

RECORDS OF THE WHITE-THROATED HAWK (*BUTEO ALBIGULA*) ALONG THE CHILEAN COASTAL FORESTS

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Registros del Aguilucho Chico (*Buteo albigula*) en los bosques costeros de Chile.

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The White-throated Hawk (*Buteo albigula*) is a little-known, migratory, South American forest raptor (Pavez 2000, Trejo *et al.* 2006). Up to date, only two main distribution areas are known for this hawk species: the southern temperate rainforest, where it breeds (Gelain *et al.* 2001, Trejo *et al.* 2001, Pavez *et al.* 2004), and the sub tropical Andes (Trejo *et al.* 2006). Although the species was historically scarcely recorded, during the last two decades, the number of sightings of the White-throated Hawk has increased in the Andean-Patagonian region (Chile and Argentina) (Casas &

Gelain 1995, Pavez 2000, Gelain *et al.* 2001). The current distribution of the species in Chile extends from Atacama in the north to Aysén in the south (22–44°S) (Pavez 2000, Figueroa *et al.* 2002). Johnson (1965) summarized the first observations of the species made between 1899 and 1949. Much later, Johow (1992) documented three new sightings from central Chile. Recently, Pavez (2000) documented a number of records from Calama (22°30'S, 69°00'W) to Petrohué (41°10'S, 72° 25'W). Most of these observations, excepting Johnson (1965), came from Andean areas, which constitute the known migratory route of White-throated Hawks (Trejo *et al.* 2007). However, recent records of

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TABLE 1. Recent records of White-throated Hawks in the Chilean coastal forests.

Sites	Locations	Elevations (m)	Dates	Habitats ¹	Observations	Observers ²
P. N. Fray Jorge	30°39'S, 71°41'W	600	Sep. 2002	F(Ap)	An adult hovering	1
Co. Santa Inés, Pichidangui	32°09'S, 71°29'W	400-600	Nov. 2002	F(Ap)	Two adults gliding	1
Oasis La Campana	32°55'S, 71° 01'W	300	Sep. 2003	O	An adult moving	1
P. N. La Campana	32°58'S, 71°07'W	1200	Oct. 1998	F(Nm)	Nesting	2
Altos de Chicauma	33°13'S, 70°56'W	1400	Oct. 2005	F(Nm)		3
Tunquén	33°16'S, 71°39'W	15	Aug. 2006	S	An adult laying on a pine's branch	4
Nahuelbuta National Park	37°45'S, 73°00'W	1420	Dec. 1975	F(Aa, Np)	Also Bp	5
			Nov. 1997	F(Nd)	Nesting behavior	5
			Nov. 1999	F(Nd)	Nesting behavior	5
			Nov. 1999	F(Aa, Np)	Hunting austral parakeet	5
			Jan. 2000	F(Nd)	Thermal soaring	5
			Feb. 2002	F(Aa, Np)	Thermal soaring	6
Cañete	37°48'S, 73°24'W	62	Dec. 2002	F(No), P(Em)	Also Bv, Bp	7
Contulmo	37°54'S, 73°17'W	70	Sep-Mar. 2005	F(No)	Also Bv, Bp	7
			Sep-Mar. 2006	F(No)		7
			Sep-Mar. 2007	F(No)	Courtship and nesting behavior	7
Oncol Park	39°42'S, 73°16'W	403	Jan. 2007	F(Lp, Wt, Sc)	Also Bv, Bp	6
Valdivia	39°51'S, 73°10'W	10	Mar. 2007	F(Nd)	Also Bp	7
Reserva Costera Valdiviana	39°59'S, 73°34'W	263	Mar. 2007	F (Nd, Fc)	Also Bv, Bp	3, 6, 8, 9

¹Habitat: F = forest, S = sclerophyllous shrubland, P = plantation, O = open area; Dominant vegetation: Aa = *Araucaria araucana*, Ap = *Aextoxicon punctatum*, Em = *Eucalyptus*, Fc = *Fitzroya cupressoides*, Lp = *Laureliopsis philippiana*, Nd = *Nothofagus dombeyi*, Nm = *N. macrocarpa*, No = *N. obliqua*, Np = *N. pumilio*, Sc = *Saxegothaea conspicua*, Wt = *Weinmannia trichosperma*; other hawks: Bp = *Buteo polyosoma*, Bv = *Buteo ventralis*.

