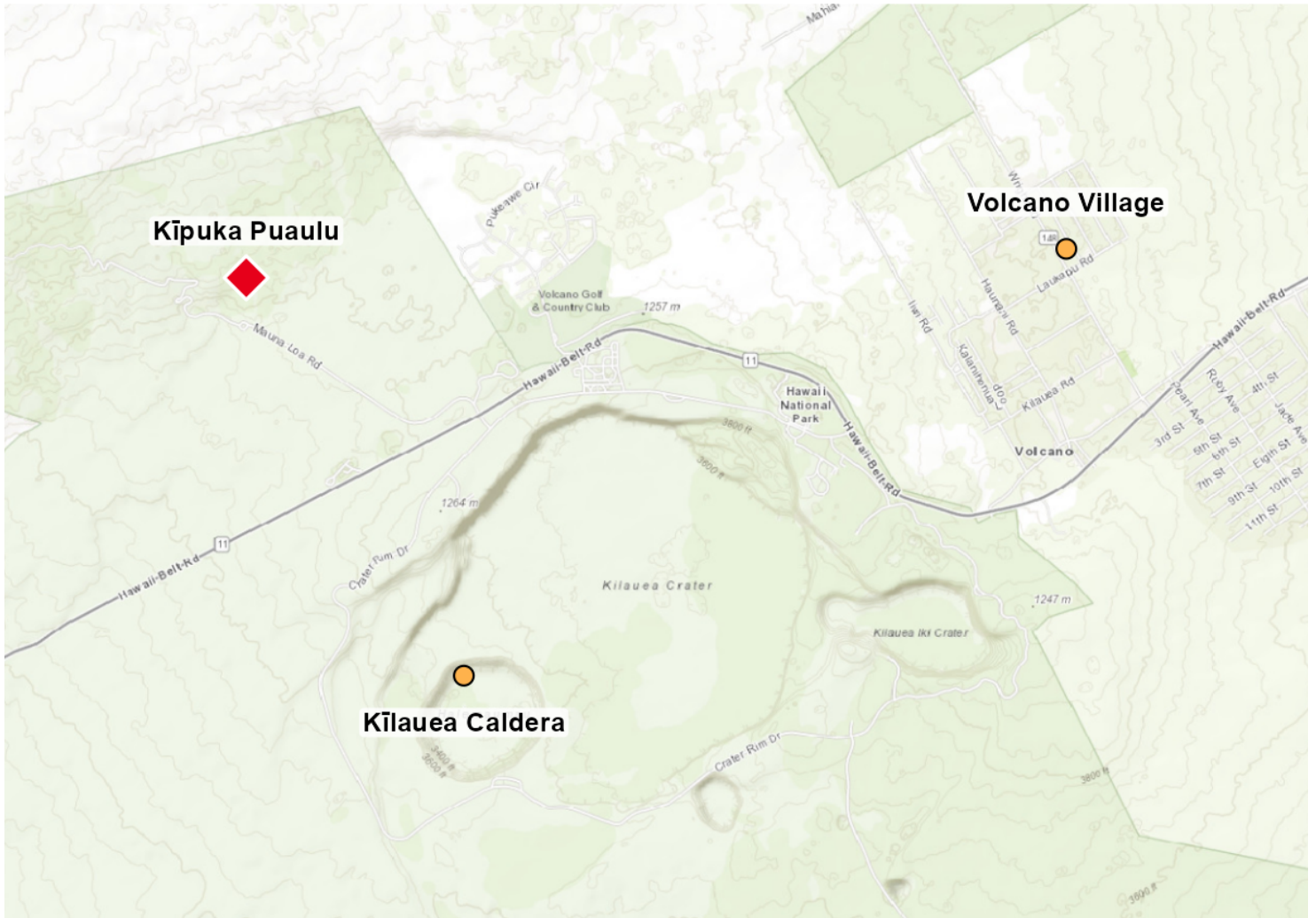


Kīpuka Puaulu

A Field Briefing Book

briefing_book · data-driven specimen collection



Base: Esri World Topographic Map

Hawai'i Volcanoes National Park · 19.44095°N 155.30295°W · 1229 m

mesic montane forest kīpuka · MAT 16.2 °C · MAP 1679 mm · 100 vascular taxa within 2 km

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all 100 recorded taxa — and what's present but not yet in the record
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6. Contested Identities
determination conflicts, with the sheet scans and the character to settle each
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the one-page, carry-in-field summary

