

Terrestrial Isopods from the Hawaiian Islands (Isopoda: Oniscidea)¹

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The following are notable new distribution records for terrestrial isopods in Hawaii. Four species are newly recorded from the state, and many new island records are given for other species, especially for the Northwestern Hawaiian Islands, where only one species (*Porcellionides pruinosus* [Brandt]) was previously known. All included records are based on specimens deposited in Bishop Museum. Taiti & Ferrara (1991) presented new distribution records and taxonomic information on 27 species and provided an overview of the terrestrial isopod fauna of the Hawaiian Islands, and Nishida (1994) listed all species recorded from the islands together with the island distributions of each.

We call special attention to the several endemic armadillid pillbugs that have not been recollected in more than 60 years. These are *Hawaiodillo danae* (Dollfus) and *H. sharpi* (Dollfus) from Kauai, *H. perkinsi* (Dollfus) from Maui, *Spherillo albospinosus* (Dollfus) from Oahu, and *S. carinulatus* Budde-Lund from Kauai. In addition, *S. hawaiiensis* Dana, previously recorded from Kauai, Oahu, Molokai, and Lanai was last collected on the main islands in 1933 on Oahu although it appears to be still common on Nihoa. We fear some species in this complex may be extinct and encourage field biologists to watch for them in potential refugia.

For economy of space, the following abbreviations are used for collectors listed below: DJP = David J. Preston; DMA = D.M. Allread; ECZ = E.C. Zimmerman; EHB = E.H. Bryan, Jr.; ELB = E.L. Bousfield; FGH = Francis G. Howarth; GAS = G. Allan Samuelson; JWB = John W. Beardsley; NLE = Neal L. Evenhuis; NLHK = N.L.H. Krauss; SLM = Steven L. Montgomery; SFS = S.F. Swift; TWS = T.W. Suman; WAS = W.A. Steffan; WCG = Wayne G. Gagné.

Ligiidae

Ligia hawaiiensis Dana, 1853

New island records

This is a littoral species endemic to the Hawaiian Islands. Previous records from Fiji and Lombok, Indonesia are misidentifications.

FRENCH FRIGATE SHOALS: **New island record:** La Perouse Pinnacle, 27.vi.1923 (EHB), 1 specimen.

NECKER: **New island record:** 10.vi.1923 (C. Grant), 2 specimens. 21.vi.1923 (EHB), 1 specimen. 26.ix.1964 (JWB), 1 specimen.

NIHOA: **New island record:** Miller Valley, 24-27.iv.1983, intertidal zone (WCG), 3 specimens.

OAHU: W. Loch, Pearl Harbor, Honouliuli, 2.ii.1974, sea level on beach (FGH, WCG & F.D. Stone), 1 specimen. Waikane Trail, 22.x.1947 (H.S. Dybas), 1 specimen. Manana Islet, on sea cliff, 11.v.1975 (FGH), 1 specimen.

MAUI: **New island record:** Makena, vii.1931 (Edmondson), 1 specimen. Kipahulu Valley, Puaaluu Gulch, Ka'u Bay, 6.vii.1980 (NLE & GAS), 1 specimen.

Ligia perkinsi Dollfus, 1900

New island record

This is a montane species living on wet vertical surfaces, including rheocrenes,

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stream margins, and wet mossy tree trunks. This species is endemic to the Hawaiian islands. Previous records from Samoa (Jackson, 1927a, b) refer to *Ligia vitiensis*. The Oahu record in Nishida (1994) was based on a misidentification; thus, this is the first true record of this species from Oahu.

KAUAI: Hoary Head, Mt Haupu, 670 m, 30.viii.1970, on *Tetraplasandra* (WCG), 2 specimens. Lihue: Koloa Forest Reserve, Wahiawa Stream N Kanaele Bog, 630 m, 30.viii.1982, on rotting *Tetraplasandra* trunk (WCG), 2 specimens. Mt. Kahili, 940 m, 15.iii.1974, in liverworts on trees (FGH), 6 specimens. Near Alakai Swamp, 8.vii.1937 (ECZ), 1 specimen. Kaunuu Hua Ridge, 22.vii.1937 (ECZ), 1 specimen.

OAHU: **New island record**: Koolau Mtns, Nuuanu Pali, 300 m, 26.xi.1980 & 16.viii.1985, on wet rock wall (FGH), 4 specimens.

Styloniscidae

Styloniscus mauritiensis

New island record

(Barnard, 1936)

Commonly found under bark and in moss on trees. Besides Hawaii, it is also known from Mauritius and hothouses in Scotland.

OAHU: Mt. Kaala, 1220 m, 19.iv.1966, in moss on tree (C.M. Yoshimoto), many specimens.

LANAI: **New island record**: Summit Lanai Hale, 900 m, 17.i.1974, leaf litter under ohia and *Dicranopteris* (ELB), 4 specimens.

MAUI: **New island record**: W Maui, Puu Kukui Trail, 900 m, near Haelaau Cabin, beating *Dicranopteris*, 19.i.1974 (ELB & FGH), 3 specimens.

HAWAII: Hawaii Volcanoes Natl Park, Olaa Tract, 1170 m, 5.viii.1982 (F.D. Stone), 4 specimens.

Styloniscus spinosus (Patience, 1907)

New island record

This species occurs in leaf litter and moss. It is also known from Mauritius, Madagascar, and Reunion.

KAUAI: **New island record**: Alakai Swamp, 1220 m, 22.vii.1964 (TWS), many specimens. Same except near Alakai Swamp, 1125 m, 5 specimens. "Kokee State Park, Kawaikoi Stream Trail, 1060 m, 27.v.1989, moss on ohia, grass litter, and soil (SFS)", 7 specimens. Kokee State Park, Pihea Trail, 1300 m, 27.v.1989, ohia litter (SFS), many specimens. Kalalau Trail, East fork of Hoolulu Stream, 95 m, 19.i.1973, leaf litter in *Pandanus* forest moss (WCG & D. Herbst), 1 specimen. Mt. Kahili, 900 m, 15.iii.1974, on wet cliff face & beating *Dicranopteris* (FGH), 2 specimens. Haena, Hwy 56, 13.v.1969 (DMA), *Hibiscus tiliaceus* litter, 2 specimens. Kokee, Hwy 55, 19 mi [30 km] from jct Hwy 50, 13.v.1969 (DMA), *Cupressus* humus. Waimea Canyon St Park, Hwy 55, 9.9 mi [16 km] from jct Hwy 50, 14.v.1969 (DMA), *Eucalyptus* litter.

