



Early Detection of Invasive Plant Species & New Plant Records

Hawai‘i Volcanoes National Park

Jacob Gross¹, Kevin Faccenda², Kathryn Akamine¹

¹ National Park Service – Pacific Island Network

² University of Hawai‘i at Mānoa

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Summary

Objectives

The Pacific Island Inventory and Monitoring Network (PACN) lists four objectives within the Early Detection (ED) of Invasive Plant Species Monitoring Plan (Ainsworth et al. 2017):

- 1) Survey dispersal corridors and other high-risk sites for incipient populations of potentially invasive plants.
- 2) Provide timely information to park managers regarding the presence of new and potentially invasive plant species in order to facilitate a rapid management response.
- 3) Update and maintain NPSpecies (<https://irma.nps.gov/NPSpecies/>), the plant species database for each park, including new species detected during field surveys.
- 4) Develop and distribute invasive plant outreach materials to park staff to increase awareness and reporting capability.

Report format

This report summarizes the new and potentially invasive plant species detected within Hawai'i Volcanoes National Park (HAVO) during PACN Early Detection surveys from August 12th-19th, 2022. Weed Risk Assessment (WRA) scores were utilized to help predict each newly detected plant species' level of invasiveness and potential to spread and disrupt ecosystems (HPWRA 2023). When WRA scores were unavailable for a given plant species, the authors utilized any available information on naturalization and spread in other locales along with invasiveness of related species, lifeforms, or traits in Hawai'i to subjectively weigh invasiveness potential relative to other species with WRA scores. Plant species were then ordered according to their relative invasiveness potential, with the greatest WRA scores (i.e., riskiest species) listed first. In addition, species of particular concern are highlighted in the box below titled "Highlighted Species for Management Action."

All species included in this report were previously not listed within the park's species checklist ([NPSpecies](#)) or listed as "Unconfirmed" on the checklist. In addition to early detection, some new plant species records were documented within the park by other means (other projects, herbarium records, etc.)—these species are reported here also under the section "Other New Species." Finally, some plant species known to occur in the park were previously lumped together or otherwise mislabeled with incorrect species names, these corrections are listed under the "Misapplied" section.

Species profiles

Each new species record in this report is a stand-alone section titled by lifeform and scientific name and can be navigated directly. Each species profile includes general notes and background about the species record, helpful tips or keys to identification, and current known status of the species within the park at the time of the report.

Overview

Early detection species: 21
New plant species added to NPSpecies: 31
Dates of early detection: 12–19 August 2022
Field observers: Kevin Faccenda and Jacob Gross
Contact: Jacob Gross (jacob_gross@nps.gov)

Methods for early detection

Park staff identified priority locations and corridors. Two observers walked or drove the corridors each scanning an opposite side of the corridor as it was traversed. When an unknown species or undocumented (i.e., not listed, or listed as unconfirmed on NPSpecies) species was encountered, a photo and GPS point was taken along with notes concerning location, abundance, phenology, and habitat. Whenever possible, two voucher specimens were also collected.

Corridors surveyed

1) Mauna Loa Rd. from Highway 11 up to trailhead of Mauna Loa trail and including Tree Molds Rd. and the adjacent horse paddocks area, 2) The entire length of Escape Rd., 3) ‘Ainahou Ranch Rd. and the ranch house area. See Figure 1 for the map of corridors surveyed. Additionally, general plant species updates are included in this report and apply to locations within the park but outside of early detection surveys. Kevin Faccenda also drove Chain of Craters Road and conducted a short walk at the end of Chain of Craters Road. Because Chain of Craters Road was just a quick drive with periodic sampling and not an in-depth survey like the other corridors listed, it was not included in corridors surveyed map (Figure 1). However, new species recorded along Chain of Craters Road were still included in the Early Detection species profiles section.

Highlighted species for management action

Of the 28 new species records reported here, 5 are highlighted for timely consideration of management actions:

***Grass—*Eragrostis curvula* (WRA 26):** Fire promoting invasive grass. ~12 individuals along ‘Ainahou Ranch road. Detection at early enough stage to be contained. All individuals encountered were pulled, but additional checks warranted.

***Grass—*Andropogon bicornis* (WRA 18):** First reported in Hawai‘i Country in 2013. Appears to be widespread throughout park, but currently only 1–2 individuals per point. Probably has flown under the radar for a while due to similar appearance to other established *Andropogon/Schizachyrium* in the park. Monotypic stands of *A. bicornis* can be seen along Highway 11 near Mountain View area. Seeds will likely keep blowing in from outside the park.

***Grass—*Digitaria scalarum* (WRA 16):** [Syn. *Digitaria abyssinca*] Abundant along road to ‘Ainahou Ranch. Creeping and mat-forming creating large monotypic stand going at least 10 meters away from road. Sometimes mixed with *D. eriantha* and *Cenchrus clandestinus*.

***Fern—*Hypolepis dicksonioides* (WRA 14):** Uncommon but widespread around main headquarters/office area and pit crater of Kahuku paddocks. Appears aggressive and able to create monotypic stands.

Grass—*Entolasia marginata* (No WRA): Found outside of Early Detection surveys within Kahuku Paddocks. Eradication unlikely, however this grass was detected in rotational plot (#54) which contained the highest relative percentage of native dominated understory thus far in the Kahuku paddocks. Because *E. marginata* appears able to invade native dominated wet forest habitat, it may be a target species in high value areas.

What is the WRA?

Description from [Hawai‘i Pacific Weed Risk Assessment](#) (HPWRA 2023):

“A vetting process for plants. It uses published scientific papers rather than anecdotal information to answer a set of 49 questions. This tool is repeatable and transparent. It asks if humans are likely to disperse the plant. This gives us an idea of how many repeated introductions and more chances to escape cultivation the plant has. It also asks the following: Is the plant a weed elsewhere in the world? Is it shade tolerant? This can predict the plant’s ability to grow in a closed canopy forest. Does it produce a lot of fertile seeds; do the seeds remain viable in the soil for more than a year; and are the seeds dispersed by wind/animals/water/birds?”

What do the WRA numbers mean?

According to HPWRA, “A WRA score of 0 or less means the plant is low risk. At this time the lowest number for low risk is -14 and the highest is 6. A range from 1 to 6 often means we need more published information to answer the questions. 7 or greater means the plant is likely to invade Hawai‘i’s landscapes or already is. The highest number is 32 for [*Lantana*](#).” In this report, if a “?” follows the WRA, then an official WRA does not exist.

Additional information

This brief along with associated photos and data can be found on the NPS Integrated Resource Management Applications website:

<https://irma.nps.gov/Portal/>

Current NPSpecies List

<https://irma.nps.gov/NPSpecies/>

More information about the Hawai‘i Pacific Weed Risk Assessment (WRA)

<https://plantpono.org/risk-assessment/>

Plant Taxonomy

Unless otherwise stated, taxonomy and scientific names mirror the on-line and database checklists maintained by Bishop Museum at the time of the report.

plantsofhawaii.org

Hawaiian Naturalized Vascular Plants Checklist (by Clyde T. Imada—February 2019 update—Technical Report 69) [Bishop Museum Occasional Papers](#)

