———, H.W. GREENE, AND J.L. YAÑEZ. 1981. The guild structure of a community of predatory vertebrates in Central Chile. *Oecologia* 49:21–28.

———, R. ROZZI, A. LABRA, AND J.E. JIMÉNEZ. 1987. The hunting behavior of Black-shouldered Kites (*Elanus caeruleus leucurus*) in central Chile. *Condor* 89:907–911.

———, J.E. JIMENEZ, S.A. CASTRO, AND P. FEINSIGER. 1992. Numerical and functional response of predator to a long-term decline in mammalian prey at semi-arid Neotropical site. *Oecologia* 89:90–101.

JAUREGUY, J. AND M.A. BERNABÉ. 1987. Estudio preliminar de ubicación de un área industrial cercana a las localidades de Barker y Villa Cacique. Munic. Benito Juárez, U.N.C.P.B.A. y C.I.C, Tandil, Argentina.

LEVEAU, L.M., C.M. LEVEAU, AND U.F.J. PARDIÑAS. 2002. Dieta del Milano Blanco (*Elanus leucurus*) en Argentina. *Ornitol. Neotrop.* 13:507–511.

MARTI, C.D. 1987. Raptor food habits studies. Pages 67–80 *in* B. Giron-Pendleton, B.A. Millsap, K.W. Cline, and D.M. Bird [EDS.], Raptor management techniques manual. Nat. Wildl. Fed., Washington, DC U.S.A.

——— AND M.N. KOCHERT. 1995. Are Red-tailed Hawks and Great Horned Owls diurnal-nocturnal counterparts? *Wilson Bull.* 107:615–628.

MASSOIA, E. 1976. Mammalia. Pages 7–127 *in* R. Ringuelet [ED.], Fauna de Agua Dulce de la República Argentina. Fundación Editorial Ciencia y Cultura, Buenos Aires, Argentina.

MENDELSOHN, J.M. AND F.M. JAKSIC. 1989. Hunting behavior of Black-shouldered Kites in the Americas, Europe, Africa and Australia. *Ostrich* 60:1–12.

MESERVE, P.L. 1977. Food habits of a White-tailed Kite population in central Chile. *Condor* 79:263–265.

NAROSKY, T. AND A.G. DI GIACOMO. 1993. Las aves de la Provincia de Buenos Aires: Distribución y Estatus. Asoc. Ornitológica del Plata, Buenos Aires, Argentina.

——— AND D. YZURIETA. 1987. Guía para la identificación de las aves de Argentina y Uruguay. Asoc. Ornitol. del Plata, Buenos Aires, Argentina.

NOWAK, R.F. 1999. Walker's mammals of the world. Johns Hopkins Univ. Press, Baltimore, MD U.S.A.

PARDIÑAS, U.F.J. 1999. Los roedores muroideos del Pleistoceno tardío-Holoceno en la región pampeana (sector este) y Patagonia (República Argentina): aspectos taxonómicos, importancia bioestratigráfica y significación paleoambiental. Dissertation, Facultad de Ciencias Naturales y Museo, Univ. Nacional La Plata, La Plata, Argentina.

——— AND S. CIRIGNOLI. 2002. Bibliografía comentada sobre los análisis de egagrópilas de aves rapaces en Argentina. *Ornitol. Neotrop.* 13:31–59.

PEARSON, O.P. 1988. Biology and feeding dynamics of a South American herbivorous rodent, *Reithrodon. Stud Neotrop. Fauna Environ.* 23:25–39.

REDFORD, K.H. AND J.F. EISENBERG. 1992. Mammals of the neotropics, the southern cone: Chile, Argentina, Uruguay, Paraguay. Vol. 2. Univ. Chicago Press, Chicago, IL U.S.A.

SCHLATTER, R.P., H.J. TORO, J.L. YÁÑEZ, AND F.M. JAKSIC. 1980. Prey of the White-tailed Kite in central Chile and its relationship to the hunting habitat. *Auk* 97: 186–190.

