



**Terrestrial Arthropod Survey of Halona Valley,
Joint Base Pearl Harbor-Hickam, Naval Magazine
Lualualei Annex, August–December 2015**

**Hawaii
Biological
Survey**

Final Report

May 2016

**Terrestrial Arthropod Survey of
Halona Valley, Joint Base Pearl Harbor-Hickam,
Naval Magazine Lualualei Annex, August–December 2015**

Neal L. Evenhuis, David J. Preston, Keith T. Arakaki, Clyde T. Imada

Final Report prepared for the U.S. Navy

Contribution No. 2016-001 to the Hawaii Biological Survey

Executive Summary

The Bishop Museum was contracted by the U.S. Navy to conduct surveys of terrestrial arthropods in Halona Valley, Naval Magazine Lualualei, in order to assess the status of populations of three groups of insects including species at risk in those groups: picture-winged *Drosophila* (Diptera; flies), *Hylaeus* spp. (Hymenoptera; bees), and *Rhyncogonus welchii* (Coleoptera; weevils). The last survey of Lualualei for terrestrial arthropods was made by Bishop Museum in 1997. The current survey was an opportunity to search for target groups but also to assess any changes in the fauna since the last survey almost 20 years earlier. Surveys were conducted from late August 2015 through mid-December 2015 comprising a total of 12 trips. Surveys were conducted using yellow water pan traps, pitfall traps, hand collecting, aerial net collecting and lure traps for beetles. The area chosen for study was a *Sapindus oahuensis* grove in Halona Valley enclosed by fencing and maintained by the Wai‘anae Mountains Watershed Partnership. The area had the greatest potential for all three groups of arthropods to be present, especially the *Rhyncogonus* weevil, which has previously been found in association with *Sapindus* trees. Trapped and collected insects were taken back to the Bishop Museum for sorting, identification, data entry, and storage and preservation. The results of the surveys proved negative for any of the target groups. However, by-catch of insects and other terrestrial arthropods resulted in 18 new records for Halona Valley and 18 for the entire Naval Magazine Lualualei. A listing of all species identified from this survey is given and added to the full list of terrestrial arthropods known from Lualualei. Further surveying in additional areas of Halona Valley should be conducted in order to better assess the presence/absence of the target taxa but also to assess potential threats to populations of such vulnerable taxa.

Introduction

In 1997, the Bishop Museum conducted a terrestrial arthropod survey of the Joint Base Pearl Harbor-Hickam, Naval Magazine Lualualei Annex (hereinafter shortened to Lualualei) (Evenhuis, 1997) in order to provide a faunal list of all terrestrial arthropods in assisting the U.S. Navy with their conservation efforts on the base. In that survey, a total of 638 taxa were collected and identified. The majority of the taxa were found in Halona Valley, which proved to harbor a rich and diverse assemblage of both plants and animals. The current survey was conducted to update that 1997 survey by focusing on Halona Valley and to assess the populations of three target arthropod groups that include species at risk, as well as federally listed species. Surveys were conducted from late August 2015 through mid-December 2015 comprising a total of 12 trips. Arthropods were observed and collected and collected specimens brought back to the Bishop Museum for identification, data entry and preservation. In a few cases, fungal material with potential insect immatures was brought back for rearing out of fungal associates. Results of collection and identification are provided in the Appendices.

Material and Methods

Survey Site and Collection Points. Halona Valley was chosen for survey work because it is the locality where many of the target taxa have last been seen. Halona Valley is a large basin shaped region forming the headwaters of a major drainage feeding Niuli'i Reservoir, originating below Pohakea Pass. This area is today accessed via bunkers located on Dent Street and Forrestal Street.

A fenced enclosure protecting native plants including *Sapindus oahuensis* trees at approximately 1700 ft elev. was selected as the primary survey area since it has flowering plants for the *Hylaeus* bees (Hymenoptera: Colletidae) and the *Rhyncogonus* weevil (*R. welchii*) (Coleoptera: Curculionidae) was last seen in association with *Sapindus oahuensis* in Halona Valley. Picture-winged *Drosophila* (Diptera: Drosophilidae) had been seen at higher altitudes in the valley, but it was hoped that they would be attracted to baits so we could observe and record them. Additionally, the enclosed area was being maintained by the Wa'anae Mountains Watershed Partnership which helped in fostering to the continued health of potential native vegetation hosts.

A trail to the site cleared by Watershed Partnership staff provided easy access through *koa haole* (*Leucaena leucocephala*) and Christmas berry (*Schinus terebinthifolius*), which would have otherwise proven more difficult.

Surveying was done at points along the trail leading to the enclosure, as well as at bait sites and other sites within the enclosure. Collecting sites were marked with a GPS to obtain latitude and longitude (Table 1).

Table 1. Collecting Sites in Naval Magazine Lualualei, Halona Valley

WP owner	WP#	Latitude	Longitude	Elev	Label
NLE	87	N21°25.749'	W158°06.316'	1076'	base camp/parking
NLE	97	N21°25.744'	W158°06.292'	—*	ant bait trap on trl
NLE	95	N21°25.751'	W158°06.263'	—*	ant bait trap on trl
NLE	126	N21°25.737'	W158°06.232'	1107'	ant bait trap on trl
NLE	127	N21°25.717'	W158°06.172'	1157'	ant bait trap on trl
NLE	88	N21°25.701'	W158°06.129'	1196'	ant bait trap on trl
NLE	128	N21°25.694'	W158°06.102'	1250'	ant bait trap on trl
NLE	129	N21°25.655'	W158°06.021'	1342'	ant bait trap on trl
NLE	89	N21°25.638'	W158°05.983'	1350'	ant bait trap on trl
NLE	90	N21°25.606'	W158°05.955'	1401'	log fungus on trail
NLE	130	N21°25.538'	W158°05.930'	1506'	ant bait trap on trl
NLE	131	N21°25.517'	W158°05.901'	1577'	ant bait trap on trl
CTI	11	N21°25.523'	W158°05.944'	1580'	amber sap on kukui tree trunk
NLE	91	N21°25.459'	W158°05.862'	1661'	pan trap Site #2 (below excl.)
NLE	132	N21°25.458'	W158°05.868'	1681'	ant bait trap nr. pan trap site #2
DJP	344	N21°25.465'	W158°05.850'	1696'	mushroom sponge on trunk of <i>Sapindus</i>
DJP	350	N21°25.457'	W158°05.862'	1700'	Lindgren funnel trap w/UHR Etoh & UHR Alpha-pinene lures
NLE	93	N21°25.474'	W158°05.857'	1705'	pan trap Site #1 (in excl.)
NLE	80	N21°25.458'	W158°05.855'	1709'	pitfall trap WP80
DJP	338	N21°25.460'	W158°05.853'	1712'	Banana sponge on trunk of <i>Sapindus</i>
NLE	78	N21°25.495'	W158°05.788'	1712'	pitfall trap WP78-1,2
NLE	79	N21°25.495'	W158°05.788'	1712'	pitfall trap WP79
NLE	81	N21°25.462'	W158°05.855'	1721'	pitfall trap WP81
DJP	349	N21°25.457'	W158°05.865'	1726'	Lindgren funnel trap w/UHR Etoh & UHR Alpha-pinene lures
DJP	339	N21°25.462'	W158°05.857'	1726'	Banana sponge on trunk of <i>Sapindus</i>
NLE	85	N21°25.474'	W158°05.847'	1726'	pitfall trap WP85
NLE	84	N21°25.469'	W158°05.848'	1731'	pitfall trap WP84
NLE	99	N21°25.475'	W158°05.852'	1736'	NW corner of excl. fence
DJP	348	N21°25.467'	W158°05.853'	1737'	mushroom sponge on trunk of <i>Antidesma pulvinatum</i>
DJP	348	N21°25.467'	W158°05.853'	1737'	pitfall nr. Base of <i>Antidesma pulvinatum</i>
NLE	82	N21°25.461'	W158°05.844'	1740'	pitfall trap WP82
DJP	347	N21°25.470'	W158°05.843'	1741'	mushroom sponge on trunk of <i>Antidesma pulvinatum</i>
DJP	347	N21°25.470'	W158°05.843'	1741'	pitfall nr. Base of <i>Antidesma pulvinatum</i>
NLE	83	N21°25.470'	W158°05.847'	1742'	pitfall trap WP83
NLE	98	N21°25.451'	W158°05.581'	1745'	SE corner of excl. fence
DJP	345	N21°25.462'	W158°05.853'	1750'	mushroom sponge on trunk of <i>Sapindus</i>
DJP	345	N21°25.462'	W158°05.853'	1750'	pitfall nr. Base of <i>Sapindus</i>
DJP	346	N21°25.462'	W158°05.833'	1754'	mushroom sponge on trunk of <i>Sapindus</i>
DJP	346	N21°25.462'	W158°05.833'	1754'	pitfall nr. Base of <i>Sapindus</i>
DJP	340	N21°25.453'	W158°05.853'	1789'	Banana sponge on trunk of <i>Sapindus</i>
DJP	341	N21°25.460'	W158°05.853'	1802'	Banana sponge on trunk of <i>Sapindus</i>
DJP	343	N21°25.460'	W158°05.853'	1808'	Banana sponge on trunk of <i>Sapindus</i>
DJP	342	N21°25.458'	W158°05.848'	1815'	Banana sponge on trunk of <i>Sapindus</i>

