

# Vagrancy of Painted Bunting (*Passerina ciris*) in the United States, Canada, and Bermuda

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## ABSTRACT

This paper reviews extralimital reports of Painted Bunting (*Passerina ciris*)—in the context of its usual migratory patterns, population changes, and history in the cagebird trade—and documents a recent surge in extralimital reports in areas north and west of breeding areas.

## OVERVIEW

Breeding distribution, migration, and population trends

Painted Buntings have two populations that are widely separated geographically. The eastern population breeds on the coastal plain from central North Carolina to central Florida and winters, at least in part, in southern Florida, the northern Bahamas, and Cuba (Stevenson and Anderson 1994, Raffaele et al. 1998, Lowther et al. 1999). Given that Painted Buntings are distinctly more common during migration in the Bahamas and Cuba (Raffaele et al. 1998), it seems likely that some of these eastern birds continue on to winter elsewhere (e.g., Mexico or Central America), but there is as yet no direct evidence to support this notion. The western population breeds from central Mississippi north through the southwestern corner of Tennessee to southern Missouri; from there, the breeding range extends westward through southern Kansas and then southward to include most of Oklahoma and Texas; the southern edge of the breeding range extends from eastern Chihuahua east to Nuevo Leon and northwestern Tamaulipas, Mexi-

co, and there are isolated breeding populations in eastern and southern New Mexico (Lowther et al. 1999). The wintering range of this western population extends northward to southern Sinaloa in the west and central Tamaulipas in the east (Howell and Webb 1995).

The eastern population of Painted Bunting migrates northward from March through mid-May. March is peak migration time in the Bahamas and Cuba (Raffaele et al. 1998). In southern Florida, the dates of 31 building-killed individuals ranged from 11 April to 10 May (Taylor and Kershner 1986), though apparent migrants have been noted from late March through June (Stevenson and Anderson 1994). In Georgia, spring migrants have been reported as early as 15 March, but most arrive from mid-

April to early May (Beaton et al. 2003), and arrivals in North Carolina are mainly from late April to mid-May (Fussell 1994). Southbound migration of eastern birds after the breeding season is not as apparent as the spring migration, at least in continental areas. Numbers start to decline in North Carolina as early as early August, and most are gone by October (Fussell 1994). Similarly, most Painted Buntings have departed Georgia by the end of September (Beaton et al. 2003). Apparent migration dates in

Florida range from mid- or late July through at least mid-November (Stevenson and Anderson), and in the West Indies, southbound migrants start to appear in mid-October and peak in November (Raffaele et al. 1998).

Spring migration of the western population is noted in the United States from early April into at least mid-May. In southern areas, such as Mississippi and Louisiana, northbound

buntings typically first appear in early April (Lowery 1974, Turcotte and Watts 1999). In the Texas Panhandle, Oklahoma, Missouri, and Kansas, first arrivals usually appear in early May (Thompson and Ely 1991, Baumgartner and Baumgartner 1992, Robbins and Easterla 1992, Seyfert 2001), although peak arrival time can be later in May (Robbins and Easterla 1992). Fall migration is evident in the western population from mid- or late July through October (Thompson 1991, Russell and Monson 1998). In the Texas panhandle, adult males have almost entirely departed before mid-August, with females and young remaining until mid-September (Seyfert 2001). All ages depart Kansas prior to the beginning of September (Thompson and Ely 1991). To

the south, in Louisiana and Mississippi, southbound migrants are evident from late August through October (Lowery 1974, Turcotte and Watts 1999). Notably, at least 60% of western Painted Buntings, including all age classes, migrate southward to areas in northwestern Mexico (and formerly Arizona) to begin pre-basic molt prior to continuing on to wintering locations (Thompson 1991a, 1992). In Sonora, one region in which this staging occurs, the first individuals arrive in mid-July, and numbers peak from mid-August to

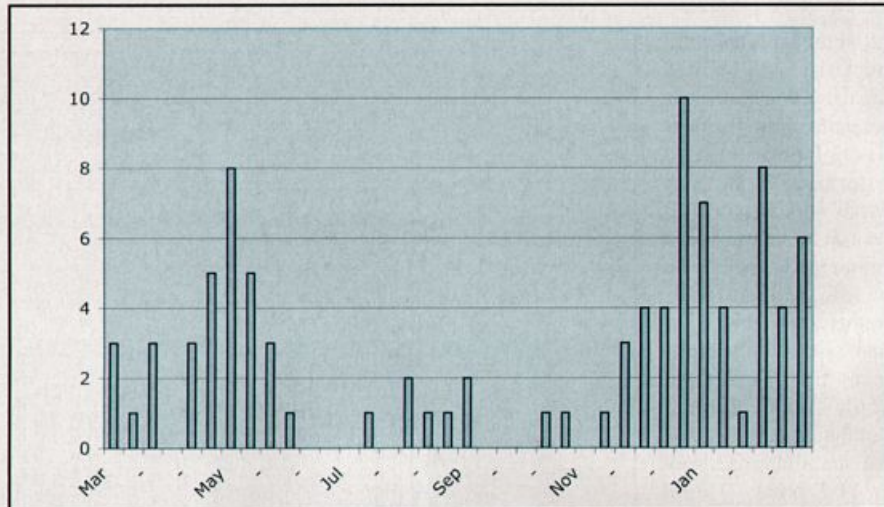
mid-October. Only one winter report and one spring report are published from Sonora (Russell and Monson 1998). Eastern Painted Buntings largely undergo pre-basic molt on their breeding grounds (Thompson 1991a, 1992)—a very different strategy that has led some to suggest that these two populations represent distinct species (Thompson 1991b, Sibley and Monroe 1993).



This male Painted Bunting at Hidden Valley Campground, Northmandale, Ontario, was photographed 9 August 2004, the twentieth record for this province. In the not-too-distant past, male Painted Buntings out of range were considered likely escapees from captivity, especially when found at feeders, as the species often is. As records of extralimital Painted Buntings have increased in recent decades, however, patterns of occurrence have emerged that strongly support wild provenance in most cases. In the eastern population, males acquire their colorful plumage in their second autumn before migrating; the single green rectrix in this individual suggests a second-year bird, but plumage is notoriously variable in the species. Photograph by Brandon Holden.

The western population of Painted Buntings has undergone a decline since the mid-1960s, with Breeding Bird Survey data showing a significant trend of -3.2% per year for 1966–1995, most of which occurred from 1966–1979; from 1980–1995, no significant trends were noted (Sauer et al. 1997). Observers in the Edwards Plateau of Texas report no apparent decline in the species there in recent decades (G. Lasley, M. Lockwood, *in litt.*). The eastern population also showed a decline (-4.0% per year) in the period 1966–1995 (Sauer et al. 1997), but Lowther et al. (1999) suggested that the data on the eastern population be interpreted with caution.

In the United States, it became illegal to possess live Painted Buntings after 1913, but continued illegal traffic in the species caused Massachusetts' reports to be treated with suspicion and suppressed into the 1950s (Griscom and Snyder 1955); New York reports were published but similarly flagged as questionable into the early 1960s (Bull 1964, Levine 1998). In Mexico, trapping, selling, and possessing native birds are still common practices. Between 1984 and 2000, more than 100,000 Painted Buntings were trapped for domestic trade in Mexico alone (Iñigo-Elías et al. 2002). Visits to pet shops and street markets within Mexico bear this out. For instance, a total of 555 Painted Buntings were recorded during 13 visits to northern Baja California pet shops from February 1999 to September 2001, and although some individuals were undoubtedly counted on more than one trip, Painted Bunting was the most numerous species recorded in such contexts (Hamilton 2001). Several captive Painted Buntings have been observed at private residences in various northern Mexican towns, nearly all of them adult males, often in deplorable condition (R. A. Hamilton, unpubl. data). This species is confiscated with regularity along the U.S.–Mexican border between San Diego and Tijuana, mostly during the summer tourist season (Scott Serena, U.S. Fish & Wildlife Service Special Agent, pers. comm.). Away from the border, the U.S. Fish & Wildlife Service reported a seizure of 16 live Painted Buntings in Chicago during January 1998 (report obtained in April 1998 from the U.S. Fish & Wildlife Service Office of Law Enforcement in Arlington, Virginia, in response to a Freedom of Information Act request), and one was found for sale at a Los Angeles area pet shop during November 1998 (K. Garrett, *in litt.*). Special Agent Serena was involved in confiscation of six Painted Buntings (three adult males and three green birds) at an undisclosed location in early December 1998. Around that time, he and Special Agent John Brooks, both of whom work in San Diego, expressed surprise at the paucity of documented seizures. They noted that many seizures are made by U. S. Customs officials and that such incidents may not always



**Figure 1.** Reports of Painted Bunting from Bermuda, Virginia, Maryland, and Delaware (1961–March 2005). In all figures, months are divided into thirds, and only the initial date of detection of an individual bird is registered (as in subsequent figures). Not included in this histogram are 10–11 Virginia reports and one Delaware report, owing to insufficient data. One report from Maryland involving an apparently returning individual included dates only for the initial year of discovery; subsequent years are not registered in this figure.

be properly reported (e.g., the seizure of Painted Buntings at the Los Angeles pet store in 1996, reported by Garrett, does not appear in the report obtained through the Freedom of Information Act). In Washington, a long-time U.S. Fish & Wildlife Service agent stated that no illegal captive Painted Buntings have been encountered in that state (K. Aanerud, *in litt.*).

