

## Status and Occurrence of Indigo Bunting (*Passerina cyanea*) in British Columbia.

By Rick Toochin. Submitted: May 1, 2020.

### Introduction and Distribution

The Indigo Bunting (*Passerina cyanea*) is a beautiful small passerine that is widespread throughout eastern North America north of Mexico (Beadle and Rising 2006). This species breeds in fields of vegetational succession from cultivation to shrubby habitat that consist of weedy habitats between woods and field, thickets, shrubby swamps, upland areas of old fields, upland woods, deciduous and mixed woods habitat (Payne 2006).

In the United States, the Indigo Bunting ranges from the northern Great Plains south to southern Colorado, Arizona, New Mexico, and eastern Texas, along the Gulf coast, into central Florida, north up the Atlantic seaboard, into southern Maine (American Ornithologists' Union 1998a, Sibley 2000, United States Geological Survey 2004a). The regions where the Indigo Bunting is found in greatest abundance are in Arkansas, Missouri, southern Illinois, Indiana, Kentucky, Tennessee, Virginia and North Carolina. Regional abundance is based on roadside Breeding Bird Surveys (United States Geological Survey 2004a). The Indigo Bunting has extended its overall range into the southwest United States as a summer resident, the earliest records in California are from 1908 and in Arizona from 1917 (Swarth 1918a, Thompson 1964c). This species became established in the southwest as a breeding bird as early as the 1940s (Phillips *et al.* 1964, Hubbard 1978). Elsewhere in the western United States the Indigo Bunting is found locally in the summer months in southern Utah, southern California where this species is generally scarce, but is most regular at South Fork Kern River Valley, Mono Lake, Monterey County and in the San Diego area (Beedy and Granholm 1985, Roberson and Tenney 1993, Small 1994, Payne 2006). It is important to note that regional abundance is based on roadside Breeding Bird Surveys (United States Geological Survey 2004a), this does not include certain local breeding populations such as in the Grand Canyon National Park, Arizona, where this species has bred since 1964; on the lower Colorado River, where it has been common since the 1970s, with at least 55 singing males present in 1997 and successful breeding observed (Monson and Phillips 1964, Rosenberg *et al.* 1991). Indigo Buntings will occasionally turn up far from their usual summer, winter and migratory regions, such as in the Pacific Northwest (Wahl *et al.* 2005).

In Canada, the Indigo Bunting is found breeding in Eastern Canada and in the Maritime Provinces where it is a rare and local species in southwestern New Brunswick and Nova Scotia with populations established in these areas since the late 1970s (Erskine 1992). This species is also found in Quebec where it is found breeding primarily south of about 46°N in deciduous forest of St. Lawrence watershed, and primarily in the south-central regions of the province, but with localized distribution north of 47°N in deciduous forest patches (Dauphin 1996). The Indigo Bunting is not known to breed on Magdalen Island or Anticosti Island (Payne 2006). In Ontario, this species is found to be most abundant in roughly the southern third of province in the Great Lakes-St. Lawrence forest region in deciduous and mixed woods, but not boreal forest, and is found generally south of about 46°N (Rising 1987a, Payne 2006). There is scattered breeding north to about 50°N in pockets of suitable deciduous forest habitat found

throughout the province (Rising 1987a, Payne 2006). The Indigo Bunting is found breeding in Manitoba primarily in the southern reaches of the province, south of Lake Winnipeg; where it is most numerous in and near the Agassiz and Sandilands Provincial Forests in the southeast, and locally northward to the Winnipeg River (Holland and Taylor 2003b). Farther west, this species occurs locally along the Red and Assiniboine Rivers, Spruce Woods, the Brandon Hills area, and northward to Riding Mountain National Park (Holland and Taylor 2003b). In Saskatchewan, the Indigo Bunting is a rare and local summer resident and likely an occasional breeder in the southeastern regions of the province, with this species found mainly in the eastern and central Qu'Appelle Valley (Smith 1996). In Alberta, this species is classified as casual to very rare migrant vagrant species that is also a very rare breeder (Hudon 2005). The Indigo Bunting is a rare regular migrant vagrant to Newfoundland and Labrador (e-bird database 2020).

The Indigo Bunting is an obligate migrant in North America, leaving breeding grounds in the eastern United States and Canada for wintering areas from southern Florida to northern South America (Payne 2006). This species is a long-distance migrant. The Indigo Bunting is a Trans-Gulf migrant with most birds crossing the Gulf of Mexico (Payne 2006). This is based on evidence gathered from observations of numbers and arrival dates from Galveston Texas to northern Florida (Stevenson 1957b). In recent years there is also evidence that some birds found in Veracruz, Mexico, move around the Gulf, avoiding an overwater crossing (Rappole and Warner 1980).

In the fall, birds leave the northern breeding areas in September with migrants found commonly in the southeastern United States in late September and October (Taber and Johnston 1968). Nearly all birds have departed the breeding grounds by mid-October; with the first arrivals in the Neotropics in mid-September (Taber and Johnston 1968). Migration moves in a broad front and not along mountain ridges (Hall 1983). Individuals appear on Campeche Bank (islands 120-160km northwest of Yucatán Peninsula and 750 km south of Mississippi Delta; 22°07'N 91°25'W) during October, but not in the winter (Howell 1989a). Likewise on cays of Belize, birds appear only during migration (Russell 1964), but are present throughout mainland Belize from October - mid-April, with peak numbers occurring from October 1 - April 15 (Jones and Gardner 2004). The Indigo Bunting prefers to winter in open grasslands, bushes, and leafy trees. In early fall when leaving the breeding grounds and in spring when arriving in breeding area, they feed on insects and buds in deciduous shrubs and trees. Flocks also appear in open grassland and lawns, in tall standing seeded grasses. During migration in the semi-arid southwest, they occur in lowland vegetation (Trautman 1940a, Russell 1964, Johnston 1965a, Taber and Johnston 1968, Wauer 1973, Margoliash *et al.* 1994).

Indigo Buntings largely winter from Mexico to northern Panama, but are also found in southern Florida and the Greater Antilles (Payne 2006). In Mexico, this species is found in the eastern coastal regions from Jalisco, Veracruz, Campeche, and the Yucatán Peninsula, Chiapas; also in the central and western regions from Sinaloa (Payne 2006), south to Oaxaca in both the Atlantic and Pacific regions (Alden 1969, Binford 1989, Howell and Webb 2010). The Indigo Bunting is also common in Belize, Guatemala, Honduras, El Salvador and Costa Rica (Stiles and Skutch 1989, Howell and Webb 2010). This species is uncommon in Panama where most records are found in the west in Bocas del Toro and Chiriquí, but is

scarce in the Canal Zone and rare in eastern Panama (Wetmore *et al.* 1984), northern Columbia (Hilty and Brown 1986) and northwestern Venezuela (Hilty 2003). The Indigo Bunting is common in southern Florida, the Greater Antilles, Cuba and Jamaica (Downer and Sutton 1990, Raffaele *et al.* 1998, Garrido and Kirkconnell 2000), uncommon in Hispaniola (Keith *et al.* 2003), but is a rare vagrant in Puerto Rico (Biaggi 1983); also occurs in Bermuda, the Bahamas, Lesser Antilles, Virgin Islands, Saba, Curaçao and Bonaire (Voous 1983, Buden 1987b, Wunderle and Wade 1993, American Ornithologists' Union 1998a) and in southern Texas in migration and in the winter (Wauer 1973, Oberholser 1974). A few Indigo Buntings will winter along the Gulf of Mexico and the eastern seaboard of the United States (United States Geological Survey 2004b). Occasionally this species is found during the winter inland in North America to the middle of Ohio and Mississippi River Valleys and has turned up elsewhere in North America (United States Geological Survey 2004b, e-bird database 2020).

