

BREEDING OF *ANTHUS FURCATUS* (AVES: MOTACILLIDAE) IN NORTHERN PATAGONIA, WITH A REVIEW OF THE BREEDING BIOLOGY OF THE SPECIES

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Resumen. La Cachirla de uña corta *Anthus furcatus* (Aves: Motacillidae) es una especie escasamente conocida de los pastizales secos de altura de Perú, Bolivia, y noroeste de Argentina (*A. f. brevirostris*), y de biotopos semejantes en altitudes menores del centro y norte de Argentina, Uruguay, Paraguay, y del sur de Brasil (*A. f. furcatus*). Observaciones sobre la nidificación de esta especie, están limitadas a algunos registros de la subespecie nominal *furcatus* en Argentina, al norte del Río Negro y de Brasil, posiblemente también en Uruguay. *A. furcatus* es parcialmente simpátrico con *A. hellmayri* y con *A. correndera* y a veces es confundido con esta última especie. Las afinidades filogenéticas de *A. furcatus* están generalmente aceptadas con *A. spragueii* de Norte America.

En este artículo documentamos el primer hallazgo de nidificación de *Anthus furcatus* en la Patagonia. En Noviembre de 1993 observamos vuelos nupciales y descubrimos un nido con dos pichones de *Anthus f. furcatus* en la estepa de Punta Delgada, Península Valdés, Provincia del Chubut, Argentina, a unos 250 km al sur de Río Negro y a varios centenares de km al sur de la distribución previamente establecida para esta subespecie en las Provincias de La Pampa y Buenos Aires. Observaciones preliminares de terreno y una revisión de la literatura sobre *A. f. furcatus* nos permiten establecer algunas generalizaciones tentativas sobre la biología reproductiva de esta especie, aunque reconocemos que conclusiones más seguras deben respaldarse con investigaciones de terreno a largo plazo.

Como en otras especies de *Anthus*, los supuestos machos de *A. furcatus* realizan vuelos nupciales durante los que emiten una frase de 6–10 notas cada 5–6,3 s mientras se mantienen a una altura de 30–80 m durante 10–55 min. El nido está bien escondido; es una tasa de paja con paredes finas, revestida con material más fino y con el borde de la tasa al mismo nivel del suelo. Dos puestas de 1–5 (modalmente 3–4) huevos, de color blanco-pardusco pálido con manchas parduscas están reportadas para cada año. Solo la hembra es responsable de la incubación y la protección de los polluelos. La incubación y el período post-incubación son de 12–13 días respectivamente. Los pichones, de color críptico, ingieren larvas de Orthoptera, Lepidoptera y Diptera, que según la literatura sólo los alimenta la hembra, la que no se acerca al nido directamente. Los adultos también son insectívoros y de color críptico. La limpieza del nido incluye el consumo de las cáscaras de huevos y de las fecas, así como la extracción de la bolsa fecal por uno de los adultos, un comportamiento descrito por primera vez para *A. furcatus*. La ayuda intraespecífica es probable pero todavía no está totalmente confirmada. Nido, huevos, incubación, fechas de eclosiones, fechas de vuelo de los pichones, y patrones de desarrollo y de regresión de órganos sexuales indican que la temporada de reproducción ocurre desde Septiembre hasta Diciembre en Argentina, y hasta Febrero en Brasil. Los individuos adultos y juveniles mudan en Febrero. La subespecie *furcatus* de las regiones bajas, aparentemente es migratoria en parte de su rango de distribución y está separada geográficamente y altitudinalmente de la subespecie andina *brevirostris*. Las causas de esta distribución alopátrica son desconocidas.

Abstract. The Short-billed Pipit *Anthus furcatus* (Aves: Motacillidae) is a poorly known inhabitant of dry, high altitude grasslands in Peru, Bolivia, and northwestern Argentina (*A. f. brevirostris*), and of comparable habitat at lower elevations in central and northern Argentina, Uruguay, Paraguay, and southern Brazil (*A. f. furcatus*). Published observations of breeding in this species appear limited to scattered records of nominate *furcatus* from Argentina north of the Río Negro, and from Brazil and possibly Uruguay. *A. furcatus* is partly sympatric with *A. hellmayri* and *A. correndera*, with which it is sometimes confused. Its relationships are generally held to lie with North American *A. spragueii*.

We report here the apparent first documented instance of breeding of the Short-billed Pipit in Patagonia. In November 1993, we observed display flights and discovered one nest with two young of *Anthus f. furcatus* in steppes at Punta Delgada, Península Valdés, Provincia del Chubut, Argentina, some 250 km south of the Río Negro and several hundred km south of previously reported southern strongholds of this subspecies in La Pampa and Buenos Aires provinces. Our preliminary field observations and review of the literature on *A. f. furcatus* enable us to make some tentative generalizations concerning Short-billed Pipit breeding biology, while recognizing that firmer conclusions will have to await long-term field studies.

Like other *Anthus* pipits, presumed males of *A. furcatus* engage in aerial displays, singing a 6–10 note phrase every 5–6.3 s while flying at 30–80 m altitude for some 10–55 min. The nest is a well-concealed, thin-walled

* Dedicado a mi padre, el Dr. Leonard Andors. Dedicated to my father, Dr. Leonard Andors.

cup of grasses lined with finer material, placed with its rim flush with the ground surface. Two clutches of 1–5 (modally 3–4) buffy white, brown spotted eggs are reportedly laid per year. Only the female appears to incubate and brood, with incubation and post-hatching periods both lasting an estimated 12–13 days. The cryptically colored young are fed larval Orthoptera, Lepidoptera and Diptera, reportedly by the female parent, who does not approach the nest directly. Adults are likewise insectivorous and cryptically colored. Nest sanitation includes consumption of eggshells and feces, and carrying away of fecal sacs by the parent, which is reported here for the first time. Intraspecific helping is suspected, but remains to be confirmed. Nest, egg, hatching, nestling and fledging dates, and patterns of gonadal enlargement and regression indicate a breeding period that extends from September–December in Argentina, and until February in Brazil. Adult and juvenile individuals are known to molt in February. Lowland nominate *furcatus* is apparently migratory across part of its range and is geographically and altitudinally segregated from Andean *brevirostris* for as yet unexplained historical reasons. Accepted 29 March 1995.

Key words: Short-billed Pipit, *Anthus furcatus*, Motacillidae, breeding biology, Península Valdés, Provincia del Chubut, Patagonia, Argentina.

