

NORTHERN CARDINAL

Cardinalis cardinalis

Other: Common, Kentucky, and North American Cardinal

C. c. canicaudus

naturalized (non-native) resident, long established

Northern Cardinals are resident throughout the e. and arid sw. United States through s. Mexico (AOU 1998, Halkin and Linville 1999). They are occasionally recorded well outside of the breeding range, W and N to Utah, Alberta, and Newfoundland. It has been introduced unsuccessfully to Tahiti and S California and successfully to Bermuda and the Hawaiian Islands (Long 1981, Lever 1987, CBRC 2007). It is now established throughout all *Southeastern Hawaiian Islands* and has been recorded dispersing to Kaula Rock off Ni'ihau and to Nihoa in the *Northwestern Hawaiian Islands*.

The first introduction of Northern Cardinal to Hawaii took place in 1929, when one of a pair escaped from a cage in Honolulu and its mate was subsequently liberated (Caum 1933). This pair was supposedly observed later across the island in Waialua but we suspect other released individuals were involved. Between 1929 and 1931 HBAF, the [Hui Manu](#), and other groups released 300-350 additional cardinals shipped from San Francisco (Lever 1987) to Kaua'i, O'ahu, and Hawai'i I (Caum 1933, Bryan 1937b, Swedberg 1967a; *E* 3:9-10, 31:26; *PoP* 49[1]:17, 54[11]:13), from which they apparently spread naturally to colonize all other Southeastern Islands by the 1940-1960s (Fisher 1948c, Peterson 1961, HAS 1967-1978; *E* 27:28). They are found throughout disturbed lowland forests and gardens, and (less commonly) in native forests up to 2300 m elevation (Berger 1972, 1981; *E* 36:44), being most common in dry, open, lowland forests with grassy or shrubby understories (Scott et al. 1986).

On *Kaua'i*, Caum (1933) did not know of their status four years after introduction of Northern Cardinals by the [Hui Manu](#) in 1929, but by the early 1940s they were "well established" there (Munro 1944). By 1960 Richardson and Bowles (1964) noted them in native forest up to 1200 m elevation in the Alaka'i Swamp, where they continued to be recorded sparsely through the early 1980s (USFWS 1983c, Scott et al. 1986, Walther 1995). They were found more commonly and were perhaps increasing during the 1980s-2000s in nearby disturbed forests of Koke'e SP (Conant et al. 1998, Denny 1999, Foster et al. 2004) but had declined significantly in lowland areas around Kapa'a during 1971-2014, as indicated by [Christmas Bird Count](#) data ([Graph](#)); populations around Lihue showed no trend in 1972-1991 according to the count there. On *Ni'ihau*, Northern Cardinals were found to be well established by 1947 (Fisher 1951), although were reportedly not as common as in Honolulu at the time. By 1960 they were regarded as "common" on the island, one was noted on Lehua Islet 10-11 Aug 1960 (*E* 23:44) and two were there 6-8 Aug 2012, two were noted on Kaula Rock in Aug 1971 and 7 there in Sep 1976 (USNC 2016), and they were also noted during a brief visit to Ni'ihau I proper in 2002.

On *O'ahu*, Northern Cardinals apparently spread quickly after 1929 to become established by 1933 (Caum 1933) and well-established by the early 1940s (Munro 1944, *E* 3:9; *PoP* 54[11]:14). By the 1970s they were found commonly throughout the island (Shallenberger 1977c, Shallenberger and Vaughn 1978), less commonly in native than in