²Observers: 1 = S. A. Alvarado; 2 = Pavez *et al.* (2004); 3 = I. Rodríguez-Jorquera; 4 = Cáceres (2007); 5 = J. E. Jiménez; 6 = E. A. Silva Rodríguez; 7 = T. A. Rivas-Fuenzalida; 8 = M. A. Sepúlveda; 9 = R. A. Figueroa.

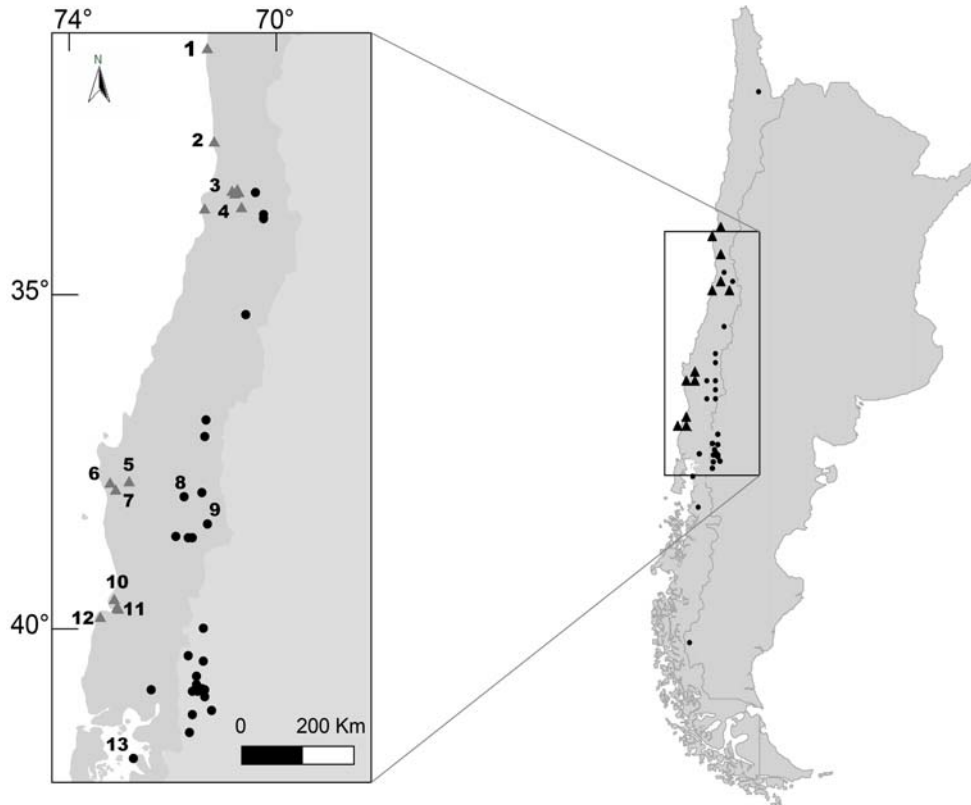


FIG. 1. Records of White-throated Hawk (*Buteo albigula*) on their breeding grounds (Chile and Argentina). Black triangles indicate coastal records and black dots indicate Andean records. The numbered points indicate new records made by the authors: (1) Fray Jorge, (2) Pichidangui, (3) Oasis La Campana, (4) Altos de Chicauma, (5) Nahuelbuta, (6) Cañete, (7) Contulmo, (8) Tolhuaca, (9) Lonquimay, (10) Oncol, (11) Valdivia, (12) Reserva Costera Valdiviana, and (13) Ayacara. Unnumbered points indicate records previously reported in the literature (see text).

White-throated Hawks have been scarcely reported from coastal areas (Pavez *et al.* 2004); thus its status in the Chilean coastal forest is unknown. Here we report recent records of White-throated Hawks from different localities throughout the Chilean coastal range and discuss their relevance in terms of distribution, migratory movements and conservation.

