

Status and Occurrence of Broad-winged Hawk (*Buteo platypterus*) in British Columbia.

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Introduction and Distribution

The Broad-winged Hawk (*Buteo platypterus*) is a small raptor that is found commonly breeding across most of eastern North America (Goodrich *et al.* 2014). This species is found breeding in most of its northern range in deciduous or mixed deciduous-coniferous forests (Goodrich *et al.* 2014).

In Canada, the Broad-winged Hawk has been found as a rare breeder in the Southern Yukon in forests of Trembling Aspen (*Populus tremuloides*) along the Lower LaBiche River (C. Eckert Pers. Comm.). This species has also been found breeding in the exact same habitat in the nearby Fort Liard region of the Northwest Territories (Machtans 2000). The Broad-winged Hawk is also found breeding from south to southeastern Alberta, with rare to scattered sightings in central Alberta, and increased sightings in northern Alberta (American Ornithologists' Union 1983, Godfrey 1986, Semenchuk 1992, Federation of Alberta Naturalists 2007). This species' breeding range extends eastward into central Saskatchewan, with occasional observations extending northward into northern Saskatchewan (Goodrich *et al.* 2014). The Broad-winged Hawk is also found breeding in central Manitoba (Goodrich *et al.* 2014), north-central Ontario (Goodrich *et al.* 2014), south-central Quebec (Cyr and Larivee 1995a), and throughout the Maritime provinces of New Brunswick, Prince Edward Island, and Nova Scotia, including Cape Breton Island (Goodrich *et al.* 2014). This species is a casual vagrant in Newfoundland and Labrador (Salt and Salt 1976).

In the United States, the Broad-winged Hawk is found breeding from northeastern North Dakota (Stewart 1975b), north and east-central Minnesota (Goodrich *et al.* 2014), eastern Iowa (Goodrich *et al.* 2014), Missouri, except in the northwest (Robbins and Easterla 1992), southeastern and south-central Oklahoma (Reinking 2004), eastern Texas (west to 98°W) (Gehlbach 1997; Goodrich *et al.* 2014), has expanded westward in Texas since 1970s (Gehlbach 1997), and is found as a breeding species along the Gulf Coast to northern Florida, south to Levy and Aluchua counties (Robertson and Woolfenden 1992a). The Broad-winged Hawk is also found as a very rare and localized breeder in northern Kansas (Busby and Zimmerman 2001), central and southwestern Iowa (Goodrich *et al.* 2014), and very locally elsewhere along the eastern Great Plains where appropriate habitat exists.

The Broad-winged Hawk has been increasing in detection and has been likely expanding westwards into western North America, with records sharply increasing since the 1980s from

states such as New Mexico, Arizona, Colorado, Wyoming, Idaho, and Montana (DeSante and Pyle 1986, Palmer 1988c). Along the west coast of North America, the Broad-winged Hawk is a now established regular species in both the fall and the spring with a few winter records. In California, the Broad-winged Hawk is no longer a review species as it is an annual migrant (Hamilton *et al.* 2007). In Oregon and Washington State, this species is also no longer a review species (OFO 2016, Wahl *et al.* 2005, WBRC 2018). In British Columbia, this species has been rapidly increasing in frequency of detection since 1990, and has been found breeding in the Peace River Region, the Golden area, and the Prince George region, but the northern region of the province is highly under birded and it is far more likely that the Broad-winged Hawk has moved further west as a breeder than current records reflect (e-bird database 2020). The secretive nature of this species, coupled with its relative scarcity, makes finding nest sites difficult. This is likely why there are to date only a few known nest sites in the province. Despite few nests discovered, there have been an ever increasing number of fall and spring migrants all over the province in the past 10-20 years (e-bird database 2020).

It is a secretive species while nesting, but conspicuous in migration (Wheeler 2003b). One of the few North American raptors that flocks during migration, Broad-winged Hawks are commonly seen in the tens of thousands at the peak of their fall and spring migrations in southern Texas, Mexico, and Central America (Goodrich *et al.* 2014). Generally migrates in large flocks, or "kettles," ranging from several individuals to thousands (Goodrich *et al.* 2014). Migrants frequently soar in thermals; kettles of tens of thousands regularly sighted in southern Texas, Mexico, and Central America, occasionally along shores of the Great Lakes, more rarely elsewhere (Goodrich *et al.* 2014). Lone migrants are rare; only 12% of fall migrants sighted in central New York flew alone (Kerlinger 1989a).

Although the overall migration period at any given location in spring and fall may last 2 months, most individuals pass during a brief and concentrated 2 week period during both seasons (Bednarz *et al.* 1990b, Goodrich *et al.* 2014).

In Mexico and Central America, Broad-winged Hawks associate with flocks of Swainson's Hawks, Turkey Vultures (*Cathartes aura*), and Mississippi Kites (*Ictinia mississippiensis*), as well as with solitary raptor migrants such as Osprey (*Pandion haliaetus*) or Cooper's Hawk (*Accipiter cooperii*) (Skutch 1945b, Wetmore 1965b, Andrlé 1966, Goodrich *et al.* 2014). Often soars higher than larger raptors in Mexico flocks (Goodrich *et al.* 2014).