OAHU: Lanihuli at Nuuanu & Kalihi, 23.ii.1936 (R.L. Usinger), 6 specimens. Honolulu, Kalihi Valley, 27.iv.1966, in debris (W. Voss), 2 specimens. Tantalus, 300-500 m, 24.viii.1963, bamboo leaves (D.M. Tsuda), many specimens. Koolau Range, Kaumuhonu Peak, slopes, 525 m, ca. 2 km NE Mt Tantalus, 19.v.1982, on moss soil under koa (GAS), 2 specimens. Aiea, Keiawa Heiau Campsite, 5.vii.1981, leaf litter (SFS), many specimens. Koolau Mtns, Poamoho Trail, 650 m, 23.xii.1972, sifting leaf litter in native rainforest (WCG & J. Jacobi), 3 specimens. N end Koolau Mtns, 9.v.1964 (TWS), many specimens. Koolau Mtns, Laie Trail, 550 m, 29.xi.1974, sifting litter (FGH), 1 specimen. Kawailoa Forest Reserve, 750 m, 25.viii.1973, sifting moss leaf litter (WCG), 1 specimen. Mt Kaala, 1225 m, 27.iii.1987, leaf litter (P. Swift), 9 specimens.

LANAI: **New island record**: Summit Lanaihale, 900 m, 17.i.1974, leaf litter under ohia & *Dicranopteris* (ELB), 1 specimen. Road to summit near pipeline tunnel, 600 m, 17.i.1974, in *Eucalyptus* litter (FGH & ELB), 1 specimen

MAUI: **New island record**: W. Maui, Puu Kukui Trail, 1220 m, in *Cibotium*, 18.i.1974 (ELB & FGH), 3 specimens. Same except 900 m, near Haelaau Cabin, 2 specimens. E. Maui, Koolau Forest

Reserve, 1300 m, 23.i.1973, tree fern and moss litter (FGH & ELB), 1 specimen. Koolau Forest Reserve, Hanawi Stream, 1525 m, 9.viii.1973, under rotting *Tetraplasandra dipyrena* bark (WCG), 4 specimens. Waikamoi Forest Reserve, 1219 m, 3.i.1986, litter (W.D. Perriera), many specimens. Haleakala Natl Park, Kipahulu Valley, 400 m, 24.vii.1980, moss on rock (no coll.), many specimens. Same except Puu Ahuula, leaf litter (WAS), many specimens. Same except Palikea Stream, 500 m, 7.vii.1980, moss on log (NLE, WCG & GAS), many specimens. Same except Puaaluu Stream, 0-300 m, 22.vii.1980 (D. Bishop), 10 specimens.

HAWAII: Hamakua Forest Reserve, 2 mi SSW of Paauito, 700 m, 18.xii.1960, leaf litter (G.E. Haas), 12 specimens. Kohala Mtns, East Ridge Puu Pili, 1370 m, 6.vii.1964, leaf litter (B. Haas), many specimens. Kohala Mtns, 1050 m, 29.vii.1966, moss under trees (JWB, TWS, P. Ashlock, & C. Yoshimoto), many specimens.

Trichoniscidae

Haplophthalmus danicus

New state record

Budde-Lund, 1885

This is a widespread species known from Europe, North Africa, Asia Minor, several Atlantic islands, North America, and Japan.

MAUI: 2.5 mi S Kahakuloa, 21.i.1973, sifting litter (FGH & ELB), 2 specimens.

Scyphacidae

Alloniscus oahuensis Budde-Lund, 1885

This is a strictly littoral species that occurs under logs, or litter in the upper part of sandy shores. It is widely distributed in the Indian and Pacific Oceans.

OAHU: Kaneohe Bay, near Kahaluu mud flats above high water, 14.i.1973 (ELB & FGH), many specimens. Kaiwainui Marsh, sealevel, 15.xi.1980, litter adjacent to marsh (WCG), 3 specimens. Popoia Islet, 27.x.1973, debris (FGH), 1 specimen.

MOLOKAI: 1 mi west Kamehameha, Coconut Grove, 1st stop near mauka edge of mangrove, 16.i.1974 (ELB & FGH), 1 specimen.

Philosciidae

Anchiphiloscia pilosa

New island records

(Budde-Lund, 1913)

This species has a wide distribution in the lands around the Indian and Pacific Oceans where it occurs in leaf litter and along low altitude streams.

KAUAI: **New island record:** Haena, Hwy 56, 13.v.1969 (DMA), mango leaf litter, 2 specimens. Haena, Hwy 56, 13.v.1969 (DMA), *Hibiscus tiliaceus* litter, 2 specimens.

OAHU: Lanihuli at Nuuanu & Kalihi, 23.ii.1936 (R.L. Usinger), 4 specimens. Kaneohe Bay, 14.i.1973, mangrove litter (ELB & FGH), 2 specimens. Honolulu, Salt Lake, 8.i.1978 (J. Nishioka), 2 specimens.

MAUI: **New island record:** Hana, 5 mi W junction Highway 360 & Airport Road, 24.i.1973, sifting leaf litter & rotting logs (FGH & ELB), 2 specimens.

Australophiloscia societatis

New island records

(Maccagno, 1932)

A very common species throughout Polynesia. It lives in leaf litter, moss and under tree bark.

PEARL AND HERMES ATOLL: **New island record:** Southeast I, 28.v.1969, Burrow of wedgetailed shearwater (DMA), 1 specimen.