Several North American and Mexican reports almost certainly represent escapees from captivity. A bunting wearing a brightly colored leg band was found at Laval, Québec on 24 June 1975 (N. David, pers. comm.; not included in Table 1), and an adult male with dull yellow-orange underparts and a scar on the forehead was collected at an elevation of 1950 m at the remote Sagehen Creek Field Station, Nevada County, in northeastern California 17–18 April 1972 (Hawthorne 1972, Roberson 1993; UCDWFB #252). Another male with unusually faded color at the Tijuana River valley, California on 13 September 1987 was treated as a likely escapee (Pyle and McCaskie 1992). In Guerrero Negro, Baja California Sur, Mexico, Hamilton and others observed a somewhat faded adult male with pin-feathers evident on the crown on 20 October 1995; two years later, Hamilton observed two Painted Buntings in a cage one block from this location. Near Ensenada, Baja California, Hamilton found an unbanded male on 19 September 1998 that showed brilliant color on the upperparts and wings, deep red on the chin and upper breast, but extensive yellow coloration on the remaining underparts. Mlodinow and Bill Tweit found a green-plumaged bird with pin feathers on the head at San Jose del Cabo, Baja California Sur on 27 October 2002. A report of an adult male wearing an ill-fitting band in Arcadia, Los Angeles County, 1–2 August 2002 was not accepted by the California Bird Records Committee (C.B.R.C.), as the band appeared to be

other than a U.S. Fish and Wildlife Service band (San Miguel and McGrath, *in press*).

#### Variations in plumage

The red color of adult male Painted Buntings' uppertail coverts and ventral plumage is dependent on carotenoids (Thompson 1991b) that must be obtained through diet, so that birds eating a diet deficient in this nutrient tend towards orange or a faded red (Goodwin 1950, Brush 1978). Bates and Busenbark (1963) comment on the importance of including a "color holding agent" in the diet of captive males so that they retain their colors. The absence of color on individual feathers, however, does not imply a deficient diet. Male Painted Buntings that adventitiously lose a red or blue feather will replace it with a green one (Pyle 1997). Mlodinow reviewed 84 specimens of adult male Painted Buntings at Chicago's Field Museum of Natural History. None of these showed faded red underparts, but 12 had small patches of green underneath, often multiple patches. Furthermore, in eight specimens, the green back color extended well down onto the rump, though all had red uppertail coverts. The even distribution of green on the rump implies that this is a normal variation rather than a replacement of lost feathers. S. F. Bailey (*in litt.*) reviewed 30 wild-collected and two aviary specimens of Painted Bunting at the California Academy of Sciences. All 30 specimens showed vivid colors, and many had small spots of green below, though usually only one per bird. One of the two specimens from captivity was normal in appearance, and the other was a faded yellow-orange ventrally, with a yellow-green rump. Hamilton reviewed eight specimens at the San Diego Natural History Museum: seven from the eastern United States, plus one likely escaped individual from southern San Diego County 13 January 1993 (SDNHM #48279).

All of the birds collected from the wild showed limited yellow feathering ventrally but were otherwise of normal, vivid coloration. The San Diego specimen was at least as bright as its wild counterparts and had no obvious adventitious feather replacement but had seven broken primary tips. Finally, an adult male Painted Bunting visiting a Santa Barbara, California feeder 14 February–9 April 1989 began with normal red underparts but faded to orange during its stay (Pyle and McCaskie 1992). Paul W. Sykes, Jr. (pers. comm.), who has banded and handled over 3000 Painted Buntings, has observed females with rose-tinted underparts, females with bluish hoods, and males with variable underparts, including patches of yellow.

These various observations suggest several tentative conclusions regarding plumage and its relevance for the evaluation of provenance in potential vagrant Painted Buntings. First, the underparts of any adult male (escapee or otherwise) may be expected to lose their color if the bird is nutritionally deficient. Second, caged buntings may be fed dietary supplements that allow them to maintain coloration typical of wild birds. Third, an escaped cagebird, finding a carotenoid-sufficient diet, may, following molt, attain the vivid plumage tones typical of healthy wild birds. Fourth, limited yellow-green patches beneath (or on the rump) are not indicative of captive provenance.

## VAGRANT REPORTS

### Methods

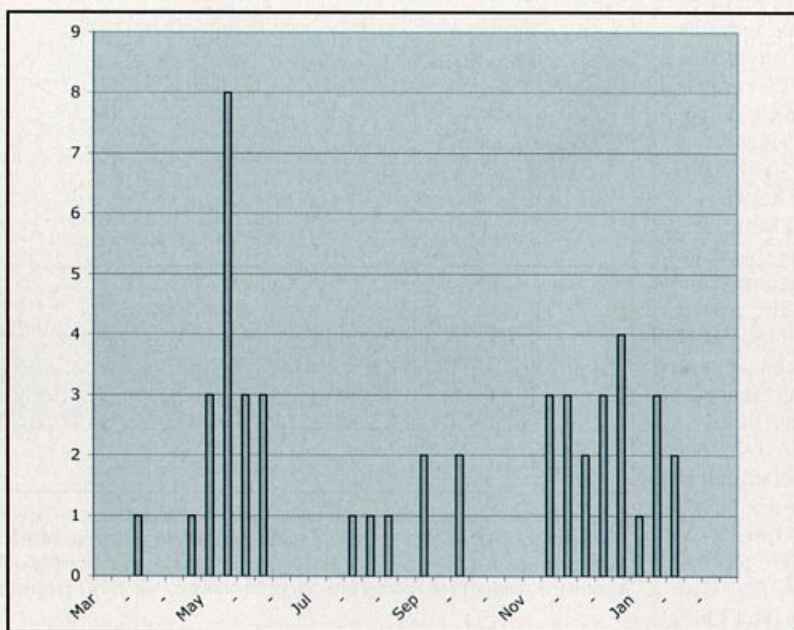
Multiple resources were necessary to generate a body of reports of Painted Buntings out of range (Table 1). For most states and provinces, we used state-level monographs on avian distribution (see Literature cited and

Literature used in compiling Table 1) supplemented by bird records committee data and reports published in *North American Birds* and predecessor journals up through November 2004. To supplement, corroborate, and/or vet these data, many of which were erroneous or incomplete, we found it necessary to contact numerous individuals (see Acknowledgments) with access to documentation that might not yet have been reviewed by records committees or that was suppressed because property owners did not wish to have visitors to view buntings at their feeding sta-

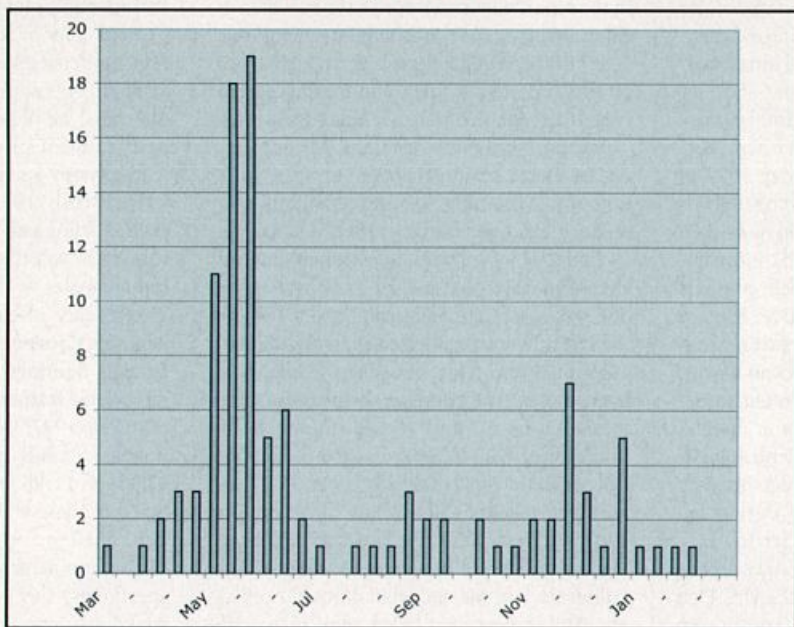
tions, a fairly common situation. In some states (e.g., Virginia), the species has been not been on the Review List, and soliciting documented reports has required extensive correspondence. The same was true in New Jersey, where data in published and unpublished sources were often erroneous. In other states (e.g., Iowa), committees have narrowly rejected documented reports of the species owing to concerns about provenance; we have countenanced several such reports in Table 1. We include pre-1960 data under separate headings (Historical report[s]) in Table 1. Most of these reports lack extant documentation or have not been reviewed or accepted by state and provincial committees; we have not used these reports in analysis but present them here for the sake of completeness. We did not gather data on Painted Bunting vagrancy for most states that contain established breeding populations of Painted Buntings (e.g., New Mexico), but we do include reports of extralimital birds from Illinois and Tennessee, which have very small populations in extreme southern areas. Because of uncertainty as to the sex of most buntings reported as "females," we have elected to define reports in Table 1 only as referring to "male" birds or to "green" birds—that is, the colorful, definitive plumage of male Painting Bunting and all other plumages, respectively. We included all reports of

singing green birds, presumably second-year males, in the "green" category.

Because, on a continental level, there exist relatively few extralimital reports of Painted Bunting that might be considered satisfactorily documented by rigorous modern standards (specimen or photograph of indubitable provenance), and fewer reports still that confirm the sex and age involved, and because the problem of escaped birds from captivity continues to be of concern to many bird records committees, we have been cautious not to overinterpret the data in Table 1.



**Figure 2.** Reports of Painted Bunting from New York and New Jersey (1961–February 2005). One New Jersey report that lacks full data is not included in this histogram. Most autumn reports are from New Jersey, while most spring reports are from New York.



**Figure 3.** Reports of Painted Bunting from New England (Maine, Vermont, New Hampshire, Massachusetts, Connecticut, Rhode Island) and Atlantic Provinces of Canada (New Brunswick, Prince Edward Island, Nova Scotia) (1960–November 2004). This histogram excludes data-deficient reports from Massachusetts (one) and Nova Scotia (one).