SCHOENER, T.W. 1974a. Resource partitioning in ecological communities. *Science* 185:27–39.

———. 1974b. The compression hypothesis and temporal resource partitioning. *Proc. Nat. Acad. Sci.* 71:4169–4172.

SIMEONE, A.C. 1995. Ecología trófica del bailarín *Elanus leucurus* y la lechuza *Tyto alba* y su relación con la intervención humana en el sur de Chile. Tesis de Licenciatura, Universidad Austral de Chile, Valdivia, Chile.

SOKAL, R.R. AND F.J. ROHLF. 1981. Biometry. Freeman, San Francisco, CA U.S.A.

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RELATIVE ABUNDANCE AND DIVERSITY OF WINTER RAPTORS IN SPOKANE COUNTY, EASTERN WASHINGTON

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KEY WORDS: *Red-tailed Hawk*; Buteo jamaicensis; *Rough-legged Hawk*; Buteo lagopus; *relative abundance*; *roadside survey*; *sympatry*; *winter distribution.*

For years, biologists, falconers, and bird-watchers have recognized the high density of raptors in eastern Washington during the winter. Discussions with observers throughout the region indicate this zone of high abundance may extend from eastern Washington, east to the

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Boise area, Idaho, and south into Utah. Underscoring the importance of identifying and quantifying this zone of potentially high raptor abundance is the rapid human population growth occurring in this same region. The mean growth rate in eastern Washington is 19.1%, with some counties recording growth rates of 35–36%. Boise, Idaho experienced a phenomenal growth rate of 46.1% (U.S. Census Bureau 2001). For effective land use planning, quantitative biological data are required. Such data are also required to design and implement long-range, year-round, landscape-level raptor conservation strategies (Sherry and Holmes 1995). Local governments in eastern Washington are just beginning to develop growth management policies in an attempt to preserve and protect the native wildlife as the human population continues to expand into formerly rural land and wildland. Data on the abundance and ecology of the local wildlife is necessary to help establish these policies. In order to verify and quantify the high winter raptor densities in eastern Washington, a 3-yr study was conducted in eastern Washington from 1995–98.

Road counts were employed because one of the objectives of this study was to compare the results of this survey to other winter raptor studies in the western U.S. Although the reliability of road counts has been questioned (Millsap and LeFranc 1988) due to several inherent biases (e.g., species detectability, perch availability, along roads, weather, variation in observer expertise) this approach can be effective in assessing relative abundance and long-term trends over large areas, particularly in more open habitats (Millsap and LeFranc 1988, Province of British Columbia 2001, Hutto and Young 2002). In addition, recommended standardized guidelines were followed when conducting the surveys (e.g., Andersen et al 1985, Bildstein 1987, Fuller and Mosher 1987, Andersen and Rongstad 1989).

STUDY AREA

The study was in Spokane County in eastern Washington near the border of Idaho (Fig. 1). Spokane County has ca. 250 000 people in urban areas, and 200 000 in nonurban areas (Washington Office of Financial Management 1998). Spokane County is dominated by Ponderosa Pine (*Pinus ponderosa*) and Palouse (steppe) vegetation zones (Cassidy 1997; Fig. 1). Much of the county consists of a transition zone ranging from the arid Columbia Basin shrub-steppe region in the southwest corner to the mixed evergreen forests of the Selkirk-Rocky Mountain complex in the northeast corner.

