

Status and Occurrence of Northern Cardinal (*Cardinalis cardinalis*) in British Columbia.

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Introduction and Distribution

The Northern Cardinal (*Cardinalis cardinalis*) is a charismatic passerine found throughout eastern Canada, the eastern United States, throughout Mexico, Belize and the Petén part of northern Guatemala (Halkin and Linville 1999, Howell and Webb 2010). This species is a year round resident throughout its range, but is slowly expanding its range northward and westward across North America (Halkin and Linville 1999). Nearly 90% of banded individuals that were found dead came from same 10-minute block of latitude and longitude where they were initially banded, and those found dead at greater distances show no directional pattern in movements (Dow and Scott 1971). Reports of possible migration may be accounted for by dispersing juveniles (Halkin and Linville 1999). There is no known record of a breeding bird recovered at great distance in the following winter (Halkin and Linville 1999). The Northern Cardinal is found in areas with shrubs, small trees, including forest edges and interior, shrubby areas in logged and second-growth forests, marsh edges, grasslands with shrubs, successional fields, hedgerows in agricultural fields, and plantings around buildings (Dow 1969a, Dow 1969b, Emlen 1972a). In general, this species' breeding range has expanded northward since the mid-1800s, owing to 3 probable factors: warmer climate, resulting in lesser snow depth and greater winter foraging opportunities; human encroachment into forested areas, increasing suitable edge habitat; and establishment of winter feeding stations, increasing food availability (Halkin and Linville 1999).

There are 18 subspecies of the Northern Cardinal; most are found in Mexico (Clements *et al.* 2017). Since this is out of the scope of this paper, the focus will be on the nominate subspecies (*Cardinalis cardinalis cardinalis*) which is commonly found throughout Eastern North America and the subspecies (*Cardinalis cardinalis superbus*) which is found in extreme southeastern California to Arizona, southwestern New Mexico, and northern Sonora, Mexico (Small 1994, Clements *et al.* 2017).

The Northern Cardinal is found from southwestern Nova Scotia and southeastern New Brunswick (Erskine 1992a), with rare sightings in Newfoundland from 1970 to present (Halkin and Linville 1999), eastern Maine, central New Hampshire, northwestern Vermont (Laughlin and Kibbe 1985), extreme southern Quebec, southern Ontario, upper Lower Peninsula of Michigan, northern Wisconsin (Robbins 1991), central Minnesota, and southeastern South Dakota (Peterson 2012), west to western-central Nebraska, western Kansas, western Oklahoma, and throughout Texas, and south to southern Florida and the Gulf Coast (Halkin and Linville 1999). In western United States, the Northern Cardinal is found in extreme

southwestern and southeastern New Mexico, central and eastern portions of the southern half of Arizona (Monson and Phillips 1981) areas between Ehrenberg, Arizona, and the Bill Williams Delta on the lower Colorado River (Rosenberg *et al.* 1991), and in California along Colorado River at San Bernardino County to the Riverside County line, and near Laguna Dam, in San Bernardino County (Small 1994). There are many subspecies such as *C. cardinalis*, *C. superbus*, and possibly others from Mexico that have been introduced to Los Angeles County, near Whittier, El Monte, and Montebello, and in the city of Los Angeles in southern California (Miller 1928b, Michener and Michener 1938b, Small 1994). There are no accepted records in Oregon (OFO 2016) or Washington State (Wahl *et al.* 2005, WRBC 2016). There are no accepted records for Idaho by the Idaho Bird Records Committee (IBRC 2017). There are a couple of accepted records for Utah by the Utah Bird Records Committee (UTBP 2017). There are 2 records for Montana with the first record from the winter of 2005 from Nashua, in the eastern part of the state, and another from the winter of 2012 in an area southeast of Fairfield, Teton County, in the central part of the state (E-Bird 2018).