INTRODUCTION

The Short-billed Pipit (Cachirla de pico corto, Olrog 1963: 286; Cachirla de uña corta, Olrog 1979: 247; Cachirla Uña Corta, Navas *et al.* 1991: 34; Caminheiro-de-unha-curta, Sick 1993: 552; see Arribáizaga 1924–1926: 369 for older common names) *Anthus furcatus* Lafresnaye & d'Orbigny 1837 is an uncommon to locally common inhabitant of dry grasslands and lake margins with short grass in the *puna* zone of the Peruvian and Bolivian altiplano at 3500–4250 m to lower elevations in southern Bolivia (2300 m) and northwestern Argentina (Parker *et al.* 1982: 71, Remsen & Traylor 1989: 46, Fjeldså & Krabbe 1990: 564), and, after a range disjunction, along lower Andean slopes and in lowlands, in central and northern Argentina to Uruguay, Paraguay, and southern Brazil (Ridgely & Tudor 1989: 140, Sick 1993: 552). This relatively little known pipit seems most numerous in the Patagonian steppes of Río Negro (Ridgely & Tudor, *loc. cit.*). Two subspecies of *A. furcatus* are currently recognized on the basis of slight differences in color and size, the diagnostic color differences being most evident in fresh specimens (Hellmayr 1921: 181–183, 1935: 88–89, Zimmer 1953: 17–18, Greenway 1960: 163): dorsally rufescent *brevirostris* Taczanowski 1874 of Peru, Bolivia, and northwestern Argentina (Jujuy; Fjeldså & Krabbe 1990: Pl. XLVIII, 15); and smaller, paler *furcatus* Lafresnaye & d'Orbigny 1837 of central and northern Argentina, Uruguay, Paraguay, and southern Brazil (Rio Grande do Sul; Ridgely & Tudor 1989: Pl. 7, 8). Various authors including Wetmore (1926: 361), Belton (1985: 101–102), Ridgely & Tudor (1989: 139–140), Narosky & Yzurieta (1989: 250),

Fjeldså & Krabbe (1990: 563–564), and Sick (1993: 552) discuss field identification of *A. furcatus*, including aspects of plumage and behavior that distinguish this species from similar and partly sympatric Hellmayr's Pipit *A. hellmayri* and Correndera Pipit *A. correndera*. Field identification of these three species is also discussed briefly below (see Methods). According to Sick (*loc. cit.*), *A. furcatus* "Sometimes shares [the] same fields with *A. hellmayri* and is within sound of [the Yellowish Pipit] *A. lutescens* and *A. correndera*." Compared with *A. hellmayri*, *A. furcatus* has bolder, broader breast streaks, immaculate instead of sparsely streaked flanks, and a scaled or mottled, rather than a distinctly streaked, back. Unlike *A. correndera*, *A. furcatus* does not tilt the tail while walking and it has largely unspotted and unstreaked flanks and breast streaks that do not extend far onto the belly. Morphologically (Hall 1961: 283–284; pers. observ., specimens in American Museum of Natural History [AMNH] collection), as well as vocally and behaviorally (Ridgely & Tudor 1989: 140), *A. furcatus* closely resembles *A. spragueii* of North America, a circumstance that led Hall (1961: 283) to recommend that Sprague's Pipit be considered a subspecies of *A. furcatus*.

On 6–8 November 1993, we found *Anthus furcatus* displaying and breeding in open short grass steppes at Punta Delgada, Península Valdés, northeastern Provincia del Chubut, near where Vuilleumier (1993: 32–33) observed flight displays of this species on 8–9 November 1991. This was our only encounter with *A. furcatus* during a five-week, 6500 km roadside survey of breeding birds in Chubut and Santa Cruz, Argentina, and in Argentine and Chilean Tierra



FIG. 1. The three species of pipits found in Patagonia. Top row: *Anthus correndera*. Middle row: *A. furcatus*. Bottom row: *A. bellmayri*. Viewed from left to right, each row depicts left lateral, ventral (left underwing and flank), and dorsal aspects of an “average” adult in worn or relatively worn austral spring (breeding) plumage. For details, see text. From a drawing by F. Vuilleumier

del Fuego from 4 November—9 December 1993, and it appears to be the first breeding record of this species for Chubut province. By contrast, *A. correndera* was locally common along our 1993 Patagonian transect, as may be seen by the following summary of Correndera Pipit localities (1—3, Santa Cruz; 4—5, Magallanes [Region XII], Chile; 6, Magallanes [Region XII], Chile and Tierra del Fuego, Argentina; 7—13, Santa Cruz; 14—16, Chubut): (1) 16 November, 3 km north of Tellier, short grass steppe on plateau, 120 m (3 birds); (2) 19 November, 23 km southwest of Gobernador Gregores and 57 km northeast of Lago Cardiel, stream bottomland, 330 m (2 birds); (3) 20 November, Gobernador Gregores, Río Chico floodplain, wet meadow with low sedges, 280 m (\geq 2 birds); (4) 23 November, 7 km south of Monte Aymond (Paso de Integración Austral), dense grassland, 140 m (several birds; flight songs); (5) 23 November, 12 km north of Punta Delgada (O'Higgins), lush grass steppe on plateau, 230 m (flight songs); (6) 24 November, between Bahía Azul, Chile and San Sebastián, Argentina (locally common); (7) 29 November, 8 km west of Las Horquetas on south bank of the Brazo Sur del Río Coig (Coyle), moist alluvial plain with dense, short grass (*vega*), 250 m (6 birds; 1—2 flight songs; distraction displays); (8) 30 November, near Estancia La Vanguardia 68 km east northeast of Hotel Fuentes del Coyle, *vega*, 470 m (1 bird); (9) 1 December, Hotel Fuentes del Coyle, 630 m (several singers); (10) 1 December, 17 km northeast of Fuentes del Coyle, short grass steppe with scattered shrubs near ephemeral lake, 570 m (very common; up to 3 birds in aerial displays at any one time); (11) 1 December, 40 km northeast of Fuentes del Coyle, tussock grass steppe, 705 m (several, including 1 pair bringing food to an apparent nest, not located); (12) 1 December, 1 km east of Laguna Los Escarchados, grassy steppe, 1000 m; (13) 3 December, several km west of Calafate, grassy steppe; (14) 7 December, moist sedge stand (*junca*) in Río Senguer delta 7.5 km west of Sarmiento (\geq 3 birds, including 1 with food in bill, another in aerial display); (15) 8 December, Río Senguer delta 14 km northeast of Sarmiento and 15 km south of Lago Colhué Huapi, wet sedge meadows and dry pastures (very common; 1 possible fledgling; a few birds with food in bill; several flight songs);