METHODS

I conducted 120 roadside surveys on five different routes (24 surveys of each route) for three consecutive winters covering ca. 2510 km of secondary roads. These five routes were located on secondary roads outside the city of Spokane that had low traffic volumes, sufficient shoulder width for stopping, and scheduled snow removal (Fig. 1). The lengths of the five survey routes were 28.9, 27.3, 22.5, 12.1, and 13.7 km for Big Meadows (BM), Coulee Hite (CH), Hangman Valley (HV), Little Spokane (LS) and Saltese Flats (SF) routes, respectively. Three of the routes (BM, CH, HV) traversed multiple habitats including agricultural, mixed evergreen forests dominated by ponderosa pine, and riparian areas. The LS route followed a riparian corridor containing a mix of cottonwood (*Populus balsamifera*), Douglas-fir (*Pseudotsuga menziesii*) and ponderosa pine. The SF route included lowland with emergent wetlands surrounded by ponderosa pine, native bunchgrass steppe, and some agriculture. Each of the five routes was surveyed six times during the winter of 1995–96 and 9 times each of the 2 subsequent winters, 1996–97 and 1997–98. The routes were sampled starting 15 November ending 15 March. The direction and order in which transects were driven were varied and conducted throughout the day to minimize temporal biases. All surveys were conducted between 0800–1600 H at vehicle speeds of 40 km/hr or less. Occasional brief stops (<2 min) were made to identify and to record observed raptors. Surveys were not conducted, if weather conditions resulted in restricted vision or if winds were >40 km/hr.

Only raptors initially seen with the unaided eye were recorded. Binoculars (10 × 40 and 8 × 42) were used to aid in identification. Both perched and flying raptors were recorded and mapped, including direction of flight. After first detection, all attempts were made to minimize recounting of raptors by noting previous observations, direction of flight, mapped location, and any comments such as an unusual color phase. Subsequently, if a bird of the same species, phase, age, and sex was observed in the same area as a previously recorded bird, this observation was not recorded.

Because of the small sample size obtained for less common species, most of the results were restricted to the five most common species. Unknown raptors were eliminated from the study results ($N = 7$, <1%). To determine if there were significant time-of-day influences on the number and species of raptors observed, data were categorized two different ways. The first method divided all observations into four time categories: 0800–0959, 1000–1159, 1200–1359, and 1400–1559 H. while the second divided observations into two time periods: morning from 0800–1159 H, and afternoon from 1200–1559 H. Chi-square tests (Sokal and Rohlf 1995) were used to look at the significance of these results. A correction for continuity was made for chi-square tests with only one degree of freedom.

Ten winter raptor studies were selected from the literature that allowed calculation of relative abundance (i.e., number of raptors observed and distance traveled were reported) and were used for comparison to this study (Table 1). All results and analyses were standardized to the distances surveyed. Relative abundance was calculated as the number of birds observed divided by the km surveyed times 1000.

RESULTS

A total of 1205 raptors of 12 different species were recorded. The four most common species were Red-tailed Hawk (*Buteo jamaicensis*; 65%), Rough-legged Hawk (*Buteo lagopus*; 18%), Bald Eagle (*Haliaeetus leucocephalus*; 6%),