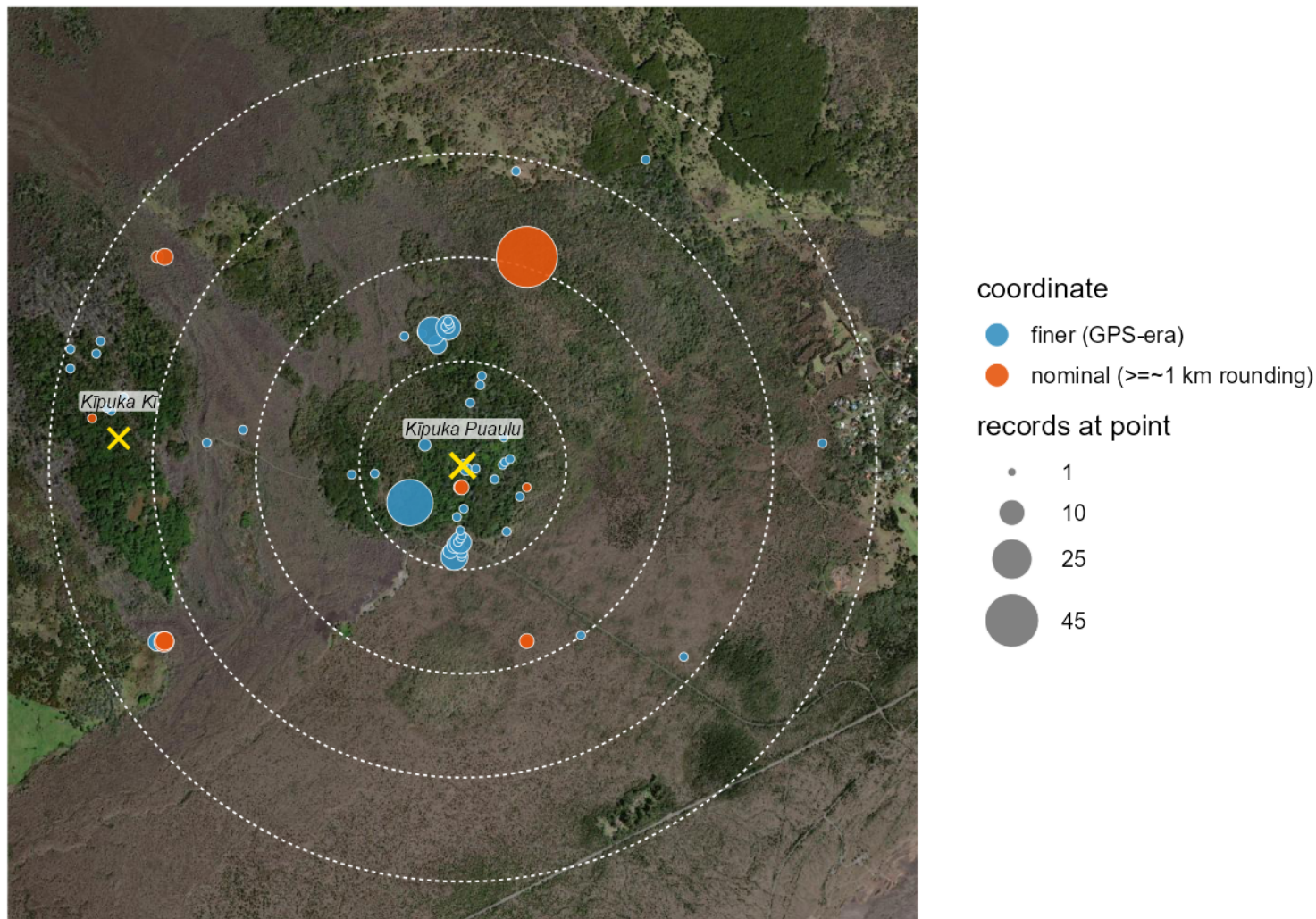
The Place at Several Scales

briefing_book · Report R1 · Kīpuka Puaulu

Kīpuka Puaulu, HVNP · 19.44095°N 155.30295°W · 1229 m

Kīpuka Puaulu at several scopes

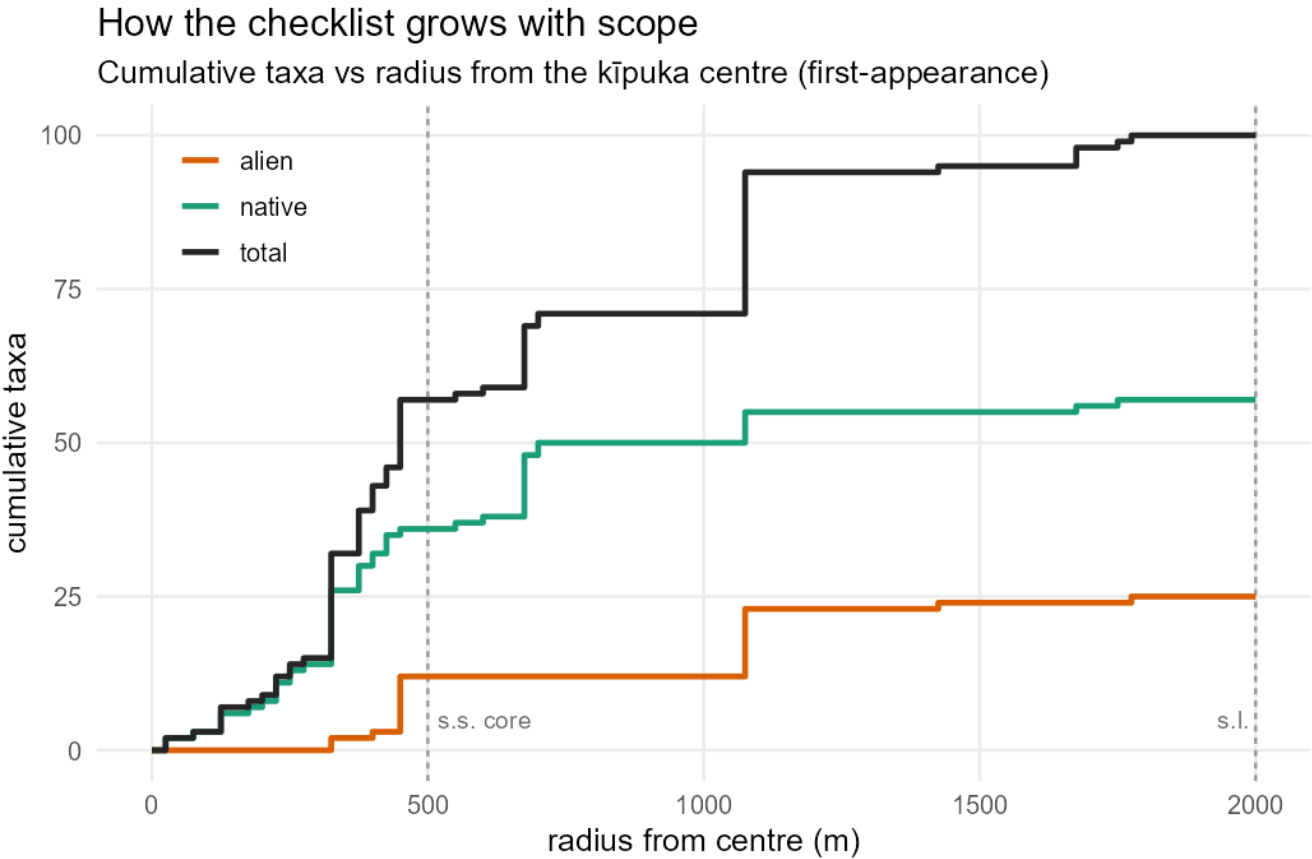
GBIF herbarium records on nested radii from the loop-trail centre



as. Rings 500 m / 1 / 1.5 / 2 km. Point size = records stacked. Orange = coarse gazetteer coordinate.

Each point on the map is the location of a herbarium VOUCHER SPECIMEN. Reading the scopes: scope is a choice — the checklist roughly DOUBLES from the sensu-stricto core to sensu lato (57 taxa within 500 m to 100 within 2 km). The outer halo is not just diffuse matrix; to the west it annexes a SECOND kīpuka, Kīpuka Kī, grazing-thinned and species-poorer. And the fine scale is georeferencing-limited: 39% of records sit on coarse gazetteer coordinates and ~30% of taxa cannot be placed below ~1 km — a true sensu-stricto flora of the kīpuka proper would need re-georeferencing from the labels.

How the checklist grows with scope



radius	records	taxa	pct native
500 m (s.s. core)	90	57	73
1 km	130	71	79
1.5 km	192	95	69
2 km (s.l.)	224	100	69

The map describes the geography of the RECORD, which at this site differs from the geography of the plants. Records snap to a coarse gazetteer / DMS lattice; the nominal points hold 39% of all records. Native fraction dilutes outward (73% core to 69% at 2 km). Centre = the kīpuka loop-trail centre.

The Checklist (Master List)

briefing_book · Report R2 · Kīpuka Puʻaʻulu

all 100 recorded vascular taxa · sorted by family

'role' = how each taxon appears in this briefing: observe (protected), collect (a target), or present (recorded, not a target). This is the reference the other reports draw on.

taxon	family	life	status	iucn	last	role
Charpentiera obovata	Amaranthaceae	tree	endemic	VU	1966	observe
Alyxia stellata	Apocynaceae	shrub	indigenous	NE	1930	collect
Gomphocarpus physocarpus	Apocynaceae	shrub	—	NE	1980	present
Cheirodendron trigynum	Araliaceae	tree	endemic	VU	1998	observe
Dianella sandwicensis	Asphodelaceae	herb	indigenous	NE	1980	collect
Asplenium adiantum-nigrum	Aspleniaceae	fern	indigenous	NE	1971	collect
Asplenium contiguum	Aspleniaceae	fern	indigenous	NE	1971	collect
Asplenium furcatum	Aspleniaceae	fern	uncertain	NE	1922	present
Asplenium macraei	Aspleniaceae	fern	endemic	NE	1930	collect
Achillea millefolium	Asteraceae	herb	alien	LC	1929	collect
Ageratina riparia	Asteraceae	shrub	alien	NE	1980	present
Hypochaeris radicata	Asteraceae	herb	alien	NE	2001	collect
Diplazium sandwichianum	Athyriaceae	fern	endemic	NE	2008	collect
Sadleria pallida	Blechnaceae	fern	—	NE	1929	present
Cynoglossum amabile	Boraginaceae	herb	alien	NE	1980	present
Cibotium glaucum	Cibotiaceae	fern	endemic	NE	1971	collect
Ipomoea indica	Convolvulaceae	herb	indigenous	NE	2009	collect
Bulbostylis capillaris	Cyperaceae	graminoid	alien	LC	2001	collect
Cyperus brevifolius	Cyperaceae	graminoid	alien	LC	1980	present
Cyperus hillebrandii	Cyperaceae	graminoid	endemic	NE	1938	collect
Microlepia setosa	Dennstaedtiaceae	fern	—	NE	1929	present
Microlepia speluncae	Dennstaedtiaceae	fern	indigenous	NE	1989	present
Microlepia strigosa	Dennstaedtiaceae	fern	indigenous	NE	2008	present
Pteridium aquilinum	Dennstaedtiaceae	fern	indigenous	NE	2001	present
Perrottetia sandwicensis	Dipentodontaceae	tree	endemic	LC	1948	collect
Cyrtomium caryotideum	Dryopteridaceae	fern	indigenous	NE	1971	collect
Dryopteris fuscoatra	Dryopteridaceae	fern	endemic	NE	2008	collect
Dryopteris glabra	Dryopteridaceae	fern	endemic	NE	2008	collect
Dryopteris hawaiiensis	Dryopteridaceae	fern	endemic	NE	1971	collect
Dryopteris wallichiana	Dryopteridaceae	fern	indigenous	NE	2008	present
Elaphoglossum crassifolium	Dryopteridaceae	fern	endemic	NE	1971	collect
Elaphoglossum paleaceum	Dryopteridaceae	fern	indigenous	NE	1929	collect
Elaphoglossum wawrae	Dryopteridaceae	fern	endemic	NE	1931	collect
Leptecophylla tameiameiae	Ericaceae	tree	—	LC	1998	present