The Broad-winged Hawk is one of the earliest fall migrants of any North American raptor, and one of the latest in spring (Goodrich *et al.* 2014). Timing probably influenced by reliance on cold-blooded prey (Newton 1979c).

Spring migration spans the period of March through May and, rarely, into June. Migrant birds are recorded in Panama from March to early April, with most migration occurring mid- to late March (Wetmore 1965b, Smith 1980c, Ridgely and Gwynne 1989). Spring migrants are recorded in Costa Rica from early March to late May (Stiles and Skutch 1989), with most passing in mid-March (Skutch 1945b, Hidalgo *et al.* 1995).

In Mexico, migrants are recorded from March to mid-May (Howell and Webb 2010), with peak numbers occurring in early April (Goodrich *et al.* 2014, Inzunza 2005). The birds fly northward into Texas, arriving by early April (Goodrich *et al.* 2014). Movements of this species in Texas peak in the last week of March and the first week, into the second week of April, with thousands of birds per day passing sites such as the Santa Ana National Wildlife Refuge (Goodrich *et al.* 2014).

In the Mid-Atlantic States spring migration peaks in mid- to late April (Haugh 1972a). Further north along the south shore of the Great Lakes, the numbers of Broad-winged Hawk peak in late April and early May with over 10,000 individuals reported per day (Goodrich *et al.* 2014). Late migrants, predominantly sub-adults, often return to breeding areas in late May or June (Mueller and Berger 1965a, Haugh 1972a).

In eastern North America, fall migration occurs from the middle of August thru to early October with peak flights (mid-Atlantic) occurring from September 10-20 (Haugh 1972a, Bednarz *et al.* 1990b). Breeding birds leave their nesting territories in New York and Pennsylvania in late August into the middle of September (Matray 1974, Matray 1976, Goodrich *et al.* 2014). The timing of migration is compressed at any given latitude, for example in Ontario, migrants peak from September 10-14; at Hawk Mountain in Pennsylvania, 95% of fall migrants pass within a 2 week period in the middle of September, with peak period occurring from September 15-18 (Bednarz *et al.* 1990b). In southern Texas, there are major flights that occur in late September and in the first week of October, with smaller flights continuing through until late October (there have been 1 day records of >250,000 birds observed on the south Gulf Coast of the state); with late migrants recorded into November (Goodrich *et al.* 2014). In the Florida Keys, the Broad-winged Hawk migration peaks slightly later in mid-October (Goodrich *et al.* 2014).

Individuals from eastern and central Canada head south skirting the Great Lakes and the Atlantic shoreline; thousands concentrate along the northern and western shores of the Great Lakes, for example, an incredible 190,121 birds were recorded at a Detroit River site on the west shore of Lake Erie, and 101,698 birds were recorded at Hawk Ridge, in Duluth, Minnesota (Cypher and Smart 1995). Broad-winged Hawks tend to migrate along the eastern Appalachian

Mountains and west of the Connecticut and New York coastlines (Goodrich *et al.* 2014). The eastern migration route moves inland through northern New Jersey and southeastern Pennsylvania; flight lines disperse along the southern Appalachian ridges, with smaller numbers of birds observed from Maryland to Tennessee (Goodrich *et al.* 2014). Most migrants head southwesterly, through Louisiana and eastern Texas, and then fly around the Gulf of Mexico (Goodrich *et al.* 2014). Central Flyway birds disperse south through the Mississippi Valley to converge with Eastern Flyway birds in Texas. Four hawks tracked from Minnesota and Maryland in the autumn confirmed these routes, converging in eastern Texas in late September (Haines *et al.* 2003). Migrants flying south along ridges in Pennsylvania are predominantly adults (63-85% from 1987 to 1994) (Goodrich *et al.* 2014); those sighted along the Atlantic Coast are mostly juveniles (C. Sutton *in* Darrow 1983). Numbers concentrate, however, where topography funnels migrants, or where human-made features, such as cities, increase thermal strength. Migration routes skirt large bodies of water, although short water crossings occur regularly, especially where peninsulas or islands shorten the distance, such as over the Bay of Fundy between Nova Scotia and Maine or New Brunswick with occasional wider crossings have been reported, such from the Florida Keys to Cuba (Macrae 1985).

Migration routes west of the Mississippi River remain mostly unknown (Goodrich *et al.* 2014). Small, but increasing, numbers follow the Rocky Mountains south, with annual counts averaging 62 birds in the Goshutes Mountains in Nevada (Goodrich *et al.* 2014). Slightly larger counts (averaging 135 birds) occur annually along the California coast and in Baja California (McDermott 1994). Two birds tracked in separate years from San Francisco, California to Mexico followed similar routes along hills just west of the Pacific coast (James 2013).

South of the United States, the migration of this species is not as well documented. Most Broad-winged Hawks leave and enter the United States through southeastern Texas (Goodrich *et al.* 2014). In Mexico, migrants follow the Gulf of Mexico slope and adjacent foothills, and also the Pacific slope south of the Isthmus of Tehuantepec, during spring and fall (Andrle 1966, Howell and Webb 2010, Haines *et al.* 2003, Goodrich *et al.* 2014.). Migrants disperse more broadly along the Atlantic slope in spring than fall (Goodrich *et al.* 2014).

