‘I’IWI *Vestiaria coccinea*

Other: *Olokele* (Kaua'i), *Iiwipopolo* (juvenile) monotypic

native resident, endemic

Because of its bright plumage and spectacular carmine bill, the 'I'iwi is the best-known endemic Hawaiian landbird. C. Clerke (*in* King 1779) makes first post-contact mention of this "bright scarlet bird" for which "the native name in *eeeeeve*", and also recorded first-cycle 'I'iwis "to be either a young bird, or a variety of the foregoing, is variegated with red, brown, and yellow". It was the first Hawaiian endemic species to be formally described, as "*Certhia coccinea*" by George Forster (1780), who had accompanied Cook's second voyage with his father, and was given four 'I'iwi specimens and a Hawaiian lei made out of 'I'iwi feathers by shipmates recently returned from the third voyage (Medway 1981). Although Medway, Stresemann (1950), and others (e.g., AOU 1983) have assumed that the type locality for Forster's material was probably Kaua'i, where the species was noted for sale but not seen in the wild by Cook in Jan 1778 (see below), it is evident from Forster's essay that they were collected on the island of Hawai'i in early 1779 (Olson 1989b), where all of the other type specimens from Cook's voyage were apparently collected. Forster assumed it was a member of the "tree-runner" family (*Certhiidae*) and indicated why he believed it was not a bird-of-paradise (*Paradisaeidae*). The generic name *Vestiaria* was suggested by Latham and Fleming (formerly by Jarocki 1821) based upon the well-known use of 'I'iwi feathers in the ornamental garments of native Hawaiians (*cf.* Forster 1781, Malo 1838, Brigham 1899, Conant 2005).

The I'iwi is very close to mamos in structure and is merged with *Drepanis* by some authors, including Pratt (2005; see Synonymies). The duller plumage of first-cycle individuals misled Dole (1879) into naming a separate species, "*Drepanis rosea*" (see Stejneger 1887a, Wilson 1890a, Olson 1994); native Polynesians also thought young individuals a different species (Perkins 1903). The highly curved beak may indicate a specialization for flowers of the Lobeliaceae family, which dominated Hawaiian flora in prehistoric times (Peale 1848; Spieth 1966; Berger 1972, 1981); it now feeds on a variety of fruits and nectar, including those of exotic plant species such as *Pasiflora* (Scott and Kepler 1985).

The 'I'wii was formerly a breeding resident on all six *Southeastern Hawaiian Islands* with forested mountains. Early naturalists (Peale 1848; Finsch 1880; Wilson and Evans 1899; Rothschild 1900; Henshaw 1902a; Perkins 1893, 1903; Bryan 1915; Munro 1944) indicated that it was the most conspicuous native landbird on most or all of these islands, being found from sea level (at least during winter storms) to the highest-elevation forests. Since at least the 1880s (Wilson 1890a) 'I'iwis have been known to migrate up and down slope following flower phenology (see also Ralph & Fancy 1995, Hess et al. 2001, Simon et al. 2002). Storm-blown birds were frequently (now occasionally) recorded at sea level and "numbers" were reported from ***Ni'ihau*** after a gale on Kaua'i, presumably in the late 1800s (Wilson and Evans 1899). However, 'I'iwi populations have declined in both range and abundance on all islands (Scott and Kepler 1985, Ralph and Fancy 1995, BLI 2009, Gorresen et al. 2009), are extirpated as breeding residents from Lana'i and probably Moloka'i, and are very rare on O'ahu, probably due to low resistance to avian diseases (Atkinson et al. 1995, Fancy and Ralph 1998, Jarvi et al. 2001; *HFW* 8[3]:1,11). It was listed as endangered on O'ahu, Moloka'i, and Lana'i by the State of

Hawaii in 1986, and the species overall is considered vulnerable by BLI (2009). Banko (1979, 1981b) summarizes 505 museum specimens located and details the status of the 'I'iwi on all islands through the late 1970s.

On ***Kaua'i***, the 'I'iwi was first noted by Captain Cook, who remarked upon the "great numbers of skins" offered for sale by native Hawaiians at the ship off Waimea in 1778, "often tied up in bunches of twenty or more" (Cook and King 1784:207). Munro (1944) indicated that 'I'iwi and 'Apapane were so numerous on the Kaholuamanu Plateau that "their wings keep up a continual buzz", and Perkins (1903, 1913) observed "thousands" of 'I'iwi on the plateau on a single day (15 April 1894). By the 1940s, however, Munro (1944) indicated that they were greatly reduced from historical numbers. Richardson and Bowles (1964) deemed 'I'iwis "fairly common" in 1960, crudely estimating a population of 18,500 individuals inhabiting about 194 sq km of forests above 840 m elevation. Sincock et al. (USFWS 1983c) estimated about 26,000 on Kaua'i in 1968-1973, and Scott et al. (1986) estimated 5400 during the HFBS in 1981, where Sincock et al. had estimated 7800, perhaps indicating a slight population decline, although movements based on flower phenology could also account for this difference. Subsequent surveys have indicated slight declines in range and populations of 'I'iwi on Kaua'i (Walther 1995, Fancy and Ralph 1998, Foster et al. 2004, Camp et al. *in* Gorresen et al. 2009), although they were still considered common by Denny (1999). Lowland observations include one found dead in the Makeweli Valley 29 Dec 1890 (E 67:29) and one near Kapa'a 16 Dec 1982.

