

RED-BILLED LEIOTHRIX

Leiothrix lutea

Other: Peking (Pekin) Nightingale, Japanese Hill Robin, Mejiro

L.l. lutea?

naturalized (non-native) resident, long established

The Red-billed Leiothrix is native to the Himalayan region from Nepal and n. India to s. China and Myanmar (Ali and Ripley 1996a, Hale et al. 1998, AOU 1998). A popular cage bird due to its attractive plumage and song, this species has been introduced or has escaped in various localities on five continents around the world, but only in the *Southeastern Hawaiian Islands*, and perhaps Hong Kong and Japan, have viable breeding populations become established (Long 1981, Lever 1987, Hale et al. 1998). Its alternative names (see above) were derived by aviculturists, as it is native to neither Beijing nor Japan, and it is neither a nightingale nor a robin.

In a letter to HBAF making recommendations of birds to introduce to Hawaii for economic (insect pest-control) and aesthetic purposes, Henshaw (1911) extolled the virtues of the Red-billed Leiothrix and mentioned that they could easily be obtained from markets in San Francisco. In 1917-1936 the HBAF, the [Hui Manu Society](#), and others dutifully introduced leiothixes, both from San Francisco and directly from Asia, to Kaua'i, O'ahu, Moloka'i, Maui, and Hawai'i I (Caum 1933, Fisher and Baldwin 1947, Swedberg 1967a; *HFA* 25:41; *PoP* 49[1]:17); we doubt that small numbers reportedly brought in for the aviculture trade in 1911-1916 had much of an influence (*cf.* Fisher and Baldwin 1947). Populations quickly expanded on all islands (Pedley 1949) and were found commonly or abundantly at elevations from sea level to above 2500 m within 10-20 years of introduction. During and after this expansion phase they were considered the most abundant passerine species in many locations, and small flocks were regularly observed at 3000-4400 m elevation atop Hawaii's tallest mountains during post-breeding dispersal periods (Montgomery and Howarth 1980; see below). As with many introduced birds in Hawaii, the expansion phase was followed by withdrawal on most or all islands, especially at lower elevations (perhaps due to temperature constraints; Scott et al. 1986), resulting in decreased populations about 40 years after introduction, and including extirpation on Kaua'i during the 1970s. They were nearly extirpated at this time on O'ahu, as well, before populations began to recover in the 1980s.

By the mid-2010s Red-billed Leiothrixes were found fairly commonly at mid to higher elevations, most prevalently between 400 and 1200 m. Simon et al. (2002) showed that they were quite seasonal in an upper-elevation native forest on Maui, being significantly more common during Apr-Aug at higher elevations and during Sep-Mar at lower elevations, and similar patterns appear to occur on Hawai'i I (*E* 36:42; Ralph et al. 1998). They breed year-round but primarily in the summer (Berger 1972, 1981; Ralph et al. 1998) and during the non-breeding season they typically forage in gregarious flocks that numbered up to 100 birds during the period of expansion (Fisher and Baldwin 1947) but more typically 3-15 individuals thereafter (Scott et al. 1986, Ralph et al. 1998). They have been accused of being competitors with native species for food, vectors of malaria and other avian diseases, and agents for dispersal of non-native plant seeds (Munro 1944, Fisher and Baldwin 1947, Fisher 1948c, Scott et al. 1986, Foster 2009).

On *Kaua'i*, an unknown number of individuals were liberated in 1918 and about 20 were released in 1928, by private individuals and the HBAF for aesthetic and economic reasons, respectively (Swedberg 1967a; *HFA* 25:41). By the late 1920s they were noted to be prevalent around Kaua'i's mountain homes (Munro *in* Gregory 1929), by the early 1930s they were found in "rather large flocks" (Caum 1933), and by the 1940s

