

BREEDING OF *AGRIORNIS MURINA* (AVES: TYRANNIDAE) IN PATAGONIA, WITH COMMENTS ON ITS HABITAT PREFERENCES AND TAXONOMIC POSITION

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Resumen. La nidificación del Gaucho Chico *Agriornis murina* (Aves: Tyrannidae: Fluvicolinae) en la Patagonia, Argentina, ha sido esperada ya hace cierto tiempo. Sin embargo, los únicos hallazgos documentando la nidificación de este lanio-tiránido fueron en La Rioja y Catamarca, aproximadamente 1200 km más al norte. Presentamos aquí nuestro hallazgo del aparente primer nido y huevos de *A. murina* en la Patagonia, en vegetación semejante al monte en Cabo Dos Bahías, zona costera del Chubut, durante una expedición en 1993. Interpretamos *A. murina* como una especie especializada para el monte, cuyas morfología y preferencias en sus sitios de nidificación se asemejan a las de la mayoría de las otras especies de *Agriornis*. Estas similitudes apoyan el mantenimiento de *A. murina* en *Agriornis* y la separación taxonómica del género *Agriornis* de los tiránidos arbustivos emparentados del género *Xolmis*.

Abstract. Breeding of the Least Shrike-Tyrant *Agriornis murina* (Aves: Tyrannidae: Fluvicolinae) in Patagonia, Argentina has been suspected for some time. Until recently, however, the only documented instances of nesting of this shrike-tyrant were in La Rioja and Catamarca some 1200 km to the north. We report here our discovery of the apparent first Patagonian nest and eggs of *A. murina* in monte-like vegetation at Cabo Dos Bahías, coastal Chubut, during an expedition in 1993. We interpret *A. murina* as a monte specialist whose morphology and nest site preferences resemble those of most other *Agriornis* species. These resemblances provide arguments for maintenance of *A. murina* in *Agriornis* and for continued taxonomic separation of that genus from related bush-tyrants of the genus *Xolmis*. Accepted 12 June 1996.

Key words: Least Shrike-Tyrant, *Agriornis murina*, Tyrannidae, Fluvicolinae, nest, eggs, breeding biology, Chubut, Patagonia, Argentina.

INTRODUCTION

The Least Shrike-Tyrant (Olrog 1984: 200) or Gaucho Chico (Navas *et al.* 1991: 30) *Agriornis murina* (Lafresnaye & d'Orbigny 1837) (Aves: Tyrannidae: Fluvicolinae) is the smallest of five congeneric species of mostly very large, sexually monomorphic fluvicoline "ground tyrants" (Vuilleumier 1971: 183) or "shrike-tyrants" (Johnson 1967: 224, Traylor & Fitzpatrick 1982: 35) with shrike-like hooked bills, upright postures, proportionately large heads, heavy bodies, long legs, brownish gray plumage with dark-streaked throats, and simple aerial displays. Like related, mainly insectivorous "bush-tyrants" of the genus *Xolmis*, *Agriornis* shrike-tyrants are perch-to-ground predators (Traylor & Fitzpatrick 1982: 22, 35–36) whose diet includes large insects, small mammals, lizards, frogs, and eggs, nestlings, or adults of other birds (Fjeldså & Krabbe 1990:

504, Paz 1991, Martínez del Río 1992). *Agriornis* shrike-tyrants generally occur singly or in pairs in dry, open or shrubby habitats, in Patagonia and in the Andes from southern Chile and Argentina north to southern Colombia (Fjeldså & Krabbe 1990: 504–507, Ridgely & Tudor 1994: 594–598).