KAUAI: **New island record:** Kalalau Trail, E fork Hoolulu Stream, 95 m, 19.i.1973, leaf litter

in *Pandanus* forest moss (WCG & D. Herbst), many specimens. Haena, start of Kalalau-Napali Trail, 19.i.1973, leaf litter on beach (FGH & ELB), 7 specimens. Haena, Hwy 56, 13.v.1969 (DMA), *Casuarina* humus, many specimens; same data except *Psidium* litter, many specimens. Haena, Hwy 56, 13.v.1969 (DMA), mango leaf litter, 8 specimens. Haena, Hwy 56, 13.v.1969 (DMA), *Hibiscus tiliaceus* litter, many specimens. Haena, Hwy 56, 13.v.1969 (DMA), *Eugenia* litter, many specimens. Wailua, 0.5 mi [0.8 km], NW Coco Palms Hotel, 13.v.1969 (DMA), Eucalyptus litter, many specimens. Waimea Canyon Rd, 1–200 m, 14.v.1969 (DMA), *Acacia decurrens* humus, 15 specimens.

OAHU: Manoa, 4.vii.1928, under bark *Acacia koa* (no coll.), 1 specimen. Pupukea, 6.v.1932, *Broussaisia arguta* (O. Bryant), 2 specimens. Kamokunui Valley, 1.x.1933 (NLHK), 2 specimens. Kipapa, 18.ix.1934 (EHB), 1 specimen. Lanihuli at Nuuanu & Kahili, 23.ii.1936 (R.L. Usinger), 5 specimens. Castle Trail, 27.ix.1938 (EHB), 6 specimens. Waimano Trail, 27.iii.1941, mossy bark (EHB), 2 specimens. Kalihi Valley, 60 m, 4.iii.1961 (Y. Miyataki), many specimens. Manoa Valley, 29.iv.1961 (Y. Miyatake), many specimens. Tantalus, 300–500 m, 24.viii.1963, bamboo (D.M. Tsuda), 5 specimens. Aiea, Keaiwa Heiau State Park, 26.vii.1964, in shaded ravine (TWS), 13 specimens. N end Koolau Mtns, 9.v.1964 (TWS), 8 specimens. Kailua, Ulumawao, E slope, 45 m, 19.vii.1966 (T.Suman), many specimens. Honolulu, Kalihi Valley, 27.iv.1966, in debris (W.Voss), 12 specimens. Koolau Mtns, Waikane Trail, 650 m, 20.x.1974, ex. *Cladium* clumps (WCG), 2 specimens. Koolau Mtns, Laie Trail, 550 m, 29.xi.1974, sifting litter (FGH), 7 specimens. Koolau Mtns, Poamoho Trail, 2.vi.1977, leaf litter near summit (FGH), 2 specimens. Same data except 790 m, 1.xii.1974, on mossy tree trunk, 3 specimens. Koolau Range, Kaumuhonu Peak, slopes 525 m, ca. 2 km NE Mt Tantalus, 19.v.1982, on moss soil under koa (GAS), 1 specimen. Halawa Valley, 300 m, 8.vii.1992, ex malaise trap (DJP), 1 specimen. Same data except 19.x.1995, beating ieie, 15 specimens. Same data except 250 m, beating *Sadleria* (DJP), 8 specimens. Same data except 350–375 m, 10.i.1994, on *Pritchardia* (FGH & DJP), 16 specimens. Waianae Mtns, Nanihuli, 6.v.1923 (O. Oswald), 9 specimens. Makaleha Valley, 13.i.1929 (no coll.), 11 specimens. Head of Makua Valley, 450 m, 6.viii.1965 (WAS & C. Phillips), many specimens. Honouliuli Forest Reserve, Kaluaa Gulch, 730 m, 10.x.1976, ieie axils., (FGH), 1 specimen. Mt Kaala, 800 m, FAA Road, 18.i.1983, sweeping *Dicranopteris* (FGH & SLM), 1 specimen. Lualualei, Halona Valley, 500 m, 9.v.1994, under talus in *Sapindus* & general collecting (FGH), 15 specimens.

MOLOKAI: **New island record:** McVeigh's, 28.vii.1925 (A.F. Judd), 2 specimens. Kainalu, 22.vii.1927 (EHB), 4 specimens. Kaulolo, 8.vii.1968, under moist leaves at roadside (DMA), 1 specimen. Pukoo, 730 m, 27.i.1973, sifting moss base of trees (WCG), 3 specimens. Molokai Forest Reserve, Kolekole Cabin Trail, 1020 m, 14.i.1974, *Sadleria* crowns & rotten stumps (ELB & FGH), 1 specimen.

MAUI: **New island record:** Nahiku, 30.xii.1931 (NLHK), 2 specimens. 2.5 mi S Kahakuloa, 21.i.1973, sifting litter (FGH & ELB), many specimens. Haleakala Natl Park, Kipahulu Valley, 400 m, 24.vii.1980, moss on rock (no coll.), many specimens. Same data except 500 m, 5.vii.1980, *Pandanus* leafaxils (GAS), many specimens. Kipahulu Valley, gauging station, 475 m, 5.vii.1980 (WCG & NLE), 10 specimens. Same data except Puaaluu Stream, 300–500 m, 21–22.vii.1980 (D. Bishop & G.M. Nishida), 10 specimens. Same data except 100 m, 6.vii.1980, under *Eugenia jambos* bark (WCG), 1 specimen. Same data except 0–300 m, 22.vii.1980, 9 specimens. Same data except 425 m, moss on *Metrosideros* (G. Young), 1 specimen. Same data except 300 m, 22.vi.1980, riparian, 2 specimens. Same data except Puu Ahuula, 400 m, 24.vii.1980, leaf litter (WAS), 9 specimens. Same data except Koukouai Stream, 4 specimens. Same data except Puu Ahuula to Palikea, 400–600 m, 23.vii.1980, 1 specimen. W Maui, Iao Valley, at overlook, 21.i.1973, sifting leaf litter near stream (FGH & ELB), 7 specimens. Puu Kukui Trail, 900 m, near Haelaau Cabin, 19.i.1974, beating *Dicranopteris* & in *Cibotium* (ELB & FGH), 5 specimens.

HAWAII: Kohala Mtns, Honopue Valley, 600 m, 9–13.vi.1970 (WCG), 1 specimen.