In order to analyze the White-throated Hawk's coastal distribution, we considered recent and past records. Recent records correspond to those directly made by the authors

from 1975 to 2007, and those reported in the literature after 1975. The year 1975 was considered as the initial year for recent records because it corresponds to the date of our first observation. Past or historical records correspond to those made before 1975 and were obtained from literature or from the reference collection maintained in the Instituto de Zoología at Universidad Austral de Chile. In addition, we made some recent records in Andean localities, which were named Andean records. Recent coastal and Andean records

TABLE 2. Historical records of White-throated Hawks in the Chilean coastal forest.

Sites	Dates	Age/sex	Collectors/ Descriptors	Sources ¹
Around Valdivia	1892		R. A. Philippi	1
Around Valdivia	January 1909		F. Ohde	2
Around Valdivia	December 1913	Juvenil	F. Ohde	3
Nahuelbuta	January 1943	Juvenil	M. Cerda	3
Fundo Caupolicán, Valdivia	October 1948	Adult female	H. Sewing	1
Around Valdivia	January 1989	Adult	E. Kramer	2

¹Sources: 1 = Goodall *et al.* 1951; 2 = bird collection in the Zoology Institute, Universidad Austral of Chile; 3 = Housse 1945.

²Type specimen, kept at Museo Chileno de Historia Natural.

were made using naked eyes and 7-15 x 35 binoculars. Identification was confirmed by using field guides with color plates or photographs (Jaramillo 2003, Couve & Vidal 2003), and on the basis of previous observers' experience. On each observation, location, elevation, date, vegetation type and other *Buteo* species were registered. Finally, we analyzed the distribution of the White-throated Hawk on their breeding grounds putting all the reported record points on a map, including both past and recent records. Records reported in the literature included Housse (1945), Goodall *et al.* (1951), Johow (1992), Casas & Gelain (1995), Pavez (2000), Gelain *et al.* (2001), Figueroa *et al.* (2001, 2002), Pavez *et al.* (2004), Cáceres (2007), and Trejo *et al.* (2007).

Nineteen records of White-throated Hawks were made from 1975 to 2007 at twelve sites throughout the Chilean coastal range over approximately 10° of latitude (Table 1, Fig. 1). The most extremes records were in the Fray Jorge National Park in the north and in the Valdivian Coastal Reserve in the south. However, most records were concentrated around the Nahuelbuta National Park and Valdivia (Fig. 1). Elevations of record sites were variable ranging from 10 to 1400 m a.s.l. (Table 1). All hawks were

recorded between September and March (Austral spring and summer), excepting that from Tunquén, which was made in August (austral winter, Table 1). Most hawks were observed in forest areas (18 out of 19) and one was sighted in an area with sclerophyllous shrubland (Tunquén). Dominant vegetation of the forest habitats was variable and was site-dependent (Table 1). Characteristics of forest sites (e.g., age, cover) were not evaluated due to logistic limitations. However, most record sites were located in relatively ancient forests, particularly those around Nahuelbuta and Valdivia. A variable range of activities was registered during our records (Table 1). Nesting behavior was observed at Nahuelbuta and Contulmo, including courtship and even attacks to the observer (Jiménez pers. observ.), but no nest was found.

All past records were concentrated around Valdivia, excepting one specimen hunted in Nahuelbuta (Table 2). Observations from Valdivia were reported by Housse (1945), Goodall *et al.* (1951) and Johnson (1965). However, two specimens deposited in the Instituto de Zoología of Universidad Austral in Valdivia have not been documented (Table 2). All specimens were captured between October and January, including juve-

TABLE 3. Some recent records of White-throated Hawks in the Chilean Andean forests.

Sites	Locations	Elevations (m)	Dates	Habitats ¹	Activities	Observers
P.N. Tolhuaca	38°00'S, 71°50'W	1500	Feb. 2001	F (Nd, Aa)	Searching for prey	R.A. Figueroa
Lonquimay	38°26'S, 71°22'W	1072	Dec. 1998	F (Nd)	Perching on Nd	M.A. Sepulveda- Fuentes
Ayacara	42°18'S, 72°47'W	32	Nov. 2006	F (Nd)	Thermal soaring	M.A. Sepulveda- Fuentes

¹Habitat: F = forest; Aa = *Araucaria araucana*; Nd = *Nothofagus dombeyi*.

nile and adult hawks (Table 2). We discarded one record from Coquimbo, reported by Goodall *et al.* (1957), because it was not confirmed by direct observation of the hawk. Andean records were made between November and December in three sites with variable elevation (Table 3). All records site were areas with ancient forest, but no reproductive behavior was observed.