The species *murina* was successively placed in *Pepoaza* Lafresnaye & d'Orbigny 1837, *Pyrope* Cabanis & Heine 1859, *Taenioptera* Bonaparte 1830, and *Xolmis* Boie 1826 (Hellmayr 1927: 17–18, Pergolani de Costa 1949: 7–8), and was for some time regarded as intermediate between *Xolmis* and *Agriornis* Gould in Darwin 1839 (Pergolani de Costa 1949: 3, Meyer de Schauensee 1966: 334), before Vuilleumier (1971: 199–200, 225; 1994: 45) accorded it a taxonomically isolated position within *Agriornis*. *A. murina* is closely similar to, and widely sympatric with, the larger Gray-bellied Shrike-Tyrant *A.*



FIG. 1. Right profiles and underwings of five representative fluvicoline tyrannid species, illustrating phenetic uniformity and generic distinctness of *Agriornis* (top row) and relative heterogeneity of *Xolmis* (center and bottom rows). Upper left: Gray-bellied Shrike-Tyrant *Agriornis microptera*. Upper right: Least Shrike-Tyrant *Agriornis murina*. Center: Rusty-backed Monjita *Xolmis* (*Neoxolmis*) *rubetra*. Lower left: Fire-eyed Diucon *Xolmis* (*Pyrope*) *pyrope*. Lower right: Black-crowned Monjita *Xolmis coronata*. From a drawing by F. Vuilleumier.

microptera (Pergolani de Costa 1949: 3, 8; Fig. 1). Both species are austral migrants, like a large percentage of fluvicoline tyrannids but unlike any of the other species of *Agriornis* (Chesser 1994: 98, 104). Both are relatively uncommon on their breeding grounds (Fjeldsá & Krabbe 1990: 506–507; Ridgely & Tudor 1994: 594–595, 597; pers. obs.).

The breeding distribution of *Agriornis murina* is poorly known, but has been inferred to extend from Tucumán south to Santa Cruz, Argentina, based mainly on records of occurrence during the austral spring and summer, from October to March (Nores & Salvador 1990: 161, Fjeldsá & Krabbe 1990: 507, Ridgely & Tudor 1994: 595). In the austral autumn and winter, from April to September, *A. murina* migrates northwards as far as central Bolivia, where it has been collected as far north as Cochabamba, Dpto. Cochabamba in June (Remsen *et al.* 1987: 9), and as far as western Paraguay, where it has been recorded as a rare austral migrant in the Alto Chaco region from 25 April to 8 September (Hayes *et al.* 1994: 91; Hayes 1995: 75, 109). Recently, Nores & Salvador (1990) reported early November nesting of *A. murina* in southern Catamarca (1 nest, 2 November) and northern La Rioja (3 nests, 4 November), and they presented the first description of the nest and eggs of this species based on the Catamarca example. Previous evidence of breeding of the Least Shrike-Tyrant was circumstantial and, apart from records of occurrence (e.g., Hellmayr 1927: 17–18, Pergolani de Costa 1949: 7–9, Zapata & Martínez 1972: 196–197, Fig. 5), was limited to reports of adults with enlarged gonads (♀, Mendoza, 10 October; ♂, San Juan, 27 November; Navas & Bó 1994: 84–85), of an adult in worn breeding plumage (♂, Neuquén, 8 December; Hellmayr 1925: 327), of adults feeding one young (Buenos Aires, 15 December; Narosky 1984: 124), or of immature birds (2 ♂, Río Negro, 21 December, 19 February; Wetmore 1926: 447, Navas & Bó 1990: 49).

In November 1993, while engaged in a survey of Patagonian breeding birds, we discovered and photographed an active nest of *Agriornis murina* at Cabo Dos Bahías, southeastern Provincia del Chubut, northern Patagonia, Argentina that appears to be the first to be documented for Pata-

gonia and the second nest and egg set of this taxon to be described (*q. u.*). Although Chubut has usually been considered the southern limit of the range of *A. murina* (Museo Argentino de Ciencias Naturales 1939: 304; Olrog 1963: 243, 1979: 202; de la Peña 1988: 59, map; Narosky & Yzurieta 1989: 210, map; Fjeldsá & Krabbe 1990: 507, map; Canevari *et al.* 1991: 310, map; Ridgely & Tudor 1994: 595, map), and although Least Shrike-Tyrants have occasionally been observed or collected in that province during the austral spring and summer (Contreras 1978: 177, Daciuk 1979: 655, Vuilleumier 1993: 27, Navas & Bó 1994: 84), we know of no published observations of actual breeding of this species in Chubut or elsewhere in Patagonia, other than those given below.