disturbed forests. As on Kaua'i, [Christmas Count](#) data indicate a slow but steady decline in the Honolulu area between the 1940s and 2014 ([Graph](#)), perhaps related to loss of appropriate thicket habitats or competition from bulbuls, but no trend was noted on the Waipi'o count in 1977-2014. In 2010-2016 they were noted in small numbers throughout the lowlands of O'ahu, with single-location counts rarely > 10 individuals. There is at least one report of an individual from Manana Is off Waimanalo (E 17:87). The first report for *Moloka'i* was from Kaunakakai in May 1951 (E 11:70), although they were undoubtedly present earlier, and they were regarded as common in low and mid elevations of this island by the early 1960s (Pekelo 1964). Pratt (1973) did not note them in native forests but they were heard there by L. Pyle (1979), suggesting that they were still expanding their range on Moloka'i through the 1970s. Scott et al. (1986) found them more commonly in upper elevation forests of Moloka'i (and Lana'i) than on other islands during the [HFBS](#) attributing this to the more fragmentary nature of these forests, creating more edge. It is unknown when Northern Cardinals reached *Lana'i* but 16 were apparently brought there by HBAF from Maui in Jun 1952 (Swedberg 1967a) and, whether or not they had already gotten there on their own, they were reported to be established by 1957 (Lever 1987). Observations during the 1970s-mid 2010s (e.g., Scott et al. 1986) indicate they were widespread and fairly common in appropriate brushy habitats, as on other islands; e.g., 32 were noted in Lana'i City on 19 Mar 2013. On *Kaho'olawe*, Northern Cardinals were found to be common during the 1980-2000s (e.g., Conant 1983a, Gon et al. 1992, Morin et al. 1998) and 4-10 were recorded on [Christmas Counts](#) there through 2016.

On *Maui* Northern Cardinals were first reported in Kahalui in Jun 1943, when increasing numbers were observed (E 5:84). By the early 1950s they were reported commonly from sea level to Kula on the w. slopes of Mt. Haleakala (E 12:32), and by the 1960s-1970s they were reported throughout the island (*cf.* Berger 1981). Scott et al. (1986) estimated 3000 in [HFBS](#) study areas in higher-elevation forests of e. and w. Maui. On *Hawai'i I*, Northern Cardinals were reportedly established by 1933, after 163 individuals were introduced to Hilo during the "[Buy-a-Bird Campaign](#)" in 1929-1930 (Caum 1933; *PoP* 49[1]:17). Little information exists on the spread of Northern Cardinals on Hawai'i, but in Volcano NP they increased from "rare" in the 1940s (Baldwin 1953) to "fairly common" by the late 1950s (Dunmire 1961, 1962), and "abundant" by the 1970s (Conant 1975, Banko and Banko 1980). By the 1960s they had also spread around the island and into upland areas to at least 1,750 m elevation (E 36:44). Scott et al. (1986) estimate 48,000 individuals in [HFBS](#) study areas in the late 1970s, more commonly in disturbed habitats with edges than in interior forests, except in the Puna forests, where "widespread localized marijuana (*Cannabis sativa* and *indica*) cultivation by feral man throughout the forest interior creates numerous canopy openings and provides seeds for the diet". Populations near Volcano appeared to increase in abundance through about 1990, after which they showed cyclic patterns but a general decline through 2014 ([Graph](#)). In 2010-2016 they continued to be recorded around the island in moderate numbers, most single-day counts being < 10 and only occasional counts of > 15 individuals. Records of individuals at 4055 m elevation atop Mauna Kea on 22 Oct 2008 and 27 Oct 2009 undoubtedly represent high-elevation records for this species.

The evidence suggests that Northern Cardinals had spread to many Southeastern Islands on their own accord and this is perhaps emphasized by three surprising records of Northern Cardinals on *Nihoa* in the Northwestern Hawaiian Islands. A singing male was observed there 25-26 Apr 1983 (Conant 1983b) and two males were found dead there 14-15 May 1987 (*E* 47:95; BPBM 175824-825). These birds had presumably dispersed from Ni'ihau or Kaua'i, flying a distance of at least 275 km.

Up to 18 subspecies of Northern Cardinal have been recognized, including 4-5 that occur in the United States (Pyle 1997, Clements 2007). Although the AOU (1957) reported that Hawaiian populations were derived from a mixture of races, and others supposed they came from the e. United States (see Long 1981, Lever 1987), we could find no direct evidence for their precise origin. Specimen examination (PP, USNM) indicates that cardinals collected in Hawaii are referable to *C.c. canicaudus* of the sw. United States and nw. Mexico. Northern Cardinals introduced to California during the 1920s were increasingly of *canicaudus* (Miller 1928) and it seems logical to assume that this was the subspecies introduced to Hawaii in 1929-1933 via San Francisco.

[Acronyms and Abbreviations](#)

[Literature cited](#)

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