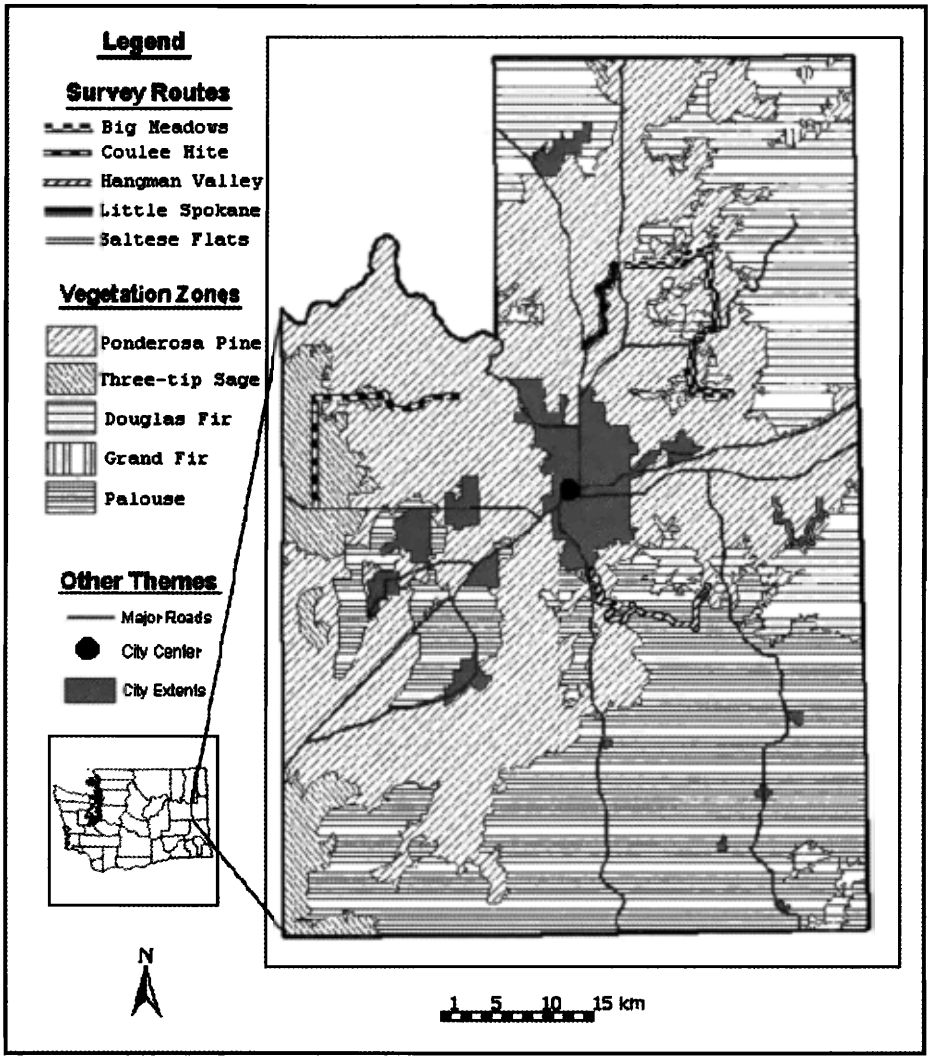

Figure 1. Map of Spokane County, WA, showing study area including raptor road count routes and major vegetation types, 1995–98.

and Northern Harrier (*Circus cyaneus*; 5%; Table 1). American Kestrel (*Falco sparverius*) comprised 3%, two other falcons, Merlin (*F. columbarius*) and Prairie Falcon (*F. mexicanus*) together added 0.5%, Golden Eagle (*Aquila chrysaetos*) less than 0.1%, and all three species of Accipiters, Sharp-shinned Hawk (*Accipiter striatus*), Cooper's Hawk (*A. cooperii*), and Northern Goshawk (*A. gentilis*) comprised an additional 1%. The Great-horned Owl (*Bubo virginianus*) made up 1%. The relative abundance of the predominant five species was 313 for Red-tailed Hawks, 88 for Rough-legged Hawks, 29 for Bald Eagles, 24 for Northern Harriers, and 13 for American Kestrels. Relative abundance for the entire study was 480 raptors (Table 1).

The 65 morning surveys covered ca. 1345 km while the 55 afternoon surveys covered 1165 km. I observed 41% of all raptors in the morning and 58% in the afternoon (Table 1). Significantly more raptors were observed in the afternoon than in the morning ($\chi^2 = 71.38$, $P < 0.001$). Red-tailed Hawks, Rough-legged Hawks, and Northern Harriers were observed more frequently on afternoon surveys than on morning counts ($\chi^2 = 51.66$, 12.78, and 29.78, respectively; all $P < 0.001$).

DISCUSSION

In the Spokane area, I recorded relative abundance of 480 raptors/1000 km, a higher abundance than 10 pre-

Table 1. Morning, afternoon, and total results of raptors observed and their relative abundance during winter in Spokane County, eastern Washington, 15 November–15 March, 1995–98.