NEST SITE AND HABITAT

At 14:20 h on 10 November 1993, we observed an adult *Agriornis murina* making low sallies after insects and preening, and startled a brooding parent *A. murina* from its nest in a 1 m tall shrub, in xeric shrubsteppe 30 m above sea level on the narrow, northeastwardly sloping and emergent coastal plain on the northern Cabo Dos Bahías peninsula near the southern end of Bahía Camarones. This site, at about 44°55'S, 65°34'W (Ejército Argentino 1943), is 28 km southeast of Camarones, 1 km west of the Pengüinera Reserva Faunística Cabo Dos Bahías and immediately south of Ruta 1, in Dpto. F. Ameghino, Chubut (for descriptions of coastal morphology and stratigraphy, see Casal 1946: 266, 271–275; Codignotto 1984: 21, 24; Cionchi 1987: 281, 1988: 61). These fleeting observations of an apparent pair, and a late afternoon sighting of a solitary adult in open shrubsteppe near the Cabo Dos Bahías penguin colony on 10 November 1993, were the authors' only encounters with *A. murina* during their 1993 survey. Previously, on 17 November 1991, Vuilleumier (1993: 27) had observed an individual of this species at Cabo Dos Bahías in "open coastal steppe". The 1991 and 1993 sites are about 1.5 km apart.

Because very little has been published on the habitat preferences of *Agriornis murina*, we give below detailed information which we will use in our later discussions of the avifaunal associations and biogeography of this species.



FIG. 2. Coastal shrubsteppe habitat of *Agriornis murina* at Cabo Dos Bahías, Chubut. View is northwards toward Bahía Camarones. Photograph by A. V. Andors, 10 November 1993.

The nest site (Fig. 2) is a coastal steppe ("Litorideserta" in the terminology of Castellanos & Pérez-Moreau 1944: 40) dominated by a mosaic of *Chuquiraga avellanedae* (Asteraceae) and *Stipa chrysophylla* (Gramineae). The nest-shrub itself (Fig. 3, top) consists of *C. avellanedae* with some intergrowth of *Colliguaja integerrimae* (Euphorbiaceae; A. V. Andors, pers. obs.; V. Markgraf, *in litt.*). In phytogeographic terms, the site comprises part of the Golfo de San Jorge district of the Patagonian Province (*sensu* Soriano 1950: 38–40, 1956: 331–333; Cabrera 1971a: 35), or San Jorge sector of the Patagonian steppe and semidesert (*sensu* Hueck & Seibert 1981: 52–53). *Chuquiraga avellanedae* and *Colliguaja integerrimae* are Andean-Patagonian elements of the Patagonian Province that occur near the Atlantic coast and inland, and are locally abundant in the southern part of the Monte Province (Hauman 1947, Morello 1958) some 100 km to the northwest of Cabo Dos Bahías (Hosseus 1915: 540; Hauman 1926: 164–165, 1947: 229; Roivainen

1933: 3, 6; Gaspar 1945: 163–164; Soriano 1949: 196, 1950: 43; Pyykkö 1966: 494, 519; Cabrera 1971b: 298; Correa 1988: 79). East Patagonian coastal steppes such as those at Cabo Dos Bahías have an open, xeromorphic, and monte-like aspect that has been variously attributed to low annual precipitation (≤ 200 mm) that is nonuniformly distributed over the year, resulting in a prolonged dry period (200–300 days; Pyykkö 1966: 459–460); to salinization of the soil and air by the ocean (Castellanos & Pérez-Moreau 1944: 40); and to southward penetration of Monte elements from ecotonal areas to the north (Hauman 1926: 162–168, 1947: 229; Soriano 1949, 1950: 41–44). The semidesert climate that prevails along the East Patagonian coast has preserved thick guano deposits on several islets off Cabo Dos Bahías (Hauman 1926: 112, Casal 1946: 274–275), which are thus bioclimatically reminiscent of the guano-rich bird islands along the arid coast of Peru (Murphy 1925: 74).