Spring migration begins with birds leaving the wintering grounds in late April and May; arriving on the breeding grounds from late April into early June (Trautman 1940a, Taber and Johnston 1968, Payne 1991c). There is considerable variation in the timing of migration with some individuals still on the wintering grounds in Guatemala through April; others appear in Louisiana in late March through early May (Lowery 1974, Rogers *et al.* 1982). In spring migration Indigo Buntings are seen over water approaching the northern Gulf coast. Migrants arrive on the northern Gulf coast from late April through May (Burleigh 1944b, Nickell 1967, Nickell 1968). 11 males recaptured during spring migration in inland North America were also found on breeding grounds late May to July (Payne 2006). These birds tended to arrive earlier at mid-latitudes when the distance to their northern breeding site was greater (Payne 2006). Some data suggests a flight over the Gulf of Mexico followed by a stopover to feed near the southern coast of the U.S., and a later northward flight to their breeding areas (Payne 2006).

On northern breeding grounds, Indigo Buntings arrive over a period of several weeks. In Missouri and southern Indiana, males appear first at the breeding sites in late April; in southern Michigan, males appear in early May (Carey 1982, Quay 1987, Payne 1989, Payne 1991c). Overlap in arrival dates of age classes is considerable: although adult males arrive earlier than yearling males on average (Payne 1991c, Payne and Payne 1996). Females migrate later on average, and although arrival dates of females are more difficult to determine by direct observation than the conspicuous males, there is a two-week difference in the arrival dates of the first males and the first females (Payne 2006). Time of arrival is thought to result from the differences in time of leaving the wintering areas. The pre-migratory fattening schedules in Jamaica indicate a two-week lag between the onset of spring migration of males and females (Johnston and Downer 1968). In Jamaica, groups of 40 or so birds remain together all winter, and banded birds observed near a feeding station from December to February stay through mid-April; a few sing before departing in spring migration (Johnston and Downer 1968, Downer and Sutton 1990).

In Eastern North America, the Indigo Bunting prefers to nest in shrubby and weedy habitats between woods and fields, thickets, shrubby swamps, upland areas of old fields, upland woods and mesic woods of sugar maple (*Acer saccharum*) (Payne 1989, Payne and Payne 1998). This species is scarce in wooded swamps with tamarack (*Larix laricina*) preferring more open sites (Payne 2006). The Indigo Bunting is

common in fields in vegetational succession from cultivation to shrubby habitat with males preferring upright woody vegetation for song perches and cover (Lanyon 1981). In dry western Great Plains, this species is found in wooded floodplains and ravines; in isolated populations in the southwestern United States, they are found in brushy canyons and wild rose (Payne 2006). In much of range, this species seeks out the edges of woods and fields, cut-over woodlands, abandoned fields and roadsides a few years after lands are cleared (Suarez and Robinson 1997, Yahner *et al.* 2002). The Indigo Bunting is generally absent in urban and suburban areas, in intensively cultivated and grazed areas, in closed-canopy forests, and in deserts except around shrubs near water (Sutton 1959, Taber and Johnston 1968, Wauer 1997). In western North America, the habitat of the Indigo Bunting matches that of the Lazuli Bunting (*Passerina amoena*), along wooded rivers in the Great Plains (Sibley and Short 1959b, Sutton 1967, Emlen *et al.* 1975, Baker and Boylan 1999). In Utah, in Zion National Park, both species are in brushy side canyons, the Indigo Buntings in brushy vegetation and Lazuli Buntings on flood plains along rivers (Wauer 1997). Where their ranges overlap in the mid-west and south-western United States, Indigo Buntings interbreed with Lazuli Bunting; this has been documented in the Great Plains, Utah, Oregon, California (Sibley and Short 1959b, Emlen *et al.* 1975, Kroodsma 1975b, Garrett and Dunn 1981, Beedy and Granholm 1985, Baker and Johnson 1998, Marshall *et al.* 2003a). In the range of species overlap in eastern North Dakota, there is no hybridization; further west where Lazuli Buntings are more common; some non-hybrid Indigo Buntings occur, often amongst breeding populations of Lazuli Buntings. In the western United States, male Indigo Buntings breed with female Lazuli Buntings (Garrett and Dunn 1981, Roberson and Tenney 1993); the reciprocal cross may be under-reported because males are more distinctive in plumage than females (Payne 2006).

Along the west coast of North America north of California, the Indigo Bunting is a rare, but regular species, with most records occurring in the spring and summer months from May to August (Marshall *et al.* 2003a, Wahl *et al.* 2005, e-bird database 2020). In Oregon, the Indigo Bunting was removed from the state review list by the Oregon Bird Records Committee in 2009 (OFO 2016). Records have been recorded throughout the year including wintering birds (Marshall *et al.* 2003a, OFO 2016, e-bird database 2020). In Washington, this species is classified as a very rare spring, summer and fall visitor with 39 accepted state records by the Washington Bird Records Committee (Wahl *et al.* 2005, WBRC 2018). In British Columbia, the Indigo Bunting is a very rare, but somewhat regular, almost irruptive species that occurs somewhere in the province almost every year, and has been documented breeding once (Campbell *et al.* 2001). In Alaska, this species is an accidental vagrant with at least 4 state records, all from the fall (Tobish 2008, West 2008). The Indigo Bunting is accidental in the Yukon with a photo of an adult male at Watson Lake on May 11, 2016 (e-bird database 2020). This species is accidental in Northwest Territories with 3 records: 1 found dead with specimen saved November 3, 1999; Fort Simpson, photo female October 20, 2015; Fort Simpson, photo adult male May 31 – June 5, 2017, Inuvik County (e-bird database 2020).

The Indigo Bunting is a casual vagrant in Europe with records from Iceland, Ireland, Britain, Netherlands, Denmark, Sweden and Finland (Cramp 1994, Lewington *et al.* 1992). There are also several records from the Azores where it is classified as a casual vagrant (e-bird database 2020).

### **Identification and Similar Species**

The identification of the Indigo Bunting is addressed in all standard North American Field Guides. This species is small, measuring 14 cm in length, with a wingspan of 20 cm, and weighs 14.5 grams (Sibley 2000, Dunn and Alderfer 2011). The following description of Indigo Bunting ages and plumages is taken from Payne (2006) unless otherwise stated. The Indigo Bunting is sexually dimorphic in plumage colour in the breeding season. Adult males are bright indigo blue, often darker purplish-blue on the head and with black lores. The tips of the feathers are brown in freshly molted individuals, giving a mottled blue and brown appearance. The tertials have dark centers with indigo blue edges to the feathers. The rest of the bird from the throat, down the breast to the undertail coverts, back, rump and tail is indigo blue (Beadle and Rising 2006). The bill is conical in shape and in the breeding season adult males have a black upper mandible and grayish lower mandible. The eyes are dark brown. The legs and feet are a dull blue-gray to blackish in colouration. First-year males are mottled blue and brown. Birds of this age retain a yellowish gape into their first spring into the month of May. Adult females are gray or buffy-brown, with a whitish throat, two indistinct wing bars, lightly streaked on the breast, and a bluish tail (Beadle and Rising 2006). The upper mandible is dark brown or blackish-brown, the lower mandible is a pinkish-horn color, the gape in spring yellowish until the nesting season when it changes to horn colour. Juvenile birds are streaked and with buff wing bars.