The Checklist (Master List)

briefing_book · Report R2 (cont. 2)

taxon	family	life	status	iucn	last	role
Vaccinium reticulatum	Ericaceae	shrub	endemic	NE	2001	collect
Acacia koa	Fabaceae	tree	endemic	LC	1986	collect
Sophora chrysophylla	Fabaceae	tree	endemic	LC	2002	collect
Centaurium erythraea	Gentianaceae	herb	alien	LC	1980	present
Geranium carolinianum	Geraniaceae	herb	alien	NE	NA	collect
Gleichenella pectinata	Gleicheniaceae	fern	—	NE	1998	present
Stenogyne rotundifolia	Lamiaceae	herb	endemic	NE	1975	collect
Stenogyne rugosa	Lamiaceae	herb	endemic	NE	1977	collect
Stenogyne scrophularioides	Lamiaceae	herb	endemic	NE	1980	collect
Hibiscadelphus giffardianus	Malvaceae	tree	endemic	CR	1975	observe
Hibiscadelphus hualalaiensis	Malvaceae	tree	endemic	CR	1975	observe
Metrosideros collina	Myrtaceae	tree	—	LC	1998	present
Metrosideros polymorpha	Myrtaceae	tree	endemic	VU	2003	observe
Nephrolepis biserrata	Nephrolepidaceae	fern	indigenous	NE	1989	collect
Nephrolepis cordifolia	Nephrolepidaceae	fern	indigenous	NE	1991	collect
Nephrolepis exaltata	Nephrolepidaceae	fern	indigenous	LC	2008	present
Nephrolepis oblitterata	Nephrolepidaceae	fern	—	NE	1975	present
Ceodes brunoniana	Nyctaginaceae	tree	—	LC	1975	present
Ceodes umbellifera	Nyctaginaceae	tree	—	LC	1966	present
Pisonia sandwicensis	Nyctaginaceae	tree	endemic	LC	2009	collect
Nestegis sandwicensis	Oleaceae	tree	endemic	VU	2009	observe
Freycinetia arborea	Pandanaceae	tree	indigenous	NE	1980	collect
Peperomia cookiana	Piperaceae	herb	endemic	NE	1989	collect
Peperomia leptostachya	Piperaceae	herb	—	NE	1980	present
Peperomia tetraphylla	Piperaceae	herb	indigenous	NE	1930	collect
Pittosporum hosmeri	Pittosporaceae	tree	endemic	VU	1999	observe
Nuttallanthus canadensis	Plantaginaceae	herb	alien	NE	2001	collect
Aira elegans	Poaceae	graminoid	—	NE	2001	present
Anthoxanthum odoratum	Poaceae	graminoid	alien	NE	2001	collect
Dactylis glomerata	Poaceae	graminoid	alien	NE	1980	present
Digitaria violascens	Poaceae	graminoid	alien	NE	2001	collect
Festuca bromoides	Poaceae	graminoid	—	NE	1980	present
Lachnagrostis filiformis	Poaceae	graminoid	alien	NE	2001	collect
Melinis minutiflora	Poaceae	graminoid	alien	NE	1980	present

The Checklist (Master List)

briefing_book · Report R2 (cont. 3)

taxon	family	life	status	iucn	last	role
Melinis repens	Poaceae	graminoid	alien	NE	1980	present
Microlaena stipoides	Poaceae	graminoid	alien	LC	1980	present
Schizachyrium condensatum	Poaceae	graminoid	alien	NE	2001	collect
Schizachyrium microstachyum	Poaceae	graminoid	alien	NE	2001	collect
Setaria parviflora	Poaceae	graminoid	alien	LC	1980	present
Sporobolus indicus	Poaceae	graminoid	alien	LC	2001	collect
Stenotaphrum secundatum	Poaceae	graminoid	alien	LC	1980	present
Lepisorus thunbergianus	Polypodiaceae	fern	indigenous	NE	2008	present
Myrsine lessertiana	Primulaceae	tree	endemic	LC	2009	collect
Pellaea ternifolia	Pteridaceae	fern	indigenous	NE	1971	collect
Pityrogramma calomelanos	Pteridaceae	fern	alien	NE	1971	collect
Pteris cretica	Pteridaceae	fern	indigenous	NE	1975	collect
Eriocapitella hupehensis	Ranunculaceae	herb	—	NE	1980	present
Eriocapitella japonica	Ranunculaceae	herb	—	NE	1980	present
Alphitonia ponderosa	Rhamnaceae	tree	endemic	VU	1989	observe
Pyracantha angustifolia	Rosaceae	shrub	—	LC	1979	present
Pyracantha koidzumii	Rosaceae	shrub	alien	EN	1979	present
Coprosma menziesii	Rubiaceae	shrub	endemic	NE	1997	collect
Coprosma ochracea	Rubiaceae	shrub	endemic	VU	2009	observe
Psychotria hawaiiensis	Rubiaceae	tree	endemic	NT	2009	observe
Melicope cinerea	Rutaceae	tree	endemic	EN	1938	observe
Zanthoxylum dipetalum	Rutaceae	tree	endemic	VU	2009	observe
Dodonaea viscosa	Sapindaceae	tree	indigenous	LC	1998	present
Sapindus oahuensis	Sapindaceae	tree	endemic	VU	1998	observe
Sapindus saponaria	Sapindaceae	tree	indigenous	LC	2009	present
Myoporum sandwicense	Scrophulariaceae	tree	indigenous	LC	2024	present
Nothoestrum longifolium	Solanaceae	tree	—	NT	1980	present
Physalis peruviana	Solanaceae	herb	alien	LC	1980	present
Solanum pseudocapsicum	Solanaceae	shrub	alien	NE	NA	collect
Wikstroemia sandwicensis	Thymelaeaceae	shrub	endemic	VU	1980	observe
Pipturus albidus	Urticaceae	tree	endemic	LC	1989	collect
Stachytarpheta cayennensis	Verbenaceae	herb	—	NE	1980	present

Present, but not in the record

briefing_book · Report R2 (cont.)

a guard against skipping the obvious

A species can be missing from the voucher record for reasons that have nothing to do with the flora — a guard against skipping the obvious. At Kīpuka Puaulu the likely gaps (common in the surrounding 8 km flora, but absent or thin in the site record) fall into a few kinds:

TOO DOMINANT TO BOTHER. *Dicranopteris linearis* (uluhe) — the ground fern that blankets whole slopes — has 0 site vouchers; *Acacia koa*, a canopy dominant, has only 4. Ubiquity gets them skipped.

OFF THE TRAIL, IN THE WETTER PATCHES (rarely walked). *Cyrtandra* spp. (many; easily hidden in the understory), *Astelia menziesiana* (seen here — striking, but conspicuous mainly in flower), and wet-site ferns *Hypolepis dicksonioides* and *Coniogramme pilosa*.

SMALL, COMMON, LOOKED PAST. *Peperomia hypoleuca*, *Korthalsella complanata* (a mistletoe), *Stenogyne* and *Coprosma* spp., *Carex wahuensis*, *Dubautia scabra*, *Palhinhaea cernua*.

ON THE EDGES, PASSED BY. *Vaccinium calycinum* (‘ōhelo) — common along the entrance trail, so everyone walks past it.

PLAUSIBLE BUT UNCONFIRMED. *Santalum* (‘iliahi) — not yet seen here, but likely; *Myoporum sandwicense* (naio) — only 2 vouchers.

These are voucher opportunities: an hour off the main loop, or simply pressing the 'obvious' species, fills real gaps. The checklist is the RECORD; the flora is larger.