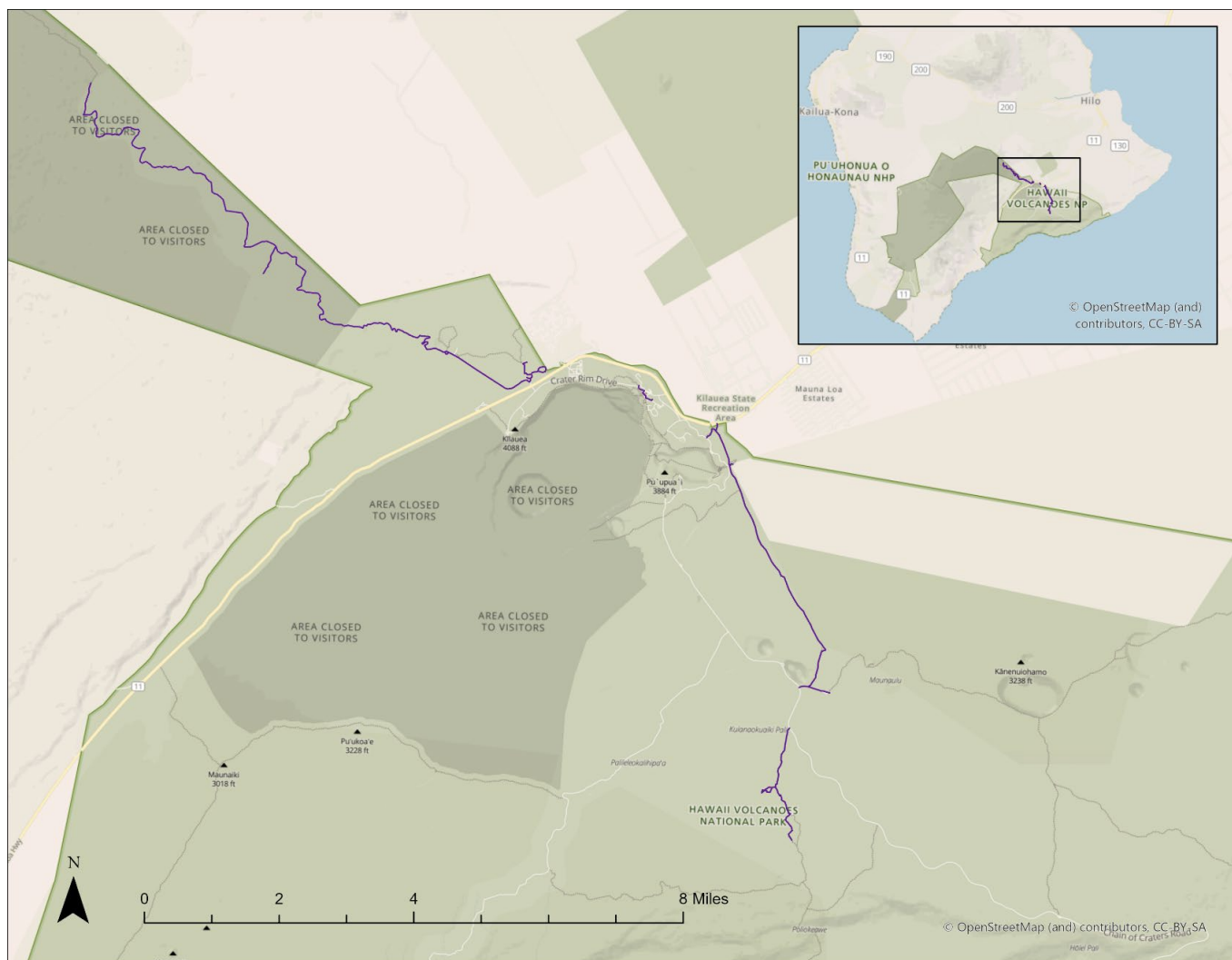


Figure 1. Map showing corridors in Hawai'i National Park (HAVO) that were traversed (purple line) during 2022 HAVO Early Detection of Invasive Species surveys in the park.

Species Profiles—Early Detection

All plant species in this section are new to the park (i.e., not documented in NPSpecies), and were detected during the “Early Detection of Invasive Species” surveys. Plants are reported in order of their perceived level of “invasiveness” based firstly upon the Hawai‘i Weed Risk Assessment and secondly upon the authors’ opinions based on the literature available and personal observations.

*Grass—*Eragrostis curvula* (Schrad.) Nees. [[WRA 26](#)]

[African love grass, weeping love grass]



Eragrostis curvula (Kevin Faccenda)

General Notes

New record for Island of Hawai'i. Noted as naturalized on O'ahu and Kahoolawe in 1998 (Evenhuis & Miller 1998), then on Maui in 2003. Also naturalized throughout the western and southern United States, including Puerto Rico. Increases fire risk in invaded ecosystems. Tolerates and resprouts after fire.

Identification Notes

Wispy, thin curly leaves at tip. Leaf-blades herbaceous (not coriaceous and stiff like the native *E. Grandis* and native *E. Variabilis*). Basal leaf-sheaths ridged with silky hair.

Status in Park

~12 individuals seen along 'Ainahou Ranch Rd. Detection early enough to be contained. All pulled, but additional surveys warranted.

Locality	Latitude	Longitude
'Ainahou Ranch Rd.	19.337928	-155.224598
'Ainahou Ranch Rd.	19.338004	-155.224522

*Grass—*Andropogon bicornis* L. [[WRA 18](#)]

[West Indian foxtail grass]



Andropogon bicornis (Kevin Faccenda)

General Notes

New park record. Not on [NPSpecies](#) but listed as present on Big Island on [Imada 2019 checklist](#). First reported in Hawai'i country in 2013 from material at Lava Tree State Monument, Puna and noted as likely established in multiple other areas of the island at that time.

Identification Notes

A. bicornis—Seed head looks like *Schizachyrium condensatum*; however, leaf blades are much different (not distichous). Larger and longer leaf blades than other *Andropogon*. *Andropogon bicornis* has rounded stems at base (*A. glomeratus* var. *pumilus* very flattened at base) and has a scabrous blade that can be felt running finger from distal end toward base (*S. condensatum* is smoother).

Status in Park

Appears to be widespread, but currently only 1–2 individuals per point. Probably has flown under the radar for a while due to similar appearance to other established *Andropogon/Schizachyrium* in the park. Monostands of *A. bicornis* can be seen along Highway 11 near Mountain View area. Seeds will likely keep blowing in from outside the park. Plants on Mauna Loa Rd. were pulled, but more are likely in the area.

Locality	Latitude	Longitude
Mauna Loa Rd.	19.442669	-155.315950

Locality	Latitude	Longitude
Mauna Loa Rd.	19.440622	-155.310875
Horse Paddocks near Tree Molds Rd.	19.43616308	-155.2860387
Escape Rd.	19.392353	-155.228048
Escape Rd.	19.387020	-155.224584
Escape Rd.	19.384786	-155.223245
Escape Rd.	19.381855	-155.220976
Escape Rd.	19.374254	-155.216089
Pu'u Huluhulu trailhead	19.364923	-155.215038
Office gutters	19.427756	-155.256224
Kahuku Rd.	19.086807	-155.684388

*Grass—*Digitaria scalarum* (Schweinf.) Chiov. [[WRA 16](#)]

Syn. *Digitaria abyssinica* Hochst. ex A. Rich.

[African couchgrass, Abyssinian finger grass]



Digitaria scalarum (Kevin Faccenda)

General Notes

On HAVO NPSpecies as *Digitaria abyssinica* “unconfirmed.” New island record. Not on [Imada 2019 checklist](#) for Hawai‘i Island. Found on Kaua‘i and Maui and listed as *Digitaria abyssinica*. *Digitaria abyssinica* has recently been recognized as a distinct species separate from *D. scalarum*. True *D. abyssinica* is also believed to be found in Hawai‘i.

Identification Notes

Digitaria scalarum—similar to *D. eriantha*, but has short panicles, is mat-forming, stoloniferous, and rhizomatous.

Status in Park

Abundant along road to ‘Ainahou Ranch. Creeping and mat-forming creating large monocultures going at least 10 m away from road. Sometimes mixed with *D. eriantha* and *Cenchrus clandestinus*. Known aggressive, high risk invasive species and should be contained if possible.

Locality	Latitude	Longitude
Road to ‘Ainahou Ranch	19.347737	-155.226622

*Fern—*Hypolepis dicksonioides* (Endl.) Hook. [WRA [14](#)]

[giant hypolepis]



Hypolepis dicksonioides (Kevin Faccenda)

General Notes

New state record. This species was previously misidentified as *Hypolepis hawaiiensis* by PACN vegetation monitoring and others.