NEST AND EGGS

The nest of *Agriornis murina* at Cabo Dos Bahías (Fig. 3, top and middle) was a conspicuous open cup measuring about 12 cm in external diameter, 6.5 cm in internal (cup) diameter, 9 cm in height, and 5 cm in cup depth, and was placed in a live, 95 cm tall *Chuquiraga avellanedae* shrub with its rim about 25 cm above the ground. The outside of the nest was composed of dried twigs and some grass stems. The cup was densely lined with sheep's wool and feathers of Tinamidae (probably *Eudromia elegans*) and Anatidae (*Chloephaga picta*), and it contained three well-incubated, largely white eggs with sparse dark reddish-brown spots forming a crown near the larger pole (Fig. 3, middle and bottom). One of these eggs measured approximately 23.5 x 17 mm. When the nest was revisited by the authors at 17:10 h on 11 November 1993, the eggs were still warm, as if recently incubated. No adults of *A. murina* were noted on this occasion.

AVIAN TAXA ASSOCIATED WITH *AGRIORNIS MURINA*

Twelve additional species of land birds were detected in shrubsteppe within 30 ha of the *Agriornis murina* nest site on 10–11 November 1993 (Table 1). All 13 taxa occur in both monte and Patagonian steppe (Narosky & Yzurieta 1989; pers. obs.). With 13 species, avian species density (total number of species) in *Stipa chrysophylla*-*Chuquiraga avellanedae* steppe at the Cabo Dos Bahías site is considerably less than in *Festuca* sp.-*Mulinum spinosum* and *Nothofagus antarctica* steppes in western Río Negro (21 and 23 species, respectively; Vuilleumier 1972: 269, Table 2). This difference apparently reflects the very rapid decline in rainfall from the Andes toward the east and the relatively more mesic conditions that exist in the west (Pyykkö 1966: 458–461).

At 12:45 h on 11 November 1993, Andors observed an adult *Agriornis microptera* with a fledgling in close proximity in open grassy shrubsteppe along Ruta 1 west of Playa Elola, 19 km northwest of Cabo Dos Bahías. Thus, this species and its partly sympatric congener *A. murina* breed within about 20 km of each other



FIG. 3. Nest site, nest, and eggs of *Agriornis murina* in coastal shrubsteppe at Cabo Dos Bahías, Chubut. Top: shrub containing nest (indicated by arrow). Middle: nest and eggs. Bottom: close-up view of eggs. Photographs by F. Vuilleumier, 10 November 1993.

TABLE 1. Species diversity and numerical abundance of birds and birds' nests in a 0.3 km² area of shrubsteppe at Cabo Dos Bahías, Chubut, Argentina.

Species	No. of Individuals	No. of Nest:
<i>Eudromia elegans</i>	(1–3)	
<i>Upucerthia dumetaria</i>		
<i>Eremobius phoenicurus</i>	2	
<i>Pseudoseisura gutturalis</i>	—	[1]
<i>Asthenes pyrrholeuca</i>		—
<i>A. patagonica</i>	2	[2]
<i>Leptasthenura aegithaloides</i>	4	
<i>Agriornis murina</i>	2	
<i>Mimus patagonicus</i>	(1)	—
<i>Diuca diuca</i>	1	—
<i>Phrygilus fruticeti</i> ^b	3–4	[2]
<i>P. carbonarius</i> ^b	2	—
<i>Zonotrichia capensis</i>	4–7	—
Total individuals/nests	24–30	7
Total species per category	12	5

NOTE: Census conducted in *Stipa chrysophylla-Chuquiraga avellanadae* steppe under sunny and windy weather conditions by two observers (A.V.A. and F.V.) during 3 h afternoon visit on 10 November 1993 and brief evening revisit on 11 November 1993. Nomenclature and sequence of species follow Narosky & Yzurieta (1989). Total species censused = 13. () = count of individual(s) based on vocalizations. [] = count of unoccupied nest(s).