### Results: Patterns of vagrancy and their probable mechanisms

**Atlantic Seaboard** • The Atlantic Seaboard area includes for the purpose of this paper Virginia, Maryland, Delaware, New Jersey, New York, Connecticut, Rhode Island, Massachusetts, New Hampshire, Vermont, Maine, Nova Scotia, New Brunswick, and Prince Edward Island (there are no reports of the species from the District of Columbia, Newfoundland and Labrador, or St. Pierre et Miquelon). In this area, vagrant Painted Buntings have been detected predominantly during late spring/early summer and late fall/winter, but seasonality varies by subregions. For convenience, we break the area into three parts to demonstrate this seasonality. For the purposes of this paper, we designate seasonal reports as falling into "spring" (April–June) or "late-fall/winter" (late October–March) periods of occurrence, using the first date of discovery; as is true of most bird reports, we are aware that individual birds in many cases probably arrived in an area before being detected.

In Virginia, Maryland, Delaware, and Bermuda (Figure 1), which lie just north/east of the breeding range, most (62 of 93; 67%) reports are of late-fall/winter birds, most being found after mid-December (it is conceivable that they arrive earlier, e.g., in October or November, but are discovered when they are driven by colder weather into feeding stations, whence most reports come). These southern areas have proportionately fewer reports of spring birds (22 of 93; 24%), most of which are from mid-April into late May. (The same holds true for North Carolina's northern Outer Banks, where most reports come from winter.) Some "spring" reports almost certainly refer to birds that wintered locally, or extralimally at some location, but were only discovered in the spring season; for this reason, to refer to birds discovered in early April, for instance, as "overshoots" would be incautious. Many wintering birds linger at feeders well into the spring in the East.

Farther north, in New Jersey and New York (Figure 2), reports are more evenly split seasonally than in the mid-Atlantic states. Late-fall migrants/winterers (23 of 48 total reports; 48%) are largely detected after early November, while spring reports (18 of 48; 38%) are

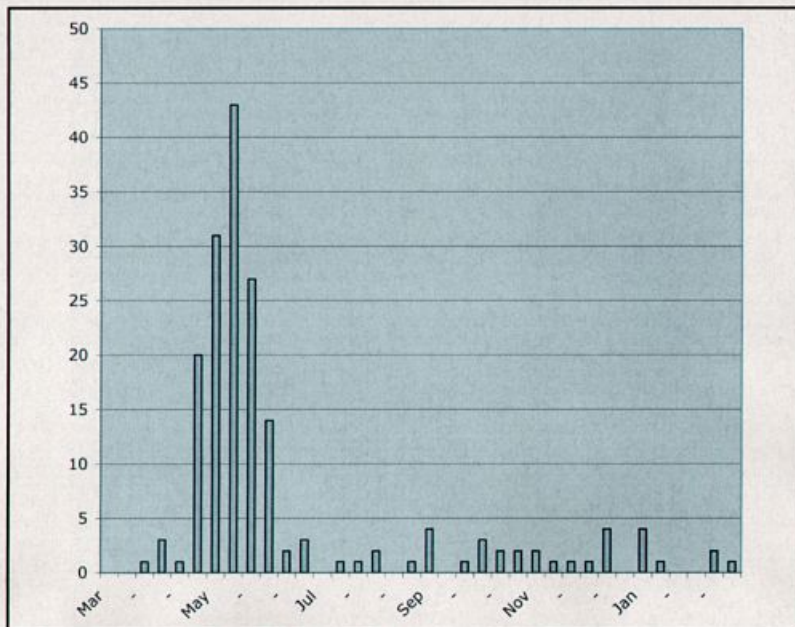


Figure 4. Reports of Painted Bunting from the Mid-continent, including Alberta, Colorado, Illinois, Indiana, Iowa, Kentucky, Michigan, Minnesota, Montana, Nebraska, Ohio, Pennsylvania, Saskatchewan, South Dakota, Tennessee, Utah, West Virginia, Wisconsin, Wyoming (1961–March 2005).

mostly from early May to mid-June. However, New Jersey's pattern (7 spring [23%], 19 late-fall/winter [61%]) strongly resembles those of states to its south, while New York's (11 spring [65%], 4 late-fall/winter [24%]) is almost the inverse of New Jersey's and close to seasonal proportions in the Northeast.

In the Northeast (Figure 3), in which we include the four Maritime Provinces of Canada and six states of New England, spring reports (67 of 108; 62%) predominate, with a peak from early May to early June. The Northeast has had Painted Buntings during late fall/early winter as well (29 of 108; 27%), largely after mid-November. Massachusetts, however, is unique in this subregion in having more late-fall/winter reports (20) than spring reports (14), thus recalling New Jersey's proportions far more than those of Maine—which has 22 spring reports but only one late-fall/winter report.

Taken as a whole, areas of the Atlantic Seaboard show a nadir in reports of buntings from mid-June through late October (Figures 1, 2, 3), although Nova Scotia has a noticeable cluster of reports in September–October, recalling influxes of other *Passerina* (Blue Grosbeak [*P. caerulea*], Indigo Bunting [*P. yanica*]) to Nova Scotia, apparently reverse-migration events of migrant passerines caught in low-pressure systems off the coast (McLaren et al. 2000). North of Delaware/Maryland, a less dramatic drop in reports also occurs from mid-March through late April (Figures 2, 3). The total number of Atlantic Seaboard spring reports is 107, about equal the late-fall/winter total of 114.

This bimodal distribution suggests that there are at least two mechanisms of va-

grancy to areas near and along the Atlantic Seaboard. Spring reports are consistent with what has been termed "spring overshooting." Vinicombe and Cottridge (1996) examined spring vagrancy of passerines in Great Britain and Ireland and described two patterns. The first is "short-range," wherein a northbound migrant narrowly flies beyond its breeding grounds, typically during periods of southerly winds. The timing of these short-range vagrants usually coincides with peak migration dates within that species' normal range. The second pattern is "long-range," wherein migrants continue well beyond their breeding range, heading in the same direction as their spring mi-

gratory route but simply not stopping. Vinicombe and Cottridge (1996) suggest that errors involving hundreds of kilometers are more than "simple errors of judgement induced by strong tail winds" and are perhaps caused by a failure of the "switch-off" signal of migratory urges. Interestingly, more males than females appear to be subject to such long-range spring vagrancy, and these longer-distance vagrants tend to occur later in the season, perhaps owing to the distances involved. The above theories accommodate patterns in spring Painted Bunting reports on the Atlantic Seaboard well. Spring reports from Virginia coincide with Painted Bunting migration to the south, whereas spring reports from New Jersey northward tend to be distinctly later (Table 1). Also, from New Jersey northward, 62 of 83 (76%) spring reports involve adult males. (The percentage of all males would clearly be higher, as some reports of "green" birds in spring were of singing second-year males.) Nevertheless, the greater remoteness of more northerly locations from wintering and breeding areas could also easily account for the later dates of vagrant reports from the Northeast: it simply takes the birds longer to reach these areas, especially in spring seasons with adverse weather conditions for onward migration.

Fall vagrancy north of breeding range, on the other hand, might be attributable to 180° misorientation or "reversed migration." Many, perhaps most, migratory passerines are born with a set of innate directions that guide them during their first migration from breeding to wintering sites (Berthold 1996, 1999). Some individuals of these species appear to migrate in precisely the opposite direction of the norm

during their first fall migration (Rabot 1969, Vinicombe and Cottridge 1996, Thorup 1998). Perhaps because most birds possessing this misorientation perish on or following their first migration, fall vagrants north of their breeding range tend to be hatch-year birds (e.g., Tropical Kingbird, *Tyrannus melancholicus*; Mlodinow 1998). The timing and geographic distribution of late-fall/winter Painted Bunting vagrants in the East fit the notion of reversed migration well. During late summer/fall, most western Painted Buntings first migrate in a southwesterly direction (Thompson 1991a, Thompson 1992), and an error of 180° in orientation would take such birds northeastward and toward the Northeast or mid-Atlantic. Eastern Painted Buntings making such an error might wind up farther north on the Atlantic coast or in the continent's eastern interior.

Because fall vagrants of most passerines tend to be young birds, the proportion of adult male Painted Buntings in reports that include information on plumage (reports marked as "unknown" were excluded) was unexpected; 61 of 98 (62%) late-fall/winter reports from the Atlantic Seaboard were of adult males (excluding Virginia's many reports, the proportion is still similar, 61%). Perhaps the widespread availability of bird feeding stations explains much of the high proportion of adult males. Because of feeding-station patronage, reverse-migrant Painted Buntings would be more likely than insectivorous vagrants to survive through the winter and return in subsequent years—speculation that would seem to be supported by several instances of birds returning to feeders during consecutive winters (though in most cases, the actual identity of "returning" birds was not confirmed through banding or other direct evidence). Furthermore, novice birders and feeder-watchers would probably be more likely to notice and to identify correctly an adult male Painted Bunting than one in green

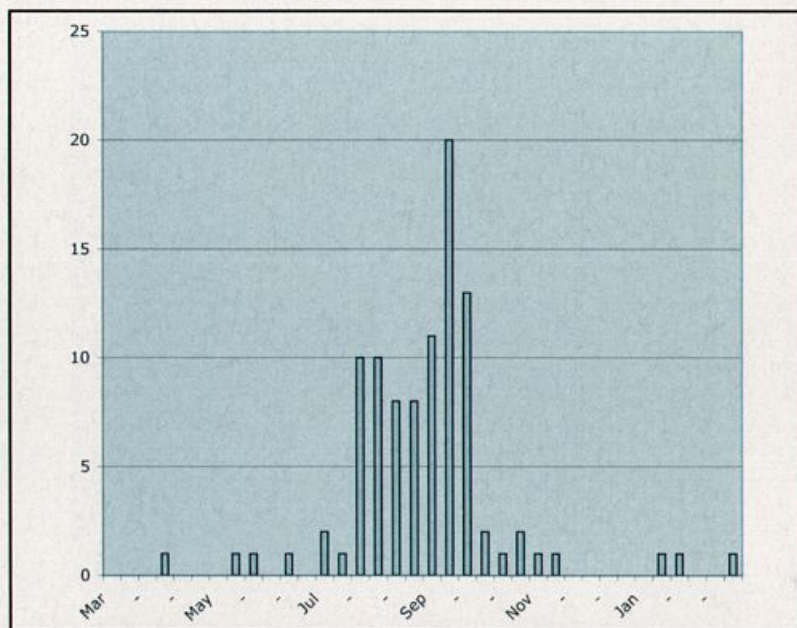


Figure 5. Reports of Painted Bunting from Arizona (ca. 1960–2000) published in the present journal and other sources. In addition to these data, published but data-deficient reports were available in the literature but could not be incorporated in this histogram (e.g., 5 between 25 August and 6 October 1988; 9 in the latter half of August 1991; 14 between 24 July and 19 September 1995; and 8 in autumn 1999).