Identification Notes

Summarized from Brownsey (1987) and notes from Miles Thomas (Botanist at Bishop Museum), personal communication, Aug. 2023:

Hypolepis dicksonioides—Massive plants up to 2.5 m (8 ft) tall, stipes and all axes covered in non-glandular and glandular hairs. These hairs up to 4 mm long. Young growth especially hairy throughout.

Hypolepis hawaiiensis var. *hawaiiensis*—Plants up to 2 m (6 ft) tall (from base of stem to tip of frond), but usually 1 m (3 to 4 ft) tall. Stipe scabrous and hairy at base (but hairs not glandular), upper portion more or less glabrous with sparse hairs. Smooth and shiny between hairs. Rachis and other axes of division glabrous with scattered small hairs, blade glabrous to having a few small hairs on underside.

Status in Park

Uncommon but widespread around main headquarters/office area and pit crater of Kahuku paddocks.

Locality	Latitude	Longitude
Kahuku Paddocks plot 38 (near pit crater)	19.13719	-155.6847
Kahuku Paddocks plot 51 (near pit crater)	19.13869	-155.6868
Kahuku Paddocks (near pit crater)	19.133923	-155.683899
Kahuku Paddocks (near pit crater)	19.13207	-155.685573
Kahuku Paddocks EIPS transect R60	19.122370	-155.686172
Escape Rd. (below Nāhuku plot 55)	19.39504	-155.2292
Between I&M offices	19.427806	-155.256527
Across the office access road from Volcano House parking lot exit (behind Park sign)	19.428424	-155.257617
Along pipeline trail (toward crater side)	19.422931	-155.25367

Grass— *Eragrostis tenuifolia* (A.Rich.) Hochst. ex Steud. [WRA [11](#)]

[elastic grass, wiry lovegrass]



Eragrostis tenuifolia (Jacob Gross)

General Notes

First reported in Hawai'i County in 1998. Often found on roadsides and parking areas growing within compacted substrates.

Identification Notes

May be confused with *E. brownii*. Following taken from key in Herbst and Clayton (1998):

E. tenuifolia— Basal leaf-sheaths strongly laterally compressed; spikelets dark green, the lemma tips free giving a serrate outline.

E. brownii— Spikelets not obviously serrate. Spikelets borne close to the primary branches.

Status in Park

Common along roadsides, trails, and parking lots throughout park.

Locality	Latitude	Longitude
Mauna Loa Road	19.477522	-155.373458
'Ainahou Ranch Road	19.347185	-155.226492
Kahuku Visitor Center	19.066313	-155.680811

Grass—*Digitaria eriostachya* Mez. [WRA score unknown]



Digitaria eriostachya (Kevin Faccenda)

General Notes

New state record. First collected on Hawai‘i Island in 2001, but not identified as *D. eriostachya* until 2022 (Faccenda 2022).

Identification Notes

Can be easily confused with *Digitaria eriantha*.

Extracted from Faccenda (2022):

“*Digitaria eriostachya* is most similar to *D. eriantha* but differs in having panicle branches that are triangular with no wings, as well as *D. eriostachya* having no lower glume and an upper glume that is as long as the spikelet. *Digitaria eriostachya* is native to Paraguay and Argentina (Webster & Hatch 1990), and this is the first time it has been reported outside of its native range. Little information exists about its ecology or weed potential.”

Status in Park

Widespread around Kīlauea HQ. Found along Highway 11 from Mauna Loa Strip Rd. to Escape Rd. entrance and along Amaumau/Wright Rd. down to Kīlauea Iki. Looks very similar to *D. eriantha* which is widespread in the Kahuku unit of the park.

Locality	Latitude	Longitude
Tree Molds Rd.	19.432107	-155.28423

Locality	Latitude	Longitude
Crater Rim Dr.	19.415216	-155.240826
Amaumau Rd.	19.480223	-155.266618
Māmalahoa Highway near Escape Rd. entrance	19.423293	-155.239429

Herb— *Mitracarpus hirtus* (L.) DC. [WRA Score unknown]

Mitracarpus villosus (Sw.) Cham. & Schltdl. ex DC.; *Spermacoce hirta* L.; *Spermacoce villosa* Sw.

[tropical girdlepod]



Mitracarpus hirtus (J.Gross, K. Faccenda)

General Notes

New Park Record. Known to occur on Hawai'i Island and Maui. First reported naturalized in the vicinity of Hilo, HI in 1982 in disturbed mesic sites.

Identification Notes

Mitracarpus split out from *Spermacoce* – diagnostic characteristic: in *Mitracarpus* the fruit is a circumscissile capsule, while in *Spermacoce* the fruit is either a 2-valved capsule or of 2 dimorphic mericarps, one dehiscent, the other indehiscent.

In *Richardia* the flowers are clustered terminal only, while *Mitracarpus* flowers are terminal and axillary clusters.

Mitracarpus hirtus – hypanthium 1-1.4 mm long; corolla 2-3 mm long

Spermacoce remota – hypanthium 2-2.5 mm long; corolla 2.4-2.6 mm long

Spermacoce exilis - hypanthium ca. 0.5 mm long; corolla 0.6-0.7 mm long

Status in Park

11-50 individuals estimated along lower Escape Road.

Locality	Latitude	Longitude
Lower Escape Road	19.376347	-155.217869

Fern—*Diplazium esculentum* (Retz.) Sw. [WRA 8]

[edible fern, vegetable fern, paca, hō'i'o]



Diplazium esculentum (Kevin Faccenda)

General Notes

Previously listed as “unconfirmed” on HAVO NPSpecies list. Present on all islands on [Imada 2019 checklist](#).

Identification Notes

From eFloras, [Diplazium esculentum](#) [accessed 2023]:

“Stems erect; scales brown, linear-lanceolate, margins dentate. Petiole 30–60 cm. Blade ovate, 2-pinnate to 2-pinnate-pinnatifid, 50--100 × 15--50 cm, base ± narrowed, apex abruptly acuminate. Pinnae 1-pinnate to 1-pinnate-pinnatifid. Pinnules oblong, base ± truncate, ± auriculate, apex acuminate, incised or lobed halfway to costule. Veins pinnate, anastomosing. Sori elongate, single or double, indusiate; indusia vaulted, thin, erose.”

Status in Park

Uncommon, found in open forest patch 5 meters off upper Escape Rd.

Locality	Latitude	Longitude
Upper Escape Rd.	19.421033	-155.242471

Grass—*Eremochloa ophiuroides* (Munro) Hack. [WRA 8]

[centipede grass]



Eremochloa ophiuroides (right photo shows grass spreading into natural area—see red arrows) (Kevin Faccenda)

General Notes

Not recognized as naturalized currently. However, we observed this species spreading from the bathroom parking lot at Kahuku visitor center into adjacent natural areas and established at other locations in the park, including the lower portion of ‘Ainahou Ranch Road (>50 individuals noted). Introduced to Hawai‘i as turf grass. Species was screened by Weed Risk Assessment in 2004 and given a “low risk”; however, a revaluation may be needed after evidence of naturalization.

Identification Notes

Extracted from eFloras—Flora of China, [Eremochloa ophiuroides](#) [accessed 23 Sep 2022]:

“Perennial, stoloniferous, mat-forming. Culms decumbent, rooting and branching, flowering shoots 15–30 cm tall. Leaf sheaths keeled, overlapping at base, hairy at mouth; leaf blades flat, (1–)3–10 × 0.2–0.4 cm, usually glabrous, apex obtuse; ligule 0.2–5 mm, margin ciliate. Raceme erect or slightly curved, 4–6 cm; rachis internodes narrowly oblong-clavate, glabrous, ca. 2.5 mm. Sessile spikelet 3.5–4 mm; lower glume oblong, ± leathery, shiny, glabrous, 5–7-veined, marginal spines very inconspicuous, short along incurving lower keels or reduced to knobs, apex acute but appearing broadly truncate because of flanking membranous wings. Pedicelled spikelet vestigial or absent; pedicel ± leaflike, ellipsoid-subulate.”