Burmoniscus mauritiensis

(Taiti & Ferrara, 1983)

New island record

Occurs in disturbed habitats at low altitudes. It has a wide distribution from Maur-

itius to Hawaii.

OAHU: **New island record:** Manoa Valley, 29.iv.1961 (Y. Miyatake), many specimens. Honolulu, Kahili Valley, 27.iv.1966, in debris (W. Voss), many specimens. Kaneohe Bay, 14.i.1973, mangrove litter (ELB & FGH), 5 specimens. Same data except 25.iii.1973 (FGH), 1 specimen. Koolau Mtns, Tantalus, 30.ix.1976, taro axils (FGH), 3 specimens.

Burmoniscus meeusei (Holthuis, 1947) **New island record**

Common in leaf litter on and near beaches, and along streams. Originally described from greenhouses at Kew, UK, it appears to have a very wide distribution in the tropics, including Brazil, Taiwan, and the Hawaiian Islands.

KAUAI: **New island record:** Kapaa, Hwy 580, 6 mi [9.5 km] above Opaekaa Falls, 13.v.1969 (DMA), *Albizia* litter, 1 specimen. Haena, start of Kalalau-Napali Trail, 19.i.1973, leaf litter on beach (FGH & ELB), 1 specimen.

MOLOKAI: **New island record:** Kalawao Crater Lake, 0 m, 14.viii.1973, leaf litter (WCG & FGH), 5 specimens.

MAUI: **New island record:** 2.5 mi S Kahakuloa, 21.i.1973, sifting litter (FGH & ELB), 1 specimen. Hana Beach, 24.i.1973, in false kamani litter on beach (FGH & ELB), 1 specimen. Kipahulu Valley, Puaaluu Stream, 100 m, 6.vii.1980, under *Eugenia jambos* bark (WCG), 2 specimens.

Burmoniscus okinawaensis **New island record**

(Nunomura, 1986)

A eurytopic species particularly common in disturbed habitats. Recorded from China, Japan, Taiwan, and Hawaii.

OAHU: Kaneohe Bay, 25.iii.1973, mangrove leaf litter (FGH), 1 specimen. Kawailoa Forest Reserve, 750 m, 25.viii.1973, sifting moss leaf litter (WCG), 3 specimens. North Halawa Valley, 350 m, 10.i.1994, *Prichardia* (FGH & DJP), 2 specimens. Mt Kaala, 800 m, 18.i.1983, sweeping *Dicranopteris* (FGH & SLM), 2 specimens. Lualualei, Halona Valley, 500 m, 9.v.1994 (FGH), 2 specimens.

MAUI: **New island record:** Hana, 5 mi [8 km] W jct Highway 360 & Airport Road, 24.i.1973, sifting leaf litter & rotting logs (FGH & ELB), 1 specimen. Kipahulu Valley, Puaaluu Stream, 100 m, 6.vii.1980, under *Eugenia jambos* bark (WCG), 4 specimens.

Littorophiloscia culebrae **New island record**

(Moore, 1901)

A strictly halophilic littoral species found under debris, logs, and stones on both rocky and sandy shores. It is widely distributed in the tropics; currently known from Florida, Puerto Rico, Cuba, Virgin Islands, Angola, Madagascar, and Hawaii.

PEARL AND HERMES ATOLL: **New island record:** Southeast I, 20.vii.1983 (WCG), 15 specimens.

LISIANSKI: **New island record:** 7.viii.1983, under rocks on beach (WCG), 14 specimens.

Littorophiloscia hawaiiensis **New island record**

Taiti & Ferrara, 1986

This littoral species occurs from the shoreline to a few hundred meters inland. It appears to be endemic to the Hawaiian Islands.

LAYSAN: **New island record:** iv.1923, under rocks of guano (S.C. Ball), 1 specimen.

Tropicana minuta **New island records**

Manicasteri & Taiti, 1987

This species has a wide distribution in the tropics where it occurs in leaf litter, moss,

and under tree bark from sea level to ca. 900 m elevation. It has been recorded from Cameroon, Comoros Islands, Sri Lanka, and Hawaii.

KAUAI: **New island record:** Haena, Hwy 56, 13.v.1969 (DMA), *Casuarina* humus, many specimens. Haena, Hwy 56, 13.v.1969 (DMA), *Hibiscus tiliaceus* litter, 1 specimen. Kapaa, Hwy 580, 6 mi [9.5 km] above Opaekaa Falls, 13.v.1969 (DMA), *Albizzia* litter, 1 specimen. Haena, start of Kalalau-Napali Trail, 19.i.1973, leaf litter on beach (FGH & ELB), 1 specimen. Mt. Kahili, 900 m, 15.iii.1974, on wet cliff face & beating *Dicranopteris* (FGH), 1 specimen.

OAHU: Manoa Valley, 29.iv.1961 (Y. Miyatake), 1 specimen. Kalihi Valley, 60 m, 4.iii.1961 (Y. Miyatake), 3 specimens. Honolulu, Kalihi Valley, 27.iv.1966, in debris (W.Voss), 9 specimens. N end Koolau Mtns, 9.v.1964 (TWS), many specimens. Koolau Mtns, 650 m, Poamoho Trail, 23.xii.1972, sifting leaf litter in native rainforest (WCG & J. Jacobi), 4 specimens. Same data except 760 m, 15.ix.1973, mosses under dense shrubs (WCG), 1 specimen. Koolau Range, Kaumuhonu Peak, slopes 525 m, ca. 2 km NE Mt Tantalus, 19.v.1982, on moss soil under koa (GAS), 1 specimen.

MAUI: **New island record:** Haleakala Natl Park, Kipahulu Valley, 400 m, 24.vii.1980, moss on rock (no coll.), 1 specimen. Same data except Puu Ahuula, leaf litter (WAS), many specimens. Same data except Koukouai Gulch Ridge, in moss (G. Nishida), 4 specimens. Same data except Puaaluu Stream, 100 m, 6.vii.1980, under *Eugenia jambos* bark (WCG), many specimens.