Fall migration in Mexico occurs from September to October, with the peak occurring in late September into early October with a mean peak date of October 6 (Inzunza 2005); incredible migration numbers of 1 day totals exceeding peak >500,000 have been recorded in central Veracruz (Goodrich *et al.* 2014). Fall migrant Broad-winged Hawks have been recorded in Costa Rica and Panama from late September into the middle of November, but most pass Costa Rica in early October (Porrás-Penaranda *et al.* 2004), and Panama in mid to late October (Wetmore 1965b, Smith 1980c, Ridgely and Gwynne 1989, Stiles and Skutch 1989).

Broad-winged Hawks begin to arrive at their wintering sites by late October and appear to be widespread through Amazonia, Brazil, after October 31 (Smith 1985c, Stotz *et al.* 1992). Some birds arrive as late as December (Haines *et al.* 2003).

In Guatemala, large flights of Broad-winged Hawks follow the foothills along the Atlantic slope (Land 1970). In Honduras, huge flocks of birds are reported during October on the Pacific slope (Monroe 1968). The main flight corridor follows the Pacific slope into southern Honduras; in Costa Rica, migrants appear to use both slopes in spring, but primarily the Atlantic slope and highlands in the fall (Stiles and Skutch 1989, Bildstein and Zalles 2001). In Panama, the primary migration route is the same as that used by Swainson's Hawks (near the Pacific Coast in central Panama and in central mountains in east and west (Ridgely and Gwynne 1989, Bildstein and Zalles 2001). Migrants of both species occur in such large numbers in Panama that they "blacken the sky" (Ridgely and Gwynne 1989).

South of Panama, there is very little data on the timing or routes Broad-winged Hawks use during migration (Goodrich *et al.* 2014). Thousands of birds roost along the eastern slope of the Colombian Cordillera in sites such as Combeima Canyon between Bogota and Cali (Bildstein *et al.* 1993). Three of four birds tracked from Minnesota and Maryland moved through Columbia, and then dispersed to wintering sites in Venezuela, Peru, and Brazil (Haines *et al.* 2003).

Although most birds reach winter destinations via Texas and Middle America, there appears to be a limited over-water route; individuals have been observed flying south from the Florida Keys in the fall (Robertson and Ogden 1968, Lott 2006), although some fly northwest, after having turned back from an extended over-water flight across the Florida Strait (Darrow 1983, Recher and Recher 1966). There are reported spring flights of Broad-winged Hawks over Puerto Rico, and others report flocks of 40-200 birds on Tobago (Rowlett 1980a, Goodrich *et al.* 2014), and Little Tobago (French 1991a). There are occasional sightings on Trinidad (Hoffman and Darrow 1992). Migrants reported consistently, but rarely from the Dominican Republic (Martinez 1995). Small numbers of Broad-winged Hawks have been observed in Cuba (Santana *et al.* 2003). This species appears to be a regular, but rare migrant in Greater Antilles (Juhant 2012).

The Broad-winged Hawk is a winter resident in Mexico along Pacific slope from Colima to Oaxaca, along both slopes from Chiapas, Guatemala, and southern Belize south through Middle America (Ridgely and Gwynne 1989, Howell and Webb 2010), and in South America south to northern and eastern Peru, Bolivia, Colombia, Venezuela, and southern Brazil (American Ornithologists' Union 1983). This species is widespread in the winter in Venezuela north of the

Orinoco River and along the upper Rios Ventuari and Caura in Amazonas (De Schauensee and Phelps 1978, Hilty 2002).

The Broad-winged Hawk also winters regularly in southern Florida, primarily from Miami south through to the Florida Keys (Robertson and Woolfenden 1992a), and probably in Cuba (Garrido and Kirkconnell 1993a) and possibly on other islands such as Puerto Rico and the West Indies (American Ornithologists' Union 1983). The highest early winter abundance north of Mexico has been reported west of Key Colony Beach in the Florida Keys on Christmas Bird Counts (Root 1988b). Most individuals wintering in Florida are juveniles (Robertson and Woolfenden 1992a). Juvenile birds may also winter occasionally on the lower Mississippi Delta and in coastal Texas (Robertson and Woolfenden 1992a). The Broad-winged Hawk is occasionally reported in eastern North America north to New England through early winter, but these are likely sick or injured birds or late migrants rather than true winter residents (Friedmann 1950a, Tabb 1979). This species is casual in winter along the California coast (Small 1994). There is also at least 1 accepted winter record from Oregon by the Oregon Bird Records Committee (OFO 2016), and there are recent photographed winter reports from Washington State (e-bird data 2020) and other western states (e-bird data 2020).