Status in Park

Naturalized in isolated areas across park: Kahuku Visitor Center bathroom parking lot, horse paddocks near Tree Molds, ‘Ainahou Ranch Rd.

Locality	Latitude	Longitude
Kahuku Visitor Center bathroom parking	19.063731	-155.678467
Horse paddocks by Tree Molds Rd.	19.435196	-155.284374
‘Ainahou Ranch Rd. (below ranch)	19.338282	-155.224129
Bottom of ‘Ainahou Ranch Rd.	19.338351	-155.224088

Grass—*Sporobolus fertilis* (Steud.) Clayton [WRA score unknown]



Sporobolus fertilis (Kevin Faccenda)

General Notes

New state record. *Sporobolus fertilis* was listed on HAVO's NPSpecies as "unconfirmed." Higashino et al. (1988) and Fosberg (1975) checklists for HAVO included *S. fertilis* but NPSpecies had it listed as "Unconfirmed," which means that evidence/vouchers were weak or lacking. Bishop Museum currently lists *S. fertilis* as "Only found in cultivation." DNA analysis indicated HAVO specimens collected during early detection work were *S. fertilis*. Prior herbaria records indicate *S. fertilis* was noted in Hawai'i as early as 1936 and apparently in HAVO since 1984.

Identification Notes

Longer panicles than *S. africanus*. Pull away from rachis when bent.

Status in Park

Found near Kahuku Visitor Center and from Kīlauea Visitor Center area all the way down to Hōlei Sea Arch.

Locality	Latitude	Longitude
Kahuku visitor center area	19.0645	-155.67861
Sulphur Banks Trailhead (plant killed)	19.430674	-155.259355
Escape Rd.	19.389963	-155.225956
Mauna Loa Rd.	19.477522	-155.373458
Hōlei Sea Arch	19.295615	-155.097064

Grass—*Paspalum jesuiticum* Parodi [WRA score unknown]



Paspalum jesuiticum (Kevin Faccenda)

General Notes

New to HAVO and the state of Hawai‘i.

Identification Notes

Looks similar to *Paspalum dilatatum*.

Paspalum jesuiticum is stoloniferous and mat forming with glabrous florets, whereas *P. dilatatum* has short rhizome and is tuft forming with long white hairs on glume margins.

Status in Park

Found from park headquarters, upper Escape Rd., Volcano Village, Wright Rd., and Amaumau Rd.

Locality	Latitude	Longitude
Volcano House parking lot exit at "Do Not Enter" sign	19.428076	-155.257775
Upper Escape Rd.	19.41996	-155.24379

Herb— *Pseudognaphalium attenuatum* (DC.) Anderb. [WRA Score Unknown]

[tapered cudweed, tapered rabbit-tobacco]



Pseudognaphalium attenuatum (Jacob Gross)

General Notes

First reported by Nesom (2001) after examining a specimen collected near Ocean View in 1981. The specimen was noted as growing “ubiquitous at 1500 ft [450 m] in small, sterile kipuka.” Herbst et al. (2004) called attention to the new state record and requested voucher specimens be collected as there were none currently available at Bishop Museum. *Pseudognaphalium attenuatum* is native to and widespread in the southern half of Mexico and into most of Central America and occurs in Cuba, Puerto Rico, and Jamaica. In its native range, it occurs at elevations 60-2200 meters. The native *Pseudognaphalium sandwicense* is the only other known member of the genus in Hawai‘i.

Identification Notes

General identification notes:

Pseudognaphalium sandwicense is more ‘woolly’ with top and bottom of leaves same amount of woolliness and same color, leaves more spatulate, and the capitulescence seem more compact (peduncles relatively few/shorter). While *P. attenuatum* has much less woolliness on tops of leaves that look green, while bottom of leaf looks white/gray and leaves are more lanceolate, the capitulescence seems more branchy (peduncles relatively longer/more of them).

From Nesom (2001):

Pseudognaphalium attenuatum — Plants annual herbs, taprooted. Stems 4-15 dm tall, persistently and closely white-tomentose, eglandular. **Leaves narrowly elliptic to lanceolate**, (3-)4-9(-12) cm long, 5-10(-13) mm wide, usually long-tapering on both ends, sessile, not at all clasping or decurrent, **strongly bicolored, glabrescent above and often shiny**, eglandular but often appearing roughened with persistent, thick, gland-like trichome bases. Capitulescences compactly to diffusely corymboid to rounded-paniculate. Capitula 5-6 mm high; phyllaries tawny-whitish, very rarely pinkish. Pistillate florets 35-41 (Michoacan westward) or 49-59 (Edo. Mexico, Veracruz, and southward). Bisexual florets 2-4 (Michoacan westward) or 5-8 (Edo. Mexico, Veracruz, and southward). Cypselae with 4-8 shallow, longitudinal ridges, not papillate.

From Wagner et al. (1990):

Pseudognaphalium sandwicense — Perennial herbs 1-6.5 dm tall, moderately to very densely woolly pubescent; stems olive green to white or gray, erect to prostrate, unbranched to many-branched. Leaves **linear-spatulate to spatulate**, 1-6.5 cm long, 1-20 mm wide, uppermost leaves usually reduced, **both surfaces densely woolly pubescent**, upper surface sometimes less dense or the hairs deciduous with age, sessile and sometimes somewhat clasping the stem. Heads in terminal, corymbose or sometimes nearly globose, leafless or nearly leafless clusters, 1.5-7 mm in diameter; involucre bracts whitish to pale yellow, + shiny, sometimes obscured by dense woolly hairs; pappus bristles distinct or coherent at base, deciduous individually or in clusters. Scattered to common in relatively dry sites, on clay or consolidated dunes near sea level, or at higher elevations especially on lava or cinders, 0-3,000 m, on Kure and Midway atolls and all the main islands except Kaho'olawe.

Status in Park

Appears to be widespread but with low abundance throughout the park (at least along roads) from Mauna Loa Rd. down to the coast. Likely also prevalent in Kahuku, where first state record was reported. May be threat to native *Pseudognaphalium sandwicense* through competition and displacement if it utilizes similar resources. Additional citizen science observations of *P. attenuatum* noted within HAVO on iNaturalist.

Locality	Latitude	Longitude
Mauna Loa Rd. ~1500 m (4900 ft)	19.459372	-155.342492
'Ainahou Ranch Rd. ~800 m (2700 ft)	19.333042	-155.223206

Sedge—*Rhynchospora globularis* (Chapm.) Small [WRA score unknown]

[Globe Beaksedge, Globe Beakrush]



Rhynchospora globularis (Kevin Faccenda)

General Notes

Present only on Hawai‘i Island ([Imada 2019 checklist](#)). According to Wagner et al. (1990, 1999), native to coastal plains of the United States from Delaware, to Florida, to Texas. Introduced to California (although Calflora states it is native) and Hawai‘i. Only two collections made in 1982 at Kaumana and Saddle Rd.