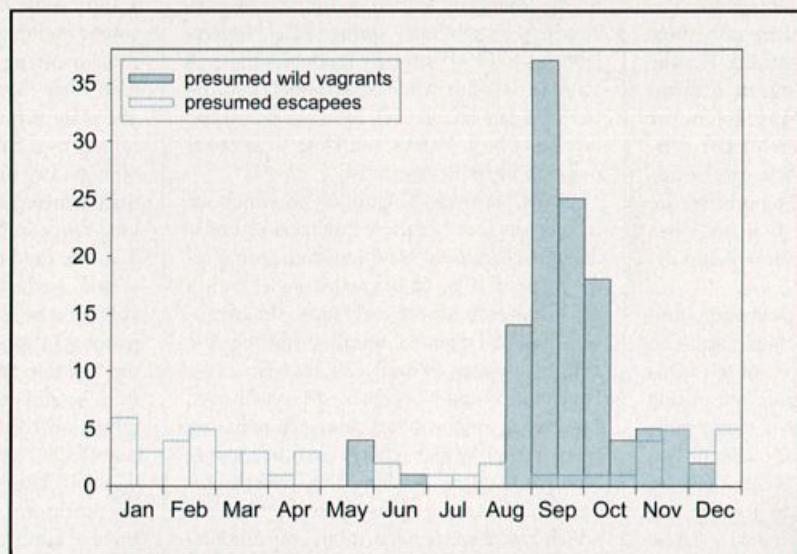


Figure 6. Records of Painted Bunting from California (1962–2003), with records referring to presumed wild vagrants (bars with light-blue shading) distinguished from those referring to presumed escapees (open blue-bordered bars), as per decisions of the California Bird Records Committee. Graphic by Michael A. Patten.

plumage—potentially a situation of "detection bias" made more difficult still by the species' retiring behavior. Green-plumaged birds may simply be grossly underdetected: females do not tend to perch in open areas or sing on telephone wires for extended periods as males, including extralimital males, often do in spring.

Because reports of "green" Painted Buntings may refer to adult females, rather than to birds of either sex in their first year of life, no firm conclusions based on sight observations can be reached about the ratio of adults to nonadults in the case of this species. Nevertheless, we do know that birds in defin-

itive adult male plumage were *neither* first-year *nor* female birds, and their proportion in the data set, even assuming a few errors resulting from incorrect transcription or attribution, is probably an accurate reflection of what birders have observed.

**Mid-continent** • For the purposes of this paper, "Mid-continent" (Figure 4) is defined as those states and provinces east of Arizona, Nevada, Oregon, Washington, and British Columbia but west of the Atlantic Seaboard and north of the species' breeding range (including New Mexico, Kansas, Missouri). Mid-continent thus includes the states of Tennessee (away from breeding areas), Kentucky, Ohio, West Virginia, Michigan, Minnesota, Wisconsin, Indiana, Illinois (away from the single breeding station in that state), Iowa, Nebraska, South Dakota, Colorado, Wyoming, Montana, and Utah and the provinces of Alberta, Saskatchewan, Ontario, and Québec (there are no reports of the species from North Dakota, Idaho, Manitoba, or from farther north). The pattern of Painted Bunting vagrancy across the Mid-continent is strikingly uniform. Most reports (136 of 174, 78%)

from this region come from the spring period. East of the Mississippi River, there is also a small fall/winter peak, with most birds first found between early October and mid-December, but this peak is much smaller than in areas such as Massachusetts, New Jersey, or the mid-Atlantic. Of the 17 late-fall/winter reports from the Mid-continent (just under 10% of total reports), most (14) are from states and provinces that border the Great Lakes, and half of these (7) are from Pennsylvania, whose eastern reaches of course have much greater avifaunal affinity with the mid-Atlantic states, including New Jersey. This pattern probably reflects the milder climate around the Great

Lakes (as compared to the Great Plains and Rocky Mountains), especially as one nears the Atlantic Coastal Plain. Of the Mid-continent's total of 174 Painted Bunting reports, 97 (56%) are from areas east of the Mississippi River. Notably, 35 of the 77 vagrant Painted Buntings (45%) detected west of the Mississippi River come from Colorado, where nesting is anticipated in several southern counties.

The mechanisms of vagrancy to the Mid-continent are likely similar to those postulated for the Atlantic Seaboard. The reasons for the skew towards spring reports in the Mid-continent are not clear, though some of this discrepancy may be due to decreased survival during the harsher late fall/winter conditions in these areas than along the Atlantic Seaboard (and perhaps due to the smaller human population and thus comparative dearth of feeding stations). It is arguable that reversed-migration would tend to bring relatively fewer Painted Buntings to the Mid-continent than to the East: eastern birds probably migrate in a southerly direction (180° misorientation would take most of these birds toward the mid-Atlantic or Northeast), while birds from the allopatric western population are thought to move generally southwestward toward molting areas in Mexico (180° misorientation would take most of these birds toward the Midwest and East), then apparently southward after the molt. If this mechanism of reversed-migration is applicable in both cases, then one might expect the "vagrancy shadow" (Vinicombe and Cottridge 1996) of the species to be weakest in areas east of the Rockies and west of the Great Lakes; the data in Table 1 do appear to support this prediction, as there are relatively few (11) reports of the species in the heart of the northern Great Plains (Nebraska and the Dakotas).

The distinction between "vagrancy" and "range expansion" is sometimes nebulous in the literature on extralimital birds; it often appears to hinge on whether such birds are observed maintaining territories, attempting to nest, or actually nesting. Recent reports of multiple Painted Buntings in southern Illinois, where extralimital, eventually led to the discovery of a small breeding population around East St. Louis, St. Clair County (D. Kassebaum, *in litt.*). A pair attending a nest with fledglings was discovered there during the summer of 2000. During both 2001 and 2002, two males, a female, and a nest were detected. In 2003, a male banded the previous year returned with another adult male, a first-year male, and a female, and again, nesting took place. The situation was similar in 2004, with two males and a female occupying at least one nest. In most years, the birds were seen from mid-May into early August. This small breeding colony is about

300 km away from the species' normal breeding range. Joyce Hoffman (pers. comm.) reports that a singing male at Ohio State Park in Pennsylvania 4 May 1999 was repeatedly driven off its singing perch by recently arrived male Indigo Buntings; this is the only report of such interspecific aggression toward a vagrant Painted Bunting of which we are aware. The sharp increase in summer reports of "vagrants" in southern Colorado in recent years may produce observations of breeding attempts in the near future.

**Arizona** • Arizona lies just north of the species' main fall staging area in northern Mexico, and the pattern of occurrence here closely resembles that seen in nearby Sonora, Mexico, where Painted Buntings are a relatively common in fall (Russell and Monson 1998). Since 1960, there have been over 218 reports from Arizona reported to the present journal (Figure 5). The vast majority of these are from the southeastern portion of the state, and about 90% have occurred from late July through late September. Fewer than 10 have occurred from November through June. Notably, Arizona was formerly part of the fall staging area, and through at least 1884, Painted Buntings were fairly common during fall in the southeastern part the state (Monson and Phillips 1981). Over the past 25 years, Painted Bunting records in Arizona have been accumulating at an accelerating rate. Though this may be in part due to an increase in observers' numbers and effort, there is likely a real increase in the numbers of buntings, which are perhaps starting to re-occupy what was formerly part of their molt-staging area.

**California** • Through 2003, there were 103 accepted California reports of Painted Buntings deemed to be of wild provenance, with another 36 reports of the species (involving 39 individuals) in which the identification to species was accepted but the wild provenance of the bird was judged unlikely (C.B.R.C. archives). Reports involving another 11 individuals were not accepted because the identification was not established (C.B.R.C. archives). We have also located an additional 20 reports of this species that were never submitted to the C.B.R.C. through 2003 (from the present journal and other sources). The C.B.R.C. voted to remove the Painted Bunting from its Review List in January 2005, owing to a sharp increase in reports. Since that time, the species has not been as well reported or tracked as previously.

Interpreting the seasonality of Painted Bunting vagrancy in California is complicated by the presence of at least some escaped cagebirds (see below). The C.B.R.C. has put forth a considerable effort in ascertaining

provenance in reports of the species (e.g., Erickson and Hamilton 2001), but because firm evidence regarding provenance is elusive, some Committee decisions have been guided, at least partially, by assumptions about seasonal patterns of occurrence. In a histogram that shows both the 103 fully accepted reports and the 36 reports accepted as regards identification (Figure 6), there is a clear peak of reports from late August through early October, with a few reports scattered through the remainder of fall and into/through the winter. (This peak is evident when one views the data with or without the 36 qualified reports.) There is a distinct drop in California reports of the species during the last 20 days of October, a time when birds in Mexico undergo their prebasic molt, and there is a small peak in reports in November, when these birds would again be migrating, this time toward wintering areas farther south in Central America. The bimodal pattern, though not pronounced, may suggest that buntings found in California are from the western rather than the eastern population of the species (M. A. Patten, unpubl.). The majority of late winter/early spring reports come from south-coastal California, and this pattern closely resembles that seen in Arizona and Sonora, where winter reports are also proportionately few. When data from central and northern California (Figure 7) are separated from data from southern California (from the counties of San Luis Obispo, Kern, and San Bernardino southward; Figure 8), the peak in reports from late August to early October is quite clear in the northern/central portion of the state but less so in the southern portion. As Unitt (2004) suggests, escaped cagebirds muddy this species' status in San Diego County (see below).