There are 5 endemic subspecies found throughout the Caribbean and all are resident. The subspecies found in Cuba is (*Buteo platypterus cubanensis*)(Garrido and Kirkconnell 1993a), in Puerto Rico (*Buteo platypterus brunnescens*)(Wiley 1985b, Raffaele 1989), in Antigua (*Buteo platypterus insulicola*), on the islands of Dominica, Martinique, St. Lucia (*Buteo platypterus rivierei*), and the islands of St. Vincent, Grenada, and Tobago (*Buteo platypterus antillarum*). The Broad-winged Hawk is occasionally recorded on Barbados, Hispaniola, and Trinidad (American Ornithologists' Union 1983, Evans 1990a, French 1991a). Nesting not confirmed for all of these locations. Reports from other islands in Caribbean may be vagrants from the mainland (Brown and Amadon 1968, American Ornithologists' Union 1983).

Identification and Similar Species

The identification of the Broad-winged Hawk is covered in most North American field guides. This is the second smallest North America *Buteo* measuring 34–44 cm in length, with a wingspan of 81–100 cm, and weighs 265–560 g (Friedmann 1950a, Mosher and Matray 1974). Both sexes are similar in plumage characteristics, but females are slightly larger overall with 3–6% longer wings, and are 22% heavier in the spring than the males (Mosher and Matray 1974).

There are two distinct and identifiable colour types that include light morph and dark morph birds (Wheeler 2018b).

Adult light morph has a brown back, variable amount of cinnamon or chestnut barring below, and a whitish throat. The tail is black with 1 prominent (20 mm) whitish band across the middle; a less visible, narrower white band near the base of the tail; and a narrow white band along the edge (Burns 1911, Friedmann 1950a). The wing has a prominent blackish band along trailing edge. The inner wing linings are white.

Adult dark morph (melanistic) is entirely dark sooty brown with a tail pattern similar to the light morph, but undersurface of remiges silvery contrasting with dark brown underwing coverts. Back notably darker than the wings. The dark morph Broad-winged Hawk is rare, found mainly in the northwestern and north-central portions of the species range (Burns 1911, Bailey 1917a, Brown and Amadon 1968).

Juvenile plumage light morph birds are similar looking to adults, but the underparts are white with longitudinal brown streaks on the breast, heavier streaking on the sides and belly with the overall amount of ventral streaking varying from very little to heavy; (Friedmann 1950a, Wheeler and Clark 1995), and with more white throughout on the upperparts. The tail is buffy with narrow dark brown bands with the broadest band appearing at the end of tail, and the undersurface of wing has dusky, not a blackish band, along the trailing edge of secondaries (Wheeler and Clark 1995). Juvenile dark morph birds are similar in appearance to the adults, but have more rufous on the breast and tawnier streaking on the body (Friedmann 1950a, Wetmore 1965b, Wheeler and Clark 1995).

Light-morph adult Broad-winged Hawk is most similar in overall appearance to an adult Red-shouldered Hawk (*Buteo lineatus*), but the Red-shouldered has rufous shoulders, longer legs, black-and-white bars on the remiges, and more white bands on the tail (Dunne *et al.* 1988, Brett 1991, Wheeler and Clark 1995). In flight, the Red-shouldered Hawk also appears to hold its wings stretched forward, not flat and perpendicular to the body as in Broad-winged Hawk, and its wingtips are less pointed than in the Broad-winged Hawk (Dunne *et al.* 1988, Brett 1991, Wheeler and Clark 1995).

Juvenile light morph Broad-winged Hawk is generally distinguished from all other regularly occurring immature *Buteo* species in British Columbia by its small size, pointed wingtips, a broader dark subterminal band on the tail, and the dusky bar along trailing edge of undersurface of the wing (Wheeler and Clark 1995). The amount of ventral streaking below is highly variable. The ventral streaking is generally concentrated on the sides of the breast with the throat and the center of the breast showing little streaking, but some juveniles show more or less uniform streaking below as in juvenile Red-shouldered Hawk. However, juvenile Red-shouldered Hawk has a longer, more slender tail, and all tail bands are of equal width. Juvenile

Red-tailed Hawk (*Buteo jamaicensis*) is a much larger species with the ventral streaking concentrated across the abdomen (showing a clear belly band), and a clear breast (Preston and Beane 1993), and tail bands of equal width.

In flight, the Broad-winged Hawk is a small, chunky, stubby-shaped *Buteo*, not much larger than an American Crow (*Corvus brachyrhynchos*) (Dunn *et al.* 1988). The wings, in a full soar, are short and broad, and held at a perfect right angle to the body (Dunn *et al.* 1988). The lines of the wing are flat, without abrupt bumps or bulges; both the leading and trailing edges taper toward a point in a fashion of a lancet arch (Dunn *et al.* 1988). When birds are gliding in a tucked position, the wings will curve back along the leading edge and become straight along the trailing edge, like the blade of a paring knife (Dunn *et al.* 1988). When soaring, the tail opens very wide, so that it and the stubby wings appear shorter (Dunn *et al.* 1988). When the tail is closed, it is very narrow, very long, and unlike the tail of most *Buteo* species (Dunn *et al.* 1988). The tail is usually notched and often flares outward slightly at the tip (Dunn *et al.* 1988). The Broad-winged Hawk is most often found flying very high above other raptors in thermals during migration (R. Toochin Pers. Obs.), and like other raptors it uses thermals to move on its migration, often associating with other species such as groups of Turkey Vulture (*Cathartes aura*) or other raptor species (R. Toochin Pers. Obs.). In between thermals, this species will pump and glide, and in high winds will flap to maintain balance (Dunn *et al.* 1988). The Broad-winged Hawk has a distinct habit of giving several stiff flaps before circle gliding which is often repeated (R. Toochin Pers. Obs.). This stiff flapping, when viewed at distance, is *accipiter-like* such as Cooper's Hawk (*Accipiter cooperii*) or Sharp-shinned Hawk (*Accipiter striatus*), and is less reminiscent of the other larger *Buteo* species such as the Red-tailed Hawk (*Buteo jamaicensis*) (R. Toochin Pers. Obs.).