	Birds Observed					
	Mornings		Afternoons		Total	
	No.	Abundance[a]	No.	Abundance[a]	No.	Abundance[a]
Red-tailed Hawk	320	237.9	466	400.0	786	313.1
Rough-legged Hawk	92	68.4	129	110.7	221	88.0
Bald Eagle	38	28.2	34	29.2	72	28.7
Northern Harrier	20	14.9	41	35.2	61	24.3
All other species combined	29	21.5	36	31.0	65	25.9
All species	499	371.0	706	606.0	1205	480.1

[a] Relative abundance based on raptors recorded per 1000 km.

vious studies in the western U.S.A. (Table 2). The study with the next highest relative abundance (432) is another Washington study conducted ca. 320 km west of Spokane in Kittitas County (Chestnut and Boomgarden 1997). When evaluated on a landscape level, these two studies suggest high winter raptor abundance throughout the eastern Washington area. The next highest relative abundance values reported were 350 in central Utah (Fischer et al. 1984), and 262 in northern Utah (Brouse 1999). With regard to species diversity, 12 species were observed during the 3-yr study, placing it second in reported richness along with several of the other western studies (Table 2).

Red-tailed Hawks had the highest relative abundance with 313, while Rough-legged Hawks were next highest with 88, a ratio of 3.6 Red-tailed Hawks for each Rough-legged Hawk. Chestnut and Boomgarden (1997) also reported Red-tailed Hawks (290) as the most common species with Rough-legged Hawks (108) being the second most common, a ratio of 2.7.

These unusually high Red-tailed Hawk numbers differ from the other published studies in the more northern and eastern portions of the west. In Colorado and Nebraska, Enderson (1965), Mathisen and Mathisen (1968), and Johnson and Enderson (1972) reported Rough-legged Hawks as the most common *Buteo* on winter roadside counts while Red-tailed Hawks were scarce. Stahldecker and Belke (1974) observed only five Red-tailed Hawks, but observed 108 Rough-legged Hawks in northeastern Colorado. Similarly, Johnson and Enderson (1972) in eastern Colorado recorded only four red-tails, but 107 Rough-legged Hawks. In neighboring Idaho, Craig (1978) found Rough-legged Hawks to be the most numerous wintering raptor, while Red-tailed Hawk numbers were so low they were not reported. On the other hand, studies in the southwestern U.S.A. indicate Red-tailed Hawks predominate. In southeastern Arizona, Parker and Campbell (1984) reported 200 red-tails and only 14 rough-legs. In central California, Smallwood et al. (1996) recorded 822 red-tails and only five Rough-legged Hawks.

Table 2. Relative abundance and species diversity derived from published winter road count raptor studies in the western U.S.A. (some values were calculated from the publ. data).

	Location	Relative Abundance (Raptors/1000 km)	No. of Species	Total km Traveled
This study	Eastern WA	480.1	12	2510
Chestnut and Boomgarden (1997)	Eastern WA	450.5	11	1445
Fischer et al. (1984)	Central UT	350.0	10	1500
Brouse (1999)	Northern UT	261.9	13	4070
Stahldecker and Belke (1974)	Northeast CO	208.1	8	1312
Johnson and Enderson (1972)	Eastern CO	173.5	9	1677
Marion and Ryder (1975)	Northeast CA	166.7	6	936
Enderson (1965)	Eastern CO	158.0	9	2695
Craig (1978) (Nov–Mar)	Southeast ID	88.7	12	3553
Parker and Campbell (1984)	Southeast AZ	80.5	12	6386
Andersen and Rongstad (1989)	Southeast CO	71.6	12	3407

In contrast to these other studies, my study reveals that eastern Washington has relatively high numbers of both Red-tailed and Rough-legged hawks (Table 1).

This sympatry of Red-tailed and Rough-legged hawks seems to be the unusual feature of the winter raptor population in eastern Washington. I suggest that this zone of high relative abundance with these two species being sympatric extends south into Utah based on two Utah studies of wintering raptors. Brouse (1999) observed 161 red-tails and 55 Rough-legged Hawks, while Fischer et al. (1984) reported 169 red-tails and 78 Rough-legged Hawks, ratios of 2.9 and 2.2 red-tails to rough-legs, respectively. The relative abundance values found in these two studies for red-tails and Rough-legged Hawks were the highest reported next to the two Washington studies. However, more studies need to be conducted, particularly in Idaho, to determine the extent of this zone of sympatry. Craig's (1978) results in southeastern Idaho indicated that Red-tailed Hawks occurred only in low numbers in that region.