Overall, the species' vagrancy to California in the autumn is not as easily explained as the patterns of vagrancy observed in the eastern half of the continent. Neither 180° misorientation nor mirror-image misorientation seems to account for fall California reports. Perhaps the mechanism that brings many "southeastern" passerines, such as Prairie Warbler (*Dendroica discolor*) and Hooded Warbler (*Wilsonia citrina*), to California each autumn also plays a role in the vagrancy of Painted Buntings here. In the Southwest (including California), the increase in Painted Bunting vagrancy appears to parallel an increase in vagrancy by several species of "southeastern" vireos and warblers, an increase that appears not to be a function of increased observer effort or acumen (Patten and Marantz 1996). Patten and Marantz (1996) reasoned that increasing "vagrancy" by southeastern vireos and warblers represents in effect a westward range expansion by these species and/or is a consequence of an increasing source pool

(that is, a positive trend in populations). With the Breeding Bird Survey data showing a downward population trend (Sauer et al. 1997), the latter explanation may be unlikely in Painted Bunting. However, a westward or northwesterly range expansion, possibly both during breeding and molt-staging, seems possible, inasmuch as the species is being found more widely during the breeding season (and on migration) in neighboring New Mexico (J. Oldenettel, *in litt.*) and too that the molt-staging area formerly included southeastern Arizona (Monson and Phillips 1981).

### ESCAPED CAGEBIRDS

Along the Mexican border with the United States, the status of Painted Bunting has been clouded by illegal traffic in the species and inevitable escapees that result from this trade. In California and Arizona, the potential for escapees seems much greater than in most other parts of country, as members of the large local immigrant population may be more inclined, for cultural reasons, to possess captive Painted Buntings than residents from other cultural backgrounds. In the recently published *San Diego Bird Atlas*, Unitt (2004) notes that the species "occurs in San Diego County mainly as an escapee from captivity" and that "identifying any particular individual as a vagrant rather than escapee is now impossible." Furthermore, he notes, that "[e]scapees are seen at all seasons; at least 13 were reported in San Diego County during the atlas period 1997–2002. They can often be identified by injuries around the bill, damage to the flight-feathers, and, in adult males, by the faded red of the underparts. Even some of the accepted records from San Diego County may represent escapees." Such a statement is hard to prove or disprove, but the species' pattern of occurrence in San Diego County from 1997 to 2003 is of interest: 11 reports came winter, five from spring, two from fall, and

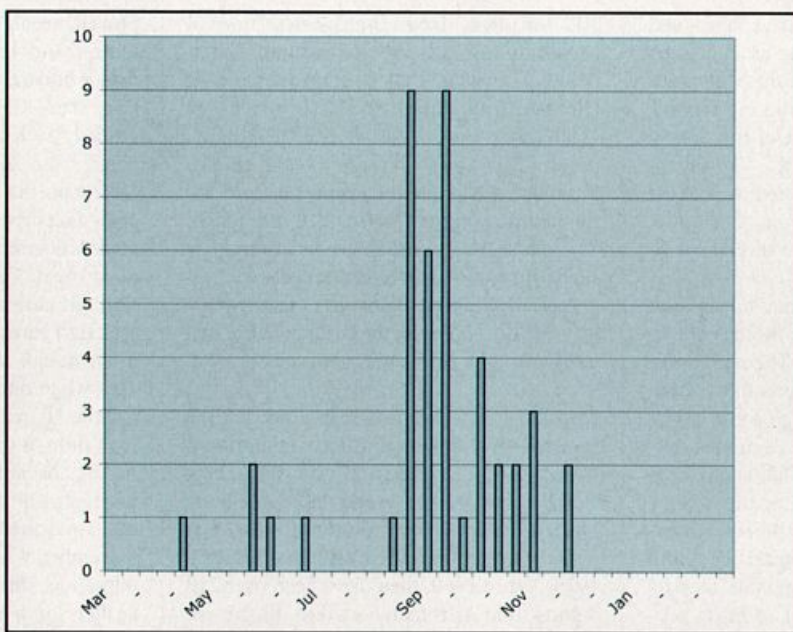


Figure 7. All records of Painted Bunting (identification accepted) from central and northern California (north of the counties of San Luis Obispo, Kern, and San Bernardino) (1966–2003). N.B.: Some 43% (24 of 56) of the records represented herein come from Inyo County, which in this journal's regional reports is grouped with the Southern Pacific Coast counties (otherwise represented in Figure 8).

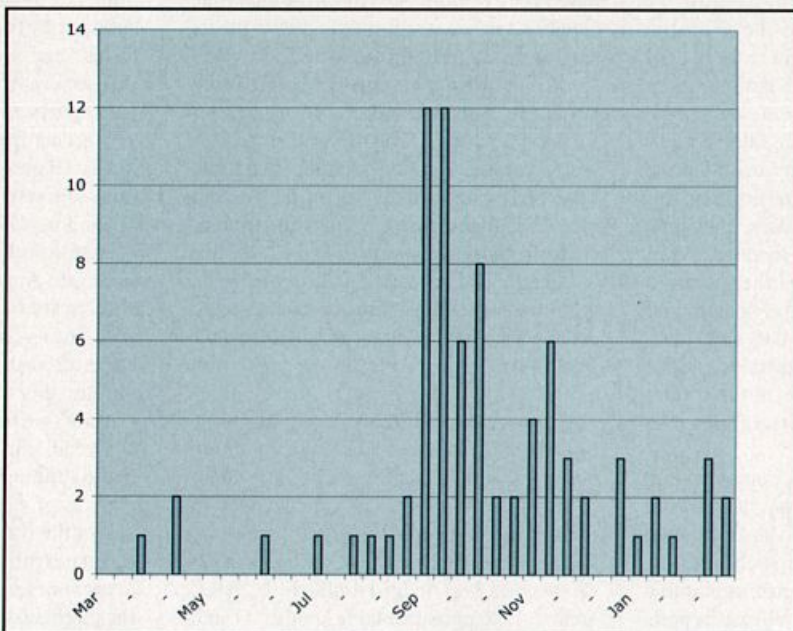


Figure 8. All records of Painted Bunting (identification accepted) from southern California (from the counties of San Luis Obispo, Kern, and San Bernardino southward) (1962–2003). N.B.: Some 39% (32 of 82) of the records represented herein were not accepted by the California Bird Records Committee as pertaining to wild vagrants.

one from summer. Of these 19 records, 10 were submitted for C.B.R.C. review, and only two were accepted as naturally occurring vagrants. As shown in Figure 6, the Painted Bunting occurs in California primarily a fall vagrant, but the recent preponderance of winter reports relative to fall reports in San Diego County may support Unitt's (2004) view. Unless the traffic in the species is halted, it is difficult to foresee a shift away from the skepticism about wild provenance of Painted Buntings in this area.

vagrants were not returning birds that had overwintered in these locations in previous years.

Despite the obstacles that escapees pose, Painted Bunting occurrence in both Arizona and California also shows a relatively distinct seasonal pattern, and—as seen in much of North America otherwise—there has been a surge of reports beginning in the 1980s that has strengthened in the 1990s through the present (C.B.R.C. archives). Most reports of the species not accepted by the

Away from San Diego County, however, there are several reasons to believe that most Painted Buntings are of wild provenance. First, this species shows relatively discrete patterns of occurrence that fit patterns generally associated with passerine vagrancy. Second, this species appears to be rare in captivity through most of North America. It has been argued that the high proportion of adult males documented in extralimital settings suggests captive provenance for some, but this argument can be countered in several aspects (see above, under Atlantic Seaboard); in general, skepticism about wild provenance in extralimital Painted Buntings observed east of the Mississippi River is a thing of the past. Moreover, it is important to bear in mind that misorientation may occur in adult birds. For instance, three of the four Vermilion Flycatchers (*Pyrocephalus rubinus*) recored in Washington (all fall/winter) have been aged, and two were adults (Washington Bird Records Committee files). In Missouri, at least three of the five fall records (there are no winter records) have involved adult males (Robbins and Easterla 1992). In both Washington and Missouri, successful overwintering by this species seems unlikely, making it plausible that these adult

C.B.R.C. have been of "unseasonal" adult males, a few of which showed signs of prior captivity. As the patterns of vagrancy become clearer, however, it becomes more difficult to discount wild provenance in a particular individual simply because it is an adult male. The two adult male Painted Bunting specimens referenced above, from Nevada and San Diego Counties, are believed to have been captive birds prior to their discovery. Transportation by humans to a remote part of Nevada County seems rather unlikely; a plausible explanation is that this bird was captured in Mexico, transported north to the border or beyond, escaped or was released, and then migrated northward when spring came. Displacement experiments with young European Starlings (*Sturnus vulgaris*) and Hooded Crows (*Corvus corone*) (Ruppel 1944, Ruppel and Schuz 1948, Perdeck 1958) have demonstrated that at least some species' migratory impulses are quite malleable: migratory European Starlings displaced 600 km southwards, for instance, tended to migrate to winter quarters 600 km south of their usual range.