* bad reading

NLE - Neal L Evenhuis
 CTI - Clyde T Imada
 DJP - David J Preston

Collecting Methods. A number of collecting methods were employed during the survey to enable collection of as wide a variety of arthropods as possible. Some included observation only to avoid collecting of federally listed picture-winged *Drosophila*. A list of the trapping methods used included:

Yellow water pans (Fig. 1). These are used to collect a variety of flying insects that are attracted to the yellow color. The traps consist of small yellow bowls filled with water with a small amount of surfactant (usually soap), which causes trapped specimens to sink and drown. A small amount of ethylene glycol was added to repel fungal growth and reduce evaporation of the liquid.



Fig. 1. Yellow Pan trap site #1 inside enclosure.

Pitfall Traps (Fig. 2). These traps are designed to collect ground-dwelling arthropods and other invertebrates that fall into the traps. The traps consist of a plastic cup buried in the substrate so as to be relatively level with the ground and filled with a 50/50 mix of water and ethylene glycol (marine anti-freeze that is “eco-friendly”). Cups that were above ground level were provided with natural “ramps” of twigs. Traps were protected from rain and falling debris by placing a cap rock on top but still leaving space for crawling invertebrates to get to the cup.



Fig. 2. Pitfall trap in place with rock protective cover. Flag used to mark location.

Bait traps (Figs. 3–4. These consisted of two types of baits (fermented banana and fermented mushroom). Sponges were affixed to the mauka-facing surface of *Sapindus* trunks at eye level for easy observation. Baits were applied to sponges and let sit for a few hours before observations commenced. After two days, baits were observed again. Insects associated with the baits that were not picture-winged *Drosophila* were hand collected using snap cap vials.



Figs. 3-4. Bait traps. 3. Mushroom bait. 4. Banana bait.

Beetle Lure traps (Fig. 5). Two Lindgren funnels were employed mid-way through the survey to attract boring beetles in the survey area. The traps consisted of a combination of Ultra High Release (UHR) Ethanol and UHR Alpha-pinene lures. These lures are designed as specific attractants for bark beetles of the families Scolytidae and Platypodidae (also considered a subfamily within Scolytidae).



Fig. 5. Lindgren funnel traps to collected beetles with chemical lures.

Ant bait traps. A simple smear of peanut butter on a stick was used to attract ants at various sites along the trail to the enclosure. Collected ants were placed in a vial of ethanol and taken back to the lab for identification.

Aerial sweep nets. Flying insects were collected with aerial sweep nets (Fig. 6) when they appeared. Often, insects were collected out of the net with an aspirator. Collected insects were placed in snap cap vials and collected insects brought back to the lab for identification.



Fig. 6. Using an aerial sweep net in the enclosure. Note banana bait trap in the background center.

Hand collecting. This often involved using snap cap vials for collecting hard to reach specimens (such as crane flies (Diptera: Tipulidae) under rocks) or insects walking on substrata (ground dwelling spiders or insects found on vegetation).

Results

A total of 75 taxa of terrestrial arthropods were identified during this survey. This included 18 new records for Halona Valley and 18 new records for Lualualei (since Halona is by far the most diverse of the areas in Lualualei for terrestrial invertebrates, it is no surprise that if a taxon is new to Halona, then it would probably not have been found anywhere else in Lualualei previous to this study, thus is new to all of Lualualei too). A full list is given in the Appendix. A few of the collected and identified taxa resulting from this survey are highlighted here.

Bark/boring beetles (Coleoptera): The following beetles were recorded as new to Halona and Lualualei. *Xylopsocus castanoptera* (Fairmaire) (Bostrichidae); *Euwallacea fornicatus* (Eichhoff), *Xyleborinus andrewsi* (Blandford), *Xyleborus spinulosus* Blandford, and *Xylosandrus compactus* (Eichhoff) (all Scolytidae). These are probably not recent introductions to the area but were not recorded in the Evenhuis (1997) survey because of the lack of target-specific chemical lures then, which were employed for the first time in this study.

Flies (Diptera): A few new records of flies are reported here from Halona and Lualualei for the first time. One, the syrphid fly *Ocyptamus dimidiatus* (Fabricius) is a recent introduction to Hawai'i (see Evenhuis, 2015) and this marks the westernmost extent of its range on O'ahu. The others include *Dicranomyia stygipennis* Alexander (Limoniidae; crane flies), *Holoplagia guamensis* (Johannsen) (Scatopsidae), and *Bactrocera dorsalis* (Hendel; Tephritidae, the Oriental fruit fly). Of these new records, the only one that is native is the endemic crane fly, *Dicranomyia stygipennis*. The fact that this is a new record is good news that some native species on O'ahu are expanding their range.

Ants (Hymenoptera: Formicidae). Three new records of ants for Halona and Lualualei as a whole were found in this study, which was primarily a result of ant bait traps that were employed, which attracted ants that otherwise might have been missed. It is unclear if some of these are recent introductions to the area, as all have occurred in Hawai'i previous to the 1997 study. The new records include: *Cardiocondyla emery* Forel, *Leptogenys falcigera* Roger, and *Solenopsis papuanus* Emery. All ants are non-native in Hawai'i.