The following molt sequence of the Indigo Bunting is taken from Payne (2006) unless otherwise stated.

Juvenile plumage is held in the months of May to August (Stokes and Stokes 2010). Birds at this age are brownish above, with a uniform unstreaked or obscurely streaked plumage. The throat and upper breast down to the belly are streaked dark gray, usually with fine streaks, but occasionally have conspicuous and broad streaking, with buffy flanks. The wings are dark brown, with two buff wing bars that have pale tips on the greater and middle secondary coverts. The body plumage is soft and fluffy. The streaking on the breast is variable in both sexes; streaks can be present in some nestlings ready to fledge and in short-tailed juveniles. The males occasionally have a bluish cast to the rump and the edge of the tail feathers. The females lack bluish tones. Birds of this age differ in plumage from adult female by the amount of buff in the wing bars, which in adults, is a paler whitish during the breeding season. The breast has a buff wash on the juvenile that is whiter in summer on an adult female. The flanks are buff not the whitish colour found on adults and the head and back plumage have a rufous buff that is grayer on an adult in the summer. Juvenile plumage develops in two stages, the first set of feathers are nearly fully grown at the time of fledging, the second set of feathers begins to emerge at the margins of existing feather tracts, and is completed at the time of completion of juvenile flight feathers. The wings and tail are the same as those found on the adult female, sometimes with or without blue on the rump and the tail.

Prebasic I, also called Postjuvenile molt, is complete for the body plumage except the greater primary coverts, and sometimes the flight feathers. Early broods may acquire an unstreaked first Basic plumage by July 20. This early molt occurs in the young hatched and fledged birds in the first half of the season, and it adds an extra molt and plumage to the sequence in Indigo Buntings. In hand-raised birds, the young hatched early in the season have an extra "postjuvenile molt" or less appropriately named

"prebasic molt" compared with the young hatched later in the season. In summer, young birds are distinguished from the adult females by a yellowish gape and by plumage characteristics. Adults in worn female plumage have a ragged tail and wing, a dark gape, and narrow whitish wing bars. Molt of the body plumage is usually completed before the fall migration, but may continue on the wintering grounds. Molt of Juvenile flight feathers usually begins later in the summer. Some birds of the year molt the tail and outer primaries, or all the primaries and secondaries, on the breeding grounds; others complete molt in the fall on the wintering grounds.

In Basic I Plumage birds are brownish, unstreaked above and below, with two buff wing bars; the greater primary coverts are brown. Males are typically brownish with a gray base of feathers, often with a trace of bluish on the upper lesser secondary and marginal coverts of the wing, edge of the tail feathers and rump, and have a distinct malar stripe. Females lack bluish colour and a malar stripe. On the male, the head, chin and breast sometimes are "scaly blue" with a dark central and basal feather vane and a buff margin, and the rump is nearly all blue in this plumage. The blue in plumage is typically bilaterally symmetrical. Females lack the bluish colour and a malar stripe (Johnston 1967a). Some males of this age class were said to have a "supplemental" plumage, molting on the wintering grounds from a brownish Basic I plumage to a mixed blue and brown plumage after the fall migration (Rohwer 1986c), but this mixed fall plumage is in fact an extended mixed juvenile—Basic I plumage undergoing a molt that continues from the breeding grounds into the fall on the wintering grounds (Johnston and Downer 1968). Most birds on the wintering grounds in fall are not growing feathers, and nearly all males of the year are brown in plumage, in contrast to the partly-blue colouration of older adult males. The timing and sequence of molt varies among birds as much as does the growth of juvenile plumage. Replacement of feathers is not restricted to first-year males, as some adult males and females replace feathers during the fall (Payne 2006). Nearly all yearling males that were reared from the nestling stage and kept in captivity were < 10% blue through December (Payne 2006). Homology of molts and plumages in *Passerina* is problematic, depending whether the criterion of homology is the sequence of molts or the visual appearance of plumage (Thompson and Leu 1994, Groschupf and Thompson 1998).

Basic I plumage is followed by a Prealternate I Molt of the body plumage on the wintering grounds. This has been observed in wild birds that were recaptured through the winter months in both Florida and Jamaica (Johnston and Downer 1968). In first-year males, some brown feathers grow at this time; in more birds the growing feathers are blue, or blue with a buff tip. A few males arrive on northern breeding grounds in early May still growing blue feathers on the head (Payne 2006).

In Alternate I Plumage the Males have one or more (usually all) greater primary coverts and greater secondary coverts brown, with other tracts variably bluish, sometimes entirely blue except for the greater primary and the secondary coverts. Usually the blue areas are more extensive than the brown, feathers often with brownish or buff edges on the upper parts, wing, breast, belly, or the under tail coverts, including brownish-edged feathers blue or gray at the base, often with buff (not white) wing bars, often whitish on the belly and the under tail coverts, and inner three secondaries are worn and brown. Some males are bilaterally symmetrical, others asymmetrical in the pattern of blue; asymmetry allows individual identification of many first-year males in the spring. Most males in their first breeding

season are only partly blue with as much as 80% brownish and white in plumage. About half the first-year males in eastern United States in spring and summer have at least some white feathers on the belly (Kroodsma 1975b, Payne 2006). Males are remarkably variable in the extent of blue, perhaps due both to the extent of the winter molt into breeding plumage and to the wear of the brown tips of the body plumage. Males hatched early in the previous year tend to be more bluish than males hatched later in their natal year. Hatching date through the natal season explains about 30% of the variance in plumage colour; this has been found in the proportion of blue in body plumage, in yearling returns of banded nestlings (Payne 2006). Adult males have blackish lores. The outer primaries (6-9) are blue edged and the inner primaries brown edged although occasionally all primaries are brown edged and retained from Juvenile plumage and yet some males have all their primaries blue edged. The females are similar in appearance to birds in Basic I plumage, but occasionally have blue in the shoulder. The wing bars become less conspicuous through the breeding season due to wear. The primaries are uniformly "brownish grey" with paler edges in known first-year females by the breeding season (Payne 2006).

Definitive Prebasic Molt involves a complete molt of both body and flight feathers in the late summer. This molt begins with the brown cheeks on males as they sing in August; most birds cease singing before they are noticeably in mixed blue-and-brown plumage. Females with young in nest do not molt; plumage may become quite worn by August and occasionally females have a tail 10 mm shorter, when worn, in late summer than when in fresh plumage.