Platyarthridae

Trichorhina heteropthalma

New island record

Lemos de Castro, 1964

A pantropical species, it is common in disturbed habitats at low elevation.

KAUAI: **New island record:** Haena, Hwy 56, 13.v.1969 (DMA), *Casuarina* humus, 3 specimens. Haena, start of Kalalau-Napali Trail, 19.i.1973, leaf litter on beach (FGH & ELB), 1 specimen.

Trichorhina tomentosa

New island records

(Budde-Lund, 1893)

This is a parthenogenetic species with a very wide ecological range. It is distributed throughout the tropical belt.

KURE: **New island record:** ii.1964 (F.Kelley), 1 female.

LAYSAN: **New island record:** 27.iv.-7.v.1959 (G. Butler), 12 females. 10.xii.1963, roots of bunch grass (N. Wilson), 6 females. 23.vii.1983, in bird burrow beneath *Cynodon dactylon* (WCG), 5 females.

KAUAI: Waimea, Hwy 55, 5.7 mi [9.2 km] from jct Hwy 50, 14.v.1969 (DMA), *Acacia decurrens* humus, 6 females.

OAHU: Honolulu, Kalihi, 120 m, 30.xii.1979, in *Pheidole* nest in wood (FGH), 3 females. Honolulu, Liliha, 12.iv.1984, litter (SFS), many females.

LANAI: **New island record:** 21.iii.1928, ex pineapple roots (J.F. I.[Ilingworth]), many females.

KAHOOLAWE: **New island record:** Moa Ula Iki, 425 m, 27.iv.1980, rotting wiliwili wood (FGH), 12 females.

MAUI: **New island record:** Haleakala Natl Park, Kipahulu Valley, near Kualoa Point, 5 m, 6.vii.1980, dead *Pandanus* branches (NLE & GAS), 1 female.

Trachelipodidae

Nagurus cristatus (Dollfus, 1889)

New island records

This is a parthenogenetic species, which is distributed pantropically.

OAHU: **New island record:** Honolulu, Kalihi Valley, 27.iv.1966, in debris (W. Voss), 1 female. Halawa Valley, 300 m, 19.v.1993, 26.v.1993, 3.vi.1993, 10.vi.1993, & 22.ix.1993, ex malaise trap (DJP), 6 females. Same data except 19.x.1995, beating ieie, 2 females. Same data except 350 m, 10.i.1994, *Prichardia* (FGH & DJP), 4 females.

MOLOKAI: **New island record:** Papio Stream, 180 m, 29.ix.1995, rotten mango stem (W.D. Perriera), 1 female.

MAUI: **New island record:** Kipahulu Valley, 500 m, 5.vii.1980, *Pandanus* leafaxils (GAS) 9 females. Kipahulu Valley, Puaaluu Stream, 100 m, 6.vii.1980, under *Eugenia jambos* bark (WCG), 4 females.

Nagurus nanus (Budde-Lund, 1908)

This eurytopic species is particularly common in disturbed habitats and synanthropically. It has a pantropical distribution.

OAHU: Honolulu, Kalihi, 120 m, 30.xii.1979, in *Pheidole* nest in wood (FGH), 3 specimens.

Nagurus sundaicus (Dollfus, 1898)

New state record

Widely distributed in the Oriental and Australian Regions. Previously recorded from China, Hong Kong, Indonesia, and the Loyalty Islands.

PEARL AND HERMES ATOLL: Southeast I, 28.v.1969 (DMA), 4 specimens. Southeast I, 26.iv.1923 (no coll.), 1 specimen.

Porcellionidae

Porcellio dilatatus dilatatus

New state record

Brandt, 1833

This species is of western Mediterranean origin and has been spread by humans to many parts of the world.

HAWAII: Puu Kamaoa, 10.vii.1923 (W. Meinecke), 4 specimens.

Porcellio laevis Latreille, 1804

New island records

Cosmopolitan species of Mediterranean origin. It is very common in synanthropic sites.

MIDWAY ISLANDS: **New island record:** Sand I, 29.i.1955 (C.F. Clagg), 1 specimen. No other data (C.F. Clagg), 4 specimens. Sand I, iv.1957 (Y. Oshiro), 1 specimen.

LISIANSKI: **New island record:** 7.viii.1983, under rocks on beach & under fallen coconuts (WCG), 8 specimens.

NIHAU: **New island record:** Kaali Spring, 16.viii.1947 (H. St. John & L.D. Tuthill), 1 specimen.

KAUAI: 21.v.1969 (R. Amerson), 3 specimens.

OAHU: Makaleha Valley, 13.i.1929 (no coll.), 1 specimen. Kamokunui Valley, 1.x.1933 (NLHK), 1 specimen. Honolulu, x.1941 (Y. Kondo), 4 specimens. Honolulu, Salt Lake, 16 & 19.vii.1977 (J. Nishioka), 5 specimens. West Loch Pearl Harbor, Honouliuli, 2.ii.1974, in beach or mangrove litter (FGH, WCG & F.D. Stone), 1 specimen.

MOLOKAI: **New island record:** Waikamoi, Kawela Road, 24.vii.1925 (A.F. Judd), 1 specimen. Halawa Valley, 23.iii.1970 (J.L. Gressitt), 1 specimen.

LANAI: ex pine soil, 30.viii.1927 (no collector), 12 specimens.

KAHOOLAWE: **New island record:** Beck's Cove, 11-14.ii.1980 (G.M. Nishida), 2 specimens. Moa Ula Iki, 425 m, 27.iv.1980, rotting wiliwili wood (FGH), 2 specimens.

MAUI: **New island record:** Haiku, xii.1927, ex pineapple refuse (EHB), 1 specimen. 2.5 mi S Kahakuloa, 21.i.1973, sifting litter (FGH & ELB), 1 specimen. Kaanapali, 2.xi.1992, on sand near vegetation (SFS), 4 specimens.

Porcellio lamellatus lamellatus

New island records

Budde-Lund, 1885

This is a littoral species found in the Mediterranean area and some Atlantic islands.

It has been introduced to Cuba, Argentina, Bermuda, and Rottneest Island, western Australia.