The Broad-winged Hawks are a vocal species that give a distinct drawn-out, piercing, whistled "pee-heeeee" call (Wheeler 2018b).

Breeding and Nesting

Nesting begins in late April in southern latitudes and early May to early June in northern latitudes (Wheeler 2003b). Pair formation begins after arrival on the breeding grounds (Goodrich *et al.* 2014). One-year-old females, still in juvenile plumage, occasionally mate with adult males (Wheeler 2003b). Nesting is finished by mid-July at southern latitudes, and from early to mid-August in northern latitudes such as northern Alberta and northern British Columbia (Wheeler 2003b). Courtship includes high-circling and sky dancing with frequent vocalizations during high-circling (Wheeler 2003b). The Broad-winged Hawk nests in tracts of similar sized trees, usually near forest openings and generally in deciduous trees, rarely conifers (Wheeler 2003b). Nests are placed in the first large crotch of deciduous trees or next to the

trunk of conifers 7-12m high (Wheeler 2003b). Nests are poorly constructed and are made of a mass of sticks 38-43 cm in diameter, and 13-30 cm deep, and are lined with greenery (Wheeler 2003b). A new nest is built each year or an old nest may be reused (Wheeler 2003b). Nests are sometimes built on top of old nests of the American Crow, and sometimes other raptor species, and even on leafy squirrel nests (Wheeler 2003b). Two-three eggs are incubated for 28-31 days, mainly by the female, but males will take over nesting duties when the female needs to feed (Wheeler 2003b). Nestlings branch for 29-31 days, fledge in 35-42 days, and finally become independent in approximately 70 days (Wheeler 2003b).

Occurrence and Documentation

Prior to 1990, the Broad-winged Hawk was only known as a species occasionally recorded in the Peace River Region with only 2 records for southern British Columbia (Campbell *et al.* 1990). The numbers of Broad-winged Hawk have increased throughout the province since 1990 (Stirling 2001). Within British Columbia, it is found primarily east of the Rocky Mountains, in the Boreal and Taiga Plains (Phinney 2015). However, a significant number of records and confirmation of breeding were also reported from the Sub-Boreal Interior and Southern Interior Mountains eco-provinces (Phinney 2015). This represents a clear westward range expansion in recent decades (Phinney 2015).

In the Peace River Region of the province this species has mostly been reported in the spring as single birds or in pairs (e-bird data 2020). There are 3 early arrival records for late April (e-bird data 2020). The earliest date is of an adult bird found near Taylor on April 28, 2015 (e-bird data 2020). It appears that most Broad-winged Hawks arrive in mid-to-late May with 12 records (e-bird data 2020). The bulk of records come from the month of June with 45 records (e-bird data 2020). Records taper off in the breeding season with 11 records for July and August (e-bird data 2020). The Broad-winged Hawk has been reported in small flocks in the fall with high counts of 11 birds on September 8 and 14 birds on September 9, 2011 (e-bird data 2020). This species must leave the region fairly quickly as there are only 6 records for the month of September with most recorded in the early half of the month with the latest date involving 2 birds reported south of Tumbler Ridge on September 26, 2011 (e-bird data 2020).

The Broad-winged Hawk prefers to nest in the southern spruce-aspen zone of parkland and boreal forest that extends from southern Quebec to western Alberta (Wheeler 2003b). This habitat is found in the Peace River region and extends north to Fort Liard in the Northwest Territories (Wheeler 2003b). There are a few documented nesting records for the Peace River country in British Columbia (Wheeler 2018b). Records of Broad-winged Hawks have been slowly increasing since the 1980's as this species has been pushing its range westward (Campbell *et al.* 1990b, Wheeler 2003b). A recent breeding bird atlas project for British Columbia found at least

6 active breeding sites from appropriate habitat in the Peace River Lowlands (Phinney 2015). Broad-winged Hawks typically select breeding territories within large patches of undisturbed deciduous or mixed forests (Goodrich *et al.* 2014). This species is surprisingly secretive on the breeding grounds, and the probability of observation is very low even in areas with clusters of breeding records, in the central and northeastern parts of the province in White and Black Spruce and Sub-Boreal Spruce bio-geoclimatic zones, at elevations between 300 and 900 m (Phinney 2015). This hawk's sparse distribution and preference for forested habitats prevent an accurate population estimate, but in 2005 there were likely fewer than 250 breeding birds in the province (Manning and Cooper 2005). Atlas data suggest an increasing trend (Phinney 2015). The increased number of birds found at hawk watch sites, especially in the fall, each year throughout southern British Columbia does not coincide with the number of known nesting pairs. It is highly likely that this species is far more common across northern British Columbia.

