

A NEW GENUS FOR THE HAWAI'I CREEPER, WITH COMMENTS ON GENERIC LIMITS AMONG INSECTIVOROUS HAWAIIAN HONEYCREEPERS

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The Hawai'i Creeper is a small nondescript Hawaiian honeycreeper (Fig. 1) endemic to the Island of Hawai'i, where it maintains an endangered but apparently stable population at higher elevations (Lepson & Woodworth 2002). Unlike the other surviving honeycreepers, it has no known Hawaiian name. Since its description as *Himatione mana* (Wilson 1891), this drab little bird has had one of the most convoluted taxonomic histories of any Hawaiian honeycreeper (Pratt 1992, 2001), and its relationships remain unresolved (Reding et al. 2008). Perkins (1903) placed it in *Oreomyza*, along with the 'Akikiki *O. bairdi* of Kaua'i, plus 3 species, known collectively as alauahios, from the central Hawaiian Islands. For the latter, he created the subgenus *Paroreomyza* Perkins 1901. When *Oreomyza* turned out to be preoccupied, Stejneger (1903) emended it to *Oreomystis*, but *Paroreomyza* had priority and became the genus name. Bryan and Greenway (1944) considered the Hawai'i Creeper and the 'Akikiki conspecific, therefore the creeper became *P. bairdi mana*, with the alauahios lumped as *P. maculata*. Amadon (1950) lumped all of these birds into an amalgam he called simply "Creeper", and placed it in a much expanded genus *Loxops* Cabanis, 1847, first created for the cross-billed birds known as akepas. "Greater *Loxops*" included nearly all short-billed insectivorous Hawaiian honeycreepers. The Hawai'i Creeper thus became *L. maculata mana*. In Peters' checklist, Greenway (1968) again restricted *Loxops* to the akepas, and placed all the remaining species from Amadon's *Loxops* in *Viridonia*, first named for the Greater 'Amakihi *V. sagittirostris* Rothschild, 1892 so that the Hawai'i Creeper became *V. maculata mana*, but this classification was not widely followed. The classification currently in use (American Ornithologists' Union 1998) was first proposed by Pratt (1979, 1992). In it the 'Akikiki and Hawai'i Creeper are regarded as two species comprising the genus *Oreomystis*, and the three species of *Paroreomyza* are not considered closely related. On osteological grounds, James & Olson (1991) and James (2004) suggested that *mana* was not congeneric with *bairdi*, but was instead allied with akepas or the "lesser" amakihis (*Hemignathus* subgenus *Chlorodrepanis*), three species with short curved bills. Studies of mitochondrial DNA by Fleischer et al. (1998, 2001) also suggested that the Hawai'i Creeper was related to akepas rather than to *O. bairdi*. Nevertheless, the large suite of what appeared to be synapomorphies, including similar bill shape, tongue morphology, and juvenile begging calls, among others, that linked the two species of *Oreomystis*, seemed too qualitatively varied and too precise to have arisen

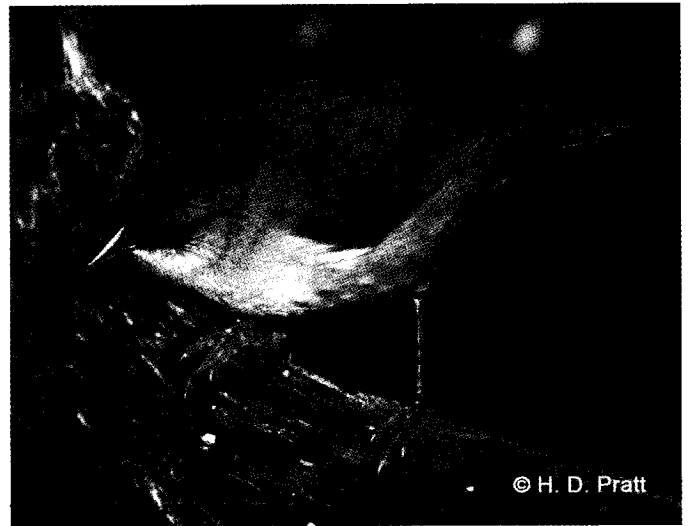


Figure 1. Hawai'i Creeper *Manucerthia mana* photographed at the Keauhou Bird Conservation Facility, Volcano, HI. Photo by the author.