(16) 9 December, near Sarmiento, wet meadows (flight song). In no instance did we find *A. furcatus* in association with *A. correndera* (cf. Vuilleumier 1993: 32). Although *A. correndera* has been reported as a visitant to the Península Valdés, Punta Ninfas, Rawson, and Trelew in coastal Chubut (Daciuk 1979: 656, David Stejskal, *in litt.*), it has not to our knowledge been found nesting at those localities. *A. furcatus* was the only pipit observed by us during a 6-day search for breeding birds on the Península Valdés, from 4—9 November 1993. Similarly, Robert S. Ridgely and Maurice Rumboll “found several [A.] *furcatus* [and no other pipit] in grasslands near Puerto Pirámides [western Península Valdés] ... where...♂ were in display and presumably were nesting” in late November 1984 (Robert S. Ridgely, *in litt.*); Vuilleumier (1993: 32—33) found *A. furcatus* to be abundant at several grassland localities on the Península Valdés from 8 km west of Punta Delgada to Punta Delgada and north from there to Caleta Valdés on 8—9 November 1991; Robert S. Ridgely, Guy Tudor, Roberto Straneck, and Jorge Mata encountered “small numbers of [A.] *furcatus*... in several grassy areas along the route between Puerto Pirámides and Punta Delgada” on 13—15 December 1992, with “local nesting... [apparently] indicated by the song heard” (Robert S. Ridgely, *in litt.*); and David Stejskal (*in litt.*) found *A. furcatus* to be “a common bird in the grasslands on the S. side of [the] Peninsula Valdes and near Punta Delgada” in 1993. Robert S. Ridgely, (*in litt.*) was struck by “the species’ absence from elsewhere on the peninsula, where grasslands are absent or nowhere near so extensive as around Delgada”, and “was also impressed at the absence of other pipits on the Valdés; I’d have expected *A. correndera* to be the ‘dominant’ pipit there, but I’ve never encountered even one of that often numerous species, generally so much more common and widespread than *furcatus* (and certainly known to range further south).”

The present paper briefly documents breeding biology and behavior of *Anthus furcatus* at Punta Delgada, Península Valdés, and attempts to place this record in the context of previous reports of the nesting of this pipit. Given the paucity of available data on the breeding of this elusive species, even preliminary observations

such as ours seem worth reporting, if for no other reason than that Patagonian steppe habitats and bird populations are subject to ongoing degradation (Fjeldså 1988) and, if not protected, may soon vanish, undocumented, before our eyes.

METHODS

Field identification of Patagonian pipits. The three species of pipits found in Patagonia can be distinguished in the field by a combination of characters (Fig. 1), including those cited above. No single character appears to be diagnostic, so caution in field identification is recommended. *Anthus correndera* has the longest bill and longest hallucal claw, whereas *A. furcatus* has the shortest bill and claw, and *A. hellmayri* is intermediate. *A. correndera* is the most intensely colored of the three, with a yellowish to golden tint, especially on the undersides. *A. furcatus* is the palest, with unmarked or largely unstreaked flanks below the folded wing. *A. hellmayri* is (usually) moderately streaked on the flanks, which are brownish-yellow, not as intensely pigmented as in *A. correndera*, nor as white as in *A. furcatus*. Note that the flanks immediately under the opened wing are streaked in all three species, but that the underwing coverts are somewhat differently colored: orangish-yellow in *A. correndera*, silvery white with a slight yellowish tinge in *A. furcatus*, and yellowish in *A. hellmayri*. The upperparts are distinctly streaked in *A. correndera*, with two (usually) well-marked scapular streaks. In *A. furcatus*, the upperparts are (usually) less markedly streaked, with a slightly spotted to scalloped aspect. Dorsal streaking is (usually) well-marked in *A. hellmayri*, although less so than in *A. correndera*, and (usually) without the scapular streaking. All three species show white on the outer rectrices, with varying amounts of white on the outer vanes. This character, relatively clearly visible on study skins, is very difficult to see in the field, where windy conditions prevailing in Patagonia usually preclude close study of the tail pattern. All three species have pale, pinkish or pinkish-yellow legs. Facial patterns vary among the three species. *A. furcatus* has the most clearly marked mystacial stripe, a feature usually obsolescent or absent in *A. hellmayri*, but present in some individuals of *A. correndera*.

Note that relatively extensive individual variation exists in color and pattern within each species. This variability depends on the state of wear of plumage as well. Thus, breast and flank streaking can be minimal in *Anthus correndera*, which at times can appear almost as pale as *A. furcatus*. All three species show relatively well-marked patterns on the primary and secondary wing coverts, in some individuals (of all three species) giving the appearance of wing bars.

BREEDING OF *ANTHUS FURCATUS* ON THE PENÍNSULA VALDÉS

Physical setting. The Península Valdés on the Atlantic Ocean in northeastern Chubut is a large, eastward extension of the emergent Patagonian Plateau (Rovereto 1921: 1, Feruglio 1950: 180) that is bounded on the north by the Golfos San Matías and San José, and on the south by the Golfo Nuevo. The Istmo Carlos Ameghino, a narrow, 8 km-wide isthmus, connects the mainland with the Península Valdés, which measures 89 km from north to south and 56 km from west to east. Punta Delgada, situated near the southeast corner of the peninsula at 42°45'S, 63°40'W, has a 50–75 m high (Rovereto 1921: 32–33, Casal 1946: 252), east-facing escarpment surmounted by a lighthouse, a few hundred m to the west of which there is an area of mixed shrubsteppe and grassland ("Pampa a cespugli" [= prairie with bushes] of Rovereto 1921: 11, Fig. 6) where we found *Anthus furcatus* breeding in 1993. Part of the Punta Delgada area is contained within the Reserva Natural Turística Punta Delgada.

Vegetation. Hueck & Seibert (1981: 52, map) classify the vegetation of the Península Valdés as an isolated, northeastern coastal outlier of the central sector ("Zentraler Sektor", or "Sector central"; = "Distrito Patagónico Central" of Cabrera 1971: 34–35) of their Patagonian steppe and semidesert ("Patagonische Steppen und Halbwüsten", or "Estepas y semidesiertos patagónicos"), the central part of which encompasses much of central Patagonia from 41°–51°S. From mainland eastern Chubut and the Golfo San Matías northward through central Argentina to the Andean foothills in Salta, the shrubby vegetation formation termed by Hueck

& Seibert (1981: 43, map) "Monte-Strauchsteppe", or "Estepa arbustiva de Monte", is dominant. Monte also dominates the western base of the Península Valdés (western Istmo Carlos Ameghino; Soriano 1949: 194, 1950: 44, 1956: 329, Morello 1958: 21, Fig. 8), thus apparently excluding *Anthus furcatus* from the adjacent mainland where suitable dry grassland habitat is lacking.

Data on breeding at Punta Delgada. Our observations of the Short-billed Pipit at Punta Delgada are presented chronologically. Although no specimens were collected, we presume that the local population we observed pertains to the nominate lowland subspecies, *Anthus f. furcatus*. Our general impression is that these birds were pale.