The Broad-winged Hawk has been expanding into the Fraser-Fort George region since the early 1990's (Bowling 1994a) early 2000's (Cecile 2001c). This species has been found breeding in appropriate habitat in the Prince George area since 2001 (Wheeler 2003b). It is very likely that the Broad-winged Hawk breeds more extensively in this region than is currently known. There are few observers, low numbers of birds, and combine these factors with its secretive nature makes finding nests extremely difficult. Birds move into the region late April into early June (e-bird data 2020). An examination of the e-bird data produced 2 late April reports with May having the bulk observations with 18 records (e-bird database 2020). There are 12 records for the month of June and 15 records for July found in the data on e-bird (e-bird database 2020). There are likely breeding pairs involved in these sightings and they are well spread throughout the region. Fall migration begins in mid-late August with 21 reports coming from this month (e-bird database 2020). Not far behind this number are the records for September with 18 reports on e-bird (e-bird database). Most reports involve 1-4 birds reported in a given area. In the nearby Bulkley-Nechako Region there are only 3 reports on e-bird with 2 records from the month of July and 1 from August (e-bird data 2020). It seems likely that records will increase with more coverage by birders.

The Cariboo region does not have many observers; however, the Broad-winged Hawk has 17 entries in the e-bird database (e-bird data 2020). The records span from May into June and August into September (e-bird data 2020). The records break down into a single May record, 12 June records, 3 August records and a single September record (e-bird data 2020). With more coverage of this large region in the future, it is very likely there will be a significant increase in the numbers of Broad-winged Hawks found in the area with potential breeding records as well.

In Alberta, the Broad-winged Hawk is considered rare, but found throughout the province (Federation of Alberta Naturalists 2007). A recent atlas project found no change in the bird's distribution status throughout the province (Federation of Alberta Naturalists 2007). It does clearly show breeding densities in the Peace River region of Alberta and in the southern Rocky Mountain regions (Federation of Alberta Naturalists 2007). It is likely that almost all the Broad-winged Hawks found during the fall migration in southern British Columbia originate from breeding areas in the northern sections of British Columbia, and it is less likely that many originate from Alberta as the Rocky Mountains do act as a natural barrier (D. Cecile Pers. Comm.). It is possible that under special circumstances some birds could originate from Alberta, such as the wildfires of 2018 that sent smoke all over British Columbia and Alberta (M. Meredith Pers. Comm.). This might explain the exceptional record of 100 birds found and photographed by Kalin Ocaña at the McCulloch Cross Country Ski Area, east of Kelowna, in the central Okanagan District, on September 18, 2018 (e-bird data 2020).

In the Kootenays north into the Columbia–Shuswap Region, Broad-winged Hawk numbers have been increasing each year since the first record from Mt. Revelstoke on September 25, 1981 (Campbell 1983a, Campbell *et al.* 1990b). This region now has close to 200 reports on e-bird (e-bird data 2020). The spring migration records found in the e-bird data mirror the timing that Broad-winged Hawks move northward in eastern North America. There is a 1 early record from late April, of a single bird found at McDonald's Lodge on April 28, 2014 (e-bird data 2020). The bulk of spring migration records come from the month of May with 40 reports (e-bird data 2020). Breeding has been confirmed in the Golden area since 2002 (Wheeler 2003b), with many records reported from the months of June and July in the region (Wheeler 2003b). When broken down, the e-bird reports have 45 records for the month of June and 30 records for the month of July (e-bird data 2020). This species is recorded annually in the fall with birds having been found from August through to the end of September with a few early October records (e-bird data 2020). When looking at the numbers of reports per month of Broad-winged Hawks reported in the region to e-bird, the bulk of observations come from August with 44 records, there are 32 records from the month of September, and 1 late record from mid-October, found in Blaeberry on October 13, 2013 (e-bird data 2020). There is also an extremely late record from the Chase to Pritchard area of a dark morph bird photographed on November 5, 2017 (e-bird data 2020). Most reports involve 1 or 2 birds. There are occasionally reports of 3 or more birds recorded at a single location (e-bird data 2020). It is highly likely that the Broad-winged Hawk will continue to expand and nest in appropriate habitat in this region in the future.

The first record of a Broad-winged Hawk for British Columbia comes from the Okanagan Region with an adult recorded at Okanagan Lake on May 22, 1965 (Cannings *et al.* 1987). Since that time this species has become a rare, but increasingly reported species in both spring and fall

migration (D. Cecile Pers. Comm.). There is a single photo record for April from Quail Ridge Linear Park, outside Kelowna on April 23, 2017 (e-bird data 2020). There are 15 records reported to e-bird throughout the month of May with a single record for June of a bird recorded at Spallumcheem on June 4, 2016 (e-bird data 2020). There are no breeding records for the region with only single records for the months of July and August (e-bird data 2020). The Broad-winged Hawk is an increasingly annual species in the region during the fall migration. There are 15 records on e-bird for the month of September and only 1 record for October at Munson Pond, Kelowna on October 1, 2019 (e-bird data 2020). Most reports on e-bird involve single birds with some observations involving 2-6 individuals seen at one location. There is also a sighting of 27 birds in total recorded at Kelowna Mountain on September 5, 2015 (e-bird data 2020). This species will likely continue to be found with increasing frequency in the future in the region.