'I'iwis were first noted on ***O'ahu*** in 1825 by Bloxam (1827b) and in 1837 by Deppe (Banko 1981b), who each collected two specimens in Nu'uanu Valley. By the late 1890s, Perkins (1903) noted that they had declined since Townsend (1839) and Deppe's visit and had become rare in the mountains near Honolulu but remained fairly plentiful in the n. Ko'olau and Wai'anae ranges (see also Seale 1900). By the early 1900s, however, they had also become scarce near Mt. Ka'ala in the Waianae range (W.A. Bryan 1905b), and they were considered extremely rare on O'ahu in the 1930s by Munro (in Gregory 1935, *E* 9:65; but see Northwood 1940). Banko (1981b), Shallenberger (1977b), and Shallenberger and Vaughn (1978) summarized observations on O'ahu between 1936 and 1978, generally noting small and declining populations in selected areas (primarily near Mt. Ka'ala and along the Poamoho Trail in the nc. Ko'olau range). During the 1980s-2000s small numbers (1-6) of 'I'iwi continued to be observed in both ranges (*cf.* Camp et al. *in* Gorresen et al. 2009), including the discovery of a small population (including a juvenile, indicating local breeding) in seldom-visited valleys above Wahiawa in the c. Ko'olau range (VanderWerf and Rohrer 1996). Lowland observations include one or more individuals observed five times near Sacred Falls at the base of the ne. Ko'olau Range in 1974-1975 and one below (E of) the Pali at upper Nu'uanu Valley 13 Jan 1978 (*E* 39:10).

Bangs (1911) thought that the 'I'iwi on ***Moloka'i*** was larger and tinged orange compared to other island populations, naming it "*V.c. suavis*", but most authors consider this just a result of variation among individuals, and that it was unlikely that populations of this "strong-flying" species would differentiate in Hawaii (Bryan and Greenway 1944, Amadon 1950; see Synonymies). Early naturalists (Rothschild 1900, Perkins 1903, Schauinsland 1906, W.A. Bryan 1908) indicated the 'I'iwi to be "frequent" in the forests of Moloka'i, just behind 'amakihi and 'Apapane in abundance; W.A. Bryan (1908) noted them down to sea level in Wailau Valley along the north coast. But, as on other islands and with other native Moloka'i landbirds, there was a decline in abundance of 'I'iwi through the early 20th century. Munro (*in* Atkinson 1977) noted that it was "close to

extinction" in 1907-1923 and (*in* Gregory 1928) failed to find them in 1928, and Richardson (1949) and Pekelo (*E* 23:64, 24:17-18, 24:46-48) also failed to observe any in 1948 and the early 1960s, respectively. During the 1970s-1980s singles or small numbers of 'I'iwi were observed on Moloka'i (e.g., Pratt 1973, Scott et al. 1977, Fancy and Ralph 1998), including 12 individuals recorded during the HFBS in 1980-1981, resulting in a breeding population estimate of 80 individuals (Scott et al. 1986). The last substantiated records were for 23 May 1995 above Kamalo Gulch (Reynolds and Snetsinger 2001) and three individuals in 2004 (Camp et a*l. in* Gorresen et al. 2009), and it could be extirpated as a breeding bird there. Records since 1950 may have involved visitors from other islands such as Maui (Reynolds and Snetsinger 2001; see below).

Munro (1944, 2007, *in* Gregory 1924, 1928, 1930) chronicles the declining population status of the 'I'iwi on ***Lana'i***, from "common" in 1913, to "fairly common" and "probably increasing" in 1923, to "less in evidence" in 1927, to gone by 1929, the last observation being in 1928 (Munro 2007, *in* Gregory 1931). Thereafter it was widely presumed extirpated on Lana'i (e.g., Berger 1970, 1981; Scott et al. 1986). It was thus of some surprise that an archer, while on a hunt in the woods behind Lanai City on 1 Jun 1994, found the remains of a first-cycle 'I'iwi and "managed to photographed it before his cat nabbed it" (HRBP 1079, head only). We agree with Reynolds and Snetsinger (2001) that this provides further evidence of recent inter-island dispersal by 'I'iwis.

Populations of 'I'iwis on ***Maui*** and ***Hawai'i*** undoubtedly declined somewhat in size and range during the late 1800s and 1900s, although there is only localized evidence of this (Conant 1975, 1981; Banko and P.C. Banko 1980, Camp et al. 2009, Camp et al. *in* Gorresen 2009), and they are still regarded as common through the 2000s at higher elevations. They were common in Volcano NP in the 1940s but have since become rare here (Balwin 1953, Conant et al. 1975). Scott et al. (1986) estimated total population sizes of 19,000 on Maui, including just 176 in the W Maui Mts, and 340,000 throughout Hawai'i. Data based on the Volcano Christmas Bird Count indicate an increase during the 1970s through 2000, followed by distinct and somewhat troubling decline (Graph). Populations were found as low as 300-700 m on both islands, although these may have been supplemented by down-slope migrants rather than being sustainable. Recent lowland observations include one observed near Pukalani, Maui, and later found dead with other birds after insecticide spraying 3 Aug 1993 (BPBM 179051); one in an ornamental tree nursery in Waimea, Hawai'i, 5 Apr 1995; and one observed at Hapuna Beach, Hawai'i, 15 Mar 1998.

Acronyms and Abbreviations

Literature cited

Citation: Pyle, R.L., and P. Pyle. 2009. The Birds of the Hawaiian Islands: Occurrence, History, Distribution, and Status. B.P. Bishop Museum, Honolulu, HI, U.S.A. Version 1 (31 December 2009) http://hbs.bishopmuseum.org/birds/rlp-monograph/