they were reported as increasing their ranges or well established on all islands including Kaua'i (Fisher and Baldwin 1947; *E* 2:52). But by 1960 Richardson and Bowles (1964) reported that they were "hard to find", only at higher elevations (see also Berger 1981, *E* 21:1, 21:9, 27:28), and by 1974 they appeared to be gone from Kaua'i (Scott et al. 1986, Male and Snetsinger 1998, Foster et al. 2004). The USFWS (1983c) estimated a population of 2200 birds in 1968-1973 but this was based primarily on sightings earlier during the study period, particularly at a single locale, Anahola Mt. There have been no substantiated records on Kaua'i since 11 were reported on the Kapa'a [Christmas Bird Count](#) in 1974 (*E* 35:119) and one was observed in Koke'e SP 12 May 1977 (*E* 38:57). Reports by HAS (1993-1996) that they were increasing on Kaua'i are in error.

On *O'ahu*, at least 165 individuals were liberated in 1928, 150 by HBAF and 8-15 by private individuals, at least some being liberated in Makiki Valley (Thrum 1928, Swedberg 1976a; *HFA* 25:41, 25:143; *E* 10:57). Caum (1933) believed them only possibly breeding on O'ahu during the early 1930s but they rapidly expanded both their geographic range and their population size thereafter and until the 1960s (Fisher and Baldwin 1947; e.g., *E* 4:32, 15:37, 17:59, 18:39, 21:76). One was found dead atop Mokumanu Islet during surveys in 1946-1948 (Richardson and Fisher 1950). Populations then suffered severe declines on O'ahu during the 1960s (Berger 1981, Scott et al. 1986; *E* 30:73-74, 33:83; [Graph](#)), the only non-native species to decline on O'ahu during this period (Williams 1987), leading to speculation that it would become extirpated on O'ahu as on Kaua'i. From 1968 through the 1970s only a few records of one to a few individuals were observed at scattered montane localities (HAS 1975, 1978; Shallenberger 1977c; Shallenberger and Vaughn 1978; *E* 34:17-18, 37:40, 37:46, 37:57, 38:56, 39:96, 41:30-31). Unlike on Kaua'i, however, the species held on during and after this withdrawal period, and from the 1980s through 2014 their population range and size slowly expanded again (Ralph 1990, HAS 1993-1997, Male et al. 1998), as recorded on both the Waipi'o ([Graph](#)) and Honolulu ([Graph](#)) [Christmas Bird Counts](#). Through the 2000s-mid 2010s numbers being observed along trails in both the Ko'olau and Wai'anae ranges continued to increase, with single-day counts of 30-50 regularly recorded in the Ko'olau Range and a high count of 60 along the Kuli'ou'ou Valley Trail 7 Dec 2014. Ralph (1990) suggested that ecological competition with [White-rumped Shama](#), which showed the opposite trends during the 1950s-1960s, may explain the population declines on O'ahu and Kaua'i.

An unknown number of Red-billed Leiothrixes were also introduced to *Moloka'i* by HBAF in 1929, and they were reportedly breeding by the early 1930s (Caum 1933, Swedberg 1967a) and during the 1940s at Mapulehu (Fisher and Baldwin 1947). Richardson (1949) reports only one in upper Wailau Valley during a trek across the island in Feb 1948 but by the 1960s they were reported to be abundant (Pekelo 1963, 1964; *E* 28:82) and by 1975 Scott et al. (1977) found them commonly at higher elevations. During the [HFBS](#) in 1980, Scott et al. (1986) estimated a population of 1800 individuals on Moloka'i, most occurring above 1000 m elevation. Data are too sparse to determine if population withdrawal may have occurred, as on Kaua'i and O'ahu, but high counts of only 1-4 birds on the Kualapuu [Christmas Bird Counts](#) in 2010-2016 suggest that populations are much lower than they were in the 1960-1980s.