In the Thompson – Nicola Region records are not numerous, but hawk-watching has only recently been carried out and records mostly start from 2018-2019 on e-bird. There are 3 May records and 12 September records (e-bird data 2020). Most records involve 1-2 birds found at a time with the highest count involving 10 birds found in Dufferin, in Kamloops, on September 18, 2019 (e-bird data 2020). Like the trend provincially that has been occurring the past three decades, it is very likely as observers search for this species in the region, the number of Broad-winged Hawks reported will increase in the future.

In the Upper Fraser Valley, the Broad-winged Hawk is a rare, but increasing passage migrant in both the spring and fall with 79 records (R. Toochin Pers. Comm.). Spring birds are much tougher to find than birds in the fall. 5 years of raptor surveys has produced 25 spring records (R. Toochin Pers. Comm.). An exceptionally early spring migrant was an adult bird found on Eagle Mountain, Abbotsford on March 25, 2016 (R. Toochin Pers. Comm.). Spring records span from April 20 – June 3, with the peak of spring records occurring in early to mid-May (R. Toochin Pers. Comm.). There are to date, 10 records for April, 13 records for May, and 1 record for early June during the spring migration period. The June record was of an adult found flying over Eagle Mountain in Abbotsford (R. Toochin Pers. Comm.) This species is annual in the fall occurring in small, but increasing numbers. Almost all of these records are the result of the authors conducting methodical hawk-watches at several locations around the Fraser Valley over the past 5 years. These surveys produced records with dates that span from August 15 to October 21 with the bulk of birds found in mid-September (R. Toochin Pers. Comm.). There are 3 mid-late August records, 40 records from the month of September with the peak occurring in the middle to latter half of the month, and 8 records for early October (R. Toochin Pers. Comm.). Most observations involve single birds sometimes involving 2 or 3 birds seen together with the highest count involving 5 birds (2 adults and 3 immatures) found together flying over

Sumas Mountain on September 21, 2015 (R. Toochin Pers. Comm.). The overall trend has been that this species is increasing in detection and will likely continue into the future.

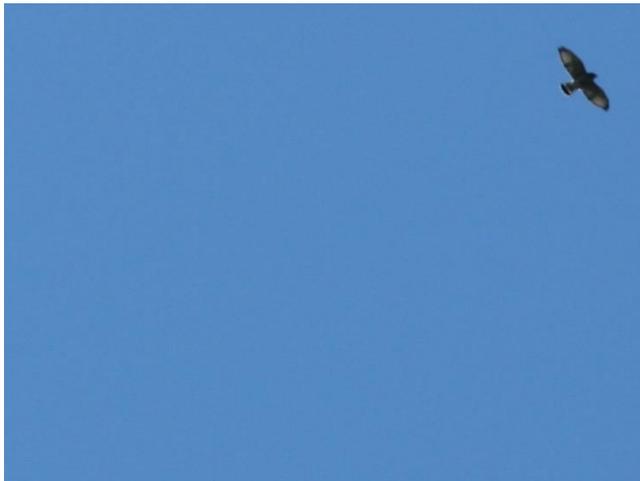
In the Vancouver area, the Broad-winged Hawk is a casually occurring species with 11 records of which 1 record has been photographed (Toochin *et al.* 2018). The timing of these records fits the overall pattern of migration timing found in eastern North America. There is a single March record of an adult well described flying over the Reifel Migratory Bird Sanctuary on March 25, 2016 (D. Jensen Pers. Comm.). The other 3 spring records come from the month of May (Toochin *et al.* 2018). There are 4 records for the month of September, with 2 records for early October (Toochin *et al.* 2018). There is also a single summer record of a sub-adult /immature bird found intermittently on Sea Island from July 11 - August 5, 2003 (Bain 2003d, Toochin *et al.* 2018). The only winter record for the province involves a well described immature bird found at Cecil Green Park, U.B.C., Vancouver, on December 11, 2004 (D. Bradley Pers. Comm.). All records involve single birds, except for 1 fall record which had 5 adults found flying together low over 264th St. and 56th Ave. in Langley on September 17, 2018 (Toochin *et al.* 2018). With more hawk-watching effort along the North Shore Mountains, especially in the fall, it is likely there will be more records of the Broad-winged Hawk found in this region in the future.