In Western Canada, the Northern Cardinal is known to breed in southeastern Manitoba, especially in and around Winnipeg (Halkin and Linville 1999). This species is casual west into southern Saskatchewan (Smith 1996b), but breeding not confirmed and north to central Colorado (Halkin and Linville 1999, and Alberta (Semenchuk 1992). In most locations, the Northern Cardinal is a permanent resident, except in northern locations where snow cover limits survival (Dow 1970).

In Mexico and north Central America, range includes southern half of Baja; Pacific slope of Mexico from Sonora to central Sinaloa, and from Colima to Oaxaca, including Tres Mariás Is.; Mexican interior south to Hidalgo and ne. Jalisco, and Atlantic slope from Tamaulipas to Yucatán Peninsula and south to northern Guatemala and northern Belize, including Cozumel Island (Howell and Webb 2010).

The Northern Cardinal was introduced to the Hawaiian Islands several times between 1929 and 1931 (Berger 1972b). This species is now found on all main islands (Berger 1972b). The Northern Cardinal is common in the lowlands and has recently been found at higher elevations (Berger 1972b). Introduced in Bermuda by early 1800s (Amos 1991).

Identification and Similar Species

The identification of the Northern Cardinal is covered in all standard North American field guides. This species is a medium-sized passerine with males measuring 22.2–23.5 cm long, female 20.9–21.6 cm (Ridgway 1901) with wingspan measuring 30 cm (Sibley 2000), and with an average mass of 42–48 grams (Halkin and Linville 1999). In British Columbia, there is no

commonly occurring bird that can be confused with a Northern Cardinal. In all ages this species' plumage is distinctive.

The following identification parameters for Northern Cardinal are taken from Halkin and Linville (1999).

Adult male is bright vermilion red, with a black facemask that surrounds the bill, and extends back to the eye, and covers the chin and throat. The head has a conspicuous crest. The red is brightest on the auricular region, cheeks, and breast. The greater-coverts and secondaries are a duller red than the primaries and rectrices. The contour feathers of the back and neck have olive-gray margins that wear away in midsummer. The tertials and rectrices may also have olive- grayish margins, and the flanks include grayish feathers. The rump and upper-tail coverts are not distinctly lighter in colour than the back, with the crest a much duller red than the breast. The under-secondary coverts are light orange to light red. Both sexes have a prominent crest and a heavy conical orange-red bill.

Adult female has contour feathers that are plain grayish-olive or buffy-grayish above, pale fulvous or buffy below, to nearly white on the abdomen. The head has a conspicuous crest. The facemask is dull grayish, sometimes nearly white on the throat and surrounds the bill, but is smaller and less distinct than that of the male. Some females may have small numbers of red feathers on the crest, cheek, upper breast, and the flanks, and above the eye. The upper wings and tail are similar to those of the male, but are a duller red. The under-secondary coverts are similar to that of the male. They are a grayish tan, with some red on the wings, tail, crest, face, and the breast, with pale gray to black facemask.

Immature birds look similar to the female, but have gray to black bill. The bill of nestlings and juveniles is gray to black, but becomes orange by winter. Both males and females have orange-red bill as adults.

The combination of plumage colour, crest, and orange-red conical bill distinguish the Northern Cardinal from all other species within its range except the Pyrrhuloxia (*Cardinalis sinuatus*), of the southwestern United States and Mexico. The Pyrrhuloxia in all plumages is distinguished from female and juvenile Northern Cardinals by a shorter bill with a conspicuously decurved upper mandible that is yellow to orange in summer adults, and horn to brown or grayish-brown colour in the winter.

Both sexes sing and call. Songs are typically pure-toned, "whistled" sounds, predictably sequenced according to structural rules. The song is a series of consecutive syllables separated

by silent intervals of less than a second, verbally described as “*what cheer, cheer, cheer; cheer, cheer, what what what what*” and “*birdie, birdie, birdie*” over much of their range (Lemon 1965, Lemon 1966, Halkin 1997). Evidence from field and laboratory studies indicates that shared repertoires of neighbours are produced by generations of song learning with occasional improvising and copying errors (Lemon 1975a).