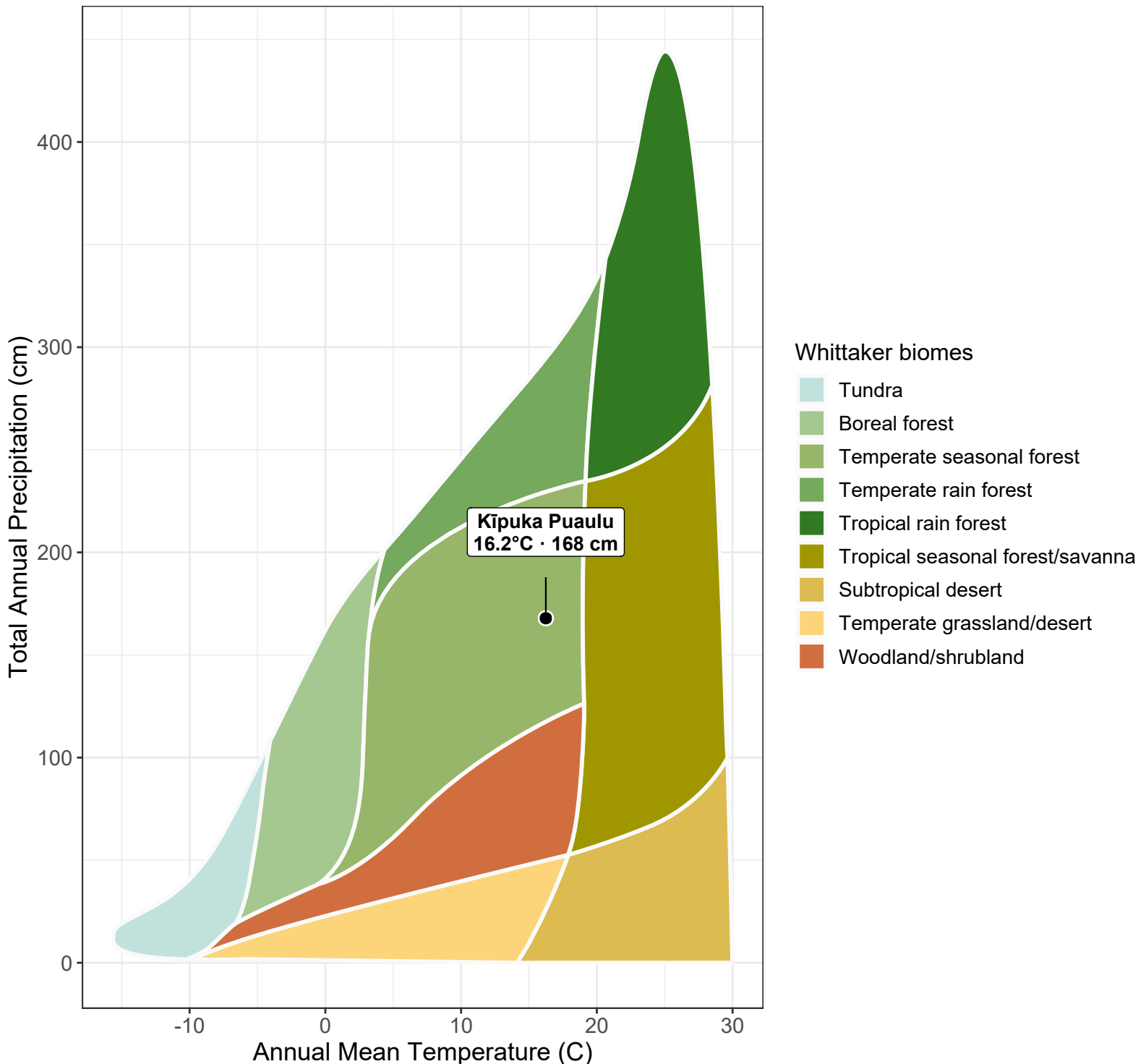
Climate & Site Factors

briefing_book · Report · Kīpuka Puau, HVNP · 19.44095°N 155.30295°W · 1229 m

Why this report. The flora makes sense against its setting — elevation, climate, and substrate. It is also what lets you COMPARE sites: two checklists differ partly because their climates differ. Kīpuka Puau is a mid-elevation, mesic, aseasonal montane forest; its position among the world's biomes is shown below.

Kīpuka Puau on the Whittaker diagram

Climate position among the world's biomes (WorldClim 2.1)



Climate & terrain of the site

temperature	value	precipitation	value
annual mean	16.2 °C	annual total	1679 mm (168 cm)
warmest month (max)	23.0 °C	wettest month	296 mm
coldest month (min)	9.3 °C	driest month	28 mm
annual range	13.7 °C	wettest quarter	673 mm
seasonality (bio4)	134 — very low	seasonality (CV)	62 — moderate

terrain	value
elevation (centre)	1229 m
elevation range, 2 km	1083 – 1508 m
slope	4.4° (gentle)
aspect	134° (SE-facing)

Biome (Whittaker): Temperate seasonal forest — but this is the whittakerr anomaly: a tropical, montane, Aseasonal Hawaiian forest earns a temperate label because the global scheme reads only temperature and precipitation. The very low temperature seasonality (bio4 = 134) is the tell.

Substrate: a kīpuka — an older, weathered forested 'island' ringed by younger, sparsely-vegetated Mauna Loa lava. The older substrate plus the mesic climate is why closed forest persists here while the surrounding young flows are nearly bare.

Climate is WorldClim 2.1 (~1 km) — coarse for Hawaii's steep rainfall gradients; the Hawai'i Rainfall Atlas and Giambelluca et al. maps (~250 m) are finer if you need precision. Elevation from AWS terrain tiles (elevatr).