Identification Notes

Extracted from eFloras—Flora of North America Online, [Rhynchospora globularis](#) [accessed 23 Sep 2022]:

“Plants perennial, cespitose or single, 30–70(–80) cm; rhizomes absent. Culms erect or excurved, lax, leafy, slender to wiry. Leaves overtopped by culm; basal leaves spreading, twisted, distal longer, erect or ascending; blades proximally flat, 1–3 mm wide, apex trigonous, subulate, tapering. Inflorescences: spikelet clusters 1–4, proximal most widely spaced, spikelets elongate, open, turbinate or compact lobed hemispheric; branches erect to ascending; leafy bracts setaceous, exceeding proximal clusters, exceeded by distal clusters. Spikelets mostly dark brown to brown, globose to broadly ovoid, (2–)2.5–3(–4) mm, apex acute; fertile scales broadly ovate to orbiculate, 1.7–2.3 mm, apex obtuse to rounded or emarginate, midrib mostly included, sometimes excurrent as apiculus. Flowers: perianth bristles 6 or less, antrorsely barbellate, of various lengths. Fruits 1–3 per spikelet, 1.5–1–8 mm (–2 mm in *var. pinetorum*); body tumidly biconvex; surfaces transversely wavy rugose, intervals of vertically rectangular alveolae or transverse rugosity indistinct, surface isodiametrically alveolate or cancellate; tubercle short conic to patelliform apiculate.”

Status in Park

Common around Tree Molds Rd. and horse paddocks.

Locality	Latitude	Longitude
Tree Molds Rd. (common in area)	19.43196888	-155.2843886
Horse paddocks near Tree Molds Rd. (common in area)	19.43642614	-155.2859744

Sedge—*Cyperus croceus* Vahl [WRA score unknown]

[Baldwin's flatsedge]



Cyperus croceus (Kevin Faccenda)

General Notes

New state record.

Identification Notes

Extracted from eFloras—Flora of North America Online, [Cyperus](#) [accessed 23 Sep 2022]:

“Herbs perennial, cespitose. Culms trigonous, (4–)14–45 cm × 1–2 mm, glabrous. Leaves yellow-green, flat, 18–44 cm × 3–4.5 mm. Inflorescences: spikes densely to loosely globose to ovoid, 10–20 mm wide; rays (3–)5–9(–14), 1–15(–26) cm; rachis 3–6(–9) mm; bracts (4–)6–9(–11), horizontal to ascending at 45°, flat, 1–30 cm × 0.5–4 mm; rachilla deciduous, wings persistent, 0.3–0.5(–0.8) mm wide. Spikelets (10–)30–50, oblong to lanceoloid, quadrangular to subterete, compressed, 4–8 × 1–1.3 mm; distal spikelet spreading or ascending; floral scales persistent, (1–)2–4(–6), appressed, whitish with red speckles, laterally 2–4-ribbed, ovate, 2.3–3.6 × 1.8–2.2 mm. Flowers: anthers 0.5 mm; styles 0.6–1.3 mm; stigmas 1.2–2.6 mm. Achenes reddish brown to nearly black, sessile, oblong, ellipsoid, 2–2.4 × 0.4–0.5(–0.7) mm, apex ± truncate-emarginate, apiculate, surfaces puncticulate.”

Status in Park

Small clumps in isolated areas from Tree Molds Rd. to Steam Vents to Napau Crater Trail parking lot.

Locality	Latitude	Longitude
Crater Rim Trail near office/resident area	19.42598633	-155.2575456
Tree Molds	19.43400253	-155.2822803
Horse Paddocks near Tree Molds	19.435445	-155.28524
Nāpau Crater Trailhead	19.36513702	-155.2162584

Grass—*Eragrostis unioloides* (Retz.) Nees ex Steud. [WRA score unknown]

[Chinese lovegrass]



Eragrostis unioloides (Kevin Faccenda)

General Notes

New HAVO record. Reported as adventive on the Big Island in 1958, considered naturalized in 1998, and collected in Maui in 2006 in degraded *Acacia/Metrosideros* montane mesic forest. Native to Asia. No WRA score. Established in Hawai'i, Fiji, and the southeastern United States, growing along roadsides and in disturbed ground.

Identification Notes

Extracted from eFloras—Flora of China, [Eragrostis unioloides](#) [23 Sep 2022]:

“Annual or perennial. Culms erect or geniculate at base, 20–60 cm tall, 2–3 mm in diam., 3–5-noded. Leaf sheaths glabrous and smooth, long pilose along the summit; ligules membranous, ca. 0.8 mm; leaf blades sub lanceolate, flat, 2–20 × 0.3–0.6 cm, adaxial surface long pilose, abaxial surface smooth, apex acuminate. Panicle open, oblong, 5–20 × 3–5 cm; branch solitary, glabrous in axils. Spikelets purplish red at maturity, oblong, 5–10 × 2–4 mm, with pedicel 0.2–1 cm, 10–20-flowered; florets closely imbricate; rachilla persistent, lower glume 1.5–2 mm, upper glume 2–2.5 mm. Lemmas broadly ovate, veins prominent, apex acute, the lower lemma ca. 2 mm. Palea slightly shorter than the lemma, 2-keeled, very narrowly winged and ciliolate, falling off together with its lemma at maturity. Stamens 2; anthers purple, 0.2–0.5 mm. Caryopsis compressed, ellipsoidal, ca. 0.8 mm.”

Status in Park

Less than 10 plants noted on edge of parking lot, growing from crack in asphalt.

Locality	Latitude	Longitude
Parking lot at end of Chain of Craters Rd.	19.29504197	-155.098351

Herb—*Sida ciliaris* L. [WRA 7]

[bracted fanpetals, fringed fanpetals]



Sida ciliaris (Kevin Faccenda)

General Notes

New island record. Noted as present on all other major Hawaiian Islands—[Imada 2019 checklist](#).

Identification Notes

Extracted from eFlora—Flora of North America, [Sida ciliaris](#) [accessed 23 Sep 2022]:

“Herbs, probably perennial, 0.1–0.3 m. Stems procumbent, branched from base, with appressed, stellate, usually 4-rayed hairs. Leaves usually crowded at stem apex; stipules partially adnate to petiole, 1-veined, linear to oblanceolate, 4–12 mm, usually longer than petiole; petiole 2–10 mm, 1/4–1/2 length of blade, with appressed stellate hairs; blade narrowly elliptic, 1–2 cm, usually 2–3 times longer than wide, base truncate to subcordate, margins dentate apically, entire basally, apex acute or obtuse, surfaces stellate-hairy abaxially, glabrous adaxially. Inflorescences terminal, subsessile, usually 1–10-flowered, flowers crowded at branch apices because of shortening of internodes, obscurely solitary, axillary. Pedicels adnate to petiole of leaflike bract, 0.1–0.4 cm, shorter than calyx. Flowers: calyx obscurely angulate, 4–6 mm, hirsute, lobes ovate; petals usually salmon-pink, red-orange, sometimes yellowish, 5–11 mm; staminal column hairy; style 5–8-branched. Schizocarps conic, 5–6 mm diam., subglabrous; mericarps 5–8, prominently muricate, otherwise glabrous.”

Status in Park

Less than 20 plants noted at edge of parking lot at the end of Chain of Craters Rd.

Locality	Latitude	Longitude
End of Chain of Craters Rd.	19.295652	-155.097191

Sedge—*Cyperus gracilis* R.Br. [WRA score unknown]

[McCoy grass, mau‘u hunehune, Slender Flat-Sedge]



Cyperus gracilis (Kevin Faccenda)

General Notes

New confirmed record for HAVO—Previously listed as “unconfirmed” on HAVO NPSpecies list. First reported on Big Island in 2001 “found in moist lawns in the Hilo area” (BISH Occasional Papers #74 2003). Present on all islands on [Imada 2019 checklist](#). Bishop Occasional Paper #110 (2011) documents occurrence on Kaho‘olawe and states “*C. gracilis* is cultivated in Hawai‘i as a ground cover.”