6 November 1993. In the late afternoon, about 0.5 km west of the Faro (lighthouse) Punta Delgada in open short grass and sedge steppe immediately west of a dirt airstrip and south of Ruta 2, Andors found *Anthus furcatus* to be common. When flushed these would fly to a height of 10–15 m and hover facing the north wind, bounding up and downwards as they alternately flapped and glided. One pair seemed quite tame and stood for a long time watching the author from several m away. Others when flushed flew up for only a few s before setting down again in the grass 20 or 30 m from where they rose up. Weather conditions on this day were variable. After some light rain in the morning, the skies cleared with north winds and the afternoon was relatively warm (55°+ F) and sunny.

7 November 1993. In the early afternoon, near a roadcut on the east side of Ruta 47 a few km north of Faro Punta Delgada, we observed one *Anthus furcatus* with a prey item in its bill. Several *A. furcatus* were started from nearby grassy steppes, but an extensive search and dragging of the grass with a measuring tape failed to flush any adults from nests. Weather on this day was sunny and warm with light northerly breezes.

8 November 1993. In the same open steppe visited on 6 November 1993 (Fig. 2, top), in a rather flat sheep pasture dominated by short Gramineae and taller scattered Cyperaceae about 0.5 km west of the Faro Punta Delgada, about

100 m south of Ruta 2 and some tens of m west of the aforementioned unpaved airstrip, we discovered a nest of *Anthus furcatus* at 12:05 h, having been led to it by a parent bird carrying a large prey item in its bill. The bird seemed wary of our presence and walked around carrying the prey item for about 10 min. Finally it bent over a clump of sedges and, when it straightened up, its bill was empty. It then picked up a large, diaphanous white fecal sac in its bill and flew away.

The nest to which the prey item was delivered and from which the fecal sac was removed was situated on the east side of a clump of sedges 56 cm in height, and it contained 2 downy young (Fig. 2, bottom). The nest occupied a circular depression sunk below ground level and measured 8 cm in diameter. It was composed of coarse dried grass stems wound neatly about the rim, with finer fibrous plant material lining the bottom. The rim of the cup was flush with the ground surface. The cup measured about 4 cm deep.

The two chicks were covered dorsally with bluish gray down with tan distal tufts. Feathering on the flanks was light tan or buff. The venter was naked and covered with reddish skin. The commissures were yellowish, and the mouth lining reddish. The eyes were open; the irides were dark. The legs and feet were pinkish. Two parent birds were in attendance, one of these apparently larger and with less throat streaking than the other.

Display flights of presumed male *Anthus furcatus* were observed in the afternoon over steppes to the north and south of Ruta 2 near Faro Punta Delgada, including the general area of the aforementioned nest. Displays seemed to vary somewhat among individuals. At least two displaying birds remained airborne at any one time, the number and identity of the birds changing with the observer's movement, which appeared to elicit some displays. The number of displaying birds was impossible for us to ascertain, due to the considerable height at which these small birds flew in bright light (30–50 m) and the tendency for their songs to be muffled by brisk winds. The flight song of one bird was a buzzing mechanical trill, followed by 5–9 (modally 5) notes, the last note rising in inflection; this song was transcribed by Andors as

“reeeee-ch-ch-ch-ch-kee” and by Vuilleumier as “trri- psisisittit”. During one bout, the song was emitted 10 times in 53 s; during another bout, the same bird sang 10 songs in 63 s. The path flown during display flights was more or less oval and consisted of long passes toward the wind, with some loops back away from, or at a tangent to, the wind (*cf.* Canevari *et al.* 1991: 416, text-fig. 1).

Weather on this day was sunny and warm, with light northerly breezes that increased to considerable velocities by mid-day.

REVIEW OF BREEDING BIOLOGY OF *ANTHUS FURCATUS*

Other breeding records. Literature on the breeding of *Anthus furcatus* is scattered and we do not pretend that our compilation of it is exhaustive. Fjeldså & Krabbe’s (1990: 564) comment that there are “No data” on the breeding of *A. furcatus* apparently pertains to Andean *brevirostris*, which is emphasized in their book. The few published records we have found pertain to nominate *furcatus*. The most extensive account of the breeding of this subspecies is that of Plotnick (1953), who studied seven active nests near Las Flores, Provincia de Buenos Aires, Argentina in December 1951.

Breeding of nominate *furcatus* has been reported previously in Brazil, Uruguay, and Argentina. The only Brazilian record we know of is Belton’s (1985: 102) description of flight song, nest, young, and suspected helping behavior in Rio Grande do Sul. Possible Uruguayan records appear limited to Aplin’s (1894: 163–164, Pl. V, Fig. 1) description of the nest, eggs, and song of *Anthus “correndera”* from Soriano, attributed by Hellmayr (1935: 88) to *A. f. furcatus*, and to Dalgleish’s (1884: 81–82) report of the song, nest, and eggs of *A. “correndera”* from Durazno, the taxonomic assignment of which was queried by Hellmayr (1935: 97). Given that *A. f. furcatus* is the most common pipit in Uruguay (Palerm 1971: 55), the possibility exists that this was the taxon actually discussed by Dalgleish. Argentine records include: Darrieu & Camperi (1993: 85) on eggs from Corrientes; Wilson (1926: 360) on nesting in Santa Fe; Castellanos (1931–1934: 315) on nesting, and Nores & Yzurrieta (1980: 202) on nesting season,



FIG. 2. Top: grassland habitat of *Anthus furcatus* at Punta Delgada, Península Valdés, Chubut; red knife in foreground indicates position of nest. Bottom: Nest and two downy young of *Anthus furcatus* discovered on 8 November 1993 at Punta Delgada, Península Valdés, Chubut. Photos F. Vuilleumier.

nest, eggs, and clutch size, in Córdoba; Pereyra (1937a: 292, 1938: 238) on flight song, nest, eggs, clutch size and number, and young in La Pampa; Grant (1911: 87) on nesting habits and clutch size, Gibson (1918: 379) on eggs, Pereyra (1923: 171, 1937b: 476, 1938: 238) on nesting habits, season, clutch size and number, and eggs, Wetmore (1926: 361) on flight song, nest, eggs and young, and Plotnick (1953) on the nest, eggs, clutch size and number, incubation period, nest sanitation, care and development of young, in Buenos Aires; Vuilleumier (1993: 31–33, 37–39) on flight song and habitat in Chubut; and

Hartert & Venturi (1909: 165, Pl. II, Figs. 13–16) and Schönwetter & Meise (1979: 217, 229) on eggs from unspecified localities, in the latter case from Patagonia. We know of no breeding records of *A. f. furcatus* for Río Negro, Argentina, despite the fact that the type specimen of this species and subspecies was collected in that province more than 160 years ago (Hellmayr 1921: 181–182, 1923: 224–225).

