andean chain impeding rain fronts crossing from Chile; habitat clearance may also be a contributory factor (see above). Thus forest cover in this arid region of Neuquén province is mostly limited to the borders of sizeable lakes and rivers, and in close proximity to low Andean passes.

The Lagunas de Epulaufquen appear to be unique in supporting a microhabitat of unexploited mixed *Nothofagus obliqua* forest and, together with its population of *P. castaneus*, probably indicate a former connection to Chilean forests.

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Fig. 2. Pteroptochos castaneus song. Lagunas de Epulaufquen, Neuquén, Argentina (2 Dec. 1999, M. Pearman).

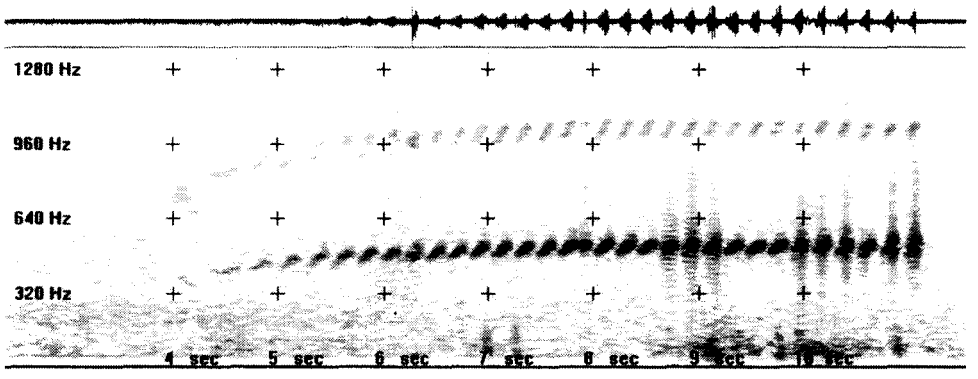


Fig. 3. Pteroptochos castaneus song. PN Laguna del Laja, Bío-bío, Chile (2 Dec. 1998, M. Pearman).

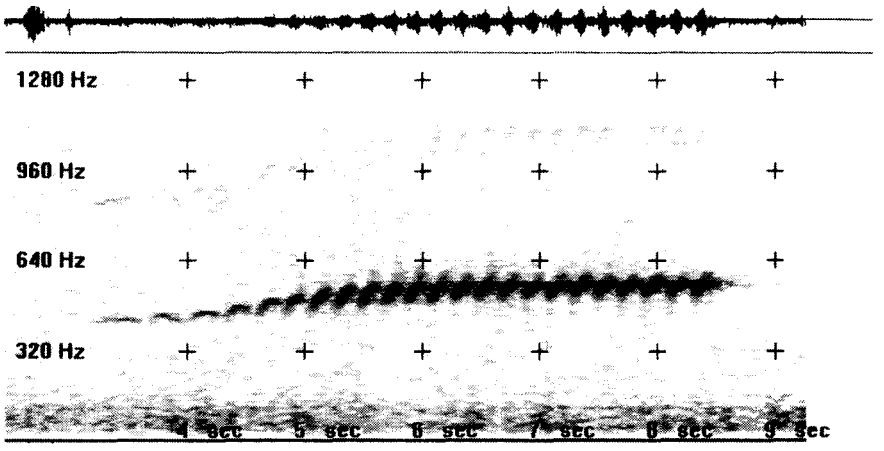
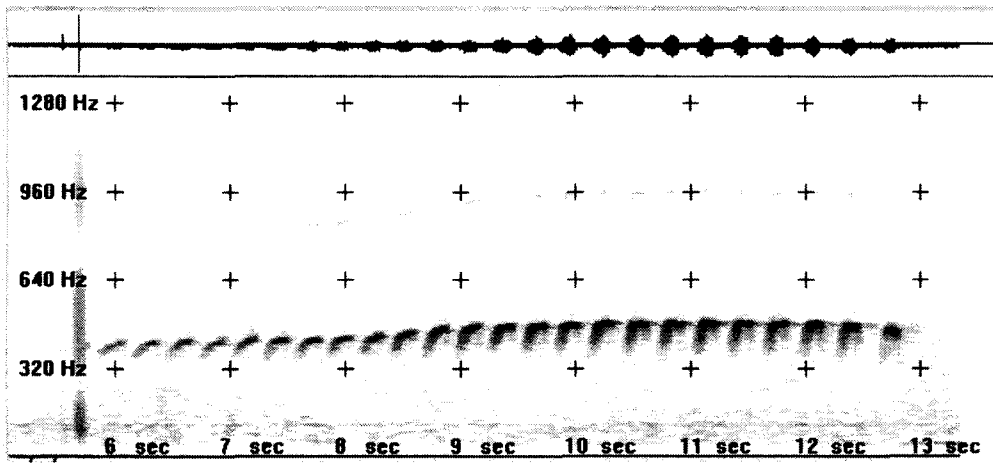


Fig. 4. Pteroptochos tarnii song. Bariloche, Río Negro, Aregntina (7 March 1997, M. Pearman)



Figs. 5 and 6. Single calls of P. castaneus (Lagunas de Epulaufquen, 2 Dec. 1999) and P. tarnii (Vegas Blancas, Arauco, Chile, 1 Dec. 1998) (all recordings by M. Pearman).