## CONCLUSIONS

Across the United States and Canada, vagrant Painted Buntings have been found at an increasing rate over the past three decades, burgeoning after the 1970s. Along the Atlantic Seaboard, there were (not including apparently returning birds) 21 reports during the 1960s, 27 during the 1970s, 46 during the 1980s, 93 during the 1990s, and 69 between 2000 and early 2005. A similar, perhaps even more dramatic increase took place in the Mid-continent, though it occurred a bit later, in the 1990s (see Table 1). California and Arizona reports, whose timing is different, nonetheless show a similar trend toward increasing frequency of reports in recent years. For instance, there were nine Arizona and 13 California reports during the 1970s compared with 69 and 52, respectively, during the 1990s. Perhaps surprisingly, this increase in vagrancy occurred while Painted Bunting populations were thought to be in decline.

These increases could be artifactual, the product of the increasing popularity of both birding and bird-feeding, the increasing communication between avid birders and the wider bird-feeding public, and the increasing facilitation of communication by observers through the Internet. But the increase in vagrants might also be actual. Milder winters in recent decades may have improved survival of vagrants in eastern and central North America, for instance, thus increasing the chances such birds will be found and perhaps survive to return. In addition to the milder climate, backyard feeding stations are known to have increased

tremendously in the late twentieth century. Concomitantly, for instance, a massive increase in autumn/winter reports of western hummingbirds has been documented in areas to the north/east of typical range, and many individuals have returned to backyard feeding stations after wintering far away from areas that would have been considered "normal" just a decade or so earlier; certainly, feeding stations that offer seed are far more common in winter than those that offer nectar. And so it may well be that the increasing tempo of bunting reports, especially in the nonbreeding season, indicates a shift in distribution whose causes include both climate change and the relatively constant availability of food.

Across most of the United States, in southern Canada, and on Bermuda, reports of vagrant Painted Buntings sort relatively neatly by season, either spring or late-fall/winter; this is also true of "historical" reports (1871–1959). In Arizona and California, however, Painted Buntings are found primarily during late summer and early fall. This difference may well reflect divergence in molt strategies and migration patterns of eastern and western Painted Bunting subspecies—a subject worthy of further scientific study.

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**Table 1.** Reports of Painted Bunting from Bermuda, Canadian provinces, and U. S. states outside the species' regular breeding range (through February 2005), arranged alphabetically by area and chronologically. The contents of this Table are not intended to be the definitive list for any region, as review is ongoing for many reports, including historical ones, but every effort has been made to countenance credible reports. Location names in italics refer to counties.

**Alberta ~ 1 report**

male Bowden 19–22 Jul 2000

**Bermuda ~ 5 reports**

male St. David's 22 Apr 1961  
green Hog Bay Park 26 Apr 1971  
green Ferry Point Park 24 Apr 1987  
green St. George's 9 Sep 2000  
green St. George's 19 Nov–late Dec 2002

**Historical report**

male St. George's Mar 1903

**British Columbia ~ 1 report**

male Richmond 1–4 Aug 1995

**Colorado ~ 35 reports**

male *Denver* 17–21 May 1962  
male *Pueblo* 2–10 May 1972  
unknown *Baca* 10 May 1974  
male *Bent* 22 May 1979  
male *Larimer* 15 May 1983  
male *Boulder* 9 May 1986  
male *Mesa* 1 Jun 1989  
male *Garfield* 12 May 1990  
male *Yuma* 12 May 1991  
male *Yuma* 10 May 1992  
male *Jackson* 2 Jun 1993  
male *Las Animas/Baca* 28 May 1994  
male; green *Larimer* 8–10 Jun 1995  
male *Las Animas/Baca* 24 Jun 1995  
green *Bent* 12 May 1996  
green *Bent* 17 May 1997  
male *Delta* 23–26 Mar 1998  
male *Las Animas/Baca* 23 May 1998  
male *Adams* 21–22 Apr 1999  
male *Las Animas/Baca* 1 Jun 1999  
male *Summit* 28 Apr–5 May 2000  
male *Bent* 7 May 2000  
green *Otero* 16 May 2002  
green *Prowers* 22 May 2002  
male *Las Animas/Baca* 23 Jun 2002  
male *San Miguel* 26 Jul 2002  
green *Huerfano* 8 Sep 2002  
green *Pueblo* 10 Sep 2002  
2 male; green *Las Animas/Baca* May–22 Jun 2003  
green *Baca* ca. 23 Apr 2003  
male *El Paso* 10–14 May 2004  
green *Bent* 24 May 2004  
male *Las Animas/Baca* 8–9 Jun 2004  
green *Huerfano* 7 Sep 2004  
green *Colorado City* 26 Sep 2004

**Historical reports**

green *Montezuma* 29 Aug 1938  
male *Custer* mid-Jun 1958

**Connecticut ~ 8 reports**

green *Fairfield* 4 Oct 1972  
green *New Haven* 7 May 1982  
green *Chimion I., Norwalk* 26 May 1982  
male *Greenwich* 8 May 1983  
male *Old Lyme* late Oct 1989–5 Apr 1990 (returned 1991)  
green *Old Greenwich* 2 Oct 1991  
male *East Lyme* 11 Apr 1993

male Watertown 6 May 1993

**Delaware ~ 12 reports**

green *Leipsic* 22 Dec 1968  
male *Oceanview* "late winter"–14 Mar 1988  
male *Bombay Hook* 19–24 Aug 1989  
male; green *near Millville* 3 Dec 1989–5 Jan 1990  
green *near Lewes* 19 May 1990  
green *Bombay Hook* 4–9 Aug 1991  
male *Rehoboth Beach* 2–11 Feb 1992  
green *near Bethany Beach* 12 Jan–2 Mar 1996  
green *Little Creek W.M.A.* 28 Dec 1997–1 Jan 1998  
green *near Dewey Beach* 2 Jan 1999  
green *near Prime Hook N.W.R.* 2–3 Jan 2000  
green *Sussex* 24 Feb 2003 and later

**Illinois ~ 11 reports<sup>1</sup>**

male *Chicago* 1 Oct 1967  
male *Macon* 25 May 1963  
green *Champaign* 3 May 1983  
male *Christian* 7 May 1983  
male *Jackson* 20–22 Apr 1993  
green *Chicago* 10 Oct 1996  
male *McLean* 19–23 May 1999  
green *Lake* 21–23 Apr 2000  
green *Champaign* 28 May 2001  
male; green *McDonough* 4 May 2002  
male *Jasper* 4–15 Jan 2003

**Historical report**

green *Wabash* 10 Jun 1871

**Indiana ~ 3 reports**

male *Indianapolis* 5 May 1983  
male *Allen* 22 Apr 1999  
male (dead) *St. Joseph* 25 Apr 2002

**Iowa ~ 2 reports**

male *Scott* 6 Jan 1987  
green *Marshall* 12 May 2001

**Historical report**

male *Emmet* 30 May 1956

**Kentucky ~ 2 reports**

green *Pulaski* 27 Apr 1997  
male *Fulton* 30 Apr–23 Jul 2003

**Historical report**

male *Fulton* 10 days in Aug 1892

**Maine ~ 24 reports**

green *Scarborough* 18 May 1965  
male *Sorrento* 27 May 1974  
male *Ellsworth Falls* 14 May 1978  
male *Yarmouth* 30 May–3 Jun 1980  
male; green *Stonington* 13–17 May 1983  
male *Casco Bay* 29 Apr–5 May 1983  
male *Monhegan I.* 27 Apr–6 May 1983  
male *Manset* 26 May 1983  
green *Monhegan I.* 20–23 May 1985  
green *Monhegan I.* 6–8 Sep 1985

male *Chebeague I.* 14 Jun 1986  
male *Spruce Head* 8 Jun 1991  
male *Bangor* 18–21 May 1993  
male *Warren* late May 1993  
male *Cutler* 30 May–2 Jun 1994  
green *Shapleigh* 13–14 May 2000  
green *Appledore I.* 28 May 2002  
male *Biddeford* 30 May–2 Jun 2002  
male *Pool, York*  
male *Brunswick* 15 May 2003  
unknown *Brunswick* late May–early Jun 2003  
male *Belfast, Waldo* 15 May 2004  
male *Cape Neddick, York* 16 May 2004  
male *Corinth* May–Jun 2004  
unknown *Lubec* 23 Nov 2004

**Historical reports**

male *Portland* 10 June 1904  
unknown *Pemaquid* 25–26 May 1951  
male *Georgetown Center* third week of May 1955

**Maryland ~ 22 reports**

male *Prince George's* 1 May 1961  
green *Worcester* 31 Aug 1963  
male *Montgomery* 18–23 Apr 1972  
male *Anne Arundel* 26 Dec 1981–21 Jan 1982  
green *Worcester* 29 Dec 1991–19 Apr 1992  
green *Kent* 21 May 1992  
male *Prince George's* 28 Nov–2 Dec 1992  
male *St. Mary's* 8 Feb–4 Apr 1993  
male *Worcester* 15 Feb–8 Apr 1993  
green *St. Mary's* 18 Feb–2 Mar 1993  
male *Cecil* 13–19 Dec 1993  
male *Worcester* 27 Dec 1993–5 Apr 1994  
male *Worcester* 19 Jan–14 Feb 1995  
male *Havre de Grace* 7 Mar 2000  
male *Frederick* 21 May 2001  
green *Point Lookout S.P.* 24 May 2001  
male *Harford* 1 Mar–8 Apr 2002 (returned in 2003, 2004)  
male *St. Mary's* 6–7 Aug 2002  
green *St. Michael's, Talbot* 2–16 Dec 2002  
green *Royal Oak, Talbot* 21 Dec 2002–8 Feb 2003  
male *Royal Oak, Talbot* 19–24 Apr 2003  
male *Worcester* 5 Sep 2003  
green *Howard* 15–24 Dec 2003  
male *St. Mary's* 8 May 2004  
green *Worcester* 22 May 2004