Occurrence and Documentation

The Northern Cardinal is an accidental vagrant anywhere in British Columbia. Records are problematic due to origin issues as this is a popular cage bird (Halkin and Linville 1999). There are three hypothetical records, all of questionable origin. The first record is a sight record by Angelo Antoniazzi who had an adult male visit her feeder in Prince George on February 15, 1994 (J. Fenneman Pers. Comm.). Though there was no photograph taken of this bird the description matched Northern Cardinal (J. Fenneman Pers. Comm.). The second record for British Columbia was of a long dead adult male specimen, found by Sandra Gaspardone in Nanaimo March 23, 2014 (R. Cannings Pers. Comm.). Of note, likely the same bird was reported to the Nanaimo Wild Bird Store in December 2013, near the corner of Metral Drive and Dunbar Road in the north end of Nanaimo (R. Cannings Pers. Comm.). Although follow-up searches failed to find the bird, the photographs of the specimen found later that winter leave no doubt as to the bird’s identity. The origin of this bird is likely of a captive origin, since there are no naturally occurring Northern Cardinals anywhere on Vancouver Island (J. Fenneman Pers. Comm.). The third and most recent record is of an adult female found and photographed by Kartin Powell and Greg Ross and subsequently was seen by many observers at 17th Ave., N. in Cranbrook from November 7, 2017-February 27, 2018 (D. Cecile Pers. Comm.). The last record is also problematic as Northern Cardinals are not highly migratory species and don’t move hundreds of km from their nesting areas and an accidental escape from a captive breeder could explain this record (S. Halkin Pers. Comm.). Northern Cardinals do not migrate or perform large vagrant flights. This species moves by slowly expanding their range over time. Adults take up a territory, breed, and then the young move out of that territory and do the same thing. This species has been well studied in eastern North America. A good example is how Northern Cardinal’s moved into Ontario. Over decades they slowly moved north and west, but this took many generations of birds to accomplish (Peck and James 1987, Dow 1994). In Alberta, the Northern Cardinal has been documented from mostly areas in and around Edmonton and Calgary (Semenchuk 1992, Federation of Alberta Naturalists 2007, E-Bird 2018). It is unclear if these birds came into Alberta naturally from Saskatchewan or originated as escaped birds from captivity (R. Worona Pers. Comm.). This makes the most likely place for a true vagrant to occur in British Columbia the Peace River region as there are no natural boundaries to stop birds from moving westward from Edmonton. If this species is moving westward towards the Rocky Mountains in southern Alberta it has thus far gone unreported (Semenchuk 1992, Federation of Alberta Naturalists

2007, E-Bird 2018), which makes the Northern Cardinals in Cranbrook problematic as the record does not follow the established and documented pattern of movement. Until more records are found in eastern British Columbia, it would be prudent to leave this recent record from Cranbrook as identification correct, but origin unknown.

Elsewhere in the west, Northern Cardinal records are rejected due to origin concerns as they are bred by breeders and are accidentally released into the environment (Hamilton *et al.* 2007). There are at least 5 records of Northern Cardinal for Washington State, and all have been rejected due to origin concerns (Mlodinow and Bartels 2016).



Figure 1: Record #3: Northern Cardinal adult female found at a feeder in Cranbrook on November 12, 2017. Photo © Ilya Povalyaev.



Figure 2: Record #3: Northern Cardinal adult female found at a feeder in Cranbrook on November 12, 2017. Photo © Ilya Povalyaev.

Hypothetical Records

- 1.(1) adult male February 15, 1994: Angelo Antoniazzi: visited feeder in Prince George (J. Fenneman Pers. Comm.)
- 2.(1) adult male March 23, 2014: Sandra Gaspardone (photo: long dead specimen: origin questionable) Nanaimo (R. Cannings Pers. Comm.)
3. (1) adult female November 7, 2017-January 5, 2018: Kartin Powell, Greg Ross, mobs (photo: origin questionable) 17th Ave., N., Cranbrook (D. Cecile Pers. Comm.)

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