Identification Notes

Extracted from eFloras—Flora of North America, [Cyperus gracilis](#) [accessed 23 Sep 2022]:

“Herbs, annual or perennial. Culms weak, often arching, basally culmlike, weakly 4(–5)-angled, 10–30 cm × 0.2–0.4 mm, glabrous. Leaves 1–4, 3–25 cm × 1–1.5 mm. Inflorescences: rays absent, often proliferous; bracts 2–4, longest erect, looking like continuation of culm, V-shaped, 3–6 cm × 1–3 mm. Spikelets 1–3(–6), narrowly ellipsoid, weakly compressed, 5–10 × 2 mm; floral scales 8–16, laterally whitish or dull stramineous, medially green, weakly 3–4-ribbed, broadly ovate, 2.5 × 2 mm, apex acute to mucronate, mucro slightly excurved, 0.2–0.3 mm. Flowers: stamens 3; styles 0.8 mm; stigmas 1–1.3 mm. Achenes brown, stipitate, obovoid, abaxial angle more prominent than adaxial ones, 0.7 × 0.7 mm, apex emarginate, surfaces glabrous.”

Status in Park

Around perimeter of ‘Ainahou Ranch house.

Locality	Latitude	Longitude
‘Ainahou Ranch House (uncommon)	19.343913	-155.229401

Grass—*Digitaria henryi* Rendle [WRA score unknown]



Digitaria henryi (Kevin Faccenda)

General Notes

New state record. NPSpecies will add species when name is accepted by Bishop (expected).

Identification Notes

Differs from *D. ciliaris* because *D. henryi* has glabrous sheaths and contracted panicle branches.

Status in Park

Likely within the park 50+ years a long time. Populations along parking lot island by visitor center and lower Chain of Craters Rd.

Locality	Latitude	Longitude
Visitor center parking lot	19.429601	-155.258072
Chain of Craters Rd. above Nāulu Trailhead	19.31721	-155.167019
Chain of Craters near coast	19.283078	-155.116969
Hōlei Sea Arch	19.292957	-155.102007

Grass—*Bromus carinatus* Hook. & Arn. [WRA score unknown]

[California Brome]

Looks similar to *Bromus catharticus*



Bromus carinatus (Kevin Faccenda)

General Notes

Can be easily confused with *B. catharticus*. Not on [Imada 2019](#) checklist. However, species has been established for ~80 years based on previously collected material from Mauna Kea (Waipāhoehoe Gulch and “Kukaiau”, Hamakua). This is first record from Mauna Loa. While *B. carinatus* has not been assessed for a WRA score, the species it is often confused with (*B. catharticus*) received a WRA score of 19.

Identification Notes

Extracted from “Faccenda (2022) Updates to the Hawaiian grass flora and selected keys to species: Part 1. Bishop Museum Occasional Papers 148: 41–98”:

“*Bromus catharticus*: Lemmas 9–13-veined, occasionally with hairs near the apex; veins often raised and riblike at least toward the tip of the lemma; lemma usually glabrous

Bromus carinatus: Lemmas 7–9-veined; veins usually flush with lemma surface; lemma typically pubescent, occasionally glabrous”

Status in Park

~6 plants found near Mauna Loa Trail, approximately 200 m (650 ft.) up from trailhead at approximately 2040 m (6700 ft) elevation. All flowering individuals were collected. The similar looking species, *B. catharticus*, was found throughout HAVO and was noted along Mauna Loa strip road from Highway 11 all the way up to approximately 1890 m (6200 ft). Because *B. carinatus* was collected from Mauna Kea ~80 years ago, it does not appear to be as aggressive as *B. catharticus*. Still, because it can invade higher elevations, the area where specimens were collected should be revisited in the future.

Locality	Latitude	Longitude
Mauna Loa Trail	19.494346	-155.384911

Sedge—*Schoenus apogon* Roem. & Schult. [WRA 3]

[Common Bog-Rush]



Schoenus apogon (Kevin Faccenda)

General Notes

New park record. On [Imada 2019 checklist](#) listed as present on Hawai'i Island only.

Identification Notes

Extracted from eFloras—Flora of China, [Schoenus apogon](#) [accessed 23 Sep 2022]:

“Annuals or short-lived perennials, slender. Roots fibrous. Culms tufted, 20-40 cm tall, 0.5-1 mm thick, mostly 2-nodose, smooth. Leaves basal and cauline. Culine leaves 2, shorter than culm; sheath reddish purple, 1-2 cm; leaf blade capillary, ca. 0.5 mm wide. Involucral bracts surpassing inflorescence; sheath reddish purple, 0.5-1 cm. Inflorescences consisting of 2-5 distant corymbiform partial panicles, each bearing several sessile and shortly pedunculate spikelets; partial panicles 0.8-1.5 cm and as broad. Spikelets reddish brown, narrowly ovoid, 4-6 mm, flattened, 1- or 2(or 3)-flowered. Glumes sanguineous with pale margin, lanceolate to ovate-lanceolate, 3-4 mm, papery, apex obtuse; basal 2 or 3 glumes empty, rather short. Perianth bristles 6, ca. 2 mm, antrorsely scabrous. Stamens 3. Style ca. 1.5 mm, base glabrous; stigmas 3, as long as style. Nutlet whitish, globose-obovoid, ca. 1 mm, obtusely 3-sided, sides convex, shiny, and minutely reticulate.”

Status in Park

Patches of *S. apogon* found from Tree Molds Rd. horse paddocks to Wright/Amaumau Rd. to Escape Rd.

Locality	Latitude	Longitude
Tree Molds Rd. Horse Paddocks Area	19.436259	-155.286221
Wright/Amaumau Rd.	19.462647	-155.253705
Escape Rd.	19.389963	-155.225956

Herb—*Kummerowia striata* (Thunb.) Schindl. [WRA score unknown]

[Japanese clover]



Kummerowia striata (Kevin Faccenda)

General Notes

New park record. *Kummerowia striata* occurs on Oahu and Maui (and possibly Hawai'i—but last collected 90 years ago at Parker Ranch, Pu'u Opelu pasture). The related species *K. stipulacea* is the only *Kummerowia* that has been evaluated for a WRA score (WRA = 2 [Low risk]). Currently, *K. stipulacea* is not known to occur in Hawai'i.

Identification Notes

From eFloras—Flora of China, *Kummerowia striata*:

“Herbs, diffuse or prostrate. **Stem and branchlets with downward-pointing white hairs** (emphasis added). Stipules ovate-oblong, 3-4 mm, longer than petiole, striate, long ciliate; petiole 1-2 mm; leaflets obovate, narrowly obovate, or oblong, terminal one 0.6-2.2 cm × 3-8 mm, lateral veins dense, base nearly rounded or broadly cuneate, apex rounded, rarely emarginate. Flowers 1-3 in upper axils of leaves. Pedicel ca. 1 cm, glabrous*; bracteoles 4, attached to proximal part of calyx, 1 very small bracteole placed at article of pedicel, others larger. Calyx 5-lobed. Corolla 5-6 mm; standard elliptic, base attenuate, clawed, auriculate; keel subequaling or slightly longer than standard; wings slightly shorter than keel. Legume orbicular or obovoid, slightly compressed, 3.5-5 mm, ca. 2 × as long as calyx or slightly longer, pubescent, apex mucronate. Fl. Jul-Sep, fr. Aug-Oct. 2n = 22. Sandy soils, streamsides, roadsides, grasslands; below 500 m. naturalized in SE United States.

* pedicel is covered by bracts and reduced to the extent that I did not find pedicel “hairiness” a useful way to distinguish between *K. striata* and *K. stipulacea*. However, according to missouriplants.com, *K. striata* has “stem hairs which are retrorse (backward-pointing), and a lack of conspicuous ciliate hairs on the leaflet margins.” As opposed to *K. stipulacea* which has “antrorse rather than retrorse hairs along the stem, and leaflets with conspicuous ciliate hairs.”

Status in Park

Found along roadside from base of Mauna Loa Rd. starting at Belt Road and traveling mauka ~1km.

Locality	Latitude	Longitude
Base of Mauna Loa Rd.	19.431135	-155.284235

Species Profiles—Other New Species

Plant species in this section are new to the park (i.e., not documented in NPSpecies) but were discovered by other means outside of “Early Detection of Invasive Species” surveys (e.g., herbarium records, other vegetation monitoring and management, citizen science webpages such as iNaturalist). Plants are reported in order of their perceived level of “invasiveness” based firstly upon the Hawai‘i Weed Risk Assessment and secondly upon the authors’ opinions based on the literature available and personal observations.