Wasps (Hymenoptera: Vespidae). One new record of a wasp, *Polistes exclamans* Viereck (Fig. 7), is recorded in this report. It was not collected in the primary study site, but at the southeast corner of the valley at an abandoned set of buildings. This paper wasp can be a potential threat to native invertebrates because it provisions its nests with prey of all types in order to feed its immatures. Although it was well outside of the primary study area, its foraging could take it far afield from its nests and some individuals could fly into the area in search of prey.



Fig. 7. Paper nest with the wasp *Polistes exclamans*.

Discussion

Although we had negative results for the target taxa, there no reason to believe that they do not exist in Halona Valley and further surveying in other areas should hopefully bear this out. At a minimum, this survey has helped increase the baseline inventory of terrestrial arthropods in Halona Valley and Lualualei and can assist resource managers in decision-making with regard to conservation management, protection of existing native biota, and understand and possibly mitigate possible threats to vulnerable taxa of plants and invertebrates in the area.

References

- Evenhuis, N.L.** (1997) Diversity of insects and related arthropods of the Naval Magazine Lualualei, Headquarters Branch, Oahu, Hawaii. Final report prepared for the U.S. Navy. *Bishop Museum Technical Report 9*, 170 pp.
- Evenhuis, N.L.** (2015) Two new records of Diptera (Insecta) to the Hawaiian Islands. *In*: Evenhuis, N.L. & Miller, S.E. (eds.), Records of the Hawaii Biological Survey for 2014. Part I: Articles. *Bishop Museum Occasional Papers* 116: 27–29.

Appendix. List of Terrestrial Arthropods in Naval Magazine Lualualei with special reference to those collected in Halona in 1997 and 2015

	Lualualei 1997	Halona 1997	Halona 2015
ACARI			
Acaridae			
Tyrophagus putrescentiae (Schrank)	1	1	
Ascidae			
Asca aphidioides (Linnaeus)	1	1	
Asca duosetosa Fox	1	1	
Asca quinquesetosa Wharton	1		
Bdellidae			
Bdella captiosa Atyeo	1	1	
Bdella distincta Baker & Balock	1	1	
Bdella mexicana Baker & Balock	1	1	
Spinibdella depressa (Ewing)	1	1	
Spinibdella sp. [immature]	1	1	
Brachycthoniidae			
Sellnickthonus sp.	1		
Caligonellidae			
Coptocheles solanii Swift	1		
Neognathus spectabilis (Summers & Schlinger)	1		
Cepheidae/Andremaeidae			
gen. sp.	1	1	
Cheyletidae			
Hemicheyletia wellsi (Baker)	1	1	
Cryptognathidae			
Favognathus goffi Swift	1	1	
Favognathus pictus (Summers & Chaudhri)	1	1	
Ctenacaridae			
Ctenacarus araneolus (Grandjean)	1		
Cunaxidae			
Pulaeus n.sp.	1	1	
Digamasellidae			
Dendroseius sp.	1		
Ereynetidae			
Ereynetes sp.	1	1	
Euphthiracaridae			
Euphthiracarus sp.	1	1	
Eupodidae			
Eupodes sigmoidensis Strandtmann & Goff	1	1	
Galumnidae			
Pergalumna hawaiiensis (Jacot)	1	1	
Laelapidae			
Pseudoparasitus trincisus Hunter	1	1	

	Lualualei 1997	Halona 1997	Halona 2015
Macrochelidae			
Macrocheles muscaedomesticae (Scopoli)	1	1	
Macrocheles sp. nr. rodriguezii (Oliver & Krantz)	1	1	
Nanorchestidae			
Nanorchestes sp. 1	1	1	
Nanorchestes sp. 2	1	1	
Nothridae			
Nothrus sp.	1	1	
Ologamasidae			
Gamasiphis sp.	1	1	
Oppiidae			
gen. spp. (3)	1	1	
Oribatidae			
gen. sp.	1		1
Paratydeidae			
Paratydeus sp.	1		
Podocinidae			
Podocinum sagax (Berlese)	1	1	
Polyaspididae			
gen. sp.	1	1	
Pygmephoridae			
Pygmephorus sp.	1		
Raphignathidae			
Raphignathus n.sp.	1		
Rhagidiidae			
Shibaia longisensilla (Shiba)	1		
Scheloribatidae			
Scheloribates sp. nr. oahuensis Jacot	1	1	
Scheloribates spp.	1	1	
Stigmaeidae			
Eustigmaeus microsegnis (Chaudhri)	1	1	
Eustigmaeus ornatus Ueckermann & Meyer	1	1	
Eustigmaeus segnis grp.	1	1	
Stigmaeus n.sp.	1	1	
Tarsonemidae			
Hemitarsonemus sp.	1		
Tydeidae			
Tydeus sp.	1		
Uropodidae			
gen. sp.	1	1	
Veigaiidae			
Veigaia nemorensis (C.L. Koch)	1		

	Lualualei 1997	Halona 1997	Halona 2015
AMPHIPODA			
Talitridae			1
Talitroides topitotum Burt	1	1	
ARANEAE			
Araneidae			1
Argiope appensa (Walckenaer)	1	1	
Gasteracantha mammosa C.L. Koch	1	1	1
Neoscona sp.	1		
Clubionidae			
Cheiracanthium mordax L. Koch	1	1	
Dysderidae			
Dysdera crocota C.L. Koch	1	1	
Gnaphosidae			
Camillina elegans (Bryant)	1	1	
Linyphiidae			
Labulla sp.	1	1	
Nesticidae			
Eidmanella pallida (Emerton)	1	1	
Oonopidae			
Oonopinus hunus Suman	1		
Oonopinus n.sp.	1		
Opopaea lena Suman	1		
Orchestina sp.	1		
Pholcidae			
Pholcus phalangioides (Fuesslins)	1		
Salticidae			1
Hasarius adansoni (Audouin)	1		
Phintella versicolor (C.L. Koch)	1		
Tetragnathidae			
Tetragnatha n. sp.	1	1	
Theridiidae			1
Argyrodes argyrodes (Walckenaer)	1		
Latrodectus geometricus C.L. Koch	1		
Steatoda grossa (C.L. Koch)	1		
Theridion melanostictum (Pickard-Cambridge)	1		
Thomisidae			
Misumenops sp. A	1		
Misumenops sp. B	1	1	
Misumenops sp. C	1	1	
CHILOPODA			
Geophilidae			1
gen. sp.	1		
Lithobiidae			
Lithobius sp.	1	1	

