HAWAI'I 'AMAKIHI

Chlorodrepanis virens

Other names: Amakihi (<1983), Common 'Amakihi (1983-1997) *C.v. virens* (Hawai'i) *C.v. wilsoni* (Moloka'i, Lana'i, Maui)

native resident, endemic

Species recognized by the AOU (1998) within genus "Hemignathus" have suffered tortured taxonomic histories, reflecting diverse opinions on the relationships of all of the slender-billed, primarily green and yellow, Hawaiian honeycreepers (cf. Stejneger 1887a; Wilson and Evans 1899; Rothschild 1900; Bryan and Greenway 1944; Amadon 1950; Greenway 1968; Berger 1972, 1981; Olson and James 1988, 1994, 1995; Pratt 1989a, 2001, 2005, 2009; AOU 1995; Lepson 1997; Conant et al. 1998; Fleisher et al. 1998; Lepson and Johnston 2000; James and Olson 2003; E 46:83-84, 49:13-14; Synonymies). Three groups were combined within *Hemignathus* that likely would be separated once genetic analyses have been completed (AOU 1998) and, indeed, the AOU (2008) split out one of the groups ('Anianiau) into Magumma in 2008. Following this line of thought Pyle and Pyle (2009) chose to elevate Pratt's (2005; see also 2009, 2014) subgenera to genera: Chlorodrepanis ('amakihis), Akialoa ('akialoas), Magumma ('Anianiau), and *Hemignatus* (nukupu'us), an arrangement adopted by AOU (2015). This results in the resurrection of two long-standing names, which became homonyms with the merging of genera under Hemignathus (Olson and James 1988; cf. Kaua'i 'Amakihi and Akiapola'au). Hence the 'amakihis are afforded their own genus, Chlorodrepanis, a name commonly applied by early ornithologists in Hawaii (see Synonymies).

Likewise, within the 'amakihis, there has been diverse opinion as to the number of species and subspecies (see <u>Synonymies</u>), as well as the common names to use. It was even thought in the late 1800s that the 'amakihis were female '<u>Apapanes</u> (*cf.* Wilson and Evans 1899, <u>Synonymies</u>). The AOU (1995, 1998), based on studies by Johnson et al. (1989) and Tarr and Fleisher (1993, 1995; see also Shehata et al. 2001), treated the 'amakihis as three species, with the Hawai'i 'Amakihi divided into subspecies, *H.v. virens* of Hawai'i I and *H.v. wilsoni* (Rothschild 1893d) of Moloka'i, Lana'i, and Maui. Were the Hawai'i amakihis to be lumped they would be known as the "Common 'Amakihi" (AOU 1998 but see *E* 59:45), to distinguish it from the <u>Greater 'Amakihi</u>. Additional names for the Moloka'i ("*kalaana*") and Lana'i ("*chloridoides*") 'amakihis, applied by Wilson (Wilson and Evans 1899; <u>Synonymies</u>), have proven to be synonyms of his own namesake, *wilsoni* of Maui (Rothschild 1893d, 1900).

Beginning with Cook's third voyage (King 1779, Cook and King 1784, Stresemann 1950, Beaglehole 1967:630, Medway 1981), the Hawai'i 'Amakihi has been noted as common to abundant on *Hawai'i I*. Cook's naturalists apparently noted them down to sea level at Kealakekua Bay, and the Challenger Expedition found them in Hilo in 1875 (Sclater 1878, 1881), but by the late 1800s they were reported only at elevations of 300 m and above (Rothschild 1900) or 425 m and above (Perkins 1903), being absent at sea level due to a plague of human-related factors (Lindsey et al. 1998). Although perhaps withdrawing slightly further to higher elevations during the 1900s and/or disappearing from certain areas (*cf.* Dunmire 1962), the Hawai'i 'Amakihi continues to be found commonly in all native habitats throughout the island, to the limits of vegetation up

to 3,300 m elevation (E 1[4]:1, Banko 1984a). Scott et al. (1986) estimated a population of 870,000 within their HFBS study areas in 1977-1979, 40% of which occurred in the Kona area, 20% in the Hamakua area, 18% in the Ka'u area, and 22% in other areas including the Kohala Mts. Highest densities were recorded in upper-elevation dry forests of Mauna Kea, such as in the Pohakuloa GMA. Christmas Bird Count data indicate a fluctuating and slightly (but non-significantly) declining population in the Volcano vicinity during 1971-2007 followed by a significant increase in 2008-2014 (Graph); variation in counts might reflect response to phenologies of flowering plants (Dunsmire 1961, van Riper 1984). Beginning in the late 1970s 'amakihis were noted down to sea level along the se. coast, including breeding there by 2003, suggesting that a resistance to avian diseases had developed (Cann et al 1996, Klein et al. 2004, Woodworth et al. 2005, Speigel et al. 2006, Foster et al. 2007, Gorresen et al. 2009; HE 14[2]:1,10-11). Populations have declined, however, in mid-elevation regions above Hawaii Volcanoes NP (Camp et al. 2010a), and in forested areas of Hakalau NWR (Camp et al. 2009. 2010a), while increasing in open areas in and near Hakalau (Camp et al. 2010b). Banko (1979) lists the whereabouts of 502 specimens from Hawai'i I. During 2010-2016, singlelocation counts of over 40 per day were regular in several Hawai'i locations, especially in kipukas in the Hilo and Upper Waiakea Forest Reserves, off Saddle Road (high count 70 on 12 Dec 2014), at Hakalau Forest NWR (high count 100 on 31 Dec 2011), at the Phakuloa GMA (high count 120 on 8 Mar 2015), and on Kaloko Mauka Drive above Kona (high count 190 on 12 Feb 2016).