^aNest of *Asthenes patagonica* occupied by *Leptasthenura aegithaloides* pair was included in counts of both species.

^b*Phrygilus carbonarius* may have been nesting in study area, to judge from ♂ that displayed aerially and was subsequently displaced from shrub by *P. fruticeti* ♂ in interspecific territorial dispute. Only males of these two species were observed.

along this section of coast (cf. Vuilleumier 1993: 26, Fig. 27). Previous breeding records for *A. microptera* include a 25 September nest with 3 eggs in shrubsteppe on the Península Valdés, Chubut (de la Peña 1989, Canevari *et al.* 1991: 349); a 14 October nest with 1 egg in shrubsteppe at Laguna Cari Laufquen Grande, Río Negro (Casas 1992: 251); a 30 October ♀ with a brood patch and post-laying ova and oviduct, several sightings of November fledglings, and a 3 December nest with 3 eggs interpreted as a probable second brood, in shrubsteppe near Huánuluan, Río Negro (Peters 1923: 319); a 22–26 November sighting of a pair with 1–2 juveniles in or near San Pedro de Atacama, Provincia de Antofagasta, Chile (Howell & Webb 1995: 64); a 1 December ♀ with a fully formed egg ready to lay collected in Albardón, San Juan, and a 21 December ♀ in full reproductive condition taken in Villavicencio, Mendoza (Navas & Bó 1994: 83).

DISCUSSION

In this section we compare the Catamarca (Nores & Salvador 1990) and Chubut (this paper) breeding records of *Agriornis murina*, which present several striking similarities, notwithstanding their substantial geographical separation of some 1200 km. We then offer a rationale for maintaining *murina* in *Agriornis* rather than as a member of *Xolmis*. Finally, we attempt to account for the apparent disjunct breeding distribution of *A. murina* in areas as distant from each other as Catamarca and Chubut.

Nests. The one nest of *Agriornis murina* described in detail by Nores & Salvador (1990: 161) was found in halophytic monte vegetation (Vervoort 1951: 191, Morello 1958: 124–126) in the Salar de Pipanaco, a ca. 750 km² evaporite basin (*salina*) at 750 m elevation in Dpto. Pomán, Catamarca, 66°25'S, 28°07'W. The nest was placed at a height of 40 cm in a *Heterostachys ritteriana*

(Chenopodiaceae) shrub measuring 70 cm high by 100 cm wide. The branches upon which the hemispherical nest cup rested were not interwoven with the nest. The outer part of the nest cup was composed of coarse *H. ritteriana* twigs. The inner cup was a stable, compact structure lined with very fine grasses and feathers. The nest as a whole measured 12 x 13.5 cm in external diameter, 7.5 cm in internal diameter, 7 cm in height, and 4.5 cm in cup depth. The three fresh eggs that the nest contained were cream white in color, with reddish and some pale violet spots concentrated mostly at the obtuse end where they tended to form a crown. The eggs measured respectively 22.6 x 16.2 mm, 22.9 x 16.4 mm, and 22.1 x 16.2 mm, and weighed 2.85 g, 3.00 g, and 2.95 g.

Like the Catamarca nest of *Agriornis murina* described by Nores & Salvador (1990), the Chubut nest reported here was built relatively low down in a roughly 1 m tall shrub in monte-like vegetation. Both nests were placed either near salt deposits or salt water, in the Catamarca example, in a desiccated *salina*, and in the Chubut example, a short distance from the sea. Nest construction in both cases was similar, there being an imperfectly hemispherical, 12 cm diameter outer cup of coarse twigs, densely lined with finer grasses, feathers, and (in the Chubut example) sheep's wool so as to form an inner cup some 7–8 cm in diameter and 5 cm deep. The Catamarca and Chubut egg sets were likewise similar, the clutch size in both being 3, and both sets having a white ground color and reddish spots forming a ring at the obtuse end. Both sets were evidently laid in late October or early November.