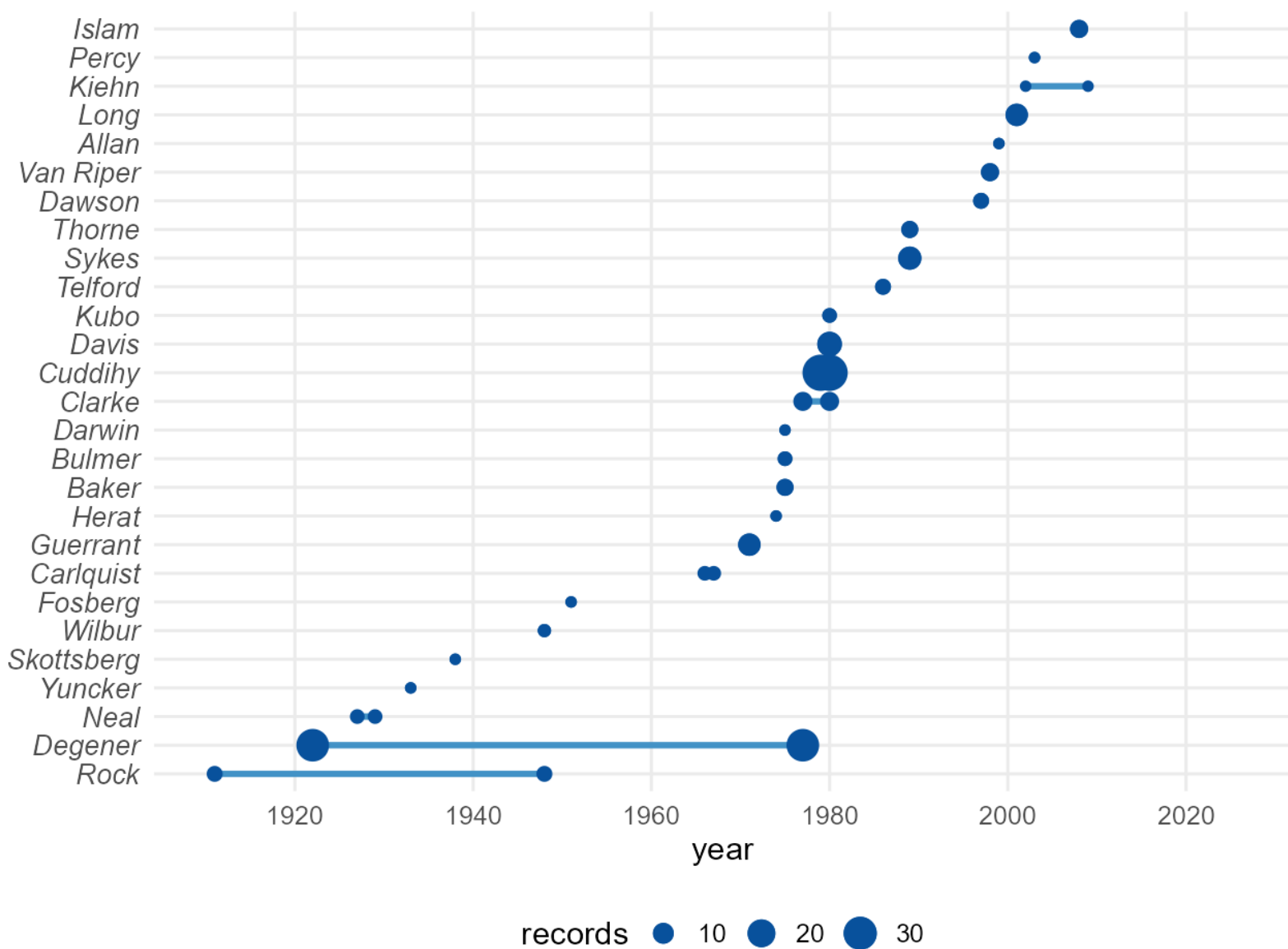
Herbaria & Collectors

A field trip is also a herbarium visit — and a curator tells you more when you arrive informed. Bishop (BISH) holds the most but its digitized record ends in 1980; New York ends 1989; only HAW (Univ. of Hawai'i) is still submitting (through 2024). Rock's earliest 1911 material went to Te Papa (NMNZ), New York, and Paris. What's LEFT OFF matters too: the HAVO Research Herbarium and the published Kīpuka Puaulu floras are not in GBIF — ask the curator.

herbarium	records	pct	taxa	span	yrs since last
BISH	69	31	27	1916–1980	46
NY	37	17	21	1922–1989	37
NMNZ	13	6	7	1911–1997	29
CHR	12	5	6	1989–1989	37
WTU	12	5	12	1971–1971	55
USU	11	5	11	2001–2001	25
HAW	9	4	8	2008–2024	2
ASU	8	4	7	2009–2009	17
ASC	7	3	7	1998–1998	28
CANB	6	3	1	1986–1986	40
K	6	3	4	1927–1975	51
RSA	6	3	6	1966–1967	59
US	6	3	4	1980–2003	23
IND	5	2	3	1966–1977	49
AK	3	1	3	1938–1989	37
MEL	3	1	0	1966–1977	49
WU	3	1	3	1975–2009	17
UT	2	1	2	1989–1989	37
ANSP	1	0	1	1930–1930	96
DBG	1	0	1	1929–1929	97
MNHN	1	0	1	1915–1915	111
PERTH	1	0	1	1984–1984	42
VT	1	0	1	1991–1991	35
W	1	0	1	—	NA

Who collected here, and when

Active span of each collector contributing more than one record

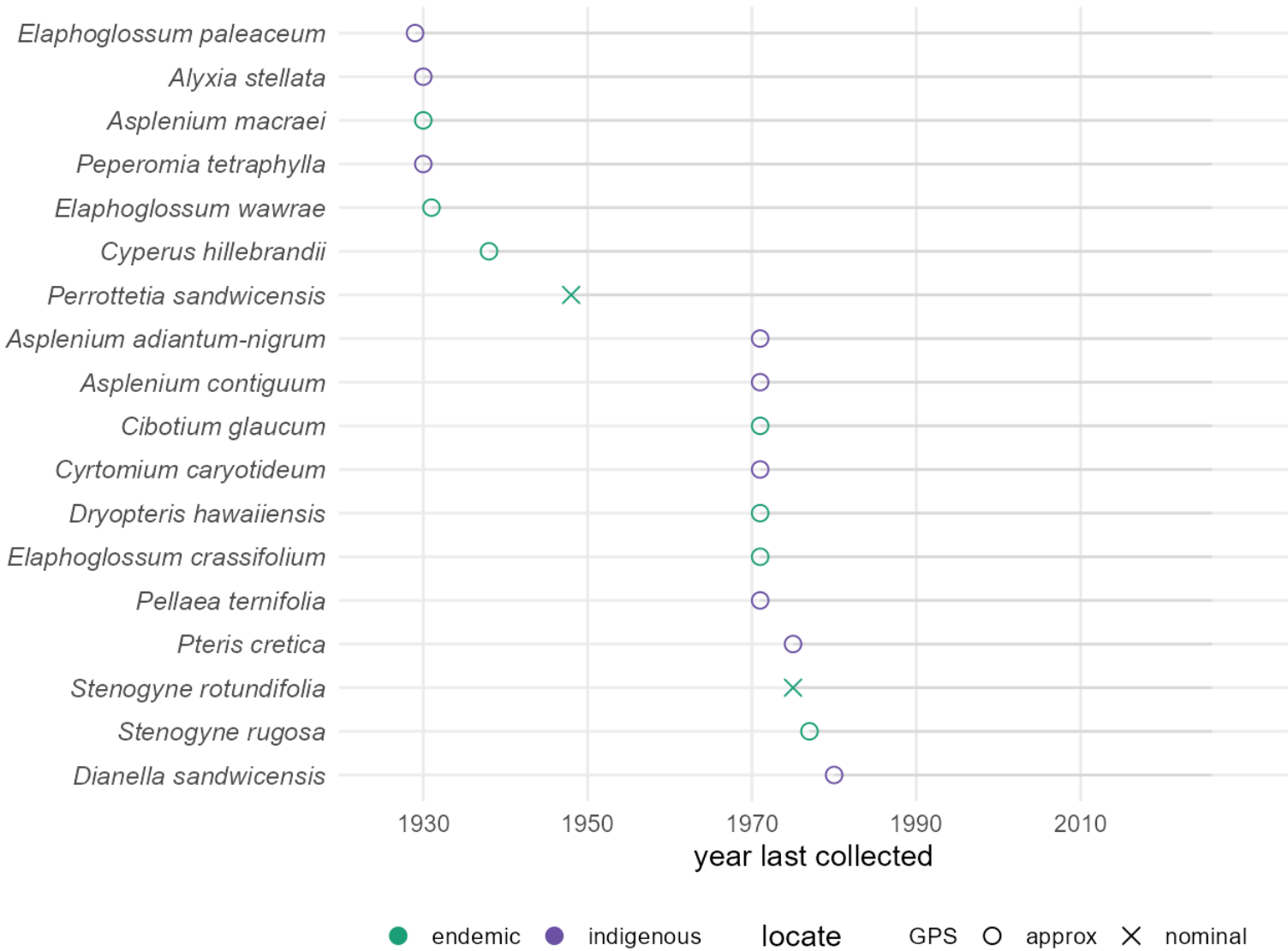


Three eras: a sparse discovery era (Rock 1911, Forbes, Degener, Fosberg), the 1979–80 HAVO survey blitz (Cuddihy, Davis, Clarke), and scattered modern collecting into the 2010s. Dot size = records; a single dot = one collecting year.

Collecting Targets

Worth the trip: high-value collect targets

Native, non-protected taxa by year last collected — fresh material overdue



How to read the targets. Staleness measures COLLECTING EFFORT, not rarity — *Cibotium glaucum* (hāpu'u) reads 'last 1971' yet is abundant, so it is an EASY re-collection, not urgent. Every taxon carries family + lifeform as field hints. 'locate' = how well we can relocate it: GPS = a GPS-era field fix; approx = pre-GPS coordinates only (a retroactive georeference, search the vicinity); nominal = gazetteer coordinate only. The stalest targets are often only 'approx' — never GPS-fixed.