	Lualualei 1997	Halona 1997	Halona 2015
Scolopendridae			
gen. sp. [immatures]	1		
<i>Scolopendra subspinipes</i> Leach	1	1	
COLEOPTERA			
Aglycyderidae			
<i>Proterhinus blackbumi blackbumi</i> Sharp	1	1	
<i>Proterhinus deceptor</i> Perkins	1		
<i>Proterhinus</i> spp. (not <i>blackbumi</i> group)	1	1	
Alleculidae			
<i>Pseudocistela</i> sp.	1		
Anthribidae			
<i>Araecerus fasciculatus</i> (De Geer)	1		
<i>Araecerus levipennis</i> Jordan	1	1	
<i>Araecerus vieillardii</i> (Montrouzier)	1		
<i>Exillis lepidus</i> Jordan	1		
gen. sp.	1	1	
Bostrichidae			
<i>Amphicerus cornutus</i> (Pallas)	1		
<i>Xylopsocus castenoptera</i> (Fairmaire)			1
<i>Xylopsocus religiosus</i> (Boisduval)	1	1	1
Bruchidae			
<i>Acanthoscelides macrophthalmus</i> (Schaeffer)	1	1	
<i>Lithraeus atronotatus</i> (Pic)	1	1	
<i>Stator pruininus</i> (Horn)	1	1	
gen. sp.	1		
Buprestidae			
<i>Chrysobothris octocola</i> Le Conte	1		
Cantharidae			
<i>Caccodes oceaniae</i> (Bourgeois)	1		
Carabidae			
<i>Colpodes buchannani</i> Hope	1		
<i>Gnathaphanus picipes</i> (Macleay)	1	1	
<i>Gnathaphanus upolensis</i> (Csiki)	1	1	
<i>Stenolophus</i> sp.	1	1	
Cerambycidae			
<i>Ceresium unicolor</i> (Fabricius)	1	1	
<i>Curtomerus flavus</i> (Fabricius)	1	1	
<i>Gelonaetha hirta</i> (Fairmaire)	1	1	
<i>Oopsis nutator</i> (Fabricius)	1	1	
<i>Phoracantha semipunctata</i> (Fabricius)	1	1	
<i>Placosternus crinicornis</i> {Chevrolat}	1	1	
<i>Pterolophia camura</i> Newman	1	1	
<i>Sybra alternans</i> (Wiedemann)	1	1	

	Lualualei 1997	Halona 1997	Halona 2015
Chrysomelidae			
Diachus auratus (Fabricius)	1	1	
Octotoma scabripennis Guerin-Meneville	1	1	
Uroplata girardi Pic	1	1	
Ciidae			
gen. sp. B	1		
gen. sp. A	1	1	
Coccinellidae			
Cryptolaemus montrouzieri Mulsant	1	1	
Curinus coeruleus (Mulsant)	1	1	
Halmus chalybeus (Boisduval)	1		
Nephus bilucernarius (Mulsant)	1	1	
Olla v-nigrum (Mulsant)	1	1	1
Orcus australasiae (Boisduval)	1	1	
Rhyzobius forestieri (Mulsant)	1	1	
Scymnus sp.	1	1	
Sticholotis ruficeps Weise	1	1	
Telsimia nitida Chapin	1	1	
Colydiidae			
Penthelispa rufipennis (Montrouzier)	1		
Corylophidae			
Gronevus rotundus (Sharp)	1		
Gronevus sp.	1		
Orthoperini sp. (not Orthoperus aequalis Sharp)	1		
Sericoderus pubipennis Sharp	1	1	
Curculionidae			
Anotheorus sp.	1		
Asynonychus godmanni Crotch	1	1	
Dryophthorus distinguendus Perkins	1	1	
Oodemus punctulatissimum Perkins	1	1	
Oxydema fusiforme Wollaston	1	1	
Pholidophorus advena Zimmerman	1	1	
Rhyncogonus welchii Perkins	1	1	
Sibinia sp.	1	1	
Dermestidae			
Orphinus terminalis (Sharp)	1		
Dytiscidae			
Rhantus pacificus (Boisduval)	1		
Rhantus pseudopacificus Balke	1	1	
Elateridae			
Chalcolepidius erythroloma Candeze	1		
Conoderus exsul (Sharp)	1	1	

	Lualualei 1997	Halona 1997	Halona 2015
Endomychidae			
Eidoreus minutus Sharp	1		
Hydrophilidae			
Cryptopleurum minutum (Fabricius)	1		
Enochrus sayi Gundersen	1		
Helochares sp.	1		
Tropisternus lateralis humeralis Motschulsky	1		
Jacobsoniidae			
Derolathrus atomus Sharp	1	1	
Languriidae			
Cryptophilus integer (Heer)	1		
Lathridiidae			
Corticaria longicollis (Zetterstedt)	1		
Mycetophagidae			
Litargus vestitus Sharp	1		
Nitidulidae			
Carpophilus hemipterus (Linnaeus)	1		
Carpophilus humeralis (Fabricius)	1	1	
Carpophilus mutilatus Erichson	1		
Haptoncus mundus Sharp	1	1	
Haptoncus ocularis (Fairmaire)	1	1	
Nesopeplus roridus Sharp	1		
Soronia variegata Macleay	1	1	
Ptiliidae			
Ptiliodes sp.	1		
gen. sp.	1		
Rhizophagidae			
Hesperobaenus capito (Fairmaire)	1		1
Scarabaeidae			
Adoretus sinicus Burmeister	1	1	
Copris incertus prociduus Say	1	1	
Onthophagus incensus Say	1	1	
Scirtidae			
gen. sp.	1		
Scolytidae			
<i>Euwallacea fornicatus</i> (Eichhoff)			1
Hypothenemus birmanus (Eichhoff)	1		1
Hypothenemus crudiae (Panzer)	1		
Hypothenemus eruditus (Westwood)	1		
<i>Xyleborinus andrewsi</i> Blandford			1
Xyleborinus saxeseni (Ratzeburg)	1		1
Xyleborus affinis Eichhoff	1		
Xyleborus ferrugineus (Fabricius)	1	1	
Xyleborus interjectus Blandford	1		

	Lualualei 1997	Halona 1997	Halona 2015
Scolytidae (continued)			
Xyleborus lanaiensis Perkins	1	1	1
Xyleborus perforans (Wollaston)	1	1	1
Xyleborus spinulosus Blandford			1
Xylosandrus compactus (Eichhoff)			1
Silvanidae			
Cryptamorpha desjardinsi (Guerin-Meneville)	1	1	1
Psammoechus sp.	1		
Staphylinidae			
Anotylus sp. prob. nitidifrons (Wollaston)			1
Atheta coriaria (Kraatz)	1		
Atheta sp. (not coriaria)	1		
Coproporus sp.	1		
Ctenandropus sp.	1		
Philonthus discoideus (Gravenhorst)	1		
Philonthus longicornis Stephens	1	1	
Philonthus sp.	1		
Philonthus sp. (Newton sp. 1)	1		
Philonthus turbidus Erichson	1	1	
Sunius sp.	1	1	
Thyreocephalus albertisi (Fauvel)	1	1	
gen. sp.	1		
gen. sp. (Piestinae)	1	1	
Tenebrionidae			
Blapstinus dilatatus Le Conte	1		
Gnathocerus cornutus (Fabricius)	1		
Platydema subfascia (Walker)	1		
COLLEMBOLA			
Entomobryidae			
Entomobrya nyhusae Christiansen & Bellinger	1		
Salina celebensis (Schäffer)			1
Hypogastruridae			
Neanura sp.	1		
Neelidae			
Neelus minutus Folsom	1		
Sminthuridae			
gen. spp. (2)	1		1
DERMAPTERA			
Carcinophoridae			
Euborellia annulipes (Lucas)	1	1	
Euborellia eteronoma (Borelli)	1	1	
Chelisoichidae			
Chelisoches morio (Fabricius)	1		