**Massachusetts ~ 35 reports**

male *Nantucket* 17–25 Apr 1961  
male *Orleans* 8–14 May 1966  
male *Vineyard Haven* 14–17 May 1967  
green *Monomoy* 30 Aug 1967  
unknown *Scituate* 24–31 Dec 1967  
green *Chatham* 30 May 1968  
male *Barre* 31 Dec 1971–11 Feb 1972  
male *Hyannis* 20 Jan–5 Mar 1978  
male *Nantucket* 7 May 1980  
male *Martha's Vineyard* 16–19 May 1982

male	Salem	Feb–11 Mar 1986
green	Nantucket	12 May 1987
male	Nahant	13–14 May 1988
male	E. Orleans	19 May 1989
male	Brewster	5 Nov 1990
male	North Falmouth	10–14 Dec 1990
male	Sandwich	22–28 Nov 1992
male	Barnstable	29 Nov 1992
male	Brewster	25 Nov 1992– 9 Apr 1993
male	Hyannis	21 Dec 1992– 15 Feb 1993
male	Brewster	1 Nov 1993– 31 Jan 1994
green	Eastham	19 Dec 1993
green	Barnstable	28 Dec 1993
green	Martha's Vineyard	3 Dec 1994
male	Brewster	1 Dec 1994– 10 Mar 1995
green	Westport	4–9 Apr 1995
male	North Truro	31 May 1995
male	Salem	14–15 May 1996
unknown	Manomet	4 Jun 1997
male	Seekonk	25 Dec 1998– 10 Jan 1999
unknown	Dedham	4 Jun 1999
green	Wellfleet	1–12 Feb 2001
male	Malden	7–25 Mar 2001
unknown	Lexington	28 Mar 2002
unknown	Shrewsbury	11 Jan–5 Feb 2004

**Historical reports<sup>2</sup>**

unknown	Falmouth	15 Jan–15 Mar 1957
male	Brookline	6–9 May 1953

**Michigan ~ 16 reports**

male	Berrien	30 Apr 1966
male	Marquette	5–7 May 1968
male	Benzie	17 May 1994
male	Saginaw	24–27 Apr 1995
green	Delta	15–18 May 1995
male	St. Clair	13 May 1996
male	Chippewa	28 Apr 1997
male	Marquette	13–14 May 2000
green	Presque Isle	21 Feb–21 Mar 2002
male	Houghton	12–16 May 2002
green	Manistee	16 May 2003
male	Baraga	19–20 May 2003
unknown	Dickinson	12 May 2004
unknown	Keweenaw	16 May 2004
unknown	Keweenaw	21 May 2004
unknown	Alpena	21–24 May 2004

**Minnesota ~ 17 reports**

male	Cook	12–16 May 1965
male	Cottonwood	27–28 May 1969
male	Nobles	18 May 1986
male	Cook	23–25 May 1994
male	Anoka	24 May 1995
male	Scott	2 Jun 1998
male	Hennepin	10–20 Aug 1999
male	Hennepin	5 May–8 Aug 2000
male	Aitkin	24–29 Apr 2002
male	St. Louis	31 May–5 Jun 2002
male	Pine	29 May 2003
male	St. Louis	13 May 2004
male	Becker	13–17 May 2004
male	Clay	19–20 May 2004
male	Lyon	9–11 Jun 2004
green	Rochester	17 or 18–22 Jun 2004

**Historical report**

green	Lac Qui Parle	2 May 1893
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**Montana ~ 1 report**

male	Billings	11–17 Dec 1999
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**Nebraska ~ 9 reports**

male	Buffalo	26 Apr 1960
male	Scotts Bluff	14 May 1966
male	Fontanelle Forest	16 May 1967
male	Lincoln	4 Jun 1973
male	Grand Island	12–14 Nov 1983
male;	Morrill	12 May 1996
2 greens		
green	Hall	30–31 May 1996
male	Dixon	6 May 2002
green	Dixon	2 Jun 2002

**Nevada ~ 3 reports**

unknown	Clark	8–9 Oct 1974
unknown	Las Vegas	27–31 Oct 1981
male	Corn Creek	13 May 2002

**New Brunswick ~ 12 reports**

male	Charlotte	10 May 1976
male	Charlotte	7 May 1983
male	Westmorland	11–14 Nov 1987
male	Westmorland	5–9 May 1995
male	Albert	12 Jun 1995
male	Albert	2–4 Jun 1996
male	St. John	10–16 Jun 1996
male	Gloucester	30 Jun–6 Jul 1996
male	St. John	ca. 17–19 Jun 1997
male	Albert	28–30 May 2000
green	Westmorland	13–23 Apr 2002
male	Northumberland	5–10 Jul 2004

**New Hampshire ~ 4 reports**

male	New Hampton	21 Aug 1960
unknown	Coontocook	8 May 1973
unknown	Tilton	8 Aug 1976
male	New Castle	11–13 Jun 2001

**New Jersey ~ 31 reports**

green	Island Beach	29 Sep 1961
green	Haddonfield	11–15 Jan 1963
green	Island Beach	8 Sep 1968
unknown	Ogdensburg	18–26 Nov 1972
male	Lebanon	1 Dec 1976– 1 Feb 1978
green	Island Beach	12 May 1980
male	Cape May	11 May 1983
male	Cape May	10 Jun 1987
male	Cape May	12 Jun 1989
male	Brick Twp.	12 Dec 1993– mid-Jan 1994
male	Cape May	31 Jul–1 Aug 1994
green	Colt's Neck	29 Jan–28 Feb 1994
green	Cape May	20–30 Nov 1994
green	Cape May	13–15 May 1995
green	Medford	mid-Jan–25 Feb 1996
green	Cape May	15–17 May 1997
green	Sandy Hook	19 Nov 1998 (possibly later)
male	Middletown	24 Dec 1998– 15 Jan 1999
male	Monmouth	27 Dec 1998– 9 Jan 1999
male	Monmouth	19 Jan–5 Feb 1999 (possibly later)
male	Neshanic, Somerset	25 Dec 1999– mid-Mar 2000
green	Wildwood Crest	5 Sep 2000
green	Cape May	24 Nov–1 Dec 2000
male	Sandy Hook	21 May 2002
male	Middlesex	Dec 2002

green	Cape May	8–17 Dec 2002
green	Palmyra	30 Sep–9 Oct 2004
male	Erma	14 Nov 2004– 5 Mar 2005
green	Oakland	28 Nov 2004
green	Avenel	2 Jan 2005
green	Eatontown	23–30 Jan 2005 (and later)

**Historical report<sup>3</sup>**

unknown	Cape May	4–5 May 1958
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**New York ~ 17 reports**

male	Columbia	late Dec 1966– mid-Mar 1967
male; green	Delaware	26–28 May 1967
male	Erie	18–21 May 1970
green	Oswego	7 Jun 1978
unknown	Cattaraugus	28 Apr–15 May 1981
male	Richmond	2 May 1983
male	Chemung	6–7 May 1983
male	Cortland	5–6 May 1984
green	Richmond	18–20 May 1985
unknown	Chenango	15–16 Aug 1985
male	Dutchess	10 Aug 1992
green	Suffolk	19–28 Dec 1992
male; green	Manhattan	15 May 1993
green	Onondaga	22 May 1996
green	Kings	25 Mar–9 Apr 1999
green	Monroe	13 May 2002
green	Suffolk	11 Dec 2002– late Feb 2003

**Historical reports**

male	Bronx	13 Jul 1875
male	Long Island	10 Jun 1899
male	Manhattan	9–23 Sep 1927
green	Van Cortlandt Park	29 Sep 1937
green	Suffolk	13 May 1947
green	Manhattan	19 Oct 1949
male (dead)	Nassau	28 May 1952

**Nova Scotia ~ 15 reports**

male	Sable I.	31 Jul 1965
green	Sable I.	early Sep 1969
male	Halifax	24 May 1987
male	Dartmouth	18–22 Nov 1987
male	Yarmouth	22 May 1993
male; green	Inverness	2–4 Jun 1993
male	Shelburne	17 Jun 1993
male	Glace Bay	21–24 Jun 1994
green	Louisbourg	early Jan 1997
green	Richmond	Dec 2001
male	Cape Sable I.	22 Nov–21 Dec 2002
green	Lunenburg	13 Aug 2003
male	Sydney	20–22 Aug 2003
male	Halifax	11 Sep 2003
green	Hartlen Point	15 Sep 2004

**Ohio ~ 3 reports**

male	Tiffin	16–19 Apr 1997
green	Magee Marsh	13 May 2000
male	Medina	9 May 2004

**Ontario ~ 20 reports<sup>4</sup>**

male	Long Point, Norfolk	21–24 May 1978S
green	Toronto	4 Dec 1978– 1 Jan 1979
male	Arva, Middlesex	29 Apr–1 May 1986
green	Long Point, Norfolk	4 Jun 1991
male	Warsaw	6 May 1993
	Peterborough	
male	Keewatin, Kenora	12–14 May 1995

male	<i>Niagara</i>	13 May 1996
green	<i>Chatham-Kent</i>	20–23 May 1996
male	<i>Thunder Cape</i>	15 May 1998
male	<i>Kenora, Kenora</i>	6–11 May 1999
male	<i>Dryden, Kenora</i>	10 May 2000
green	<i>Erie Beach</i>	4 May 2001
2 males	<i>Algoma</i>	10–21 May 2002 <sup>5</sup>
male	<i>Point Pelee N.P.</i>	7–15 May 2002
male	<i>Ashton, Lanark</i>	12–13 May 2003
green	<i>Long Point, Norfolk</i>	19 May 2003 <sup>5</sup>
male	<i>Cochrane</i>	22–circa 26 May 2003
male	<i>Thunder Bay</i>	1 Jun 2003
male	<i>Prince Edward</i>	12 May 2004
male	<i>Normandale, Norfolk</i>	5–9 Aug 2004

