naturalized (non-native) resident, long established

P.c. capitata?

Yellow-billed Cardinals inhabit dry forests of S America, from se. Bolivia and c. Brazil S to n. Argentina (Ridgley and Tudor 1989, AOU 1998), and have been introduced only to Hawai'i I around the world (Long 1981, Lever 1987). It is unknown when or how this species arrived to Hawai'i. Caum (1933), Munro (1944), and Swedberg (1967a) record the introduction of the similar Red-cowled and Red-capped cardinals (see Non-Established List) to O'ahu by the Hui Manu in 1931, but identifications seem uncertain and populations never became established. Collins (1976) relates a second-hand report of cardinals released from a cage on Hawai'i during a raid of a cock fight, perhaps as early as the 1930s, evidence we consider unsubstantiated as to species identification, year of release, and connection to the established population of Yellow-billed Cardinal. We also know of no basis for the AOU's (1983, 1998) report of 1933 as a date of establishment. Rather, trajectory of the established population on Hawai'i, once it was detected, suggests introduction during the 1960s, perhaps at Pu'u Wa'a Wa'a Ranch, where the similar (perhaps misidentified?) "Pope" or Red-cowled Cardinal (see Non-Established List) was reportedly released in 1966-1967 (Swedberg 1967a, E 28:107).

The first reports of the current Yellow-billed Cardinal population on *Hawai'i I* were of several individuals near Kaiwi Point and Aimakapa Pond N of Honokahau, in spring-summer 1972, although they were not identified to species at the time. Several marginally identified Yellow-billed Cardinals were also reported prior to 1974 (*E* 34:95-96) but the validity of these reports and how they relate to the established population is uncertain. Collins (1976) first correctly identified Yellow-billed Cardinals after observing up to a dozen or more between Honokahau and Aimakapa Pond during several trips in Mar-Apr 1976. Shortly before these observations two were seen at Opaeula Pond, about 15 km N of Kaiwi Pt 10 Mar 1976, but these were misidentified as Red-crested Cardinals (*E* 37:65); several more were observed there in May-Aug that year. The proximity of these initial observations to the Kailua-Kona Airport also may suggest that original releases of the species occurred there.

The subsequent spread of Yellow-billed Cardinals along the Kona coast and elsewhere on Hawai'i has been well-chronicled (e.g., E 38:37, HAS 1986-2005; Berger 1981): by Aug 1976 10+ were observed near Honaunau S of Kona (*E* 38:7); by 1977-1978 flocks of up to 20 and nesting was documented near Aimkapa Pond (*E* 38:58, 39:20); by 1980 they were being seen regularly (and breeding) in Kailua-Kona S to Kahalu'u SP (e.g., *E* 41:78), including 50 observed at the latter location 26 Dec 1980 (see also HRBP 0149); by 1983 they were observed nesting at Hapuna Beach SP; by Apr-May 1988 they had spread N to Hawi and S to Miloli'i (*E* 48:78); by Oct 1991 they were observed S to Manuka SP; by 1992 they were observed along the Hamakua Coast near the mouth of Waipi'o Valley and at South Point, Na'alehu, and Whittington Beach SP; by 2001 they had extended E to Pahala and one was observed near Kaumana along the Saddle Road above Hilo (28 Aug 2001); and by 2004-2009 they had been recorded at Lapahoehoe and Pepe'ekeo, along the coast of Volcano NP, and at Onekahakaha Beach Park and other localities in Hilo, thereby completing circumnavigation of the island. Abundance along the Kona Coast was also increasing during this period; e.g., numbers

per party hour on the North Kona Christmas Bird Count increased from 2-3 in the late 1980s to 4-5 in the late 1990s and early 2000s, and reported numbers also increased at most localities N and S along the coast from the 1980s to the mid-2010s; single-day counts during 2010-2016 include 15-40 reported regularly along the w. and n. coast, up to 28 per day along the e. coast (near Pepe'ekeo 12 Jun 2015), and up to 12 per day in Hilo (15 Feb 2015). Except for the single observation along the Saddle Road in 2001 and one in Waimea 25 Nov 2014, most or all other observations have occurred within a few km of the coast, primarily in brushy kiawe (*Prosopsis pallida*) thickets but also in beach parks and residential areas.

Clements et al. (2016) lists two subspecies, *P.c. fuscipes* from NE Bolivia and nominate *capitata* from the remainder of the range. Examination of photographs and specimens at BPBM (PP) suggests the Hawaiian birds are of the nominate subspecies but confirmation of this is needed.

Acronyms and Abbreviations

Literature cited

Citation: Pyle, R.L., and P. Pyle. 2017. The Birds of the Hawaiian Islands: Occurrence, History, Distribution, and Status. B.P. Bishop Museum, Honolulu, HI, U.S.A. Version 2 (1 January 2017) http://hbs.bishopmuseum.org/birds/rlp-monograph/