On the basis of all records reported in the literature and our observations, we distinguished two main areas used by the White-throated Hawk (Fig. 1): the Andean range of Chile and Argentina and the Chilean Coastal range. Absence of records in the central valley of Chile could be explained by the scarcity of native forest (Willson *et al.* 2005) or, alternatively, by the scarcity of raptor research. The forest-specialist habits of the White-throated Hawk make the former explanation more likely.

Due to the scarcity of historical records, presence of the White-throated Hawk in Chilean coastal areas had been considered accidental. Its presence had only been documented from Valdivia and Nahuelbuta (Housse 1945, Goodall *et al.* 1951). However, during almost five decades, no observation of this hawk was reported from coastal areas. The first confirmed record of this species in coastal areas was made by Pavez *et al.* (2004) in the Roble hill, in Central Chile, where they found a nesting pair. Although Díaz (2005)

analyzed the avian diversity from 12 sites surveyed by different authors in the Chilean coastal forests, no White-throated Hawk was listed. However, we believed that rarity of this hawk could be related to the lack of observations rather than to its absence. Bird surveys in coastal areas have been scarce (Díaz 2005). In addition they were usually conducted using point counts (Jiménez 2000), a method that underestimates raptors presence (Bibby *et al.* 1993).

Chilean coastal areas may represent new breeding grounds, similarly to those found in Andean areas (Trejo *et al.* 2001). Sites around Valdivia and Nahuelbuta are of particular interest because they concentrate most remnants of coastal forests. Most of these forest remnants seem to provide adequate breeding grounds as they contain old trees that White-throated Hawks could use for building their nests. In addition, those forests typically contain abundant prey. No individual reported in our study was recorded during the Austral winter, supporting the hypothesis that the whole southern breeding population is migratory (Trejo *et al.* 2007). However Cáceres (2007) reported the sighting of a White-throated Hawk during August (austral winter), event that could be explained either by early arrival (the record is from Central Chile), or by the fact that some individuals could overwinter close to the breeding area after the breeding period, as suggested by Trejo *et al.*

(2007), to explain a May record in Austral Chile (Figuroa *et al.* 2002). The linear distribution of coastal records also suggests that the Chilean coastal range could be a parallel migratory route for the White-throated Hawk. However, further field research is necessary to confirm the breeding and migratory status along the Chilean coastal range.

The Chilean coastal forests contain a high species richness and endemism (Smith-Ramírez 2004). Some coastal sites such as Nahuelbuta are characterized by the presence of critically threatened species such as the Darwin's fox (*Pseudalopex fulvipes*, Jiménez & MacMahon 2004) and the monkey-puzzle tree (*Araucaria araucana*, Gajardo 1994), or high endemism of amphibian species (Ortiz & Ibarra-Vidal 2005). In the particular case of birds, coastal forest areas shelter almost all bird species of the temperate rainforest (Díaz 2005). The presence of the White-throated Hawk and the rare Rufous-tailed Hawk (*Buteo ventralis*), as well as the Chilean Hawk (*Accipiter chilensis*) and the Rufous-legged Owl (*Strix rufipes*), in the coastal forests reinforces this assertion (see Jaramillo 2003 for the distribution of the later species). However, the Chilean coastal forest is a vanishing, and mostly unprotected ecosystem (Smith-Ramírez 2004). Currently, coastal forests are highly threatened due to forest exploitation to obtain firewood, establish exotic plantations, or create prairies for livestock, making their future unpredictable (Smith-Ramírez 2004). As a migratory forest-dependent species, the future of the White-throated Hawk is uncertain because South American Temperate forests constitute their breeding grounds, and its disappearance would put the species at risk.

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