FRENCH FRIGATE SHOALS: **New island record:** Tern I, 22.iii.1984, under debris (WCG), 5 specimens.

KAUAI: **New island record:** Haena start of Kalalau-Napali Trail, 19.i.1973, leaf litter on beach (FGH & ELB), 1 specimen.

MOLOKAI: **New island record:** 1 mi W Kamehameha, Coconut Grove, 1st stop near mauka edge of mangrove, 16.i.1974 (ELB & FGH), 4 specimens.

Porcellio scaber Latreille, 1804

New island record

This native to western Europe is now cosmopolitan in distribution. In the Hawaiian Islands, it is the most common species at high elevations in both grassland and forests.

KAUAI: Alakai Swamp, 1250 m, 1.iv.1969 (J.L. Gressitt), 1 specimen. Kokee, Alakai Swamp, 17.i.1973, wet moss at base of trees (FGH, ELB & WCG), 10 specimens. Same data except first bog, *Oreobolus* litter (FGH & WCG), 1 specimen. Nr. Kalalau Lookout, 17.i.1973, in moss (FGH & ELB), 5 specimens. 0.9 mi E Kokee State Park, 17.i.1973, mossy road cut bank (FGH & ELB), 6 specimens. Kokee State Park, Kawaikoi Stream, 1060 m, 27.v.1989, ohia bark (SFS), 7 specimens.

MAUI: **New island record:** Olinda, 10.iii.1932 (O. Bryant), 1 specimen. Olinda, iv.1967, on plant (NLHK), 8 specimens. Waikamoi Stream, 1220 m, 19.vii.1965 (TWS), 2 specimens. Koolau Forest Reserve, 1300 m, 23.i.1973, tree fern & moss litter (FGH & ELB), 10 specimens. Haleakala Natl Park, Kapalaoa Cabin, 2200 m, 18.vi.1980, at night on ground (WCG), 5 specimens. Haleakala Natl. Park, near Hosmer's Grove, 12.x.1983 (B. & WCG), 4 specimens.

HAWAII: HVNP [Hawaii Volcanoes Natl Park], 1/2 way between Volcano House & Crater Hotel, E side road, 4.viii.1922 (M.C. Neal), 1 specimen. HVNP, x.1975, ex *Hibiscadelphus* (J.K. Baker & S. Allen), 1 specimen. HVNP, Mauna Ulu, 1000 m, 1973 lava flow, 15.ii.1974, Cheese bait trap 100 m from vegetation (FGH & F.D. Stone), 1 specimen. Volcano, Olaa Forest-Wright Road, 25.i.1973, tree fern harvest area litter (FGH & ELB), 2 specimens. Saddle Road, Puu Huluhulu, 28.viii.1979, under stones (FGH), 2 specimens. Kohala Mtns, Honopue Valley, 600 m, 9-13.vi.1970 (WCG), 3 specimens. Kohala Mtns, Upper Hamakua Ditch Trail, 900 m, 26.i.1973, sifting moss, fern & leaf litter (FGH & ELB), 8 specimens.

Porcellionides pruinosus (Brandt, 1833)

New island records

A cosmopolitan species of Mediterranean origin. It is very common in synanthropic sites.

KURE: 21.iv.1978 (D. Grady), 2 specimens. iii. 1979 (R. Grady), 1 specimen.

MIDWAY ISLANDS: **New island record:** Sand I, iv.1957 (Y. Oshiro), 2 specimens. (C.F. Clagg) no other data, 5 specimens.

PEARL AND HERMES ATOLL: **New island record:** Southeast I, 26.iv.1923 (no collector), 2 specimens. Southeast I, 28.v.1969, burrow of wedgetailed shearwater (DMA), many specimens. 28.v.1969 (D. M. Allred), many specimens. Southeast I, 20.vii.1983 (WCG), 3 specimens. Grass I, 10.viii.1983 (WCG), 10 specimens.

LISIANSKI: **New island record:** 17.v.1923, grass patch (C. Grant), 12 specimens. iv.1923 (D.T. Fullaway), 2 specimens. 7.viii.1983, under rocks on beach (WCG), 1 specimen.

LAYSAN: 25.iv.1923, under rocks of guano (S.C. Ball), many specimens. 9.iv.1923, around wood shacks (D.T. Fullaway), 5 specimens. 27.iv.-7.v.1959 (G. Butler), 10 specimens. 10.xii.1965, roots of bunch grass (N. Wilson), 7 specimens. 22.vii.1983, at night (WCG), 4 specimens [no date] (J.W. Thompson), 9 specimens.

FRENCH FRIGATE SHOALS: **New island record:** Tern I, 22.iii.1984, under debris (WCG), 3 specimens.

NECKER: **New island record:** 18-20.vi.1923, under stones (EHB), 11 specimens.

NIHOA: **New island record:** 12.vi.1923, *Sporobolus* (EHB), 3 specimens. 10-12.vii.1924 (T.T.

Dranga), 3 specimens. E Palm Valley, 100 m, 26.iv.1983, in *Eragrostis* clumps (WCG), 3 specimens.

KAUAI: **New island record:** 21.v.1969 (R. Amerson), 1 specimen. Haena, start of Kalalau-Napali Trail, 19.i.1973, leaf litter on beach (FGH & ELB), 1 specimen.

OAHU: Honolulu, Bishop Museum gardens, 1.vii.1971 (J. Tenorio & A. Adeniya), 5 specimens.

MOLOKAI: **New island record:** 1 mi W Kamehameha Coconut Grove, 1st stop near mauka edge of mangrove, 16.i.1974 (ELB & FGH), 2 specimens.

MAUI: **New island record:** Hana Beach, 24.i.1973, in false kamani litter (FGH & ELB), 5 specimens.

Armadillidiidae

Armadillidium vulgare (Latreille, 1804)

New state record

This species, native to the Mediterranean, has been spread by humans to many parts of the world, except higher latitudes and altitudes. It is common in many habitats, particularly in synanthropic sites such as houses, gardens, and cultivated lands.

OAHU: Kapalama, 240 m, 9.x.1993, under stone (FGH & DJP), 1 specimen.