by convergence (Pratt 2001). But once further studies of nuclear DNA corroborated the results from mitochondrial DNA, the genetic evidence that the similarities of the Hawai'i Creeper and the 'Akikiki were, after all, a truly spectacular example of evolutionary convergence became overwhelming (Reding et al. 2008). Because of poor phylogenetic resolution among the Hawai'i Creeper, akepas, and amakihis, Reding et al. (2008) could not state whether: 1) the creeper should be placed with the akepas in *Loxops*; 2) *Loxops* should be expanded to include amakihis, as in James (2004); or 3) the creeper should have its own monotypic genus. In a study using sequences from Genbank and not focused primarily on phylogeny, Lovette et al. (2002) also found that the Hawai'i Creeper was not an *Oreomystis*, but enigmatically placed it in a clade with the "red group" of Hawaiian honeycreepers (*Palmeria*, *Vestiaria*, and *Himatione*), and placed the amakihis and akepas each into separate clades, with *Loxops* sister to the parrot-billed *Pseudonestor* Rothschild, 1893. Ongoing genetic studies of the akepa clade (R. Fleischer pers. comm.) and a very robust and comprehensive genetic study of all drepanidine taxa, including subfossil species, currently under way in the same laboratory, should go a long way toward resolution of remaining conflicts in the genetic results. Once that study is complete, H. James (pers. comm.) and others plan a thorough overhaul of Hawaiian

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honeycreeper taxonomy. In the meantime, we need a working taxonomy that will resolve current inconsistencies without complicating this future revision.

Genera, unlike species, are inherently artificial, although they should be monophyletic. For the rapidly radiating Hawaiian honeycreepers, some authors (i.e. Amadon 1950) favor large genera comprising several morphotypes, whereas others (i.e. Pratt in Berger 1981, Olson and James 1982, Olson 1999, James 2004, Pratt 2005) prefer a more fragmented taxonomy with genera usually representing different morphotypes. Such a classification parallels that of continental taxa more closely than one with large genera comprising a variety of morphotypes. But whether broad and inclusive or narrowly defined, generic limits provide little phylogenetic detail.

The most recent revision of generic limits in the Drepanidinae (Pratt 2005) is based entirely on phenotypic characters, and includes a large genus *Hemignathus*, first proposed by Pratt (1979) and followed by Berger (1981) and AOU (1983, 1998), but slightly altered by Pratt (2005). Although "greater *Hemignathus*" includes extremes of bill length broader than in any other passerine genus, it is easily diagnosed by a large suite of apparently synapomorphic characters of coloration (yellow-green plumage, dark pale-based bills), bill shape (thin and down-curved regardless of length), and short trilled songs (Pratt 2005) and can therefore be regarded as a single broadly defined morphotype as well as a clade. Greater *Hemignathus* comprises 4 subgenera, each of which could be regarded as a morphotype of its own: heterobills *Hemignathus* Lichtenstein, 1839; long curve-billed akialoas *Akialoa* Olson and James, 1995; the nearly straight-billed Greater Amakihi *Viridonia* Rothschild 1892; and the short curve-billed amakihi *Chlorodrepanis* Perkins, 1899.

Recently, the greater *Hemignathus* edifice has been assaulted on several fronts. The 'Anianiau *Magumma parva* had traditionally been grouped with the amakihi within *Hemignathus* (*Chlorodrepanis*), but detailed analyses of coloration and bill morphology (Conant et al. 1998, Pratt 2001) suggested its resemblance to that group was superficial and coincidental, and several DNA studies (Tarr and Fleischer

1995, Fleischer et al. 1998, 2001) allied it with various other taxa. Consequently, it was placed in its own monotypic genus (Pratt 2005, Banks et al. 2008). The monotypic genus *Pseudonestor* (Maui Parrotbill) is also problematical. Often grouped with the drepanidine finches because of its heavy bill (Amadon 1950, James 2004), the parrotbill in virtually all other respects resembles the heterobills, especially the 'Akiapōlā'au *Hemignathus munroi* (= *wilsoni*), with which it shares a unique jaw muscle (Zusi 1989), similar feeding movements (Simon et al. 1997), and unique juvenile begging calls (T. K. Pratt et al. 2001; Pratt 2005). DNA studies (Tarr and Fleischer 1995, Fleischer et al. 1998, 2001) have also suggested a relationship between the parrotbill and heterobills. Nevertheless, I have been reluctant to merge *Pseudonestor* with *Hemignathus* even though the larger genus would seem to be paraphyletic without it, because the parrotbill would have different bill and tongue morphology from all other members of the genus (Pratt 2005) and would disrupt the suite of characters used to define greater *Hemignathus* in the first place. James's (2004) osteology-based taxonomy breaks up greater *Hemignathus*, and moves the shorter-billed taxa into a new "greater *Loxops*" that includes the hemignathine subgenera *Viridonia* and *Chlorodrepanis* of Pratt (2005), *Magumma*, and the Hawai'i Creeper.