In conclusion, eastern Washington is an important wintering area for a large and diverse raptor community. Contributing to this overall abundance is the fact that both Red-tailed Hawks and Rough-legged Hawks are abundant in this area. Although many of these raptors may not nest in the area, they do reside in, and depend upon the area for life support for several months each year. Considering this dependence, it is important to protect and conserve these important wintering areas. Development of conservation strategies for this key wintering area for raptors is particularly important because of growing urban areas, such as Spokane, in this region.

RESUMEN.—Un total de 120 estudios de rapaces al borde de la carretera fueron llevados a cabo en cinco diferentes rutas en el condado Spokane, al oriente de Washington, cubriendo un total de 2510 km de carreteras secundarias durante los inviernos de 1995–98. Cerca de 1200 aves rapaces de 12 especies diferentes fueron registradas durante el periodo de 3 años. Las cuatro especies más comunes. El gavilán de cola roja (*Buteo jamaicensis*; 65% del Total), el gavilán de patas gruesas (*Buteo lagopus*; 18%), el águila calva (*Haliaeetus leucocephalus*; 6%), y el aguilucho norteño (*Circus cyaneus*; 5%), abarcaron casi el 95% de todas las rapaces vistas. La abundancia relativa para todo el estudio fue 480 rapaces por cada 1000 km muestreados. Fueron observadas significativamente más rapaces en la tarde que en la mañana. La comparación de resultados con otros 10 estudios en el occidente indicó que la abundancia relativa de rapaces invernantes en el oriente de Washington fue una de las más altas reportadas para el Oeste. Esta alta abundancia relativa, en parte, parece ser resultado de la simpatria entre los gavilanes de cola roja y los de patas gruesas en el área oriental de Washington.

[Traducción de César Márquez]

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LITERATURE CITED

ANDERSEN, D.E., O.J. RONGSTAD, AND W.R. MYTTON. 1985. Line transect analysis of raptor abundance along roads. *Wildl. Soc. Bull.* 13:533–539.

——— AND O.J. RONGSTAD. 1989. Surveys for wintering birds of prey in southeastern Colorado 1983–88 *J Raptor Res.* 23:152–156.

BILDSTEIN, K.L. 1987. Behavioral ecology of Red-tailed Hawks (*Buteo jamaicensis*), Rough-legged Hawks (*Buteo lagopus*), Northern Harriers (*Circus cyaneus*), and American Kestrels (*Falco sparverius*) in south-central Ohio. Ohio Biol. Surv. Biol. Columbus, OH U.S.A.

BROUSE, P. 1999. Twenty year change in the raptor community in northern Utah during the nonbreeding season. *J. Raptor Res.* 33:317–322.

CASSIDY, K.M. 1997. Land cover of Washington State: description and management. Pages 1–260 *in* K.M. Cassidy, C.E. Grue, M.R. Smith, and K.M. Dvornich [EDS.], Washington State Gap Analysis. Washington Cooperative Fish and Wildlife Research Unit, Univer Washington, Seattle, WA U.S.A.

CHESTNUT, T. AND K. BOOMGARDEN. 1997. Abundance, distribution, and habitat associations of raptors wintering in the Kittitas Valley, Kittitas County, Washington. Poster Presentation, Joint Meeting of Society for Northwestern Vertebrate Biology and The Wildlife Society, Yakima, WA U.S.A.

CRAIG, T.H. 1978. A roadside raptor survey of raptors in southeastern Idaho 1974–76. *Raptor Res.* 12:40–45.

ENDERSON, J.H. 1965. Roadside raptor count in Colorado. *Wilson Bull.* 77:82–83.

FISCHER, D.L., K.L. ELLIS, AND R.J. MEESE. 1984. Winter habitat selection of diurnal raptors in central Utah. *Raptor Res.* 18:98–102.