	Lualualei 1997	Halona 1997	Halona 2015
Labiidae			
<i>Sphingolabis hawaiiensis</i> (Bormans)	1		
<i>Spirolabia dubronyi</i> (Hebard)	1	1	
DICTYOPTERA			
Blaberidae			
<i>Diploptera punctata</i> (Eschscholtz)	1	1	
<i>Pycnoscelus indicus</i> (Fabricius)	1		
Blattellidae			1
<i>Balta similis</i> (Saussure)	1	1	
<i>Balta</i> sp. (not similis)	1	1	
<i>Blattella germanica</i> (Linnaeus)	1	1	
<i>Blattella lituricollis</i> (Walker)	1		
Blattidae			
<i>Periplaneta americana</i> (Linnaeus)	1		
<i>Periplaneta australasiae</i> (Fabricius)	1		
<i>Platyzosteria soror</i> (Brunner)	1	1	
Polyphagidae			
<i>Euthyrrhapha pacifica</i> (Coquebert)	1		
DIPLOPODA			
Cambalidae			
<i>Nannolene</i> sp.	1	1	
Paradoxosomatidae			
<i>Asiomorpha coarctata</i> (Saussure)	1		
<i>Oxidus gracilis</i> (C.L. Koch)	1		
Polyxenidae			
<i>Polyxenus</i> sp.	1		
Pyrgodesmidae			
<i>Aporodesminus wallacei</i> Silvestri	1		
Spirobolidae			
<i>Spirobolellus immigrans</i> (Chamberlain)	1		
DIPTERA			
Agromyzidae			
<i>Amauromyza maculosa</i> (Malloch)	1		
<i>Liriomyza</i> sp. nr. <i>sativae</i> Blanchard	1	1	
<i>Melanagromyza metallica</i> Thomson	1		
<i>Phytoliriomyza montana</i> Frick	1	1	
<i>Pseudonapomyza spicata</i> (Malloch)	1		
Anthomyiidae			
<i>Anthomyia vicarians</i> Schiner	1		
Asteiidae			
<i>Asteia sabroskyi</i> Hardy & Delfinado	1	1	

	Lualualei 1997	Halona 1997	Halona 2015
Calliphoridae			
Calliphora vomitoria (Linnaeus)	1		
Chrysomya megacephala (Fabricius)	1	1	1
Dyscritomyia cuprea James	1	1	
Dyscritomyia fasciata (Grimshaw)	1	1	
Dyscritomyia limbipennis (Thomson)	1	1	
Lucilia sp. nr. cuprina (Wiedemann)	1		
Lucilia sericata (Meigen)	1		
Melinda pusilla (Villeneuve)	1		
Cecidomyiidae			
Dasineura mangiferae Felt	1		1
Ceratopogonidae			
Forcipomyia hardyi Wirth & Howarth	1	1	1
Chironomidae			
Chironomus hawaiiensis Grimshaw	1		
Corynoneura sp.	1		
Cricotopus bicinctus (Meigen)	1		
Orthocladius sp. nr. wirthi Hardy	1		
Orthocladius williamsi Hardy	1	1	
Chloropidae			
Conioscinella formosa (Becker)	1	1	
Gaurax bicoloripes (Malloch)	1	1	
Rhodesiella scutellata (Meijere)	1	1	1
Cryptochetidae			
Cryptochetum iceryae (Williston)	1	1	
Culicidae			
Aedes albopictus (Skuse)	1		1
Dixidae			
Dixa longistyla Takahashi	1		
Dolichopodidae			
Campsicnemus gloriosus Van Duzee	1		
Campsicnemus halonae Evenhuis	1	1	
Campsicnemus miser Parent	1	1	
Campsicnemus patellifer Grimshaw	1	1	
Campsicnemus planitibia Parent	1		
Chrysosoma globiferum (Wiedemann)	1	1	1
Chrysotus longipalpis Aldrich	1		1
Dolichopus exsul Aldrich	1		
Eurynogaster sp.	1		
Medetera griseascens Meijere	1		
Pelastoneurus lugubris Loew	1	1	
Syntormon flexibile Becker	1		
Tachytrechus sp.	1		

	Lualualei 1997	Halona 1997	Halona 2015
Drosophilidae			
<i>Chymomyza procnemis</i> (Williston)	1		
<i>Dettopsomyia formosa</i> Lamb	1		
<i>Drosophila immigrans</i> Sturtevant	1		1
<i>Drosophila sulfurigaster bilimbata</i> Bezzi	1		
<i>Drosophila sukuzii</i> (group) (Matsumura)	1	1	
<i>Drosophila tamashiroi</i> Hardy	1	1	
<i>Scaptomyza buccata</i> Hackman	1		
<i>Stegana</i> sp.	1		
Empididae			
<i>Hemerodromia stellaris</i> Melander	1		
Ephydriidae			
<i>Brachydeutera hebes</i> Cresson	1		
<i>Donaceus nigronotatus</i> Cresson	1		
<i>Hydrellia williamsi</i> Cresson	1		
<i>Nostima niveivenosa</i> Cresson	1		
<i>Scatella hawaiiensis</i> Grimshaw	1		
Keroplastidae			
<i>Tylparua hawaiiensis</i> (Grimshaw)	1		
Lauxaniidae			
<i>Homoneura unguiculata</i> (Kertész)	1	1	1
<i>Poecilominettia sexseriata</i> Hendel	1	1	
Limoniidae			
<i>Dicranomyia hawaiiensis</i> Grimshaw	1	1	1
<i>Dicranomyia jacobae</i> Alexander	1		
<i>Dicranomyia perkinsi</i> (Grimshaw)	1	1	
<i>Dicranomyia stygipennis</i> Alexander			1
<i>Dicranomyia swezeyi</i> Alexander	1		1
Lonchaeidae			
<i>Lonchaea polita</i> Say	1		
Micropezidae			
<i>Taeniaptera angulata</i> (Loew)	1		
Milichiidae			
<i>Desmometopa inaurata</i> Lamb	1	1	
Muscidae			
<i>Atherigona orientalis</i> Schiner	1	1	
<i>Atherigona reversura</i> Villeneuve	1	1	
<i>Brontaea quadristigma</i> (Thomson)	1	1	
<i>Haematobia irritans</i> (Linnaeus)	1		
<i>Lispocephala</i> sp.	1		
<i>Stomoxys calcitrans</i> (Linnaeus)	1		
Neriidae			
<i>Telostylinus lineolatus</i> (Wiedemann)	1		1