In Definitive Basic Plumage the males are similar to birds in Basic I plumage, except that the greater primary coverts are all bluish edged, variably bluish on other tracts, occasionally the blue areas of the underparts are "streaked or scaly blue" with the blue more extensive than any brown colour, often with brownish or buff marks on the upper parts, wing, breast, belly, or the under tail coverts, including brownish-edged feathers with a blue base, often with whitish on the belly and the under tail coverts. Contour feathers often buffy brown on 2-3 mm of the edge and tip, and blue below the buff edge, the blue is concealed by overlapping tips, and the body plumage becoming bluer through the wear of the tips. The primaries and secondaries are edged bluish. The lores are blackish. Female plumage is all brown or less often brown variously tinged with blue on the greater primary coverts, shoulder, rectrices, and rump, rarely on other tracts. The wings and tail are the same as described above.

In Definitive Prealternate Molt the males and females molt their body plumage on the wintering grounds beginning in February, and more often in March, and this is completed in late March to April before leaving to begin migration (Johnston and Downer 1968, Wetmore *et al.* 1984, Payne 2006).

In Definitive Alternate Plumage the males are blue with blackish lores, the greater primary coverts and greater secondary coverts are black with blue edges. Occasionally adults have brownish or buff marks on the upper parts, wings, breast, or the under tail coverts, or the buff wing bars or whitish on the belly, or a combination of such tracts. The primaries and secondaries are typically dark and edged in blue. A few males in later years are partly brown, occasionally more brown than blue. Birds like this resemble males in Alternate I plumage except for blue on the greater primary coverts (Payne 2006). The males that are partly brown in breeding plumage during their first year often return in all-blue plumage in the next

year, and some adult males blue in one year return with brown and white patches in the next year (Payne 2006). Females are all brown and are similar to female in Basic I plumage, usually but not always, birds at this stage are tinged blue on the greater primary coverts, shoulder, the edge of the rectrices and the rump, and occasionally on other tracts. The pattern of blue in birds recaptured year to year is consistent within an individual and is independent of age, at least in birds two years and older (Payne 2006). A few females are bluer than the brownest males (mainly first-year males) in breeding plumage. Females with buff wing bars in fresh plumage, become paler with wear, and wing bars become obscure, pale and narrow, throughout the breeding season. The wings and tail are the same as described above. Female Indigo Buntings differ from female Lazuli Buntings in having more distinctly streaked breasts and no wing bars, and the throat feathers are white compared with the cinnamon throat of Lazuli Buntings.

Indigo Bunting males differ from male Lazuli Bunting by having a distinctly darker indigo blue plumage, with the underparts dark indigo blue (the breast is orange and the belly white on male Lazuli Buntings), and in lack of wing bars (these are white on the male Lazuli Bunting), although some first-year male Indigo Buntings have some brown or white in plumage. Female and Basic-plumaged male Indigo Buntings sometimes can look very similar to other brown-plumaged buntings. Birds at this age have plumage that is mouse brown above, nearly unstreaked, below buffy with a whitish throat and belly, breast finely streaked dark, often bluish on shoulder, rump and tail. The female and Basic I male Lazuli Bunting have more uniform pinkish-buff breast and throat (Indigo Bunting has a whiter throat, contrasting with dull brown breast area which is often mottled or vaguely streaked) and more prominent wing bars. Hybrid Indigo x Lazuli Buntings occur somewhat frequently and female-plumaged hybrids are probably not all distinguishable. The female and first-year male Varied Bunting (*Passerina versicolor*) are more uniformly brown, lacking wing bars even in fresh plumage, and have a more curved culmen, giving a more stubby-billed look; different wing formula ( $P9 < P5$ ). Beware that juveniles of all three species are extremely similar.

Indigo Bunting and Lazuli Bunting are closely related species that differ in allozyme frequencies in areas of allopatry, but not in areas of sympatry and hybridization (Baker and Johnson 1998). In morphological features the Indigo Buntings are most similar to Lazuli Buntings in certain skeletal characters, but not in others (Hellack 1976, Hellack and Schnell 1977, Tamplin *et al.* 1993). In mtDNA estimates of species phylogeny in bunting genus *Passerina*, Indigo Bunting was thought to be basal to other species of buntings, including Blue Grosbeak (*Passerina caerulea*), and possibly not the sister species of Lazuli Bunting. That is, the other six buntings shared a common ancestry with Indigo Bunting, but each of the six had a more recent common ancestry with another species; specifically Lazuli Bunting has a more recent common ancestry with Blue Grosbeak than with Indigo Bunting (Klicka *et al.* 2001). According to this estimate, the two hybridizing bunting species are not each other's closest relatives. Successful hybridization in this case might indicate the behavioural and developmental characteristics which allow interbreeding were retained from a remote common ancestor, and not from traits that uniquely evolved from an immediate common ancestor of the two species of small blue buntings such as Indigo and Lazuli. However, the songs of these two small species are similar and are unlike the other buntings and the grosbeak (Thompson 1968b, Ingold 1993), the females are nearly identical in morphology, and the two small blue buntings are very similar in behaviour. In addition, mitochondrial genes are inherited



differently and under different regimes of natural selection than are nuclear genes. Until the nucleotide sequences of nuclear genes are compared among the buntings, and unless phylogenetic estimate based on a number of nuclear genes turns out to parallel the tree of bunting species that was indicated by the mitochondrial gene, Indigo and Lazuli are best considered each other's closest relatives. Preliminary analyses of nucleotide sequence data from multiple nuclear genes suggest Indigo and Lazuli are more closely related to each other than either is to Blue Grosbeak (Payne 2006); however the phylogenetic placement of Indigo and Lazuli within the genus is still unclear. Bunting genus *Passerina* is thought to be closely related to Neotropical blue-plumaged bunting-and-grosbeak genera *Cyanocompsa* and *Cyanoloxia*, and the blue "seed-eater" genus of *Amaurospiza*.

### **Breeding and Nesting**

As the breeding season begins a female will settle on a male's territory 1-2 days after her arrival (Carey 1982). The pair associates until the female begins incubation (Payne 2006). Females either remain with the same male or nest with a different male for successive nests within a breeding season (Payne 2006). Occasionally pairs move together and re-nest as far as 1 km from their earlier nest site (Payne and Payne 1993a, Payne 1996). The female chooses the nest site and builds the nest. Nest-building takes as long as 8 days early in the season, and as little as 2 days later in summer (Payne 2006).

In Ontario, egg dates of 128 nests from 26 May to 15 August, and one nest contained 3 young on September 26 (Peck and James 1987). Cases of late breeding in a record from September 18, 2005, two females caring for fledged broods in Ann Arbor, Michigan; another on September 21, 2006, where a female with a partly blue male, the female fed a vocal, begging long-tailed fledgling (Payne 2006). Success of nests through fledgling of young buntings is independent of the season; half the young fledged come from nests begun in July and August (Payne and Payne 1998).

The female builds the nest alone, visiting several sites in low, branching vegetation within 1 m of the ground and bringing nesting material from nearby (Payne 2006). The female chooses a variety of sites not limited to her first nest plant species, either the plant species in which she first nested successfully, or in her natal nest plant species (Payne and Payne 1989). Females often change nesting sites; later nests are often in late-growing plants such as goldenrod (*Solidago* sp.) (Payne 2006).

Nests are built in fields and the edges of woods, roadsides, railroad rights-of-way (Payne 2006). Some early nests are built in understory shrubs in forest when the tree canopy is late in leafing out (as in black raspberries (*Rubus occidentalis*) growing under black locust (*Robinia pseudoacacia*) or if the canopy is defoliated by caterpillars; many later nests are built in plants that grow only in the later summer (Payne 2006). Nests are built 0.3 to 1 m above ground, incorporating into the nest structure several vertical or oblique stems as in a crotch or fork of a branching herb or shrub as its support (Taber and Johnston 1968, Payne 2006).