High-value collect targets

briefing_book · Report R4

native, non-protected · by year last collected

taxon	family	lifeform	status	last	yrs	n	locate
Elaphoglossum paleaceum	Dryopteridaceae	fern	indigenous	1929	97	4	approx
Alyxia stellata	Apocynaceae	shrub	indigenous	1930	96	1	approx
Asplenium macraei	Aspleniaceae	fern	endemic	1930	96	1	approx
Peperomia tetraphylla	Piperaceae	herb	indigenous	1930	96	1	approx
Elaphoglossum wawrae	Dryopteridaceae	fern	endemic	1931	95	1	approx
Cyperus hillebrandii	Cyperaceae	graminoid	endemic	1938	88	1	approx
Perrottetia sandwicensis	Dipentodontaceae	tree	endemic	1948	78	1	nominal
Asplenium adiantum-nigrum	Aspleniaceae	fern	indigenous	1971	55	4	approx
Asplenium contiguum	Aspleniaceae	fern	indigenous	1971	55	1	approx
Cibotium glaucum	Cibotiaceae	fern	endemic	1971	55	1	approx
Cyrtomium caryotideum	Dryopteridaceae	fern	indigenous	1971	55	3	approx
Dryopteris hawaiiensis	Dryopteridaceae	fern	endemic	1971	55	1	approx
Elaphoglossum crassifolium	Dryopteridaceae	fern	endemic	1971	55	1	approx
Pellaea ternifolia	Pteridaceae	fern	indigenous	1971	55	2	approx
Pteris cretica	Pteridaceae	fern	indigenous	1975	51	2	approx
Stenogyne rotundifolia	Lamiaceae	herb	endemic	1975	51	1	nominal
Stenogyne rugosa	Lamiaceae	herb	endemic	1977	49	2	approx
Dianella sandwicensis	Asphodelaceae	herb	indigenous	1980	46	3	approx
Freycinetia arborea	Pandanaceae	tree	indigenous	1980	46	2	nominal
Stenogyne scrophularioides	Lamiaceae	herb	endemic	1980	46	2	nominal
Acacia koa	Fabaceae	tree	endemic	1986	40	4	approx
Peperomia cookiana	Piperaceae	herb	endemic	1989	37	6	approx
Pipturus albidus	Urticaceae	tree	endemic	1989	37	8	approx
Coprosma menziesii	Rubiaceae	shrub	endemic	1997	29	1	GPS
Vaccinium reticulatum	Ericaceae	shrub	endemic	2001	25	1	GPS
Sophora chrysophylla	Fabaceae	tree	endemic	2002	24	3	GPS
Diplazium sandwichianum	Athyriaceae	fern	endemic	2008	18	2	GPS
Dryopteris fuscoatra	Dryopteridaceae	fern	endemic	2008	18	1	GPS
Dryopteris glabra	Dryopteridaceae	fern	endemic	2008	18	1	GPS
Myrsine lessertiana	Primulaceae	tree	endemic	2009	17	3	GPS
Pisonia sandwicensis	Nyctaginaceae	tree	endemic	2009	17	1	GPS

'locate': GPS = a GPS-era field fix (relocatable) · approx = pre-GPS georeference only (search the vicinity) · nominal = gazetteer coordinate. All rows are IUCN Not-Evaluated / Least-Concern.

Easy wins — grab while you pass

briefing_book · Report R3

findable single-record common taxa

taxon	family	lifeform	status	last	n
<i>Achillea millefolium</i>	Asteraceae	herb	alien	1929	1
<i>Pityrogramma calomelanos</i>	Pteridaceae	fern	alien	1971	1
<i>Nephrolepis biserrata</i>	Nephrolepidaceae	fern	indigenous	1989	1
<i>Nephrolepis cordifolia</i>	Nephrolepidaceae	fern	indigenous	1991	1
<i>Anthoxanthum odoratum</i>	Poaceae	graminoid	alien	2001	1
<i>Bulbostylis capillaris</i>	Cyperaceae	graminoid	alien	2001	1
<i>Digitaria violascens</i>	Poaceae	graminoid	alien	2001	1
<i>Hypochaeris radicata</i>	Asteraceae	herb	alien	2001	1
<i>Lachnagrostis filiformis</i>	Poaceae	graminoid	alien	2001	1
<i>Nuttallanthus canadensis</i>	Plantaginaceae	herb	alien	2001	1
<i>Schizachyrium condensatum</i>	Poaceae	graminoid	alien	2001	1
<i>Schizachyrium microstachyum</i>	Poaceae	graminoid	alien	2001	1
<i>Sporobolus indicus</i>	Poaceae	graminoid	alien	2001	1
<i>Ipomoea indica</i>	Convolvulaceae	herb	indigenous	2009	1
<i>Geranium carolinianum</i>	Geraniaceae	herb	alien	NA	1
<i>Solanum pseudocapsicum</i>	Solanaceae	shrub	alien	NA	1

Protected — observe & report, DO NOT collect

briefing_book · Report R4

native taxa with an IUCN threat category

Endangered — CR / EN

taxon	family	lifeform	iucn	last	n
Hibiscadelphus giffardianus	Malvaceae	tree	CR	1975	5
Hibiscadelphus hualalaiensis	Malvaceae	tree	CR	1975	3
Melicope cinerea	Rutaceae	tree	EN	1938	1

Caution — VU / NT (verify locally)

taxon	family	lifeform	iucn	last	n
Charpentiera obovata	Amaranthaceae	tree	VU	1966	1
Wikstroemia sandwicensis	Thymelaeaceae	shrub	VU	1980	5
Alphitonia ponderosa	Rhamnaceae	tree	VU	1989	2
Cheirodendron trigynum	Araliaceae	tree	VU	1998	1
Sapindus oahuensis	Sapindaceae	tree	VU	1998	1
Pittosporum hosmeri	Pittosporaceae	tree	VU	1999	2
Metrosideros polymorpha	Myrtaceae	tree	VU	2003	11
Coprosma ochracea	Rubiaceae	shrub	VU	2009	1
Nestegis sandwicensis	Oleaceae	tree	VU	2009	3
Psychotria hawaiiensis	Rubiaceae	tree	NT	2009	3
Zanthoxylum dipetalum	Rutaceae	tree	VU	2009	1

Protection applies to NATIVE taxa only; category = IUCN Red List via GBIF. VU/NT: several are common — Metrosideros polymorpha is global-VU (rapid-‘ōhi‘a-death) yet the dominant tree here. 'Not Evaluated' does not mean safe. An alien's global status is non-protective (Pyracantha koidzumii is EN globally but an invasive weed here).

Contested Identities

What this is. BISH and BPBM are both Bishop Museum; the same physical sheet is often cataloged under both codes, and sometimes the two entries carry DIFFERENT determinations. Where the two names are genuinely different taxa, a facet checklist counts them as two species — a phantom. This report finds those conflicts and gives the diagnostic character to settle each from the online scan.

Scope: R5 uses records ATTRIBUTED to Kīpuka Puʻaʻulu (not a strict 2 km radius), because fixing determinations is about the labels and the coarse georeferencing (see R1) would exclude sheets that belong. Found: 8 same-sheet conflicts — 4 benign (spelling/synonymy/revision), 3 REAL, 1 REVIEW.