	Lualualei 1997	Halona 1997	Halona 2015
Phoridae			
Chonocephalus sp.	1		
Dohrniphora cornuta (Bigot)	1		
Megaselia (Megaselia) sp.	1		
Puliciphora sp.	1	1	1
Psychodidae			
Psychoda sp. nr. wirthi Quate	1		1
Rhiniidae			
Rhinia apicalis (Wiedemann)	1		
Sarcophagidae			
Helicobia morionella (Aldrich)	1	1	
Johnsonia elegans Coquillett	1	1	
Parasarcophaga ruficornis (Fabricius)	1		
Sarcophagula occidua (Fabricius)	1	1	
Seniorwhitea reciproca (Walker)	1		
Scatopsidae			
Holoplagia guamensis (Johanssen)			1
Scenopinidae			
Scenopinus adventicius Hardy	1	1	
Scenopinus lucidus Becker	1		
Sciaridae			
Bradysia molokaiensis (Grimshaw)	1		
Ctenosciara hawaiiensis (Hardy)	1		
Sepsidae			
Sepsis sp.	1	1	
Sepsis thoracica (Robineau-Desvoidy)	1		
Sphaeroceridae			
Leptocera abdominiseta (Duda)	1		
Leptocera (Coproica) sp.	1	1	
Poecilosomella punctipennis (Wiedemann)	1	1	1
Stratiomyidae			
Gobertina picticornis Bigot	1		
Hermetia illucens (Linnaeus)	1	1	
Merosargus sp.	1		
Syrphidae			
Allograpta exotica (Wiedemann)	1		
Allograpta obliqua (Say)	1	1	
Copestylum apicale (Loew)	1	1	
Copestylum tamaulipanum (Townsend)	1		
Eristalinus arvorum (Fabricius)	1		
Eumerus aurifrons (Wiedemann)	1		
Ocyptamus dimidiatus (Fabricius)			1
Ornidia obesa (Fabricius)	1	1	1

	Lualualei 1997	Halona 1997	Halona 2015
Syrphidae (continued)			
<i>Syrpitta</i> sp.			1
<i>Toxomerus marginatus</i> (Say)	1	1	
Tachinidae			
<i>Archytas cirphis</i> Curran	1	1	
<i>Chaetogaedia monticola</i> (Bigot)	1		
<i>Eucelatoria armigera</i> (Coquillett)	1	1	
<i>Lespesia archippivora</i> (Riley)	1	1	
<i>Trichopoda pilipes</i> (Fabricius)	1	1	
Tephritidae			
<i>Acinia picturata</i> (Snow)	1	1	
<i>Bactrocera cucurbitae</i> (Coquillett)	1	1	
<i>Bactrocera dorsalis</i> (Hendel)			1
<i>Ensina sonchi</i> (Linnaeus)	1		
<i>Eutreta xanthochaeta</i> Aldrich	1		
<i>Procecidochares alani</i> Steyskal	1		
<i>Tetraeuaresta obscuriventris</i> (Loew)	1		
Ulidiidae			1
<i>Acrosticta apicalis</i> (Williston)	1	1	
<i>Euxesta stigmata</i> Loew	1	1	
<i>Notogramma cimiciforme</i> Loew	1		
EMBIIDINA			
Oligotomidae			
<i>Oligotoma saundersii</i> (Westwood)	1	1	
HETEROPTERA			
Anthocoridae			
<i>Paratriphleps laeviusculus</i> Champion	1		
Cydnidae			
<i>Geotomus pygmaeus</i> (Dallas)	1	1	
<i>Rhytidoporus indentatus</i> Uhler	1	1	
Lygaeidae			
<i>Metrarga nuda</i> White	1	1	
<i>Nysius communis</i> Usinger	1		
<i>Pachybrachius</i> sp.	1	1	
Miridae			
<i>Halticus bractatus</i> (Say)	1	1	
<i>Hyalopeplus pellucidus</i> (Stal)	1	1	
<i>Kamehameha</i> n.sp.	1		
<i>Koanoa</i> n.sp.	1		
<i>Lygus</i> (prob.) sp. (not elisae)	1	1	
<i>Nesidiorchestes hawaiiensis</i> Kirkaldy	1	1	
<i>Orthotylus</i> n.sp. A [sensu Asquith]	1		
<i>Orthotylus</i> n.sp. B [sensu Asquith]	1		
<i>Orthotylus</i> n.sp. C [sensu Asquith]	1		

	Lualualei 1997	Halona 1997	Halona 2015
Miridae (continued)			
Orthotylus n.sp. D [sensu Asquith]	1		
Orthotylus spp.	1		
Rhinacloa forticornis Reuter	1		
Stenotus sp. (not binotatus)	1	1	
Taylorilygus (prob.) pallidulus (Blanchard)	1	1	
Nabidae			
Nabis blackburni White	1	1	
Nabis sp.	1	1	
Pentatomidae			
Nezara viridula (Linnaeus)	1	1	
Plautia stali Scott	1	1	
Plataspidae			
Coptosoma xanthogramma (White)	1	1	
Reduviidae			
Empicoris rubromaculatus (Blackburn)	1	1	
<i>Gallobelgicus saevus</i> Bergroth			1
Haematoloecha rubescens Distant	1	1	
Zelus renardii Kolenati	1		
Rhopalidae			
gen. sp.	1	1	
Tingidae			
Corythucha morrilli Osborn & Drake	1	1	
Leptobyrsa decora Drake	1	1	
Teleonemia scrupulosa Stal	1	1	
Veliidae			
Microvelia vagans White	1		
HOMOPTERA			
Aphididae			
Aphis gossypii Glover	1		
Aphis sp.	1		1
Aphrophoridae			
Clastoptera xanthocephala Germar	1	1	1
Cicadellidae			
Cameocephala sagittifera (Uhler)	1	1	
Linnavouriella sp.	1		
Nesosophryne sp. nr. myrsines Kirkaldy	1	1	
Sophonia rufofascia (Kuoh & Kuoh)	1	1	
Cixiidae			
Oliarus discrepans Giffard	1		
Oliarus kaiulani Giffard	1	1	
Oliarus sp. prob. olympus Giffard	1	1	
Oliarus sp.	1	1	

	Lualualei 1997	Halona 1997	Halona 2015
Coccidae			
<i>Ceroplastes rubens</i> Maskell	1		
Delphacidae			
<i>Aloha artemisiae</i> (Kirkaldy)	1		
<i>Aloha campylothecae</i> Muir	1		
<i>Aloha swezeyi</i> Muir	1		
<i>Dictyophorodelphax mirabilis</i> Swezey	1		
<i>Nesosydne</i> sp.	1		
<i>Nesothoe terryi</i> Kirkaldy	1	1	
<i>Perkinsiella saccharicida</i> Kirkaldy	1		
Flatidae			1
<i>Melormenis basalis</i> (Walker)	1	1	1
<i>Siphanta acuta</i> (Walker)	1	1	
Membracidae			
<i>Vanduzeeea segmentata</i> (Fowler)	1		
Psyllidae			
<i>Heteropsylla mimosae</i> Crawford	1		
<i>Heteropsylla</i> sp.	1	1	
<i>Kuwayama pisonia</i> Caldwell	1		
<i>Trioza</i> sp.	1		
Tropiduchidae			1
<i>Kallitaxila granulata</i> (Stal)			1
HYMENOPTERA			
Agaonidae			
<i>Pleistodontes</i> sp.	1		
gen. sp. (<i>Epichrysomallinae</i>)	1	1	
Anthophoridae			
<i>Xylocopa sonorina</i> F. Smith	1		
Aphelinidae			
<i>Aphelinus</i> sp.	1	1	
Aphidiidae			
<i>Lysiphlebus testaceipes</i> (Cresson)	1	1	
<i>Aphidius smithi</i> Sharma & Rao	1	1	
Apidae			
<i>Apis mellifera</i> Linnaeus	1	1	1
Bethylidae			
<i>Epyris extraneus</i> Bridwell	1	1	
<i>Epyris</i> sp. (not <i>extraneus</i>)	1		
<i>Sierola</i> sp.	1	1	
gen. sp.	1		