Once built and the eggs are laid, nest not actively maintained (Payne 2006). Nests that have growing young will sometimes fall into disrepair, tip over, or slip from the support with no attempt by the female to repair the nest (Payne 2006). A nest is only used once; new nests are constructed for successive

nesting attempts (Payne 2006). One nest in 2,492 was built by constructing additional layers over an older nest (Payne 2006). In field study, nests that were tipped by wind and rain, or observers, and still had eggs or nestlings often were repaired by the observer, using green grass, twine or fine wire to hold the supporting stems together; the nesting female accepted the repaired nests and continued with success to hatching and fledging (Payne 2006).

The eggs are laid after the nest is constructed and lined (Payne 2006). The eggs are laid on consecutive days in the early morning within an hour after sunrise (George 1952, Payne 2006). The female visits the nest occasionally, but is usually inattentive until clutch completed (Payne 2006). If a predator takes the nest, the female will abandon it and will build another elsewhere (Payne 2006). The loss of eggs in the nest parasitized by cowbirds is not compensated by the laying of additional or replacement eggs (Payne 2006). Nests often parasitized by Brown-headed Cowbirds (*Molothrus ater*) throughout their range (Payne 2006).

The young leave the nest as early as 8 days of age if disturbed, as late as 14 days during cool weather when not disturbed (Payne 2006). Most fledge 9-12 days after hatching (Payne 2006). Calls of the first young leaving nest attract its siblings; all birds leave within an hour (Payne 2006). Young also leave when female gives rapid *chips* and flutters over nest in response to a person nearby, and presumably to an approaching predator (Payne 2006). It is unknown whether the parent normally controls the time of departure (Payne 2006). The fledged young sometimes return and roost at night in the nest, especially if they have left before day 10 (Payne 2006). Young perch within a few meters of the nest during their first fledgling hours and are fed there by their parents (Payne 2006). Buntings leave the nest before the flight feathers are fully grown, but can fly upward into a tree within hours of leaving the nest (Payne 2006).

Juvenile body feathers are nearly fully-grown when the young bird leaves the nest; the tail and wings are short (Payne 2006). The growth after fledging has not been tracked in marked birds (Payne 2006). Wing and tail feathers continue to grow for at least a week, and young add body mass, particularly in breast muscle, to adult size after they leave the nest (Payne 2006). Tail grows continually from fledging (10-20 mm) to independence at day 30 (48-50mm) (Payne 2006). The young are independent by 3 weeks after fledging (Payne 2006).

While in the care of a parent, the brood usually stays together (Payne 2006). Occasionally the male remains on territory and cares for one young from his brood while the female departs with another fledgling, but not known if these are permanent splits or short-term separations (Payne 2006). The female may move to a new territory with one or more of her young, where she remains and breeds again with a new mate (Payne 2006). Males on territories where the female takes her brood do not feed the young, although they give alarm calls (Payne 2006).

Immature birds often flock together on their breeding grounds, either accompanied by adults or not, as one or both parents may attempt and complete a subsequent nesting cycle (Payne 2006). When juveniles are accompanied by adults, the older males do not sing (Payne 2006).

### Occurrence and Documentation

The Indigo Bunting is a casual visitor in any given local area of the province, but occurs somewhere in British Columbia each year, making this species a very rare to rare visitor on a provincial scale (Campbell *et al.* 2001). There are 84 provincial records of which there is a slightly higher proportion from the coast than the interior (Campbell *et al.* 2001, e-bird database 2020). High detection numbers from coastal regions is likely due to the fact that Lazuli Buntings are not common, making the detection of any singing male Indigo Bunting much easier to locate (Campbell *et al.* 2001). There are cases where migrating Lazuli Bunting flocks have had mixed with them a single or pair of Indigo Buntings. In Hope, the number of migrant passerines is generally large due to the narrow geography (R. Toochin Pers. Comm.). Indigo Buntings have been found on at least a couple of occasions with flocks of Lazuli Buntings likely as this area focuses migrants into a small area making detection of oddities much easier (R. Toochin Pers. Comm.) It is possible that Indigo Buntings are present with groups of Lazuli Buntings more than is currently known. In the interior of British Columbia, the fact that Lazuli Buntings are fairly common makes any detection of either male or female Indigo Buntings much more difficult (Campbell *et al.* 2001). This might be one of the reasons there are not more records. There are several records of male Indigo Buntings pairing off with a female Lazuli Bunting and having offspring (Campbell *et al.* 2001, e-bird database 2020). Hybrid male Indigo Buntings have been found both on the coast and in the interior many times (Campbell *et al.* 2001, e-bird database 2020). Due to the difficulty in identifying female hybrids, only the males are safely identified in the field (Beadle and Rising 2006, Payne 2006).

The timing of records reflects timing elsewhere in North America where this species is common. Records for the interior and the coast share similar timing in migration. The vast majority of birds found are either singing adult males or 2<sup>nd</sup> year males on territory. Many birds that are originally reported as adult males upon closer inspection turn out to be 2<sup>nd</sup> year males. The majority of records span from mid-to late May to mid to late August with a few exceptions of later occurring birds in the month of September and a few winter records from coastal locations (Campbell *et al.* 2001, e-bird database 2020). There are 44 total records for the coastal region of British Columbia and breakdown into the following regions:

In the Fraser Valley the Indigo Bunting occurs as a casual spring and summer visitor with 11 regional records. Of these records 8 involved adult or near adult males, 2 involved adult females, and 1 involved an immature/ female. Although hybrid Indigo x Lazuli Buntings has been found on at least 1 occasion, there are no known successful breeding records of pure Indigo Buntings for the Fraser Valley. All records pertain to the migration and breeding period of mid-May through till late August which fits this species' pattern when they are commonly found in their normal range. In one case a second year male was singing on territory on Sumas Mountain from July 3-6, 2017 (G. Cuff Pers. Comm.). The male was guarding a nest and had paired with a female Indigo Bunting that was observed by several on July 6, 2017 (R. Toochin Pers. Comm.). Unfortunately, the land developer decided the followed day to bulldoze the entire area where the nest was located and the birds quickly disappeared. It is likely that the young that were being fed would have been successful if this had not happened. Other cases of paired Indigo Buntings have also been found in the Fraser Valley. An adult male and female were found in Deroche on July 7, 2018 (R. Toochin Pers. Comm.). Unfortunately, the birds were on private property and further observations were not possible to know if a nest had been successful. Other breeding season records

include an adult male found singing as if on territory by the late Roy Phillips and other observers on Seabird Island, in Agassiz from June 23-30, 1968 (Cannings 1974); an adult singing male found and photographed by Istvan Orosi at Cheam Lake, in the Popkum area on July 11, 2004 (Cecile 2004d); and an adult male singing as if on territory found by the author on a private property along Fraser Highway, past Ross Road from July 12-23, 2018 (R. Toochin Pers. Comm.). There have been at least a couple hybrid male Indigo x Lazuli Buntings found and photographed in the Fraser Valley and surrounding area. This includes an adult male found by the author and observed and photographed by others along Chaumox Road in the Boston Bar area on July 1-2, 2011, another adult male found and photographed by the author and seen by other observers along the Simpson Trail, off Ross Road in the Abbotsford area on July 8, 2015, and an adult male found and photographed by the author and seen by other observers along Noble Road, in Chilliwack from June 3 – July 15, 2016 (R. Toochin Pers. Comm.). Any odd sounding Lazuli Bunting should be checked in the future for a potential Indigo Bunting. It is very likely that the Indigo Bunting will be found in this region in the future and all breeding grounds of Lazuli Bunting should be carefully scrutinized for this species.