Eubelidae

Elumoides monocellatus

New island record

Taiti & Ferrara, 1983

This species is common under stones and in litter at low altitudes, especially near the coast. It has a wide distribution in the Indian and Pacific area, from the Seychelles to Hawaii.

PEARL AND HERMES ATOLL: **New island record:** Southeast I, 28.v.1969 (DMA), 2 specimens.

Armadillidae

Cubaris murina Brandt, 1833

New island records

This is a pantropical species with synanthropic habits, abundant in very disturbed habitats.

NIIHAU: **New island record:** Kaali Spring, 16.viii.1947 (H. St. John & L.D. Tuthill), 1 specimen.

KAUAI: **New island record:** Moloaa, 75 m, 6.viii.1928, pineapple field (no collector), 1 specimen. Puu Konanae, 75 m, 6.viii.1928 (EHB), 1 specimen.

LANAI: **New island record:** ex pine soil, 30.viii.1927 (no coll.), 13 specimens.

KAHOOLAWE: **New island record:** Beck's Cove, 11-14.ii.1980 (G.M. Nishida), 3 specimens.

MAUI: **New island record:** Kipahulu Valley, above Puaaluu Stream, 25 m, 6.vii.1980, under *Eugenia jambos* bark (NLE & GAS), 5 specimens.

Hawaiodillo cf. *perkinsi* (Dollfus, 1900)

Comparison with the type of *perkinsi* (the only known specimen of this species collected in 1894 from Haleakala on Maui) is necessary to confirm identification of the Kauai material. This is an endemic genus with nothing known of its biology.

KAUAI: Kaunoo Hua Ridge, 21-22.vii.1937 (ECZ), 4 specimens.

Hawaiodillo sharpi (Dollfus, 1900)

Notable rediscovery

A single specimen of this endemic species was originally collected from 4,000 ft [1220 m] on Kauai in 1896. The specimen recorded here represents only the second known record of this species.

KAUAI: near Alakai Swamp, 8.viii.1937 (ECZ), 1 specimen.

Reductoniscus costulatus**New island record**

Kesselyak, 1930

This species common under stones and in leaf litter at low altitudes, especially near the coast. It has a wide distribution in the Indian and Pacific area, from the Seychelles to Hawaii.

KAUAI: **New island record:** Haena, start of Kalalau-Napali Trail, 19.i.1973, leaf litter on beach (FGH & ELB), 1 specimen.

OAHU: Honolulu, Kalihi, 120 m, 30.xii.1979, in *Pheidole* nest in wood (FGH), 2 specimens. Liliha, 12.iv.1984. (SFS), 2 specimens. Tripler Army Medical Center, 13.iv.1995, *Ficus* litter (SFS), many specimens.

Spherillo hawaiensis* Dana, 1853*New island record**

This xerophilic species is a Hawaiian endemic previously reported from Kauai, Oahu, Molokai, and Lanai. Although there are no recent collections from those islands, it is still abundant on Nihoa.

NIHOA: **New island record:** 11–14.vi.1923 (EHB), 37 specimens. 11.vi.1923 (Thaonum), 1 specimen. 10–12.vii.1924 (T.T. Dranga), 7 specimens. 23.ix.1964, under *Eragrostis* (JWB), 4 specimens. Devil's Slide, 200 m, 30.iv.1983, in scree & adjacent cliff bases at night (WCG), 2 specimens. W Palm Valley, 100 m, 25.iv.1983, pitfall trap under shrubs (WCG), 2 specimens.

KAUAI: Honopu, 20.vi.1922 (EHB), 1 specimen.

OAHU: Nanakuli, 6.v.1923 (O. Oswald), 2 specimens. Kamokunui Valley, 1.x.1933 (NLHK), 2 specimens.

Venezillo parvus* (Budde-Lund, 1885)*New island records**

This pantropical species is very abundant in disturbed habitats at low altitude, under stones, logs, and in leaf litter.

KURE: **New island record:** ii.1964 (F. Kelley), 1 specimen.

KAUAI: **New island record:** Moloaa, 75 m, 6.viii.1928, pineapple field (no collector), 2 specimens. Puu Konanae, 75 m, 6.viii.1928 (EHB), 1 specimen. Haena, start of Kalalau-Napali Trail, 19.i.1973, leaf litter on beach (FGH & ELB), 1 specimen. Haena, Hwy 56, 13.v.1969 (DMA), *Hibiscus tilaceus* litter, 4 specimens. Haena, Hwy 56, 13.v.1969 (DMA), *Eugenia* litter, 1 specimen. Kapaa, Hwy 580, 6 mi [9.6 km] above Opaekaa Falls, 13.v.1969 (DMA), *Albizia* litter, 2 specimens.

OAHU: Head of Makua Valley, 450 m, 6.viii.1965 (WAS & C. Phillips), 3 specimens. Kalihi, 60 m, 4.iii.1961 (Y. Miyatake), 2 specimens. Liliha, 12.iv.1984 (SFS), 9 specimens. Kaneohe Bay, 25.iii.1973, mangrove litter (FGH), 2 specimens.

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Table 1. List of terrestrial isopods recorded from the Hawaiian Islands.