Alarm calls and flight songs. Wetmore (1926: 361) described the reactions of male and female *Anthus f. furcatus* to his intrusion on rolling, grass-covered breeding grounds at Carhué, Buenos Aires. At the time of his visit, from 15–18 December 1920, the birds were in pairs and were nesting. “As I crossed the plains”, he wrote, “it was common for a pair to rise to circle about with strongly undulating flight and utter chirping calls of alarm until I had passed beyond their limits. Often males alone rose to accompany me for a short distance, darting down frequently to pass near the female when she remained upon the ground. On December 16, as I walked rapidly across the open prairie, a male pipit suddenly rose behind me with a sharp alarm call that brought his mate fluttering out from a nest concealed beneath a clump of grass almost at my feet.” Wetmore’s description of strongly undulating flight in response to his intrusion matches our 6 November observation of bounding flight above the flat, grass-covered breeding ground at Punta Delgada.

Castellanos (1931–1934: 315) reported that song flights of *Anthus f. furcatus* in the Valle de los Reartes, Córdoba began when the sun was at its zenith.

Belton (1985: 102) recorded the male “flight song” of *Anthus f. furcatus* at Estância Ipiranga, southeastern Rio Grande do Sul on 4 January 1976 as follows: “chink..chink.....chuuuuuu ch ch chee chink.’ First two ‘chink’s’ made while beating wings, ‘chuuuuuu’ accompanied soaring dip, followed by further wing strokes and upward flight for ‘ch ch chee chink.’ This performance repeated on average every 5.5 seconds Flight display in progress at time I first observed bird and continued without interruption for 55 minutes until I played back recorded song, when bird came down immediately and lit about 10 m away. Bird flew at heights varying from

estimated 30 to 60 m, and during entire time scarcely went beyond radius of 100 m except one occasion when out of sight (but still audible) for about one minute and perhaps 200 m away.” On 11 October 1972 northeast of Mostardas, coastal Rio Grande do Sul, Belton (*loc. cit.*) “watched [a] male singing similarly, but he came down several times after 10 minutes or so aloft, to alight near female, where he continued to sing before flying to her side. At this she would fly perhaps 100 m, chased by him. He then paused briefly on ground before flying aloft for another display flight... While male was aloft, female remained on ground feeding, occasionally giving very slight vocal response to his song.”

Ridgely & Tudor (1989: 140) noted that “Displaying males [of *Anthus furcatus*] have a fine, musical (though repetitious) song (‘gleeeeeeu, teedeleh-tleetleete’ or some variation), given incessantly as the bird hovers high overhead, often almost invisible to the naked eye.” According to these authors, the song and display of *A. furcatus* are reminiscent of *A. spragueii*, which is “probably related” (Ridgely & Tudor, *loc. cit.*).

Fjeldså & Krabbe (1990: 564) stated that “During [its] nuptial flight [*Anthus furcatus*] flies high for 10–30 minutes, diving during each song-bout.” They described its “flight call” (*loc. cit.*) as “a fairly loud *tlit* or *tjip*. Song during nuptial flight (Brazil) *tzri-ze ze ze ze si si si* or *tri-chi chi chi chi* repeated at 5 s intervals.”

Canevari *et al.* (1991: 416, text-fig. 1) described the contact note and display flight of *Anthus furcatus* as follows: “Emits contact notes ‘Tilie’ and ‘chie’. During the territorial proclamation flight, the male ascends to 60 or 80 meters height. There he emits a ‘Tieyyyeee....tiechilichi-chi-chi’...during a short descending glide, to again ascend flapping up to the initial height and repeat the display. This behavior may continue for 30 minutes. In the end he terminates in an almost vertical and silent descent, opening the wings to brake moments before touching down. On the ground he is practically silent” (our translation).

Vuilleumier (1993: 32) transcribed the “flight songs” of *Anthus furcatus* at Punta Delgada, Chubut on 8-9 November 1991 as “*tzi-ti-titiriri*”, and “sharp calls” of this species as “*whitt*” or “*pitt*”, or else “*dzipp*” or “*dzitt*”

(somewhat reminiscent of calls of *Motacilla flava*.)”

Sick (1993: 552) described the voice of *Anthus furcatus* as follows: “call *tslit*, *chip*; song consists of simple, 2-part phrase with latter part higher, composed of a diatonic note scarcely perceptible at a distance: *tsree-tse*, *tse*, *tse si*, *si*, *si*, *tree-chi*, *chi*, *chi*, *chi*, *chi*. Bird sings while flying, remaining at considerable altitudes for 10–30 minutes. Every 5 seconds it sings a phrase accompanied by a slight loss of altitude because, at this moment, it is soaring with wings open and immobile. Terminates this display with a flying dive toward ground, where it alights without a sound.”

Estimated heights of display flights of *Anthus f. furcatus* vary from 30–80 m. Reported alarm calls and flight songs also vary, but the latter seem to have in common an initial, sustained *tsree* note, or some variant of this, followed by a succession of 5 or more, shorter and varying *chi*, *ti*, *tse*, *si*, *ze*, or other notes in which the consonantal diphthong or affricate *ch* is a commonly observed element. Flight songs repeat about every 5 s, observed frequencies ranging from 5–6.3 s⁻¹.

Further generalizations concerning the “alarm call”, “flight song”, “flight call”, “nuptial flight”, or “territorial proclamation flight” of *Anthus furcatus* are difficult to make, especially given the subjectivity inherent in translating bird vocalizations into human language and the lack of adequate information concerning the context in which a given display or vocalization occurred. It appears that some of the display flights of this species that have been observed have been elicited by the presence of a human observer and are not nuptial displays in the strict sense, despite their having taken place on the breeding grounds. Future studies of *A. furcatus* should employ some more objective means of analyzing vocalizations, such as sound spectrography (cf. Straneck 1987), and should carefully distinguish alarm reactions from nuptial displays and compare behaviors observed in the open with those seen from the vantage point of a blind (cf. Plotnick 1953: 18). According to Ridgely & Tudor (1989: 138) and Fjeldså & Krabbe (1990: 563), all or most of the Neotropical species of *Anthus* engage in “display flights” or “nuptial flights”, which may perhaps be equated with what have been termed “song-flights” (Cramp *et al.* 1988:

301) or “Singflüge” (Haffer 1985: 519) in Old World *Anthus* pipits and in confamilial wagtails. The details of these are potentially useful, not just in field identification of species (Ridgely & Tudor *loc. cit.*, Sick 1993: 551), but also in the elucidation of systematic relationships (cf. Haffer, *loc. cit.*).