**Pennsylvania ~ 18 reports**

male	<i>Reading</i>	13 May 1961
male	<i>Bucks</i>	15 Jun 1966
male	<i>Northampton</i>	12 Dec 1966– 10 Apr 1967
male	<i>Berks</i>	Oct 1971– mid-Apr 1972
male	<i>Montgomery</i>	5 Jan–25 Feb 1983
male	<i>Delaware</i>	11 Feb–31 Mar 1993
male	<i>Erie</i>	20–27 Apr 1993
male	<i>Chester</i>	10–12 May 1993
green	<i>Alleghany</i>	7 Oct 1995
male	<i>Northampton</i>	27–28 Apr 1996
green	<i>Westmoreland</i>	5 May 1996
green	near Bristol	14–28 Oct 1998
male	<i>Ohio's S.P.</i>	4 May 1999
male	<i>Lancaster</i>	24 Oct 1999
green	<i>Berks</i>	19 Dec 1999
male	<i>Lwr. Makefield Twp.</i>	11 Dec 2002– 22 Apr 2003
male	<i>Saginaw</i>	7 Feb–22 Apr 2004
male	<i>Churchville, Bucks</i>	13 Feb–15 Mar 2005 (and later)

**Historical reports**

male	<i>Westmoreland</i>	1883 or 1884
unknown	<i>Montgomery</i>	13–14 May 1916
male	<i>Franklin</i>	16 May 1921
unknown	<i>York</i>	27 May 1946

**Prince Edward Island ~ 1 report**

male	<i>Marshfield</i>	24–30 May 2000
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**Québec ~ 6 reports**

male	<i>Normandin</i>	21 May 1993
male	<i>Berry</i>	28–31 May 1994
male	<i>Québec City</i>	4–26 Nov 1994
male	<i>Dorion</i>	6–24 Nov 1995
green	<i>St-Hélène-de-Bagot</i>	11–26 Dec 1999
male	<i>Price</i>	14–16 May 2004

**Rhode Island ~ 9 reports**

male	<i>Jamestown</i>	14 May 1972
male	<i>Jamestown</i>	3 May 1974
green	<i>Block I.</i>	12 Oct 1974
male	<i>Middletown</i>	24 May 1980
male	<i>Westerly</i>	19 May 1982
male	<i>Providence</i>	22 May 1983
male	<i>Tiverton</i>	21 Nov 1993
male	<i>Adamsville</i>	9 Apr 1995
male	<i>Kent</i>	26 May 2000

**Historical report**

male	<i>Hope Valley</i>	25 Sep 1953
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**Saskatchewan ~ 4 reports**

male	<i>Burstall</i>	26 May 1997
male	<i>Kennedy</i>	1–13 May 1999
male	<i>Kelvington</i>	10–13 May 1999
male	<i>Regina</i>	26–29 May 2004

**South Dakota ~ 2 reports**

male	<i>Lawrence</i>	6–12 May 1996
male	<i>Lawrence</i>	18–19 Oct 2003

**Tennessee ~ 7 reports<sup>5</sup>**

unknown	<i>Lauderdale</i>	24–25 May 1975
male	<i>Dyer</i>	3 Aug 1985
male	<i>Lawrence</i>	7 May 1988
green	<i>Lake</i>	30 Apr 1993
male	<i>Lake</i>	7 Jun 1998
unknown	<i>Hardeman</i>	2 Jun 2002
male	<i>Hamilton</i>	4–17 Apr 2003

**Historical report**

unknown	<i>Obion</i>	14 Jul 1934
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**Utah ~ 2 reports**

male	<i>Providence, Cache</i>	20–25 Jun 2001
green	<i>Corn Creek, Clark</i>	4 Sep 2004

**Vermont ~ 3 reports**

male; green	<i>Danby, Rutland</i>	11–13 May 1993
male	<i>Shelburne,</i> <i>Chittenden</i>	5–9 May 1997
green	<i>Hartland, Windsor</i>	30 Nov–5 Dec 1998

**Virginia ~ 54 reports**

green	<i>Norfolk</i>	Nov 1965– early Apr 1966
green	<i>Norfolk</i>	mid-Dec 1966– early Apr 1967
male	<i>Portsmouth</i>	24 Mar 1970
unknown	<i>Virginia Beach</i>	20 Mar 1972
male; green	<i>Fairfax</i>	6 May 1972
unknown	<i>Norfolk</i>	8 Jan 1973
male; green	<i>Portsmouth</i>	24–25 Feb 1973
male	<i>Virginia Beach</i>	12 Mar 1973
unknown	<i>Newport News</i>	4–20 Jan 1974
male	<i>Salem</i>	12–20 Mar 1974
unknown	<i>Radford</i>	19 Oct 1977
male	<i>Portsmouth</i>	7–21 Mar 1978
male (dead)	<i>Norfolk</i>	13 Jul 1981
green	<i>York</i>	28 Mar–6 Apr 1983
green	<i>Accomack</i>	26 Nov 1988
male	<i>James City</i>	10–11 Jun 1989
male	<i>Virginia Beach</i>	Dec 1988–27 Mar 1989
unknown	<i>Virginia Beach</i>	Dec 1989–3 Mar 1990
male	<i>James City</i>	5 May 1990
male	<i>York</i>	Dec–18 Jan 1991
male	<i>York</i>	5–13 Jan 1992
male	<i>Virginia Beach</i>	25 Jan 1992
male	<i>Chesapeake</i>	24 Feb 1992
male	<i>Augusta</i>	15–23 Apr 1993
male	<i>Norfolk</i>	10 Jan–6 Feb 1994
male	<i>Goochland</i>	18 May 1994
male	<i>Virginia Beach</i>	26 Feb 1995
male	<i>Mathews</i>	31 Dec 1995– 20 Jan 1996
male	<i>Virginia Beach</i>	2–14 Jan 1996

male	<i>James City</i>	1–22 Jan 1997
green	<i>Chesapeake</i>	7–15 Feb 1997
male	<i>Charlottesville</i>	1 Jan–22 Mar 1998
green	<i>Virginia Beach</i>	11–19 Jan 1998
male; 2 green	<i>Virginia Beach</i>	1 Feb–11 Mar 1998
unknown	<i>Chesapeake</i>	14–16 Feb 1998
green	<i>Virginia Beach</i>	9 May 1998
male	<i>James City</i>	13 Feb–2 Mar 1999
male	<i>Northampton</i>	12 May 1999
green	<i>Virginia Beach</i>	27 Dec 1999–1 Jan 2000
male	<i>Virginia Beach</i>	Jan–13 Mar 2000
green	<i>Virginia Beach</i>	6 May 2000
green	<i>Portsmouth</i>	28 Nov 2000
male	<i>Lancaster</i>	27 Dec 2000–4 Jan 2001
male; 2+green	<i>Virginia Beach</i>	Dec 2000 and later
green	<i>Northampton</i>	30 Dec 2000
male	<i>Chesapeake</i>	3 Feb–7 Apr 2002
green	<i>Virginia Beach</i>	29 Apr 2002
green	<i>Chesterfield</i>	21 Sep 2002
male; green	<i>Virginia Beach</i>	15–31 Dec 2002 and later
2 unknown	<i>Virginia Beach</i>	Dec 2002–Jan 2003
male	<i>Northampton</i>	23 Feb–12 Apr 2003
male	<i>James City</i>	24 Apr 2004
green	<i>Virginia Beach</i>	6 May 2004
male	<i>Chesapeake</i>	5 Feb–10 Mar 2005 and later

**Historical reports**

male	<i>Brunswick</i>	25 Jun 1925
green	<i>Blacksburg</i>	25 May 1940
green	<i>Blacksburg</i>	7 Sep 1943
unknown	<i>Newport News</i>	22 Jun 1951
male	<i>York</i>	6 Jun 1952

**Washington ~ 1 report**

male	<i>Seattle, Kings</i>	10 Feb–3 Mar 2002
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**Oregon ~ 4 reports**

male	<i>Malheur N.W.R.</i>	2 Jun 1963
green	<i>Deschutes</i>	4 Oct 1981
green	<i>Curry</i>	20–29 Nov 1992
male	<i>Douglas</i>	Dec 1999

**West Virginia ~ 1 report**

male	<i>Blue Jay, Raleigh</i>	27 Apr 1979
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**Wisconsin ~ 10 reports**

male	<i>Vilas</i>	24 Aug 1966
unknown	near Two Rivers	late Apr 1972
male	<i>Kenosha</i>	16 May 1972
male	<i>Door</i>	10 May 1982
male	<i>Douglas</i>	12–16 May 1983
green	<i>Door</i>	27 Nov 1983
2 unknowns	<i>Racine</i>	12 May 1984
male	<i>Iron</i>	19–20 May 2002
unknown	<i>Sheboygan</i>	13 May 2003
unknown	<i>Door</i>	12 May 2004

**Wyoming ~ 4 reports**

unknown	<i>Cheyenne, Laramie</i>	4 Jun 1975
male	<i>Sundance, Crook</i>	14–18 May 1991
green	<i>Casper, Natrona</i>	8 May 2002
green	<i>Dubois, Fremont</i>	9–30 Oct 2003

**Historical report**

unknown	<i>Cheyenne, Laramie</i>	23–26 May 1956
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<sup>1</sup> These reports do not include nesting and presumed nesting birds in St. Clair County or a report of a window-killed male in Carbondale in 1957 for which no further data are available (*vide* D. Kassebaum).

<sup>2</sup> Griscom and Snyder (1955) note that "all early reports were suppressed on the suspicion of their being escaped cage birds." We have not been able to locate earlier Massachusetts reports.

<sup>3</sup> Additional reports exist for 1897 and 1900 (specimen) from New Jersey (*vide* L. Larson), but we have no further data on these. Moreover, the number of reports in winter 1998–1999 and at other times has been difficult to determine, as published sources and state committee archives are not always in agreement.

<sup>4</sup> Marked (\$) dates are correct; previously published dates have been incorrect for these records.

<sup>5</sup> These reports do not include Shelby, Fayette, and Tipton Counties, where breeding is known or suspected