FULLER, M.R. AND J.A. MOSHER. 1987. Raptor Survey Techniques. Pages 37–65 *in* B.A. Giron Pendleton, B.A. Millsap, K.W. Cline, and D.M. Bird [EDS.], Raptor Management Techniques Manual. Natl. Widl Fed., Washington, DC U.S.A.

HUTTO, R.L. AND J.S. YOUNG. 2002. Regional landbird monitoring: perspectives from the Northern Rocky Mountains. *Wildl. Soc. Bull.* 30:738–750.

JOHNSON, D. AND J.H. ENDERSON. 1972. Roadside raptor census in Colorado-winter 1971–72. *Wilson Bull.* 84: 489–490.

MARION, W.R. AND A. RYDER. 1975. Perch-site preferences of four diurnal raptors in northeastern Colorado. *Condor* 77:350–352.

MATHISEN, J.E. AND A. MATHISEN. 1968. Species abun-

dance of diurnal raptors in the panhandle of Nebraska. *Wilson Bull.* 80:479–486.

MILLSAP, B.A. AND M.N. LEFRANC, JR. 1988. Road transect counts for raptors: how reliable are they? *J. Raptor Res.* 22:8–16.

PARKER, R.E. AND E.G. CAMPBELL. 1984. Habitat use by wintering birds of prey in southeastern Arizona. *West. Birds* 15:175–183.

PROVINCE OF BRITISH COLUMBIA. 2001. Inventory Methods for Raptors. Standards for Components of British Columbia's Biodiversity No. 11. Ministry of Sustainable Resource Management Environment Inventory Branch for the Terrestrial Ecosystems Task Force Resources Inventory Committee. Victoria, BC Canada.

SHERRY, T.W. AND R.T. HOLMES. 1995. Summer versus winter limitation of populations: what are the issues, what is the evidence. Pages 85–120 *in* T.E. Martin and D.M. Finch [EDS.], Ecology and management of neotropical migratory birds: a synthesis and review of the critical issues. Oxford Univ. Press, Oxford, U.K.

SMALLWOOD, S.K., B.J. NAKAMOTO, AND S. GENG. 1996. Association analysis of raptors on a farming landscape. Pages 177–190 *in* D. Bird, D. Varland, and J. Negro [EDS.], Raptors in human landscapes. Raptor Research Foundation, Academic Press, Ltd., San Diego, CA U.S.A.

SOKAL, R.R. AND F.J. ROHLF. 1995. Biometry: the principles and practice of statistics in biological research. W.H. Freeman and Company, New York, NY U.S.A.

STAHLDECKER, D.W. AND T.E. BELKE. 1974. Winter diurnal raptor populations of three habitat types in northeastern Colorado. *Colo. Field Ornithol.* 20:6–17.

U.S. CENSUS BUREAU. 2001. United States Census 2000. U.S. Department of Commerce Economics and Statistics Administration, http://www.census.gov.

WASHINGTON OFFICE OF FINANCIAL MANAGEMENT. 1998. Population trends. Washington Office of Financial Management, Olympia, WA U.S.A.

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NESTING OF THE WHITE-THROATED HAWK (*BUTEO ALBIGULA*) IN DECIDUOUS FORESTS OF CENTRAL CHILE

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KEY WORDS: *White-throated Hawk*; Buteo albigula; *central Chile*; *breeding*; *deciduous forests.*

The White-throated Hawk (*Buteo albigula*; Philippi 1899) is found throughout the Andes mountain range, from northwestern Venezuela through southern Chile and southwestern Argentina (Brown and Amadon 1968). In Chile, the species has been considered an all-year resident between the latitudes of 27° and 40°S (Goodall et al. 1957), a local migrant (Zalles and Bildstein 2000), or its residency status was unknown (Jaksic and Jiménez 1986). Pavez (2000) presented the first evidence of migratory movements. He reported its presence in Chile only during the breeding season (i.e., between September and April), inhabiting high-elevation *Nothofagus* forests (Olrog 1979, Navas and Manghi 1991, Casas and Gelain 1995, Pavez 2000).

Information on the species' breeding biology is scant

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