	Lualualei 1997	Halona 1997	Halona 2015
Braconidae			
Apanteles sp.	1		
Apanteles trifasciatus Muesebeck	1	1	
Aphaereta pallipes (Say)	1		
Glyptocolastes sp.	1		
Macrocentrus calacte Nixon	1	1	
Meteorus laphygmae Viereck	1	1	
Ontsira palliatus (Cameron)	1	1	
Opius dissitus Muesebeck	1	1	
Opius incisi Silvestri	1	1	
Opius lantanae Bridwell	1		
Phanerotoma hawaiiensis Ashmead	1	1	
Phanerotoma myeloisae Fullaway	1	1	
Rhaconotus vagrans (Bridwell)	1	1	
Spathius prusias Nixon	1	1	
Stenocorse bruchivora (Crawford)	1	1	
Ceraphronidae			
Ceraphron plebeius Perkins	1		
Chalcididae			
Antrocephalus apicalis (Walker)	1		
Conura sp.	1	1	
Dirhinus anthracia Walker	1	1	
Dirhinus sp.	1	1	
Chrysididae			
Trichrysis triacantha (Mocsary)	1		1
Colletidae			
Hylaeus spp.	1	1	
Diapriidae			
Stylaclista sp.	1		
Trichopria sp.	1	1	
Encyrtidae			
Aenasius advena Compere	1	1	
Anagyrus sp.	1		
Blepyrus sp.	1		
Cheiloneuromyia javensis Girault	1		
Copidosoma sp.	1	1	
Encyrtus sp.	1	1	
Homalotylus sp.	1		
Microterys flavus (Howard)	1		
Prochiloneura rex (Girault)	1		
Eucoilidae			
gen. sp.	1		

	Lualualei 1997	Halona 1997	Halona 2015
Eulophidae			
Euderus sp. nr. metallicus (Ashmead)	1	1	
Euplectrus platyhypenae Howard	1	1	
Setelacher fasciatus Soucek	1		
Symplesis sp.	1		
gen. sp. (Entedoninae)	1		
gen. sp. (Tetrastichinae)	1	1	
Eupelmidae			
gen. #1 sp.	1		
gen. #2 sp.	1		
gen. #3 sp.	1		
Anastatus sp.	1	1	
Eupelmus sp.	1	1	
Reikosiella melina Yoshimoto	1	1	
Eurytomidae			
Eurytoma tephritidis Fullaway	1	1	
Sycophila sp.	1		
Evaniidae			
Evania sp. prob. appendigaster (Linnaeus)	1		1
Formicidae			
Anoplolepis longipes (Jerdon)	1	1	1
<i>Cardiocondyla emeryi</i> Forell			1
<i>Leptogenys falcigera</i> Roger			1
Pheidole megacephala (Fabricius)	1	1	1
Pseudomyrmex gracilis mexicanus (Roger)	1		
<i>Solenopsis papuanus</i> Emery			1
Technomyrmex albipes (F. Smith)	1	1	1
gen. sp. A	1	1	
gen. sp. B	1		
Halictidae			1
Halictus sp.	1		
Heloridae			
Helorus ruficomis Foerster	1	1	
Ichneumonidae			
Barichneumon californicus Heinrich	1	1	
Casinaria infesta (Cresson)	1	1	
Diadegma blackbumi (Cameron)	1	1	
Echthromorpha agrestoria fuscator (Fabricius)	1	1	
Echthromorpha sp. (not fuscator)	1	1	
Enicospilus sp.	1	1	
Gotra sp.	1	1	
Hyposoter exiguae (Viereck)	1	1	
Pachysomoides stupidus (Cresson)	1		

	Lualualei 1997	Halona 1997	Halona 2015
Ichneumonidae (continued)			
<i>Pimpla punicipes</i> Cresson	1	1	
<i>Pristomerus</i> sp.	1		
<i>Rubicundiella perturbatrix</i> Heinrich	1		
<i>Trathala flavoorbitalis</i> (Cameron)	1	1	
<i>Tromatobia ovivora</i> (Boheman)	1	1	
gen. sp. (Gelinae)	1		
Mymaridae			1
<i>Gonatocerus dolichocerus</i> Ashmead	1		
<i>Polynema</i> sp.	1	1	
Platygastridae			
gen. #1 sp.	1		
gen. #2 sp.	1		
gen. #3 sp.	1		
gen. #4 sp.	1	1	
Pompilidae			
<i>Anoplius Juctuosus</i> (Cresson)	1		
<i>Tachypompilus analis</i> (Fabricius)	1	1	
Proctotrupidae			
<i>Brachyserphus hawaiiensis</i> (Ashmead)	1		
Pteromalidae			
<i>Callocleonimus swezeyi</i> (Yoshimoto & Ishii)	1		
<i>Pteromalus</i> sp.	1		
<i>Trichomalus</i> sp.	1	1	
Scelionidae			
<i>Anteromorpha dubiosa</i> (Perkins)	1		
<i>Aporophlebus</i> sp.	1		
<i>Baryconus</i> sp.	1		
<i>Caenoteleia elegans</i> (Perkins)	1		
<i>Telenomus</i> sp. A	1	1	
<i>Telenomus</i> sp. B	1		
<i>Trissolcus basalis</i> (Wollaston)	1	1	
Sphecidae			
<i>Ampulex compressa</i> (Fabricius)	1	1	1
<i>Chalybion bengalense</i> (Dahlbom)	1		
<i>Dolichurus stantoni</i> (Ashmead)	1		1
<i>Ectemnius</i> sp. A	1	1	
<i>Ectemnius</i> sp. B	1	1	
<i>Ectemnius</i> sp. C	1	1	
<i>Isodontia mexicana</i> (Saussure)	1		
<i>Pison insulare</i> F. Smith	1	1	1
<i>Pison iridipenne</i> F. Smith	1	1	
<i>Tachysphex apicalis</i> Fox	1		
<i>Tachysphex morosus</i> (F. Smith)	1	1	

	Lualualei 1997	Halona 1997	Halona 2015
Sphecidae (continued)			
Trypoxylon bicolor F. Smith	1		
Trypoxylon philippinense Ashmead	1		
gen. sp. (Pemphredoninae)	1		
Torymidae			
Megastigmus transvaalensis (Hussey)	1	1	
Megastigmus sp.	1	1	
Torymidae (continued) CD	1		
Torymus advenus (Osten Sacken)	1	1	
Trichogrammatidae			
gen. sp.			
Vespidae			
Delta campaniforme campaniforme (Fabricius)	1		
Delta curvata (Saussure)	1		
Delta pyriformis philippinense (Bequaert)	1		
Odynerus pseudochromoides Perkins	1	1	
Odynerus sp.	1	1	
Odynerus sp. nr. waianaeanus	1		
Pachyodynerus nasidens (Latreille)	1		
Polistes aurifer Saussure	1	1	
Polistes exclamans Viereck			1
ISOPODA			
Armadillidae			
Reductoniscus costulatus Kesselyak	1		
Philosciidae			
Australophiloscia societatis (Maccagno)	1	1	
Burmoniscus meeusi (Holthuis)	1		
Burmoniscus okinawaensis (Nunomura)	1	1	
Platyarthridae			
Trichorhina tomentosa (Budde-Lund)	1	1	
Porcellionidae			
Porcellio laevis Latreille	1	1	
Porcellio scaber Latreille	1		
Porcellionides pruinus (Brandt)	1	1	
Styloniscidae			
Clavigeroniscus riquieri (Arcanelli)	1	1	
Styloniscus spinosus (Patience)	1	1	
Trachelipidae			
Nagurus cristatus (Dollfus)	1		
ISOPTERA			
Kalotermitidae			
Neotermes connexus Snyder	1	1	
Rhinotermitidae			
Coptotermes formosanus Shiraki	1		