Outside of the nesting season, there have been migrant birds found in migrant traps. This is the case with records from Hope Airport where over a three year period male and female birds were found and photographed in both late May and late August. These records include an adult female found with a flock of male and female Lazuli Buntings by the author on May 31, 2012 (Toochin 2014); the following year an adult female also found by Rick Toochin, Greg Stuart, and Louis Haviland, also migrating with a flock of male and female Lazuli Buntings on May 28, 2013 and was later joined by an adult male on May 30 and both were observed till May 31, 2013 (Toochin 2014); and an immature, likely female, found and photographed by Rick Toochin and Al Russell on August 23, 2014 (R. Toochin Pers. Comm.). Other migrant records include an adult male found on May 19, 2002 by Mrs. Hawk at Seabird Island (Toochin 2014) and an adult male found by Corina Isaac and Rick Toochin which was coming to a bird feeder with a Lazuli Bunting by the gift shops at Hells Gate, in the Fraser Canyon on June 11, 2011 (Toochin 2014).

In the Vancouver area, the Indigo Bunting is a casual summer and winter visitor and is an accidental fall vagrant. There are 12 records for the Indigo Bunting from the Vancouver area. Although hybrid Indigo x Lazuli Buntings have been found on at least 1 occasion, there are no known successful breeding records of pure Indigo Buntings for the Lower Mainland. Of all these records, all except 1 involve either an adult male or second year male. Most records fall into the migration and breeding period of mid-May through till late August which fits this species' pattern when they are commonly found in their normal range. There are 2 winter records. Many records involve migrant birds, but on a couple of occasions, male Indigo Buntings were found in amongst a breeding colony of Lazuli Buntings. This was the case with an adult male found by Mary Peet-Leslie at the Premier Street Landfill (now called Interurban Regional Park), in North Vancouver from June 13-July 2, 1993 (Siddle 1993b, Toochin *et al.* 2018a). In the same area there was also a hybrid male Indigo x Lazuli Bunting (R. Toochin Pers. Comm.). Another hybrid male Indigo x Lazuli Bunting was found at this location by Quentin Brown from May 26 – July 25, 1997 (Q. Brown Pers. Comm.). This likely indicates that other Indigo Buntings have occurred in this area over the years. Another location where the Indigo Bunting has occurred multiple times is at Colony Farm where there has been a long established Lazuli Bunting colony. An adult male was found singing on territory

and was photographed by Istvan Orosi, and later seen by many at Colony Farm from June 29-August 8, 2007 (Toochin *et al.* 2018a). With the establishment of a passerine banding station at Colony Farm by Derek Mathews and others, at least two 2<sup>nd</sup> year male Indigo Buntings were located and were present in the summers of 2010 and 2012 at this location (Toochin *et al.* 2018a). The records include a 2<sup>nd</sup> year male found, photographed and banded by Derek Matthews, and other observers on July 3, 2010 and was present throughout the summer and was likely the same bird, a winter plumage male, that was banded and photographed on September 25, 2010 (Charlesworth 2010c, Toochin *et al.* 2018a). Another 2<sup>nd</sup> year male was found, photographed and banded by Derek Matthews, and other observers, at Colony Farm on June 2, 2012 (Toochin *et al.* 2018a). Another adult male was found singing on territory by Danny and Rick Tyson, and was seen by other observers, on East Barnston Drive, North Surrey July 22-27, 2009 (Toochin *et al.* 2018a). There is also a record of an adult male found along Marine Drive, in Vancouver on July 2, 1977 (Campbell *et al.* 2001). It is not known if there were Lazuli Buntings in the area, and it is important to note that not all Indigo Buntings are found in the company of Lazuli Buntings.

Outside of the breeding season, there are 3 spring records that clearly involve migrant Indigo Buntings. These include birds found in late May and early June in areas where Lazuli Buntings are not known to breed. These records include an adult male found in Pitt Meadows on May 31, 1966 (Campbell *et al.* 2001); an adult male found by Mel and Marion Linn, and Virginia Whitelaw, subsequently seen and photographed by others at Lions Bay, in West Vancouver from June 1-3, 1973 (Cannings 1974); an adult male found by M.A.E. Barclay and Mavis Willox at 2700 Crescent Dr., Crescent Beach, White Rock, Surrey on June 4, 1985 (Harrington-Tweit and Mattocks 1985); and more recently an adult male found and photographed by Raymond Ng, and subsequently seen by others at Brunswick Point, in Delta from June 13-14, 2010 (Charlesworth 2010c, Toochin *et al.* 2018a). There is a single fall record for the Vancouver area. The only fall record for the Vancouver area involved a winter plumage male banded and photographed by Derek Matthews, and others at the banding station at Colony Farm on September 25, 2010 (Charlesworth 2010c, Toochin *et al.* 2018a). This bird was likely the same male that spent the summer in the area, but it is possible that there was another bird involved with this record. This species should be watched for early in the fall in the latter half of August into September in the future.

There are 2 winter records for the Indigo Bunting in the Vancouver area. The first was a winter plumaged male found by Corina Isaac and Rick Toochin at Mount Farm, along 168<sup>th</sup> Street near Cloverdale on December 31, 2004 (Toochin *et al.* 2018a). The second was a 1<sup>st</sup> year male that was found and photographed by John Findlay, and seen by others, in a feeder at 1971 Fraser Ave., Port Coquitlum from December 21-24, 2015 (Toochin *et al.* 2018a).

On the Sunshine Coast, there is a single record of an adult male found and photographed by Arnold Skei, and seen by many others in a powerline cut behind 5772 Neptune Street, in Sechelt from July 4-15, 2001 (e-bird database 2020). It should be noted that Lazuli Buntings are fairly rare in this region.

The Pemberton area is located in the coastal mountain range. In this region there are 2 records of Indigo Bunting. The first was an adult male found by John Tschopp just outside Pemberton on July 1, 2009 (e-bird database 2020), and the second was a sing adult male found and photographed by Seth and Ethan

Stere and Toby Theriault along Pemberton Meadows Rd., in Pemberton on July 5, 2016 (D. Cecile Pers. Comm.). Both of these records fit the overall provincial pattern of Indigo Bunting occurrence perfectly. It is very likely that this species will be found in the region again in the future.