On *Moloka'i*, the Hawai'i 'Amakihi was considered common by ornithologists in the late 1800s, who collected at least 13 specimens (Banko 1979, 1984a), but there is little indication where on the island they occurred at the time. Bryan (1908) noted them commonly throughout the forested sections of the island and down to sea level along the remote n. coast, but by 1935 Munro (1944:96) recorded none during a survey of the island. They have since been found to persist in small numbers in the highest elevations of Moloka'i, including Pu'u Kolekole, along Papaala Pali ridge, and on Olokui Plateau (Richardson 1949, Scott et al. 1977; *E* 14:76, 23:56, 24:17, 24:46, 33:68, 33:99). Scott et al. (1986) estimated a population of 1,800 birds on Moloka'i during the <u>HFBS</u> in 1979-1980, including good densities at lower elevations in Pelekunu and Wailau valleys; one at sea level on Kalaupapa Peninsula 24 Dec 2010 is also noteworthy. Surveys in the 1980-2000s indicated little evidence of population change on Moloka'i (Lindsey et al. 1998, Camp et al. *in* Gorresen et al. 2009); during 2010-2016 small numbers (< 6) continued to be noted during trips into upper elevation forests.

Wilson (1890a; Wilson and Evans 1899) was the first to collect 'amakihis on *Lana'i*, obtaining four specimens in 1888 in Waiapa'a Gulch (Banko 1979). In 1894 Perkins (1903) found them to be "abundant" in upper-elevation forests throughout Lana'i and collected six additional specimens. Munro (1944, 2007, *in* Gregory 1928) noted them commonly from 1911 through 1927 but observed a noticeable decline beginning in the late 1920s and continuing through the late 1930s. Munro speculated that avian disease must have been the primary culprit as the forests remained essentially unchanged during this period. The only other report of 'amakihis from Lana'i were of 2 observed between Hauola and Maunalei gulches in late Feb 1976 (Hirai 1978b). Scott et al. (1986; see also Kepler and Scott 1980) recorded none on Lana'i during the <u>HFBS</u> in 1979, there were no

substantiated reports during the 1980s-mid 2010s, and they are presumed extirpated there, although inter-island migrants remain a possibility.

On *Maui*, Perkins (1903) and others collected a total of 34 specimens in the late 1800s (Banko 1979) and noted them generally to be common, although elevational details are scarce. McGregor (1902) remarked that they were not found below about 270 m in the W Maui Mts. Observers continued to record them regularly during the 1900s (e.g., Munro 1944 and *in* Gregory 1928), although Scott and Sincock (1977) noted that they were outnumbered by 'Apapane 21:1 near Olinda 30 Apr-1 May 1975. During the HFBS in 1980, Scott et al. (1986) estimated populations of 44,000 and 2,800 in the E and W Maui Mts, respectively. Simon et al. (2002) found slightly (but non-significantly) higher densities than were found by Scott et al. in the Upper Hanawi watershed during 1995-1997, and densities continued to increase in both E and W Maui through the 2000s (Camp et al. in Gorresen et al. 2009). 'Amakihi was one of several species showing elevational movements on Maui, lower densities being recorded at higher elevations during Jul-Sep, when birds presumably had dispersed down-slope according to bloom phenologies (Simon et al. 2002). However, 'amakihis are only occasionally observed at lower elevations (e.g., several in a botanical garden at about 180 m near Kaenae 30 Mar 2011), unlike on Hawai'i I and Moloka'i, and they are virtually absent from the S slopes of Haleakala, where ungulates have decimated the native, dry-forest vegetation (Scott et al. 1986). Single-location counts during 2010-2016 on Maui of up to 25 were regularly reported at several locations, with high counts of up to 38 (on 25 May 2015) in the Kula Forest Reserve, up to 43 (on 10 May 2013) in the Waikamoi Preserve and up to 68 (18 Mar 2011) recorded by researchers in the remote Hanawi Natural Area Preserve.

Acronyms and Abbreviations

Literature cited

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