TAXON	Status	Ku	Mi	Pe	Li	Ly	Fr	Ne	Na	Nu	Ka	Oa	Mo	Ln	Kh	Ma	Ha
LIGIDAE																	
1. <i>Ligia exotica</i> Roux, 1828	adv											Oa					
2. <i>Ligia hawaiiensis</i> Dana, 1853	end										Ka	Oa	Mo			Ma	Ha
3. <i>Ligia perkinsi</i> (Dollfus, 1900)	end						Fr	Ne	Na		Ka	Oa					
STYLONISCIDAE																	
4. <i>Clavigeroniscus riqiteri</i> Arcangeli, 1930	adv																Ha
5. <i>Styloniscus mauritienis</i> (Barnard, 1936)	adv											Oa		Ln		Ma	Ha
6. <i>Styloniscus spinosus</i> (Patience, 1907)	adv										Ka	Oa		Ln		Ma	Ha
TRICHONISCIDAE																	
7. <i>Haplophthalmus danicus</i> Budde-Lund, 1885	adv										Ka	Oa		Ln		Ma	Ha
FAMILY ?																Ma	
8. <i>Buchnerillo</i> sp.	?											Oa					
SCYPHACIDAE																	
9. <i>Alloniscus oahuensis</i> Budde-Lund, 1885	adv										Ka	Oa	Mo	Ln?		Ha	
10. <i>Armadilloniscus ellipticus</i> (Harger, 1878)	adv											Oa					
11. <i>Armadilloniscus hawaiiianus</i> Taiti & Ferrara, 1989	?											Oa					
OLIBRINIDAE																	
12. <i>Olibrinus truncatus</i> Taiti & Ferrara, 1991	adv											Oa					
PHILOSCIIDAE																	
13. <i>Anchiphiloscia pilosa</i> (Budde-Lund, 1913)	adv										Ka	Oa				Ma	Ha
14. <i>Australophiloscia societatis</i> (Maccagno, 1932)	ind														Pe		
15. <i>Burmoniscus mauritienis</i> (Taiti & Ferrara, 1983)	adv										Ka	Oa	Mo			Ma	Ha
16. <i>Burmoniscus meesei</i> (Holthuis, 1947)	adv										Ka		Mo			Ma	Ha

Table 1. List of terrestrial isopods recorded from the Hawaiian Islands (continued).

TAXON	Status	Ku	Mi	Pe	Li	Ly	Fr	Ne	Na	Nu	Ka	Oa	Mo	Ln	Kh	Ma	Ha
17. <i>Burmoniscus okinawaensis</i> (Numomura, 1986)	adv											Oa				Ma	Ha
18. <i>Hawaiiiscia parvituberculata</i> Schultz, 1973	end										Ka?					Ma	
19. <i>Littorophiloscia bifasciata</i> Taiti & Ferrara, 1986	ind											Oa					Ha
20. <i>Littorophiloscia culebrae</i> (Moore, 1901)	adv			Pe	Li							Oa					
21. <i>Littorophiloscia hawaiiensis</i> Taiti & Ferrara, 1986	end					Ly											Ha
22. <i>Papuaphiloscia laevis</i> (Schultz, 1973)	?																Ha
23. <i>Tropicana minuta</i> Manicasteri & Taiti, 1987	adv										Ka	Oa				Ma	Ha
PLATYARTHRIIDAE																	
24. <i>Niambia</i> sp.	?											Oa					
25. <i>Trichorhina heterophthalma</i> Lemos de Castro, 1964	adv										Ka	Oa					
26. <i>Trichorhina tomentosa</i> (Budde-Lund, 1893)	adv	Ku				Ly					Ka	Oa		Ln	Kh	Ma	Ha
TRACHELIPODIDAE																	
27. <i>Nagurus cristatus</i> (Dollfus, 1889)	adv											Oa	Mo			Ma	Ha
28. <i>Nagurus nanus</i> (Budde-Lund, 1908)	adv											Oa					Ha
29. <i>Nagurus sudaicus</i> (Dollfus, 1898)	adv			Pe													
PORCELLIONIDAE																	
30. <i>Agabiformius lentus</i> (Budde-Lund, 1885)	adv																
31. <i>Porcellio dilatatus dilatatus</i> Brandt, 1833	adv																Ha
32. <i>Porcellio laevis</i> Latreille, 1804	adv		Mi		Li					Nu	Ka	Oa	Mo	Ln	Kh	Ma	Ha
33. <i>Porcellio lamellatus lamellatus</i> Budde-Lund, 1885	adv						Fr				Ka	Oa	Mo			Ma	Ha
34. <i>Porcellio scaber</i> Latreille, 1804	adv										Ka					Ma	Ha
35. <i>Porcellionides pruinosus</i> (Brandt, 1833)	adv	Ku	Mi	Pe	Li	Ly	Fr	Ne	Na		Ka	Oa	Mo			Ma	Ha

Table 1. List of terrestrial isopods recorded from the Hawaiian Islands (continued).

TAXON	Status	Ku	Mi	Pe	Li	Ly	Fr	Ne	Na	Nu	Ka	Oa	Mo	Ln	Kh	Ma	Ha
ARMADILLIDIIDAE																	
36. <i>Armadillidium vulgare</i> (Latreille, 1804)	adv											Oa					
EUBELIDAE																	
37. <i>Elumoides monocellatus</i> Taiti & Ferrara, 1983	adv			Pe													
ARMADILLIDAE																	
38. <i>Cubaris murina</i> Brandt, 1833	adv									Nu	Ka	Oa		Ln	Kh	Ma	Ha
39. <i>Hawaiodillo danae</i> (Dollfus, 1900)	end										Ka						
40. <i>Hawaiodillo perkinsi</i> (Dollfus, 1900)	end										Ka?					Ma	
41. <i>Hawaiodillo sharpi</i> (Dollfus, 1900)	end										Ka						
42. <i>Myrmecodillo pacificus</i> Taiti & Ferrara, 1991	?																Ha
43. <i>Reductoniscus costulatus</i> Kesselyak, 1930	adv										Ka	Oa					Ha
44. <i>Spherillo albospinosus</i> (Dollfus, 1900)	end																
45. <i>Spherillo carinulatus</i> Budde-Lund, 1904	end										Ka						
46. <i>Spherillo hawaiiensis</i> Dana, 1853	end							Na			Ka	Oa	Mo	Ln			
47. <i>Venezillo parvus</i> (Budde-Lund, 1885)	adv			Ku							Ka	Oa					Ha

Islands in boldface are new records recorded in this paper.

Island Distribution: Fr=French Frigate Shoals, Ha=Hawaii, Ka=Kauai, Kh=Kahoolawe, Ku=Kure, Li=Lisianski, Ln=Lanai, Ly=Laysan, Ma=Maui, Mi=Midway, Mo=Molokai, Ne=Necker, Ni=Niihau, Nu=Niihau, Oa=Oahu, Pe=Pearl & Hermes.

Status: End=endemic, ind=indigenous, adv=adventive, ?=unknown.