Taxonomy. The first definite nesting records of *Agriornis murina* reported by Nores & Salvador (1990) and herein, and the first nest and young of the White-tailed Shrike-Tyrant *A. andicola* reported recently by Vuilleumier (1994: 24, 26), help to fill gaps in our still partial knowledge of breeding biology in the genus *Agriornis* and in the bush- and ground-tyrants generally, which was summarized by Traylor & Fitzpatrick (1982: 22, Table 1) and by us (Vuilleumier 1994: 37–38, 39; Andors & Vuilleumier, ms.). Within *Agriornis*, four of the five species, including *A. murina*, are known to nest in bushes or trees. Two of the four, the Black-billed Shrike-Tyrant *A. montana* and the Great Shrike-Tyrant *A. livida*, are also

known to nest in natural or manmade crevices, and one of the four, *A. microptera*, may nest in clumps of grass. Only one of the five species, *A. andicola*, is a ground surface nester, to judge from the single record known to us. By contrast, in the five species of *Xolmis* for which the nest is known, nest sites are more variable either intra- or interspecifically, and are not known to include ground surface sites. Nest sites in *Xolmis* species range from bush or tree branches (3 species), holes or crevices in trees or posts (3), and former nests of Picidae, Furnariidae, or Psittacidae, typically in trees (4), to grass clumps (1), rock crevices (1), and picid or other burrows (3; Andors & Vuilleumier, ms.).

Ridgely & Tudor (1994: 595) have questioned the generic distinctness of *Agriornis* (over which *Xolmis* would have priority), arguing that in overall form, bill shape, and behavior, *A. murina* "more resembles a *Xolmis* than an *Agriornis*" and "appears to be intermediate between the two genera and represents an argument for their merger." In our opinion, the relative uniformity of nest site selection in *Agriornis* reinforces previous arguments for separation of that genus from *Xolmis* based on plumage coloration and pattern, proportions, and bill morphology (Vuilleumier 1971: 188, 190–191, 193–194, 198–200). *Agriornis murina* is more like an *Agriornis* than a *Xolmis* in proportions, general coloration and pattern (Fig. 1), and its choice of a shrub nest site (typical of *Agriornis*, but rather less characteristic of *Xolmis*) represents a further argument against their merger.

Biogeography. *Agriornis murina* is a characteristic species of the Monte Province (Contreras 1978: 177, Narosky & Yzurieta 1989: 299, Nores & Salvador 1990: 161), and thus it is not altogether surprising that it should have been found nesting in monte-like vegetation in Patagonia, somewhat to the south of mapped areas of monte in a region otherwise dominated by more open, Patagonian steppe vegetation, and close to the approximate southern boundary of the species' range. It may therefore be no coincidence that the Catamarca and Chubut nests of this taxon were placed respectively near salt deposits and salt water, xerophytic (halophytic) vegetation being a possible determinant of its distribution.

The 12 avian species found in sympatry with *Agriornis murina* at Cabo Dos Bahías occur, as

mentioned, in both monte and Patagonian steppe, although some seem especially characteristic of either the Monte (*Pseudoseisura gutturalis*, *Asthenes patagonica*, *Phrygilus carbonarius*) or Patagonian (*Eremobius phoenicurus*, *Asthenes pyrrholeuca*) ornithogeographic provinces (Narosky & Yzurieta 1989: 299, 301; pers. obs.). The avifaunal list for Cabo Dos Bahías apparently confirms that the *A. murina* nest site is, faunistically as well as floristically, located in a transition zone ("zona transitoria", Hauman 1947: 229; "territorio ecotonal", Soriano 1950: 43) between two biogeographic provinces ("Provincia del Monte" and "Provincia Patagónica" of Cabrera 1971a: 7, Fig. 1).

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