*Grass—*Entolasia marginata* (R.Br.) Hughes [WRA score unknown]

[Bordered Panic Grass]



Entolasia marginata (Kevin Faccenda)

General Notes

First detected in Hawai'i County in 1995 in South Kohala District. Later detected on O'ahu in 2011. Native range: New Guinea to E. & SE Australia. Introduced: North New Zealand. In Kohala, found in *Metrosideros-Cibotium* habitat with native understory.

Identification Notes

From PlantNET, [Entolasia marginata](#) [accessed 18 April 2023]:

“Straggling or shrubby wiry rhizomatous perennial usually to 0.8 m high but to c. 2 m high when straggling through undergrowth.

Leaves with sheath glabrous or sparsely hairy; ligule < 1 mm long; blade 2–15 mm wide, very variable in size, glabrous or sparingly hairy.

Panicle 4–20 cm long, ± appressed; branches 0.2–1.5 cm long. Spikelets solitary, loosely arranged, 2.5–3.8 mm long.

Lower glume c. 0.5–1 mm long; upper as long as the spikelet, 5-nerved, glabrous. Lower lemma similar to upper glume, sterile, without a palea. Upper lemma 2–2.4 mm long, noticeably shorter than the spikelet, pubescent with fine white hairs.”

Status in Park

Found within Kahuku Paddocks during I&M vegetation monitoring. Eradication unlikely, however this grass was detected in rotational plot (#54) which contained the highest relative percentage of native dominated understory to-date in the Kahuku paddocks. Because *E. marginata* appears able to invade native dominated wet forest habitat, it may be a target species for management in high value areas.

Locality	Latitude	Longitude
Kahuku Paddocks—Established Invasive Plant Species Transect 4	19.128434	-155.677582
Kahuku Paddocks—Established Invasive Plant Species Transect 49	19.108835	-155.672851
Kahuku Paddocks—Established Invasive Plant Species Transect 49	19.108717	-155.672490
Kahuku Paddocks—Plant Community Plot R54	19.110135	-155.675395

Herb—*Epidendrum calanthum* Rchb. F. & Warsz. [WRA score unknown]

[Beautiful Blooming Epidendrum]



Beautiful Blooming *Epidendrum*/E Bluemink/iNaturalist.org/CC-BY-NC

General Notes

New island record. Identified in the park through iNaturalist.org.
<https://www.inaturalist.org/observations/146592878>. Also recently naturalized on O‘ahu (K. Faccenda, personal communication, Feb. 7 2023). Native range of this species is Trinidad-Tobago to S. Tropical America.

Identification Notes

From Brazilian Flora 2020 project, [Epidendrum calanthum](#) [accessed 18 April 2023]:

“Stem: type not dilated not branched. Leaf: form oblong; disposition scattered on the branch. Inflorescence: type raceme corymbiform; peduncle lengthened; rachis smaller than the peduncle; bract(s) floral form deltoid. Flower: ovary pedicellate exposed; sepal oblanceolate/oblong; colour white/purple; petal elliptic; colour white/purple; labellum form 3 lobate; colour white/pinkish/purple/maculate; margin fringed/denticulate; callosity globose basal more keel longitudinal; column colour white/pinkish/purple.”

Status in Park

Locality	Latitude	Longitude
Nāpau trail near Mauna ulu	19.373863	-155.198075

Locality	Latitude	Longitude
Also possibly sighted at Keanakākoʻi Crater (S. Torigoe personal communication, January 1 2023. S. Torigoe)	—	—

Grass—*Panicum pygmaeum* R.Br. [WRA score unknown]

[pygmy panic, dwarf panic]



Panicum sp. (*P. pygmaeum*) (HAVO Herbarium Collection)



Panicum pygmaeum (*Panicum pygmaeum* plant NC2/Harry Rose/Flickr/[CC BY 2.0](https://creativecommons.org/licenses/by/2.0/))

General Notes

New Hawai'i state record. Native to Australia. A recent paper described this species within the new genus *Stolonochloa* as *S. pygmaea* (Thompson 2022).

Identification Notes

From PlantNET—New South Wales Flora Online, [*Panicum pygmaeum*](#):

“Decumbent perennial to c. 0.3 m high. Leaves with sheath sprinkled with tubercle-based hairs; ligule a row of cilia to c. 0.5 mm long with longer hairs at the margins; blade linear-lanceolate to lanceolate, sometimes shortly petiolate, 1–7 mm wide, often with tubercle-based hairs. Panicle not or only shortly exserted, 2–6 cm long, with a few spreading branches. Spikelets 1.75–2.3 mm long, solitary on pedicels 1–2 mm long or the lower sometimes paired with the longer pedicel to c. 7 mm long. Lower glume c. 25% the length of the spikelet, obtuse or truncate, rarely subacute, nerveless; upper the shape and size of the spikelet, 5-nerved. Lower lemma similar to the upper glume, sterile, palea absent. Upper lemma c. 1.5 mm long, smooth, shining, very finely striolate.”

Status in Park

Collected by Linda Pratt along Wright Rd. and within small tract unit of ‘Ōla‘a in 1989.

Locality	Latitude	Longitude
‘Ōla‘a Small Tract near fence line (see voucher HAVO 17011)	—	—

Sedge—*Fimbristylis* cf. *dichotoma* [Indigenous]

Considered here as a morph of F. dichotoma



Fimbristylis cf. *dichotoma* (Kevin Faccenda)

General Notes

Possibly a morph of *F. dichotoma*, possibly a new, unidentified species.

Identification Notes

Like *Fimbristylis dichotoma* but hairy.

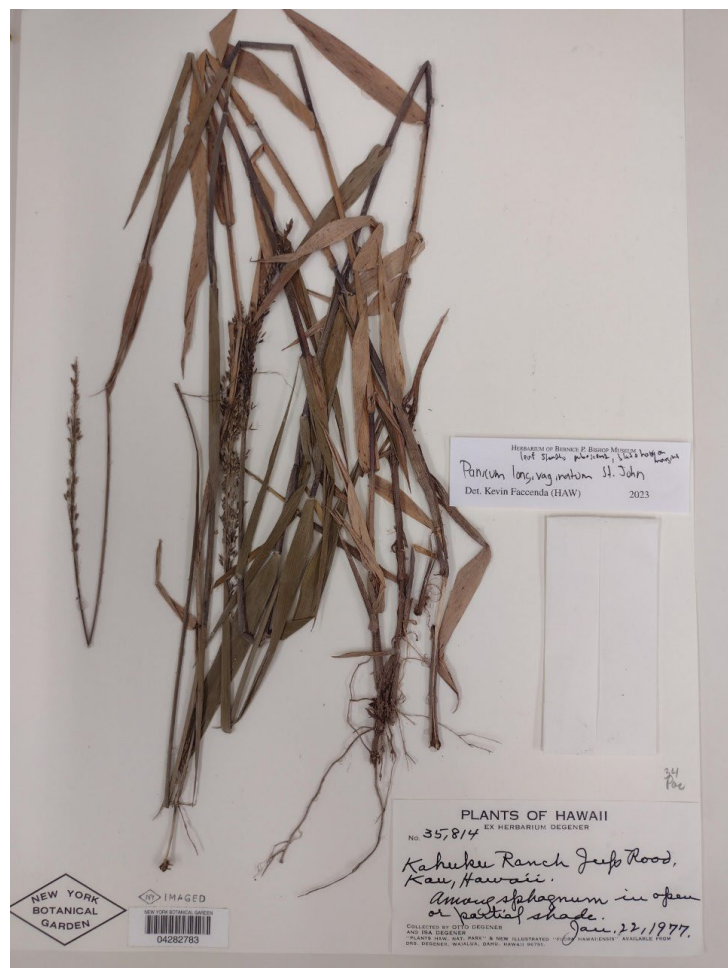
Status in Park

Found along Escape Rd. and within horse paddocks area by Tree Molds Rd.