Nest. Nest construction by *Anthus furcatus* appears not to have been reported. Plotnick (1953: Lám. I) illustrated an adult *A. f. furcatus* on the nest, photographed near Las Flores, Buenos Aires in December 1951. According to Nores & Yzurieta (1980: 202), *A. f. furcatus* nests in Córdoba in the spring, from September onwards. Pereyra (1938: 238) reports nesting of *A. f. furcatus* in La Pampa in November. Published egg dates (*q.v.*) range from September–December. Dates for unfledged young are as follows: 8 November (2 downy young, Chubut; this paper); 5 and 16 December (hatching dates, Buenos Aires; Plotnick 1953: 19); 13 February (3 young with well-developed plumage, Rio Grande do Sul; Belton 1985: 102). Wetmore (1926: 361) took a young bird “only recently from the nest” in Buenos Aires on 15 December. Thus, the nesting season of *A. f. furcatus* extends from September to December in Argentina, and as late as February in Brazil.

Grant (1911: 87) observed that the “habits and manner of nesting” of *Anthus f. furcatus* in Buenos Aires province resembled sympatric *A. correndera*, the nest of which was “placed on the ground under a tuft of grass, often in the footprint of a horse or cow, and . . . composed of grass lined with hair.” Wetmore (1926: 361) described a 16 December nest of *A. f. furcatus* at Carhué, Buenos Aires as “a thin-walled cup of grasses, lined with material of a finer texture than the exterior, placed in a slight depression, so that the rim was flush with the surface.” Other descriptions of the nest of this pipit (Pereyra 1923: 171, 1937a: 292, Castellanos 1931–1934: 315, Plotnick 1953: 18–19, Lám. I, Nores & Yzurieta 1980: 202, Belton 1985: 102, Canevari *et al.* 1991: 416; cf. Dagleish 1884: 82, Aplin 1894: 164), including ours, are similar.

Although *Anthus f. furcatus* generally nests in dry grasslands and pastures, and is known to frequent areas of bare soil and cattle paths (Canevari *et al.* 1991: 416), nesting near ponds (Pereyra

1923: 171, 1937b: 476) and lagoons (Plotnick 1953: 18-19, Belton 1985: 102) has also been reported. The nest, eggs, and young of this pipit are subject to flooding and other hazards such as trampling by livestock (Castellanos 1931-1934: 315, Plotnick 1953: 19). According to Plotnick (1953: 18), the only real protection the exposed terrestrial nest of this bird has lies in its smallness and the ease with which it blends in with surrounding vegetation. In our view, placement of the nest of *A. f. furcatus* below ground level adjacent to a grass or sedge tuft affords, not just concealment, but also shelter of the brooding parent, nest, eggs, and young from prevailing winds, from precipitation, and from solar radiation, much as in the case of Water Pipits *A. spinoletta* that nest on the ground in sheltered cavities in open alpine grasslands in the Austrian Alps (Böhm & Landmann 1995).

Eggs. Published clutch sizes and egg dates for *Anthus f. furcatus* are as follows: 3 eggs, spring from September onwards (Córdoba; Nores & Yzurieta 1980: 202); 1 egg, September (Corrientes; Darriau & Camperi 1993: 85); 2 (first clutch) or 4 eggs, early or mid-October (La Pampa and Buenos Aires; Pereyra 1937a: 292, 1938: 238); 4 eggs, 23 October, and 3 eggs, 1 November (*A. "correndera"*, Durazno; Dalglish 1884: 82); 4 eggs, 13 November, and 1 egg, 17 November (*A. "correndera"*, Soriano; Aplin 1894: 164); 2 eggs, 16 December, and 4-5 eggs, December (Buenos Aires; Wetmore 1926: 361, Plotnick 1953: 20, 21); range: 1-5 eggs, September-December. Various authors report a full clutch size of 3 (Buenos Aires and Córdoba; Grant 1911: 87, Nores & Yzurieta 1980: 202) or 4 (Argentina; Canevari *et al.* 1991: 416) without specifying dates. Pereyra (1937a: 292, 1938: 238) stated that two clutches are laid per year, the first consisting generally or at times of 2 eggs. Plotnick (1953: 19) suggested that a reduced clutch correlates with reduction in the quantity of insect prey available in cold weather, which results in fewer sallies to provide for fewer offspring. The only published hatching dates appear to be those reported by Plotnick (*loc. cit.*) for two nests in Buenos Aires: 5 and 16 December.

Egg size and coloration have been reported by Dalglish (1884: 82) and Aplin (1894: 164, Pl. V, Fig. 1) for *Anthus "correndera"*, and by Hartert

& Venturi (1909: 165, Pl. II, Figs. 13-16), Gibbon (1918: 379), Wetmore (1926: 361), Pereyra (1937a: 292, 1938: 238), Nores & Yzurieta (1980: 202), and Schönwetter & Meise (1979: 217) for undoubted *A. f. furcatus*. Available egg measurements, excepting those of Dalglish (*loc. cit.*), may be summarized as follows: 18.7-22.5 x 13.7-15.6 mm, N \geq 22. Wetmore's (1926: 361) statement that the eggs "have a buffy white ground color, almost concealed by obscure spots and blotches of pale ecru drab and snuff brown", seems representative of published descriptions. The four eggs of *A. f. furcatus* illustrated by Hartert & Venturi (1909: Pl. II, Figs. 13-16) exhibit considerable individual variation in ground color and in amount and location of spotting, if indeed these have been correctly identified.

Plotnick (1953: 19) found no eggs of the brood parasitic Shiny Cowbird *Molothrus bonariensis* (Icteridae) in seven nests of *Anthus f. furcatus* examined near Las Flores, Buenos Aires in December.

Incubation. According to Pereyra (1937a: 292) and Plotnick (1953: 19), only the female of *Anthus f. furcatus* appears to incubate. Belton (1985: 102) found that an 11 October female near Mostardas, Rio Grande do Sul possessed a brood patch which the male lacked. Incubation is discontinuous, with the female leaving the nest many times per day, and lasts an estimated 12-13 days (Plotnick 1953: 19, 22). When a human intruder approaches the nest, the female will, according to Plotnick, sit quietly until the interloper is within about 1 m, at which point she will burst from the nest, distracting the intruder's attention from it. In many cases, the bird will feign injury at a distance of 5-6 m from the nest. Castellanos (1931-1934: 315) states that a pursued bird will flee on foot among the weeds before taking off.