Reciprocity: report each resolution back to Bishop.

catalog	determination A	determination B	kind
656953	Ludwigia palustris (Onagraceae)	Hedyotis biflora (Rubiaceae)	REAL — different families
668168	Corylus cornuta (Betulaceae)	Corylus americana (Betulaceae)	REAL — congeneric
770507	Pyracantha koidzumii (Rosaceae)	Pyracantha angustifolia (Rosaceae)	REAL — congeneric
656108	Cerastium fontanum (Caryophyllaceae)	Cerastium glomeratum (Caryophyllaceae)	REVIEW
656211	Hypochaeris radicata	Hypochoeris radicata	benign — spelling
656286	Cardamine occulta	Cardamine flexuosa	benign — revision
656421	Carya illinoensis	Carya illinoensis	benign — spelling
656875	Eriocapitella hupehensis	Eriocapitella japonica	benign — synonymy

Contested identity — sheet 656953

REAL — two different FAMILIES on one sheet

Two determinations, one physical sheet:

BISH: *Ludwigia palustris* (Onagraceae)

BPBM: *Hedyotis biflora* (Rubiaceae)

THE DECIDER

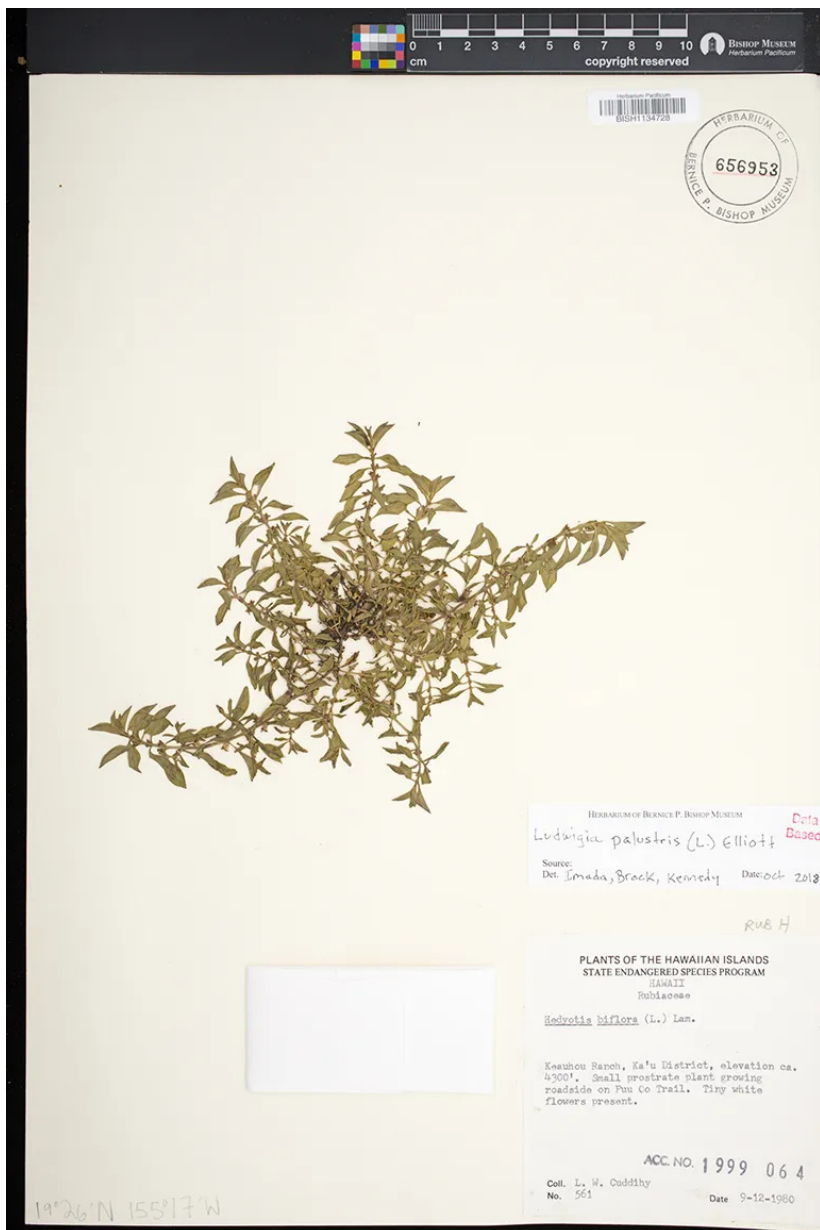
Interpetiolar stipules. PRESENT = Rubiaceae (*Hedyotis*); ABSENT = Onagraceae (*Ludwigia*). A family-level, unmistakable character.

Ludwigia = marsh purslane, reddish wetland stems, no stipules. *Hedyotis* = sprawling Rubiaceae herb, opposite leaves WITH interpetiolar stipules.

Provenance: Cuddihy 561, 1980 · BISH + BPBM

Scan:

<https://editedimages.s3-accelerate.amazonaws.com/BISH113472>



BISH and BPBM are both Bishop Museum: this is ONE physical sheet cataloged twice, so a checklist that counts both names invents a phantom taxon. Resolving it from the scan removes the phantom - and the correct determination should be reported back to Bishop. Three scans are 768x1152 web derivatives (*Pyreanthra* is full-res); the Bishop portal holds full-res masters.

Contested identity — sheet 668168

REAL — congeneric (two hazelnuts)

Two determinations, one physical sheet:

BISH: *Corylus cornuta* (Betulaceae)

BPBM: *Corylus americana* (Betulaceae)

THE DECIDER

The fruit involucre (husk), if present. *C. cornuta* ('beaked') = husk drawn into a long tubular beak; *C. americana* = husk short, open, not beaked.

Both planted hazelnuts (forestry-trial; neither native). *C. americana* also has glandular-bristly petioles.

Provenance: Cuddihy 611, 1980 · BISH + BPBM

Scan:

<https://editedimages.s3-accelerate.amazonaws.com/BISH115430>



BISH and BPBM are both Bishop Museum: this is ONE physical sheet cataloged twice, so a checklist that counts both names invents a phantom taxon. Resolving it from the scan removes the phantom - and the correct determination should be reported back to Bishop. Three scans are 768x1152 web derivatives (Pyraecantha is full-res); the Bishop portal holds full-res masters.

Contested identity — sheet 770507

REAL — congeneric (two firethorns)

Two determinations, one physical sheet:

BISH: *Pyracantha koidzumii* (Rosaceae)

BPBM: *Pyracantha angustifolia* (Rosaceae)

THE DECIDER

Leaf underside + margin. *P. angustifolia* = leaves narrow, entire, apex rounded, densely

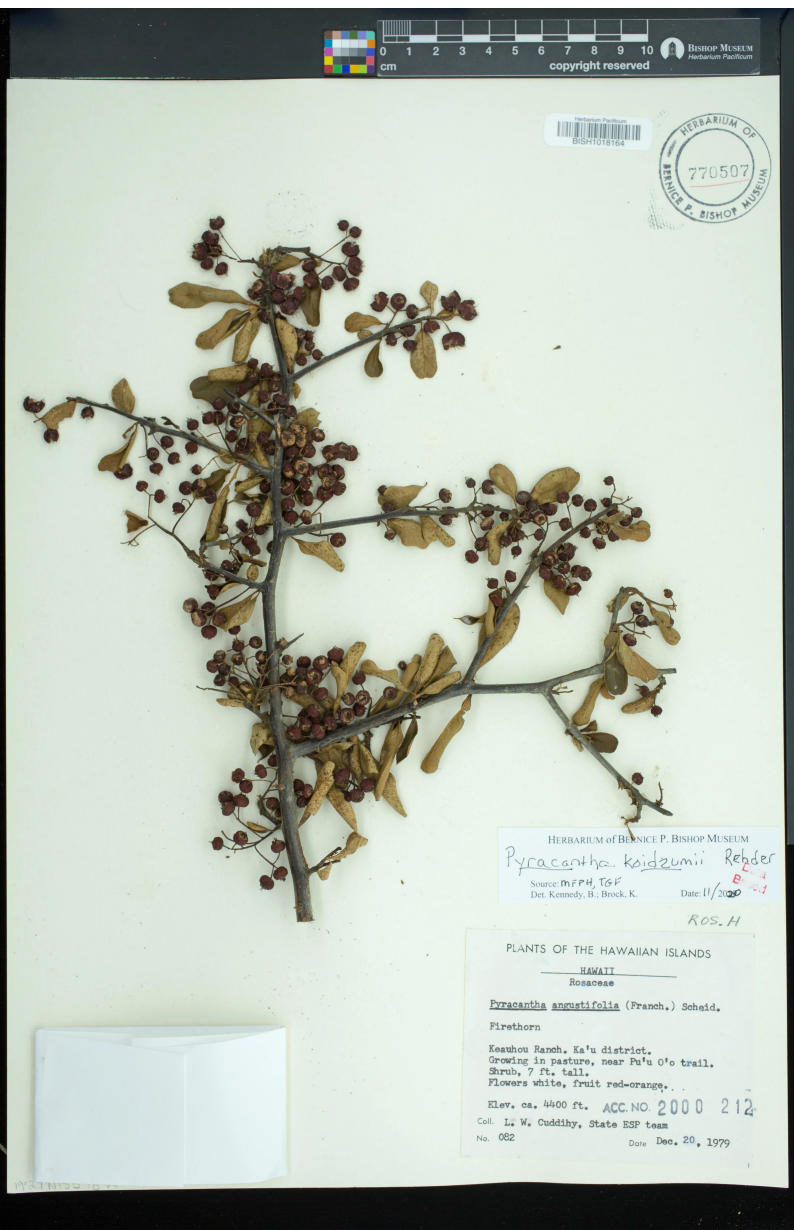
GREY-TOMENTOSE beneath. *P. koidzumii* = broader, apex often notched, glabrous beneath.