On Vancouver Island, the Indigo Bunting is a casual vagrant in the spring and fall, and also a casual visitor in the summer and winter. Many records have been photo-documented and there is a single specimen record. There are 13 records for the Indigo Bunting from the Vancouver Island region. Although hybrid Indigo x Lazuli Buntings have been found on the mainland and interior regions of the province, there are no known hybrid records for Vancouver Island or any known successful breeding records of pure Indigo Buntings for the region. Most these records involve males, either adults, second year males, or a single male in first basic plumage with 3 records involving females. Most records pertain to the migration and breeding period of mid-May through till late August which fits this species' pattern when they are commonly found in their normal range. There are 2 early spring records, 3 fall records, and 2 winter records. Birds found in the breeding season mostly involved adult or 2<sup>nd</sup> year males, but there is at least 1 record of a female found during the breeding season. In the Victoria area there are 2 records; the first was an adult male found by Brian Gates on Mount Tolmie, in the Victoria area on May 30, 1992 (Bain and Holder 1992b, Campbell *et al.* 2001). The second was a long staying adult male originally found by Mike Shepard at Mary Hill, in Metchosin on June 30, 1998 (Shepard 1998). This bird is believed to have been the same male that was found at Martindale Flats on August 2 (Campbell *et al.* 2001) and stayed to the end of September in that general area (Bain and Shannon 1998b). Another record for the region comes from Saturna Island where a freshly dead adult male was found after it had hit a window and specimen was photographed on May 31, 2012 (Toochin *et al.* 2018b). Travelling up the Island there are a few other records that fall into the spring and summer period when the Indigo Bunting is most likely to be found and all but one involves male birds. An adult male was found by Neil Robins and was photographed and seen by others along Coldwater Farm Lane, off Renz Road, in Parksville from July 24-26, 2008 (Cecile 2008b). Along the west coast there are a few records; an adult male was found and photographed by Bob Steventon at Florencia Bay, in Pacific Rim National Park May 5, 2009 (Toochin *et al.* 2018b); a 2<sup>nd</sup> year male was found and photographed by Eric Demers, Karen Barry at the end of Sharpe Road at the Tofino Mudflats, near Tofino on May 8, 2010 (Toochin *et al.* 2018b); another adult male spent the first 2 weeks of June on Herbert Island (Toochin *et al.* 2018b); an adult female was found by Guy Monty, and observed by others at Thelwood Bridge, Strathcona Provincial Park from June 12-14, 2009 (Toochin *et al.* 2018b); and lastly an adult male found and photographed by David Rutledge, and seen by other observers in the Comox/ Courtenay Area from July 10-15, 2012 (Toochin *et al.* 2018b). This species is likely to be found again in the future and the lack of any large numbers of Lazuli Buntings on Vancouver Island should make detection easier. There are 2 fall records for Vancouver Island. The first was a male in first basic plumage that was collected (specimen number PMNH 72124) by Kenneth Racey in Port Hardy on November 1, 1953 (Young 1989). This was the first specimen record for the province. The other record was of an immature/ female bird found by Rick Toochin, and observed by others in Jordan River on September 21, 2006 (Toochin *et al.* 2018b). This species should be watched for early in the fall in the latter half of August into September. There are 2 winter records for Vancouver Island. The first involves a male in winter plumage that was found by Sandy McRuer, and subsequently photographed by others at 4950 Nicholas St., in Port Alberni from March 22-April 18, 2017 (Toochin *et*

*al.* 2018b); and the other is a female found and photographed by Chris Rispin, and observed by others at a backyard feeder along Milton Street, in Nanaimo from January 15-18, 2020 (e-bird database 2020). This species is likely to be found in the future in the winter and feeder watchers should keep a sharp eye open for this gem.

On Haida Gwaii, there is a single record of an immature female found on a Christmas Bird Count by Margo Hearne, Martin Williams, and Peter Hamel at The Willows Golf Course, in Sandspit on December 14, 2014 (P. Hamel Pers. Comm.). Both Indigo and Lazuli Bunting are accidental on the islands (P. Hamel Pers. Comm.).

In the interior of British Columbia, the Indigo Bunting is a casual summer visitor with 41 records. The number of records of the Indigo Bunting is only slightly fewer than the number of records from the coastal regions of the province. There is at least one confirmed breeding record of a pure Indigo Bunting pair for the interior. There have been hybrid Indigo x Lazuli Buntings found on at least 5 occasions and there are at least 2 records of male Indigo Buntings pairing off with female Lazuli Buntings. Most records in the interior involve either an adult male or second year male. There are records of males paired off with pure female Indigo Buntings. Most records pertain to the migration and breeding period of mid-May through till late August which fits this species' pattern where they are commonly found. It is likely that Indigo Bunting occurs more frequently in the interior region than current records reflect. The records are listed for this section by regional occurrence since almost all occur during the breeding season in the summer months.

In the Kootenay region, there are 13 Indigo Bunting records, including the first confirmed breeding record for the province involving an adult male and female feeding 3 bobtailed young at Summit Creek, in Creston on August 2, 1993 (Campbell *et al.* 2001). All these records are of singing adult males, and in 1 case paired off with a female Indigo Bunting. There is also a single record of a male Indigo was paired with a female Lazuli Bunting that was found and photographed by Kevin Knight and observed by others at Bull River from July 4-15, 2012 (e-bird database 2020). There has been hybrid male Indigo x Lazuli Buntings found on at least 3 occasions in the region. These records include an adult male found by Gary Davidson in the Nakusp area on July 23, 1990 (Siddle 1990d); and adult female with 2 immatures of unknown species type found by Gary Davidson and Greg Ross along Kelly Road, in Fort Steele on September 11, 2010 (of note likely the same female was reported in same area the previous year) (e-bird database 2020); and the final record is of an adult male found by Mike Resch along Beards Creek Road, in Parson on June 26, 2016 (e-bird database 2020). Records of the Indigo Bunting in this region occur in the migration and breeding period of mid-May through till late August which fit this species pattern when they are commonly found in their natural range. These records include and adult singing male found in Trail on June 15, 1958 (Campbell *et al.* 2001); and adult singing male found by Laurie Street and observed by others in South Slovan from June 30-July 26, 1972 (Street and Merilees 1974); an adult male and female eating timothy seeds in the Creston area on August 20, 1973 (Butler *et al.* 1986); an adult singing male in the Roosville area on July 3, 1977 (Campbell *et al.* 2001); an adult singing male found in the Cooper Creek area, in Argenta, near Lardeau on July 1, 1980 (Campbell *et al.* 2001); an adult singing male found in the Creston area from July 6-7, 1984 (Campbell *et al.* 2001); an adult male found and

photographed by Richard Johnson in New Denver on May 22, 2010 (Charlesworth 2010b); an adult male found and photographed in the Bone Creek area, near Bull River from May 26-28, 2010 (Charlesworth 2010b); an adult male found and photographed by Tony Wideski and other observers at the North Pond of the Irrigation Fields, in the Cranbrook area from August 7-26, 2010 (e-bird database 2020); and an adult male found by Al Kirkley along Redstreak Road, in Radium Hot Springs on August 12, 2019 (e-bird database 2020). This region has many records, including breeding and potential breeding records. It is very likely there will be more Indigo Bunting records from this part of the province in the future.

The only exception is an early spring migrant record from late April and early May of an adult male found and photographed by Bev Sinclair and Andy Moffat and other observers in Nakusp from April 29-May 3, 2019 (e-bird database 2020).