Nest sanitation. According to Plotnick (1953: 20), the female parent *Anthus f. furcatus* eats the eggshells and excrement of her chicks, the former being first crushed in her bill. At other times, according to this author, the female parent leaves the nest with an eggshell fragment in her bill, and secretes this in the grass. In the case of one nest in which 3 of 4 eggs hatched, Plotnick noted that the fourth egg disappeared in the space

of several days, without his having observed the manner of its removal. In the case of another nest, in which two chicks died, the cadavers promptly disappeared. Plotnick (*loc. cit.*) drew the general conclusion that such activities serve to eliminate all visual or olfactory cues that might otherwise permit a predator to detect the nest.

Our observation that a parent *Anthus f. furcatus* may, after feeding its young, remove a fecal sac from the nest and fly away with it represents an apparent addition to the known repertoire of sanitary activities practiced by this bird. Such behavior has been observed previously in other New World pipits, for example *A. spragueii* (Bent 1950: 56), the Water Pipit *A. spinoletta rubescens* (Johnson 1933: 116), and the South Georgia Pipit *A. antarcticus* (Murphy 1923: 59), and in Old World species of *Anthus*, for example the Tree Pipit *A. trivialis* (Steinfatt 1941: 401, 403) and the Tawny Pipit *A. campestris* (Cramp *et al.* 1988: 321), as well.

Care of young. Plotnick (1953: 20) reported that the female parent *Anthus f. furcatus* brought larvae of locusts and, on occasion, caterpillars and dipterans to the nest. According to him, the parent bird never descended to the immediate vicinity of the nest, but instead landed some distance away and walked in a dissembling manner among the grass, pausing to inspect the surroundings. Similar dissembling behavior was also observed by us.

On arriving at the nest, the female parent would, according to Plotnick (1953: 20), ordinarily feed several hungry chicks in turn. On two occasions, however, he saw the female introduce a single prey item into the mouths of several chicks in succession before giving it to one, the purpose of these sham feedings apparently being that of identifying the hungriest individual. If, on reaching the nest, the female found the chicks asleep, she would, according to Plotnick, emit a discreet "tss...", which stimulated her offspring to abruptly open their bills. Plotnick achieved the same result in captivity by mimicking the female parent's "tss" call. After feeding her young, the parent searched the nest for fecal sacs and swallowed them, as noted above. When not searching for food or feeding her young, she brooded the latter for variable periods, the longest brooding periods (of

0.5–0.75 h) coinciding with the hottest part of the day (from 10:30–16:00 h), and with the shortest brooding periods (of < 0.5 min) occurring during the morning and late afternoon. In the case of one nest with five eggs, the first three of which hatched in one day, the female parent alternated short periods of brooding (2–10 min) with equivalent periods away from the nest searching for food, throughout the day. Plotnick (1953: 21) proposed that short brooding periods were related to the greater accessibility of food (lesser metabolic activity of insects) during the cold hours, or to the sensitivity of the chicks to prolonged insolation. His observations on parental care encompassed post-hatching days 1–5.

Near a nest with three young of *Anthus f. furcatus* found by Belton (1985: 102) in southeastern Rio Grande do Sul, three birds flying above "in distress" gave the impression that helping ("helper-at-nest") was involved. Future studies of Short-billed Pipit breeding biology should investigate whether helping is in fact practiced by these loosely colonial birds. Intraspecific helping is reportedly rare in the Motacillidae (Brown 1987: 36), but has been observed in the Meadow Pipit *A. pratensis*, solitary first-year individuals of which were seen feeding unrelated broods at two nests (Hötter & Sudfeldt 1979). Interspecific helping has also been reported in motacillids, for example in *A. trivialis*, one pair of which was recorded feeding young and removing fecal sacs at a nest of Skylarks *Alauda arvensis* (Alaudidae; Cockbain 1958).

Post-hatching development. Based on observations of chicks of *Anthus f. furcatus* removed from one nest and reared in captivity from post-hatching day 5, Plotnick (1953: 21) inferred that day 13 was a sudden, critical postembryonic developmental stage. Up until day 12, chicks increased their body mass, received food passively, begged for food with open mouths, and were somewhat clumsy in their movements. From day 14 onwards, body mass stabilized, chicks exhibited their first sporadic tendencies to peck at food, beat their wings to express hunger (apart from vocalizing and opening their beaks), and ran easily and rapidly. Chicks that exhibited restlessness while being handled on day 9 hid on day 10, probably in anticipation of further handling. Other, less abrupt changes observed by

Plotnick (1953: 22) after day 13 included diminution in the amount of food ingested, change in the aspect of the feces, progressive loss of coloration of the buccal cavity, and covering of the abdominal apertium with feathers, all of which suggested readiness to fledge. Partial flying ability developed by day 30 in captivity. At that time, the captive fledgling resisted handling and exhibited a tendency to escape at the first opportunity. Plotnick (*loc. cit.*) estimated that fledging under natural conditions took place on days 12–13, based on a presumed equality of embryonic (12–13 days) and post-hatching developmental periods.

Curiously, Plotnick (1953) omitted any precise description of the nestling of *Anthus f. furcatus*. Belton (1985: 102) described three nestlings found on 13 February 1974 in southeastern Rio Grande do Sul as having “well-developed plumage...not yet covering center of belly. Blackish brown back plumage matched nesting material, providing excellent camouflage. Chicks remained absolutely quiet even when removed for banding.” As noted earlier, the two chicks found by us at Punta Delgada also had a naked venter, were covered dorsally with bluish gray down with tan distal tufts, and had light tan or buff feathering on the flanks. These appear to have been slightly older than the ones observed by Belton. Wetmore (1926: 361) described a young bird “only recently from the nest”, taken 15 December 1920 at Carhué, Buenos Aires, as being “dull blackish above, with each feather margined with pinkish buff, producing a mottled appearance. The hind claw already is well developed, though the tail has not yet attained its full length.” This fledgling is obviously older than the chicks from Punta Delgada, and it shows more of the buffy margining of the back-feathers that reaches its fullest expression in the scaled back of the cryptically colored adult (Fjeldså & Krabbe 1990: 563, Canevari *et al.* 1991: 416, Lám. 122, 8n, 8e, 8j). The adult male is on average larger than the female (Nores & Yzurieta 1980: 202, Belton 1985: 102); Belton (*loc. cit.*; also Dunning 1993: 267) gave the following length and body mass data for sexed individuals collected in Rio Grande do Sul: “16 males: 140–161 mm, median 152.5 mm, 19.5–23 gr, median 21 gr. Six females: 137–156 mm, 20–22 gr” (*cf.* the additional Brazilian

length and body mass data in Belton, *loc. cit.*, and the few reported Argentine body masses in Salvador 1988: 81 and Camperi 1992: 136). The breeding pair observed by us at Punta Delgada, Chubut showed noticeable size dimorphism. Male and female individuals of *A. f. brevirostris* collected by Vuilleumier in Ancash, Peru (AMNH 824146, male) and in La Paz, Bolivia (AMNH 793154, female) both weighed 21.5 g.