Both ornamental firethorns (alien). This sheet is full-resolution online (Kim confirmed the ID is checkable from the scan).

Provenance: Cuddihy 82, 1979 · BISH + BPBM

Scan:

<https://editedimages.s3-accelerate.amazonaws.com/BISH101816>



BISH and BPBM are both Bishop Museum: this is ONE physical sheet cataloged twice, so a checklist that counts both names invents a phantom taxon. Resolving it from the scan removes the phantom - and the correct determination should be reported back to Bishop. Three scans are 768x1152 web derivatives (*Pyracantha* is full-res); the Bishop portal holds full-res masters.

Contested identity — sheet 656108

REVIEW — possibly ambiguous

Two determinations, one physical sheet:

BISH: *Cerastium fontanum* / *holosteoides* (Caryophyllaceae)

BPBM: *Cerastium glomeratum* (Caryophyllaceae)

THE DECIDER

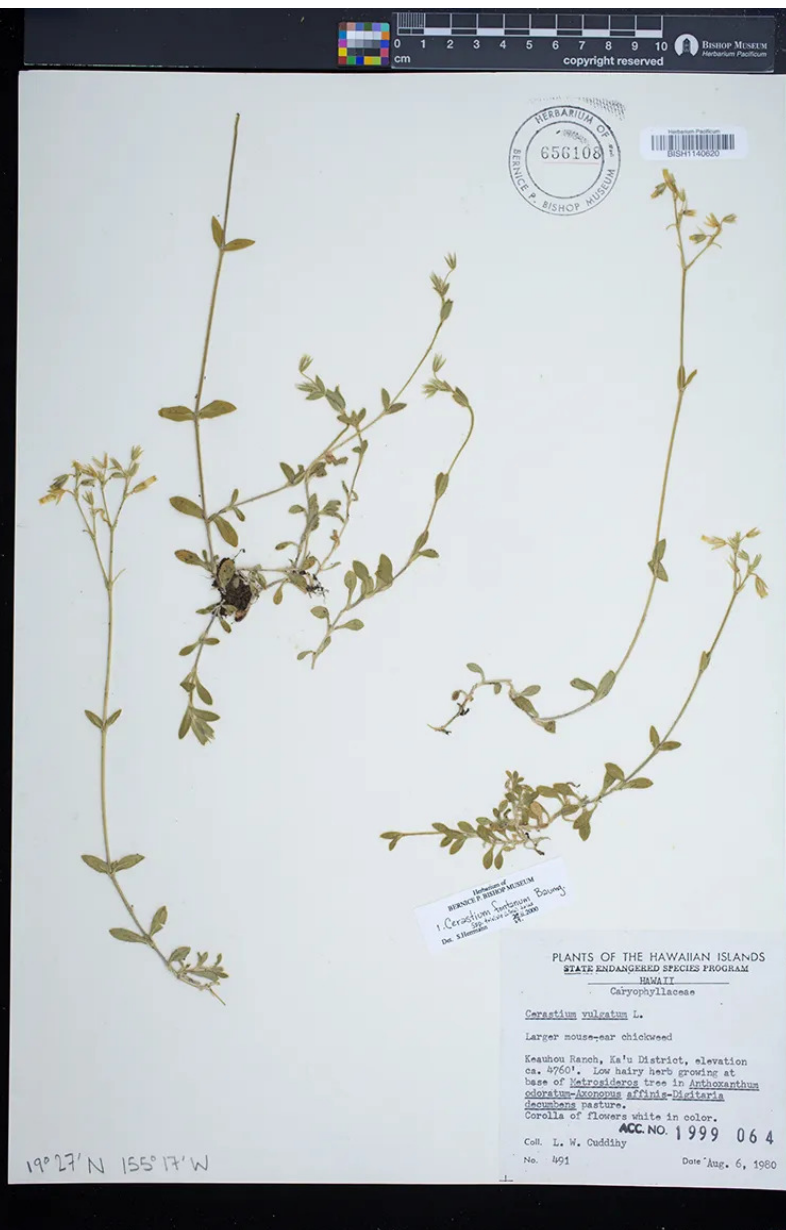
Inflorescence + sepal hairs + habit. *C. glomeratum* = annual, DENSE terminal glomerules, sticky, sepal hairs overtop the tips. *C. fontanum* = perennial (mats), laxer cyme, hairs not overtopping.

Both weedy mouse-ear chickweeds; may be a genuinely difficult or young collection.

Provenance: Cuddihy 491, 1980 · BISH + BPBM

Scan:

<https://editedimages.s3-accelerate.amazonaws.com/BISH1140620>



BISH and BPBM are both Bishop Museum: this is ONE physical sheet cataloged twice, so a checklist that counts both names invents a phantom taxon. Resolving it from the scan removes the phantom - and the correct determination should be reported back to Bishop. Three scans are 768x1152 web derivatives (Pyreantha is full-res); the Bishop portal holds full-res masters.

briefing_book · the carry-in-field summary · full reports R1–R10

Collecting targets (☐ high-value overdue · • easy win)

taxon	family	life	last	locate	why
Elaphoglossum paleaceum	Dryopteridaceae	fern	1929	approx	☐ high-value
Alyxia stellata	Apocynaceae	shrub	1930	approx	☐ high-value
Asplenium macraei	Aspleniaceae	fern	1930	approx	☐ high-value
Peperomia tetraphylla	Piperaceae	herb	1930	approx	☐ high-value
Elaphoglossum wawrae	Dryopteridaceae	fern	1931	approx	☐ high-value
Cyperus hillebrandii	Cyperaceae	graminoid	1938	approx	☐ high-value
Asplenium adiantum-nigrum	Aspleniaceae	fern	1971	approx	☐ high-value
Asplenium contiguum	Aspleniaceae	fern	1971	approx	☐ high-value
Achillea millefolium	Asteraceae	herb	1929	approx	• easy win
Pityrogramma calomelanos	Pteridaceae	fern	1971	approx	• easy win
Nephrolepis biserrata	Nephrolepidaceae	fern	1989	approx	• easy win
Nephrolepis cordifolia	Nephrolepidaceae	fern	1991	GPS	• easy win
Anthoxanthum odoratum	Poaceae	graminoid	2001	GPS	• easy win
Bulbostylis capillaris	Cyperaceae	graminoid	2001	GPS	• easy win

DO NOT COLLECT — observe & report

- Hibiscadelphus giffardianus (Malvaceae, CR)
- Hibiscadelphus hualalaiensis (Malvaceae, CR)
- Melicope cinerea (Rutaceae, EN)

VU/NT natives: verify locally (see R3+R4).

SITE. Mesic montane forest kīpuka, 1229 m (1083–1508 m). Climate 16.2 °C, 1679 mm, aseasonal (Whittaker: temperate-seasonal boundary). Substrate: an older forested island ringed by younger Mauna Loa lava.

HERBARIUM VISIT. BISH (Bishop) = the most material, but its digitized record STOPS at 1980 — ask about undigitized post-1980 sheets. HAW (Univ. Hawai‘i) = the active herbarium (to 2024). Offer your ID resolutions back (see R5).

REMINDERS. Staleness = a collecting gap, NOT rarity. Collect fertile material + a duplicate (turn singletons into pairs). GPS each point precisely. Photograph in situ. 'approx' locate = search the vicinity (no GPS-era fix). Listed taxa: observe & report only.