On *Maui*, 30 Red-billed Leiothrixes were liberated in 1928 by the HBAF, and an unknown number were released by them the following year (Swedberg 1967a; *HFA* 25:41). Caum (1933) reported that they were breeding on Maui by the early 1930s, and by the mid-1940s they were common on Mt Haleakala and less-so in the W Maui Mts (Fisher and Baldwin 1947; *E* 5:84, 12:31). In 1967 they were judged to be the most common bird in Kipahulu Valley (Berger 1981). Scott et al. (1986) estimated a

population of 19,000 individuals in E Maui and 800 in W Maui in 1980 during the [HFBS](#), by 1995-1997 densities appeared to have increased in the upper Hanawi watershed (Simon et al. 2002), and they also were noted to increase dramatically in a non-native *Acacia* forest in Kula (Scott et al. 1986). As on Hawai'i I (below), flocks of up to 30 individuals or more were found foraging at the 3050-m summit of Mt Haleakala during the period of expansion, around the observatory, at least five times in Sep-Oct between 1959 and 1996 (e.g., *E* 20:42, 56:80, 57:96), and then again in 2014, when a flock of 60 was also found at 2600 m elevation on the road to the summit. Observations on Maui from the 1980s through the mid-2010s suggest no substantial trends over this period; single-day high counts during 2010-2016 were of the 60 birds noted above and 33 at Polipoli SP 6 Oct 2013.

On *Hawai'i I*, 15 leiothrixes were released by HBAF in 1928 (*HFA* 25:41) and a reported 184-210 individuals were liberated during the next four years by the [Hui Manu Society](#) and private individuals (Swedberg 1967a, *E* 36:40; *PoP* 49[1]:17). By the early 1930s they were reported breeding on the island by Caum (1933), and by the 1940s they were considered the most abundant bird in some areas of the island (Northwood 1940; *E* 5:71). During the expansion period flocks or individuals were frequently seen or found dead at 4000+ m elevation atop Mauna Loa and Mauna Kea, up to 30 km from the nearest forest (Fisher and Baldwin 1947, Dunmire 1961, Montgomery and Howarth 1980; *E* 6:19-20, 10:62; BPBM 6118-6119, 149917, 48420), including one specimen identified as an '[Akepa](#)' by Munro (1944; *E* 6:19-20; BPBM 10015) which is actually a leiothrix (Montgomery and Howarth 1980; PP examination). By the 1970s populations were becoming more restricted to higher elevations, numbers in e.g., Volcano NP declining (Conant 1975, Banko and Banko 1980), but they were still found in widespread areas (*E* 34:1-3, 36:43-44). Scott et al. (1986) estimated 98,000 individuals in [HFBS](#) areas in all four mountain ranges in 1997-1979. During the 1990s-mid 2010s they continued to be found fairly commonly in upper elevation forests (Male et al. 1998, Ralph et al. 1998) and, true to old habits, small flocks of up to five were found at the observatory at 4055 m atop Mauna Kea 26 Nov-4 Dec 1996 and several times in the early 2010s, while one found moribund up there 29 Oct 2008 was transported to lower-elevation forest and released. They showed no positive or negative trends on the [Volcano Christmas Bird Count](#) during 1972-2014; single-day tallies during 2010-2016 included 20-40 in scattered upslope areas and high counts of 45 at Hakalau NWR 27 Jul 2013 and 46 there 4 Aug 2015.

Six subspecies of Red-billed Leiothrix are recognized by Clements et al. (2016), ranging from paler to darker color saturation from west to east (Ali and Ripley 1996a, Hale et al. 1998). Specimens collected from Hawaii match those of nominate *L.l. lutea* of s. China (Fisher and Baldwin 1947; H.G. Deignan, PP examination USNM and BPBM), according with Thrum's (1928) statement that at least eight birds arrived from China by way of San Francisco. Ali and Ripley (1996a) indicate that *L.l. calipyga* of W Nepal and surrounding Himalaya Mts may also have been introduced to Hawaii and it is possible that a mixture of subspecies may have given rise to populations in Hawaii (Hale et al. 1998) but, if so, the duller and darker characters of other subspecies (including *calipyga*) have been swamped by those of *lutea*.

[Acronyms and Abbreviations](#) [Literature cited](#)

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