The first record of a Broad-winged Hawk on Vancouver Island, involved 2 individuals found soaring over Rocky Point in Metchosin on September 28, 1990 (Stirling 2001). Since that time, the Broad-winged Hawk has become an increasing annual migrant on Vancouver Island with the bulk of the records coming from the southern tip (e-bird data 2020). Spring records are few in the e-bird database, but increasing with 3 records from April with the earliest bird, an adult, found at Mt. Tolmie on April 12, 2015 (e-bird data 2020). There are 4 May records from the Victoria area and 2 records for early June also from the Victoria area (e-bird data 2020). There are no summer records. The Broad-winged Hawk is a rare, but increasingly regular species in the fall all over the island, but especially from locations such as East Sooke Park and Rocky Point in Metchosin (where birds collect as they must next cross the Juan de Fuca) (e-bird data 2020). Since 1990, Broad-winged Hawks have occurred annually from Rocky Point and East Sooke Park in September with numbers varying daily from 1 to as high as 5 individuals (e-bird data 2020). There are well over 100 records in the e-bird data for this area just for the month of September (e-bird data 2020), and this data set is far from complete as there are many more records from this time frame not currently listed in the data set (D. Allinson Pers. Comm.). There are at least 12 early October records from this area (e-bird data 2020). Given the regularity of the Broad-winged Hawk on the southern tip of the island, there are likely to be future records involving multiple individuals.

Further north on Vancouver Island, there are recent e-bird reports from the Nanaimo to Qualicum Region. These include a single April record from Little Mountain in Parksville on April 25, 2016 (e-bird data 2020). There are two May reports and a single report from June of a bird recorded at Qualicum Bay on June 3, 2010 (e-bird data 2020). There are summer records from this part of Vancouver Island. There are 4 reports for September and a single October record (e-bird data 2020). Almost all of these e-bird reports are of single individuals (e-bird data 2020). As more hawk-watching is conducted in this region of Vancouver Island, it is almost a certainty that Broad-winged Hawk records will increase. There are 2 reports of Broad-winged Hawk from the outer coast of Vancouver Island. This species has been recorded from Triangle Island off Cape Scott on September 3, 1994 (Bowling 1995a) and from Sarita, outside Bamfield on September 11, 2018 (e-bird data 2020). With more coverage and observer effort, records will increase in this region in the future.

There are currently no records for Haida Gwaii (P. Hamel Pers. Comm.) or from the Northwestern Region of the Province (e-bird data 2020).

The e-bird data set by no means represents all records reported for British Columbia, but gives a very good snap shot into the overall increase in numbers that has been occurring over the past 30 years. In the future as more and more observers continue to participate in hawk-watching, more will be known about the status and distribution of this *Buteo* throughout the province.



Broad-winged Hawk adult found flying south over Mt. Matheson, East Sooke, Vancouver Island on September 14, 2008. This species is annual and increasing in numbers each fall in this region. Photograph © Rick Toochin.



Broad-winged Hawk immature found during a hawk-watch on Sumas Mt. on September 16, 2015.
Photograph © David Baker.



Broad-winged Hawk adult found flying over Quail Ridge Linear Park, outside Kelowna on April 23, 2017. Though not a species that appears in the spring until May, April records have increased in the past 5 years.
Photograph © Gail Fennell.



Broad-winged Hawk (adult dark morph) found outside Chase on the extremely late date of November 5, 2017.

Photograph © Allan and Reba Dupilka.



Broad-winged Hawk (adult dark morph) found outside Chase on the extremely late date of November 5, 2017.

Photograph © Allan and Reba Dupilka.



Broad-winged Hawk (adult dark morph) found outside Chase on the extremely late date of November 5, 2017.

Photograph © Allan and Reba Dupilka.



Broad-winged Hawk adult (left) 1 of about 100! (right) found over the McCulloch Cross Country Ski Area, east of Kelowna, in the central Okanagan district, on September 15, 2018.

Photograph © Kalin Ocaña.



Broad-winged Hawk adult [1 of about 100!] found over the McCulloch Cross Country Ski Area, east of Kelowna, in the central Okanagan district, on September 15, 2018.

Photograph © Kalin Ocaña.



Broad-winged Hawk kettle of about 100 birds found over the McCulloch Cross Country Ski Area, east of Kelowna, in the central Okanagan district, on September 15, 2018. Currently the Highest single recorded total of birds found together at one time in the province
Photograph © Kalin Ocaña.



Broad-winged Hawk immature found flying over Vedder Mt. on September 23, 2018.
Photograph © Rick Toochin.



Broad-winged Hawk adult found flying over Vedder Mt. on September 23, 2018.
Photograph © Rick Toochin.



Broad-winged Hawk adult found flying over Port Moody, on May 4, 2019.
This is the first photographed record for Vancouver.
Photograph © Hilary Maguire.



Broad-winged Hawk adult found flying over Port Moody, on May 4, 2019.
This is the first photographed record for Vancouver.
Photograph © Hilary Maguire.



Broad-winged Hawk immature along the main road in the Skagit Valley outside Hope on May 15, 2020. Photograph © Paul Baker.



Broad-winged Hawk immature along the main road in the Skagit Valley outside Hope on May 15, 2020. Photograph © Paul Baker.



Broad-winged Hawk immature along the main road in the Skagit Valley outside Hope on May 15, 2020. Photograph © Paul Baker.

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