	Lualualei 1997	Halona 1997	Halona 2015
LEPIDOPTERA			
Alucitidae			
Alucita objurgatella (Walsingham)	1	1	
Cosmopterigidae			
Hyposmocoma sp. A	1		
Hyposmocoma sp. B	1		
Hyposmocoma sp. C	1		
Crambidae			
Euchromius ocellus (Haworth)	1	1	
Eudonia geraea (Meyrick)	1		
Eudonia n. sp. 1 [of Munroe]	1	1	
Eudonia n. sp. 2 [of Munroe]	1	1	
Eudonia n. sp. 3 [of Munroe]	1		
Eudonia ombrodes (Meyrick)	1		
Glyphodes sp. nr. cyanomichla Meyrick	1	1	
Herpetogramma licarsisalis (Walker)	1	1	
Mestolobes sp. prob. minuscula (Butler)	1	1	
Nomophila noctuella (Denis & Schiffermueller)	1	1	
Otthomecyna sp. nr. exigua (Butler)	1		
Otthomecyna spp.	1	1	
Salbia haemorrhoidalis Guenee	1	1	
Spoladea recurvalis (Fabricius)	1	1	
Tamsica sp. nr. oxyptera (Meyrick)	1		
Tamsica sp.	1	1	
Gelechiidae			
Crasimorpha infusata Hodges	1		
Geometridae			
Anacamptodes fragilaria (Grossbeck)	1	1	
Cyclophora nanaria (Walker)	1		
Euacidalia brownsvillea Cassino	1	1	
Eupithecia sp.	1		
Macaria abydata Guenee	1	1	
Hesperiidae			
Hylephila phyleus (Drury)	1		
Lycaenidae			
Strymon bazochii (Godart)	1		1
Udara blackburni {Tuely}	1	1	
Noctuidae			
Achaea janata (Linnaeus)	1	1	
Agrotis ipsilon (Hufnagel)	1	1	
Anomis flava (Fabricius)	1	1	
Ascalapha odorata (Linnaeus)	1		
Athetis thoracica (Moore)	1	1	
Callopietria maillardi Guenee	1		

	Lualualei 1997	Halona 1997	Halona 2015
Noctuidae (continued)			
Chrysodeixis eriosoma (Doubleday)	1	1	
Elaphria nucicolora (Guenee)	1	1	
Hypena laceratalis Walker	1	1	
Hypocala deflorata (Fabricius)	1	1	
Leucania striata Leech	1	1	
Lycophotia porphyrea (Denis & Schifferrmueller)	1	1	
Megalographa biloba (Stephens)	1		
Melipotis indomita (Walker)	1	1	
Neogalea sunia (Guenee)	1	1	
Ophiusa disjungens (Walker)	1	1	
Pandesma anysa Guenee	1	1	
Penicillaria jocosatrix Guenee	1	1	
Spodoptera mauritia (Boisduval)	1	1	
Nymphalidae			
Agraulis vanillae (Linnaeus)	1		
Danaus plexippus (Linnaeus)	1	1	
Vanessa sp. (cardui or virginiensis)	1	1	
Vanessa cardui (Linnaeus)	1	1	
Vanessa tameamea Eschscholtz	1		
Oecophoridae			
Stoeberhinus testaceus Butler	1	1	
Thyrocopa sapindiella Swezey	1		
Thyrocopa sp.	1		
Papilionidae			
Papilio xuthus Linnaeus	1	1	
Pieridae			
Pieris rapae (Linnaeus)	1	1	
Psychidae			
Brachycyttarus griseus De Joannis	1		
Pterophoridae			
Anstenoptylia marmorodactyla (Dyar)	1	1	
Stenoptylodes littoralis littoralis (Butler)	1	1	
Pyralidae			
Homoeosoma albosparsum (Butler)	1	1	
Sphingidae			
Agrius cingulata (Fabricius)	1	1	
Daphnis nerii (Linnaeus)			1
Hyles calida (Butler)	1	1	
Hyles Jineata (Fabricius)	1		
Hyles wilsoni perkinsi (Swezey)	1	1	
Macroglossum pyrrhostictum (Butler)	1	1	
Psilogramma menephron (Cramer)	1	1	

	Lualualei 1997	Halona 1997	Halona 2015
Tineidae			
Decadarchis simulans (Butler)	1	1	
Opogona omoscopa (Meyrick)	1		
Opogona sp.	1		
Tortricidae			
Amorbia emigratella Busck	1	1	
Cryptophlebia illepida (Butler)	1	1	
Cydia sp.	1		
Eccoctocera sp.	1	1	
Episimus utilis Zimmerman	1	1	1
Platynota stultana Walsingham	1	1	
Spheterista sp.	1		
MANTODEA			
Mantidae			
Brunneria borealis Scudder	1		1
NEUROPTERA			
Chrysopidae			
Anomalochrysa sp.	1	1	
Anomalochrysa sylvicola Perkins	1	1	
Mallada basalis (Walker)	1	1	
Hemerobiidae			
Micromus timidus Hagen	1	1	
Micromus vagus (Perkins)	1		
ODONATA			
Aeshnidae			
Anax junius (Drury)	1		
Anax strenuus Hagen	1		
Coenagrionidae			
Ischnura posita (Hagen)	1		
Ischnura ramburii (Selys-Longchamps)	1		
Libellulidae			
Orthemis ferruginea (Fabricius)	1		
Pantala flavescens (Fabricius)	1		1
Tramea abdominalis (Rambur)	1		
ORTHOPTERA			
Acrididae			
Oedaleus abruptus (Thunberg)	1		
Schistocerca nitens (Thunberg)	1		
Gryllidae			
Gryllus bimaculatus DeGeer	1		
Laupala sp. nr. hapapa Otte	1		
Tetrigidae			
Paratettix mexicanus (Saussure)	1		

	Lualualei 1997	Halona 1997	Halona 2015
Tettigoniidae			
Conocephalus saltator (Saussure)	1	1	
Elimaea punctifera (Walker)	1		
Euconocephalus nasutus {Thunberg)	1	1	
Phaneroptera furcifera Stal	1		
Xiphidiopsis lita Hebard	1	1	
PSEUDOSCORPIONIDA			
Undetermined family			
gen. sp.	1	1	
PSOCOPTERA			1
Ectopsocidae			
Ectopsocus sp.	1		
SCHIZOMIDA			
Schizomidae			
Schizomus siamensis (Hansen)	1		
STREPSIPTERA			
Elenchidae			
Elenchus sp.	1	1	
TRICHOPTERA			
Hydropsychidae			
Cheumatopsyche pettiti (Banks)	1		
Hydroptilidae			
Oxyethira maya Denning	1		
total Halona	638	334	75
new records for Lualualei			18