Molt and gonadal development. Grant (1911: 87) observed that November and December birds from Buenos Aires province, Argentina were much worn, and that April examples had completed the molt and were in fresh plumage. Wetmore (1926: 361) reported that early February adult and juvenile individuals in Rocha, Uruguay were molting into fall plumage. Similarly, Aplin (1894: 164) reported that by 1 February, *Anthus “correndera”* (= *A. f. furcatus*; Hellmayr 1935: 88) from Soriano, Uruguay was in full molt. Belton (1985: 101) noted that Brazilian *A. f. furcatus* attained its richest coloration in March-July.

Gonad sizes of nine April-October males and of four April-September females taken in Buenos Aires (Camperi 1992: 136) and Corrientes, Argentina (Darrieu & Camperi 1993: 85) demonstrate gonadal enlargement in the spring (September-October) and regression in the early fall (April). The period of observed gonadal enlargement is in substantial agreement with the majority of nest, egg, nestling, and fledging dates cited above (September-December). *Anthus f. furcatus* apparently breeds later in Brazil (February) than in more southerly parts of its range, but additional breeding data are needed to test this hypothesis.

Diet and relation to feeding associations. Zotta (1934–1936: 267) reported the stomach contents of two individuals of *Anthus f. furcatus* taken in Buenos Aires province, respectively in September and October. The stomach of the September bird contained remains of Coleoptera (Curculionidae, Cassidae, Chrysomelidae), Hemiptera, and Arachnida. That of the October bird contained Coleoptera (Curculionidae), adult and larval Lepidoptera (Noctuidae), Orthoptera (Gryllidae), and Arachnida. As already noted, Plotnick (1953: 21) reported that the female

parent *A. f. furcatus* fed juvenile Orthoptera and some larval Lepidoptera and Diptera to its young in December in Buenos Aires.

Palerm (1970) described the regular, 8–10 m/min advance of a multi-species, passeriform feeding association dominated by *Pseudoleistes virescens* (Icteridae) across a 2.5 km long grassy meadow near the margin of an arroyo in Durazno, Uruguay in January 1968. As this closely massed flock made its orderly, unidirectional traverse of the prairie each afternoon in search of insects and vegetable food, other avian species in the area reacted to it, among these *Anthus f. furcatus*. Palerm (1970: 97) described the latter as retreating before the advancing flock by walking into grass on the periphery.

Migration. *Anthus f. furcatus* has been described as being sedentary (Pereyra 1938: 238), a description that may apply to some more northerly populations, for example those of the riverine zone of Buenos Aires province (Pereyra, *loc. cit.*) and of Córdoba (Castellanos 1931–1934: 315) where it is said to occur all year. Nores & Yzurieta (1980: 202) report that Argentine *A. f. furcatus* winters in the provinces of the northeast. Olog (1963: 286) states that nominate *furcatus* is migratory in northern Argentina, Paraguay, and southeastern Brazil. “Hayes *et al.* (1994: 93) record *A. furcatus* as a rare austral migrant in southern Paraguay.” Local movements or migratory tendencies are perhaps to be expected of this species, given the fact that other partly sympatric pipits (*A. hellmayri*, *A. correndera*) are known austral migrants (Chesser 1994: 105).

DISCUSSION

Oustalet (1891: 328–329) tabulated the geographical distribution of *Anthus furcatus* as it was then known, indicating that, in addition to being found in Peru, Bolivia, and Argentina north of the Río Negro, it occurred in Patagonia south of the Río Negro as well. This species was not obtained by the 1882–83 French Mission du Cap Horn (Oustalet 1891: 79), whose bird collection in the Paris Muséum was reported upon by Oustalet (1891). Thus, one may conclude that his statement regarding its occurrence south of the Río Negro was for the time either erroneous or speculative. Based on his own review of the entire Parisian collection of *A. furcatus*, Hellmayr (1923: 225) stated that nominate *fur-*

catus “has not been taken, as far as I know,...south of the Río Negro.” Subsequent compilers of Argentine bird distribution such as Olog (1963: 286, 1979: 248) have drawn similar conclusions, exceptions being Ridgely & Tudor (1989: 140) and Vuilleumier (1993), who appear to have been the first to report the presence of *A. furcatus* in northeastern Chubut. Our discovery that nominate *furcatus* breeds on the Península Valdés helps lay to rest the traditional assumption that this taxon does not occur south of the Río Negro.

Although much has been written about the Short-billed Pipit *Anthus furcatus*, many questions concerning its breeding biology, distribution, and evolution remain to be answered. For example, nest-building has apparently never been reported in this species, even though the nest itself is fairly well known. It would be of interest to know whether, as seems likely, this pipit excavates its perfectly round nest-hole, much as in Old World *A. pratensis* (Glutz von Blotzheim & Bauer 1985: 648) and *A. trivialis* (Labitte 1952: 270), or whether it utilizes a preexisting footprint or other depression in the soil, as has usually been assumed. One would also like to know whether a breeding pair is assisted by one or more helpers at the nest, as was suspected by Belton (1985), and whether what have been variously termed the “flight song”, “flight call”, “nuptial flight”, “territorial proclamation flight”, and “alarm call” comprise one and the same behavior or represent an array of different behaviors including display flights and alarm reactions. Sound spectrography offers promise as a way of placing the poorly understood vocalizations of *A. furcatus* on a firmer descriptive footing than heretofore, and future application of this and of molecular systematic techniques (Sibley & Ahlquist 1981) may perhaps help to clarify its phylogenetic position, which is suspected of lying with North American *A. spragueii*. Various details of the chorology and historical biogeography of *A. furcatus* remain to be worked out, including the northern and southern limits of its distribution and the origin of the geographical and altitudinal disjunction between lowland (nominate) *furcatus* and Andean *brevirostris* (Ridgely & Tudor 1989: 140, map; Fjeldså & Krabbe 1990: 564, map; Willis 1992: 15; *cf.* Vuilleumier 1986: 596–600).

We hope that the foregoing review will stimulate further research on *Anthus furcatus*. The Valdés population seems ideally suited for intensive, long-term study of Short-billed Pipit breeding biology, given the species' apparent regular occurrence there and the proximity of hotels. Situated as they are near the terminus of a popular tour bus route for the viewing of cetaceans, pinnipeds, and seabirds, the breeding grounds of *A. f. furcatus* at Punta Delgada are vulnerable to disturbance by man and his introductions. Thus, it is incumbent on anyone who would embark on a study of these uncommon birds to tread lightly upon these steppes and to heighten public awareness of their vulnerability.

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