At present, with no consensus as to the limits of a greater *Hemignathus* or a greater *Loxops*, I suggest that the four subgenera of Pratt's (2005) *Hemignathus* be elevated to genera, and that *Pseudonestor*, *Magumma*, and *Loxops* remain as in the AOU Check-list (American Ornithologists' Union 1998, Banks et al. 2008). A similar taxonomy will be used by Pyle and Pyle (2009), who arrived at it independently (P. Pyle, pers. comm.). It does not misrepresent any facts and all of the genera are unquestionably monophyletic. The genera are small, but because of recent species-level revisions (summarized in Pratt 2005), only *Viridonia* is monotypic. Any clustering of these genera into broader ones at present would be mere speculation and likely unstable. The genetic evidence that the Hawai'i Creeper is related to *Loxops* (sensu stricto) is compelling (Reding et al. 2008), but the creeper is basal in that clade, and placing it in *Loxops* now would not only be premature, but would go against

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the principle of using morphotypes to define genera in Hawaiian honeycreepers. Because it will otherwise be a “generic orphan”, I propose placing it in a new genus to be called:

Manucerthia, gen. nov.

Type species. – *Himatione mana* S. B. Wilson, 1891, Ann. and Mag. Nat. Hist. (6)7:460 (currently *Oreomystis mana*).

Diagnosis. – The following is taken from Pratt (2005). The Hawai'i Creeper is a small short-tailed bird with rather nondescript plumage, dull olive or greyish green above, white below tinged olive-yellow, throat white, diffuse supercilium pale yellowish-olive. A dark grey mask extends from the base of the bill to behind the eye, forming a narrow triangle. The bill is pale gray with a dusky culmen, conical and very slightly down-curved (gonys slightly concave in profile). Males and females are alike, but juveniles are duller above and paler, nearly white, below with the pale colour extending up through the face to a broad supercilium. The song is a rattling descending trill, the call note a short upslurred whistle. Juvenile begging calls are short, in irregular series of 1-4 notes, unlike those of any Hawaiian honeycreeper except *Oreomystis bairdi*. The tongue is nontubular, slightly notched at the tip, and lacks lingual wings at base. It is virtually identical to that of *O. bairdi*, and similar to Gardner's (1925) “generalized passerine tongue”, but unlike that of any other drepanidines.

Manucerthia mana closely resembles *O. bairdi* of Kaua'i in most phenotypic characters, but is identifiable at the species level on the basis of greener coloration, faster, more mechanical-sounding song, and different geographic distribution (Pratt et al. 1987). Both species capture invertebrate prey by creeping nuthatch-like, without bracing with the tail, over trunks and branches of trees, but *Manucerthia* uses smaller substrates on average (Lepson and Woodworth 2002). DNA studies (Fleischer et al., 1998, 2001; Lovette et al. 2002; Reding et al. 2008) have consistently indicated that the close resemblance of *M. mana* to *O. bairdi* is the result of an amazingly high degree of evolutionary convergence.

Taxonomic content. – Type-species only.

Etymology. – This name combines the Hawaiian word *manu* meaning “bird” with the Greek *certhia*, “a creeper” (also used as the generic name for Holarctic treecreepers). It roughly translates as “creeper bird.” The gender is feminine.

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Hawaii Audubon Society 2009 Legislative Report

By George Massengale, J.D., Legislative Analyst

Aloha everyone, I am sure that I need not remind everyone that this was a very arduous legislative session with our legislators focusing on the drastic revenue shortfall and on how to best balance the Biennium Budget. Needless to say individual legislators in the House and Senate were not inclined to entertain passage of new environmental measures that required the expenditure of State funds. However, your Hawaii Audubon Society, working in concert with the Sierra Club, the Conservation Council of Hawai'i, KAHEA, The Nature Conservancy, Earth Justice, the Pacific Fisheries Coalition, and other groups was able to achieve some modest success this year at the Capitol.

As usual there were both good and bad bills introduced this session that we either supported or strongly opposed. Below is a list of key bills addressed during the 2009 Legislative session.

Environmental Review and Impact Statements

HB545 Environmental Impact Statements was an OK bill that would have established a shelf life of 15 years on environmental impact statements. The Society has consistently taken the position that the shelf life of completed impact statements should be no longer than five years. This bill was deferred in committee and could be revived during the 2010 session.

HB1164, SB982 and SB1053 dealt with environmental reviews. This was a series of bad bills that would have transferred the responsibility for preparing and paying for environmental assessments from the State to the proposed user. Needless to say, we strongly opposed these bills; all of which were either never heard in committee or deferred.

Invasive Species

HB1433 Invasive Species would have established fines for failing to pay for already existing fees for inspection and quarantine of freight entering Hawai'i. HAS supported this bill because it would have given the Hawai'i Department of Agriculture (HDOA) the power to enforce the nonpayment of fees. This bill passed the House but was never heard in the Senate.

HB1684 was another invasive species bill that would have given HDOA additional enforcement authority by increasing penalties for intentionally introducing invasive species into the state. HAS strongly supported this bill. It would have had a substantial impact in preventing and reducing the introduction and spread of invasive species. HB1684 died in the House for lack of a hearing by the Judiciary Committee.

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