In the Columbia – Shuswap region, records are very similar to the Kootenays as there are 13 Indigo Bunting records, including 2 potential breeding records. All these records are of singing adult males, and 3 records involve a male Indigo Bunting paired off with a female Indigo Bunting. Records involving paired off male and female Indigo Buntings include: an adult male and female found and photographed by Chris Sidle and other observers at the Revelstoke Airport from July 14-23, 1988 (Campbell *et al.* 2001); an adult male and female found by Doug Powell at the Revelstoke Airport on June 26, 1989 (Rogers 1989); and an adult male and female [possible breeding record] found at Scotch Creek, in the Shuswap area from mid-July -July 25, 1989 (Rogers 1989, Weber and Cannings 1990, Campbell *et al.* 2001). There is a single record of 2<sup>nd</sup> year male Indigo Bunting that was paired off with Lazuli Bunting that was found and photographed by Gary Davidson along Brouse Loop Road, in Golden on July 22, 1990 (e-bird database 2020). There is only a single documented record of a hybrid male Indigo Bunting x Lazuli Bunting found by Rick Toochin, Mike Bentley, and Mark Wynja at the Revelstoke Airport on July 16, 1988 (R. Toochin Pers. Comm.). There was a pure Indigo Bunting in the same area at the same time (R. Toochin Pers. Comm.). Indigo Bunting records in this region occur in the migration and breeding period of mid-May through till late August which fit this species pattern when they are commonly found in their natural range. These records include: an adult singing male (which was the first Provincial record) found along Shuswap Lake from June 4-22, 1948 (Campbell *et al.* 2001); an adult male found by George P. Sirk, Lauren Sirk, Dick Cannings which was photographed (BC Photo 313) along Crowfoot Mt. Road, Magna Bay, at Shuswap Lake on July 7, 1973 (Cannings 1974); a moulting male found by Rick Howie and Frances King in Golden on September 1, 1977 (Rogers 1978); an adult singing male found by Corina Isaac and Rick Toochin and was observed by others in the Sorrento area from June 25-30, 2005 (R. Toochin Pers. Comm.); a male found by Jeremiah Kennedy in the Golden area on July 29, 2010 (e-bird database 2020); an adult male found by Devon Anderson at the Revelstoke Airport on July 24, 2012 (Charlesworth 2013); and a 2<sup>nd</sup> year male found and photographed by Glenn Harasym and other observers along Lapp Road, in the Golden area from July 2-19, 2018 (e-bird database 2020). The only record not involving a male Indigo Bunting was of an adult female feeding a Brown-headed Cowbird in the Revelstoke area on June 29, 1997 (Campbell *et al.* 2001). This record adds to further speculation to the idea that this species might be successfully breeding in the area. Unfortunately there are no confirmed breeding records for the Columbia – Shuswap region, but it seems only a matter of time.



The only exception is an early spring migrant record of an adult male found and photographed (BC Photo 1634) in Golden on April 12, 1995 (Campbell *et al.* 2001).

In the Cariboo – Chilcotin region, there are 6 records all involving either adult males or 2<sup>nd</sup> year males. No hybrids or cross breeding records have yet been reported. Records of the Indigo Bunting in this region occur in the migration and breeding period of early-mid-May through till late August which fit this species pattern when they are commonly found in their natural range. These records include a male found by Trevor Goward along Upper Clearwater Valley Road, near Wells Gray on July 31, 1998 (Bowling 1998d); a 2<sup>nd</sup> year male found and photographed by Tom Godin and other observers at the Gang Ranch, near 100 Mile House from June 8-16, 2002 (Cecile 2002c); an adult male found and photographed by Laurel McKay in Hanceville on May 10, 2009 (e-bird database 2020); a 2<sup>nd</sup> year male found, photographed, and banded by Steve Ogle at the Tatlayoko Lake Bird Observatory August 24, 2010 (Charlesworth 2011a); another adult male in fall plumage was found, photographed, and banded by Gwyn Case and Anna Tran at the Tatlayoko Lake Bird Observatory on August 24-31, 2017 (e-bird database 2020); and a 2<sup>nd</sup> year male was found and photographed by Connor McCure at Ok Ranch River Cabin, along Fraser River near Jesmond July 13, 2019 (e-bird database 2020).

In the Thompson – Nicola region, there are 4 records of the Indigo Bunting. All records involve either adult males or 2<sup>nd</sup> year males. There is 1 record of a hybrid male Indigo x Lazuli Bunting found by Ralph Ritcey, Syd Roberts, Wayne Weber and seen by others in the Tranquille area, in Kamloops from May 30 – July 4, 1999 (Shepard 1999d). There are no records of Indigo Buntings paired off with Lazuli Buntings. Records of the Indigo Bunting in this region occur in the migration and breeding period of mid-May through till late August which fit this species pattern when they are commonly found in their natural range. These records include an adult male found by David Evans at Spences Bridge on June 29, 1973 (Cannings 1974); an adult male photographed (BC Photo 443) in Kamloops on May 26, 1976 (Campbell *et al.* 2001); a 2<sup>nd</sup> year male found and photographed by Wayne Weber and observed by others along Dot Ranch Road, on Highway 97c, well north of Merritt from June 17-July 9, 2009 (e-bird database 2020); and an adult male found by Ryan Cathers at the Leighton Lake Campground, west of Kamloops on August 6, 2013 (D. Cecile Pers. Comm.).

In the Fraser-Fort George region, there are 2 records both involving adult males coming from the Prince George area. These records are the furthest north this species has been recorded in the interior. Interestingly both records are of spring migrants with both records occurring in the month of May. These records involve an adult male photographed in the College Heights area, of Prince George on May 19, 2001 (Cecile 2001c); and the other was of an adult male found and photographed by Anne Hogan and other observers along Hoferkamp Road, in Prince George from May 2-3, 2018 (D. Cecile Pers. Comm.). There are no records of females, hybrid males or birds during the breeding season.

In the Okanagan region, there are only 2 records of the Indigo Bunting. Both records involve males. Records of the Indigo Bunting in this region occur in the migration and breeding period of mid-May through till late August which fit this species pattern when they are commonly found in their natural range. These records include a male found by Doug Brown at the Vaseux Lake Bird Observatory, in the

south Okanagan on August 27, 2006 (Cecile 2007a); and an adult male by Janice Arndt at the Eagle Valley Road Stop, in Cawston on July 13, 2014 (e-bird database 2020).

In the Lillooet region, there is a single record of an adult male found at the Rosebank Ranch, along Highway 12, outside Lillooet on May 28, 2009 (e-bird database 2020). This bird was likely a spring migrant and given it did not stay in the area for the summer.

It is clear that the Indigo Bunting is a species that can turn up anywhere in the province and should be watched for during migration, the breeding season, and potentially coming to a feeder during the winter.



Indigo Bunting adult female May 28, 2013 at Hope Airport.  
Bird is enlarged in lower right corner.  
Photo © Rick Toochin.



Indigo Bunting adult male May 30, 2013 at Hope Airport.  
Bird is enlarged in lower right corner.  
Photo © Rick Toochin.



Indigo Bunting 2<sup>nd</sup> year male July 3, 2017 at Sumas Mt. Photo © Gabriele Cuff.





Indigo Bunting 2<sup>nd</sup> year male July 6, 2017 at Sumas Mt. Photo © Rick Toochin.



Indigo Bunting 2<sup>nd</sup> year male July 6, 2017 at Sumas Mt. Photo © Al Russell.



Indigo Bunting 2<sup>nd</sup> year male July 6, 2017 at Sumas Mt. Photo © Al Russell.

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