Locality	Latitude	Longitude
Horse Paddocks near Tree Molds Rd.	19.438989	-155.286186
Escape Rd.	19.392396	-155.228100

Grass—*Panicum longivaginatum* H. St. John [Endemic]

[longsheath panicgrass]



Panicum longivaginatum (HAWO Herbarium Collection)

General Notes

Collected from Kahuku in 1977. Only 3 known vouchers of this endemic species total. All specimens mention bog habitat.

Identification Notes

Pubescent leaf sheaths, a rather compact panicle, and short lanceolate leaves (similar to *Isachne*).

From Evenhuis & Miller (1998):

“*Panicum longivaginatum* is perennial, 62–71 cm tall, the entire plant nearly glabrous; leaf sheath 5–11 cm long, pilose ciliate, blade 10–13 mm wide; panicle 11–13 cm long; spike 2.8–3.1 mm long, fusiform-elliptic; lower glume 0.3–0.6 mm long, fan-shaped. The characteristic features that set this species apart from other members of the genus in Hawai‘i are its stiff lanceolate leaves and short clasping lower glume.

Material examined. HAWAI‘I: South Hilo District, Upper Waiākea Forest Reserve, Power Line Road, pole 27, ca 2 mi south of the junction with the Saddle Road, 5300 ft, 21 Jul 1981, Gustafson 2400 (BSH - type).”

Status in Park

One specimen collected along Kahuku Ranch (Jeep?) Road in 1977.

Species Profiles—Misapplied

Examination of herbarium records indicated that the species in this chapter were previously misidentified in the park as another species. Furthermore, the corrected species name is new to the park (i.e., not listed in NPSpecies). One species in the previous two chapters also fits in this misapplied section: *Hypolepis dicksonioides* (pg. 10).

*Fern—*Hypolepis dicksonioides* (Endl.) Hook. [WRA score unknown]

[giant hypolepis]

No WRA Score but does appear aggressive and able to create near monoculture stands.



Hypolepis dicksonioides (Kevin Faccenda)

General Notes

New state record. This species was previously misidentified as *Hypolepis hawaiiensis* by PACN vegetation monitoring and others. Not on [Imada 2019 checklist](#).

Identification Notes

Summarized from Brownsey (1987) and notes from Miles Thomas (Botanist at Bishop Museum), personal communication, Aug. 2023:

Hypolepis dicksonioides—Massive plants up to 2.5 m (8 ft) tall, stipes and all axes covered in non-glandular and glandular hairs. These hairs up to 4 mm long. Young growth especially hairy throughout.

Hypolepis hawaiiensis var. *hawaiiensis*—Plants up to 6 ft tall (from base of stem to tip of frond), approximately 1 m (3 to 4 ft). Stipe scabrous and hairy at base (but hairs not glandular), upper portion more or less glabrous with sparse hairs. Smooth and shiny between hairs. Rachis and other axes of division glabrous with scattered small hairs, blade glabrous to having a few small hairs on underside.

Status in Park

Uncommon but widespread around main headquarters/office area and pit crater of Kahuku paddocks.

Locality	Latitude	Longitude
Kahuku Paddocks plot 38 (near pit crater)	19.13719	-155.6847
Kahuku Paddocks plot 51 (near pit crater)	19.13869	-155.6868
Kahuku Paddocks (near pit crater)	19.133923	-155.683899
Kahuku Paddocks (near pit crater)	19.13207	-155.685573
Escape Rd. (below Nāhuku plot 55)	19.39504	-155.2292
Between I&M offices	19.427806	-155.256527
Across the office access road from Volcano House parking lot exit (behind Park sign)	19.428424	-155.257617

Along pipeline trail (toward crater side)	19.422931	-155.25367
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Herb—*Plantago rugelii* Decne. [WRA score unknown]

[Rugel's Plantain, American Plantain]

Misapplied as *P. major*



Plantago rugelii (Jacob Gross)

General Notes

New state record, but also recently identified on Oah'u. Misapplied as *P. major* in Hawai'i and the eastern United States. *Plantago rugelii* does not have a WRA score. The WRA score for *P. major* is 18.

Identification Notes

Extracted from eFloras— Flora of North America Online, *Plantago rugelii* [23 Sep 2022]:

“Plants of *P. major* and *P. rugelii* are morphologically indistinguishable when young; they may be differentiated with certainty only at fruiting stage. DNA sequence data (A. Shipunov et al. 2014) confirm that the two species are distinct.

Plantago rugelii—Fruits 4–6(–8) mm, dehiscent proximal to middle; seeds 4 or 5(–8), 1.5–2 mm; bracts 2 mm.

Plantago major—Fruits (2–)4–5 mm, dehiscent at middle; seeds 5–35, 0.5–1 mm; bracts 0.5–1 mm.”

Status in Park

Widespread around park headquarters and the upper half of Escape Rd. Likely widespread elsewhere in the park as well. Not sure how many in park are *P. rugelii* vs. *P. major*.

Locality	Latitude	Longitude
Upper Escape Rd.	19.420474	-155.242893

Locality	Latitude	Longitude
Park offices near backcountry office	19.42734	-155.256357

Herb—*Erigeron sumatrensis* Retz. [WRA score unknown]

[tropical horseweed, Guernsey fleabane, broadleaf fleabane, tall fleabane]

Misapplied as *E. bonariensis*



Erigeron sumatrensis (Jacob Gross)

General Notes

New state record.

Identification Notes

Erigeron Key extracted from Liendo et al. (2021):

1. Leaves glabrous or nearly glabrous with scattered hairs along the underside midrib, margins ciliate (ciliae often 1 mm long). Capitula ca. 2-3 mm wide at anthesis. Involucral bracts glabrous or nearly glabrous. Tubular florets 4-5 lobed. Inflorescence columnar or rhomboid 2
- 1' Leaves pubescent. Leaf margins densely appressed- pubescent, hardly ciliate towards the base. Capitula with parallel sides, ca. 5-10 mm wide at anthesis. Involucral bracts softly pubescent. Tubular florets 5-lobed. Inflorescence pyramidal or subcorymbose 3
2. Inner involucral bracts 3-3.5 (3.8) mm long x 0.3-0.4 (0.5) mm wide. Inner tubular florets mostly 4-lobed, not becoming wider towards the apex, ca. 12-15 (20) per capitulum. Ligules always present, > 0.7 mm long, white, distinctly exceeding involucre. Inflorescence narrowly cylindrical or columnar, much longer than wide. Middle and lower stem leaves entire or softly toothed. Plant annual, yellowish-green, stem not hirsute with hairs < 1.2 mm long**E. canadensis**
- 2' Inner involucral bracts 3.5-4.1 (4.5) mm long x 0.6-0.7 (0.8) mm wide. Inner tubular florets mostly 5-lobed, becoming wider towards the apex, ca. 4-6 (8) per capitulum. Ligules absent or rudimentary, < 0.4 mm long, not exceeding involucre. Inflorescence much broader, sometimes rhomboid, only slightly longer

than wide. Middle and lower stem leaves deeply lobed, lobes > 1.5 mm long. Plant mostly biennial, dull greyish-green, stem densely hirsute with hairs usually > 1.8 mm long**E. floribundus**

3. Robust plant, up to ca. 30- 200 cm tall. Inflorescence grey-pubescent, not glandular, broad and profusely ramified, pyramidal or rhomboid, side branches not overtopping the main axis. Apex of involucral bracts not purplish. Tubular florets, ca. 7-10 per capitulum. Middle stem leaves narrowly lanceolate, usually toothed, ca. 5-20 mm wide, side veins conspicuous. Capitula ca. (4) 5-7 mm wide at anthesis**E. sumatrensis**

3' Plant hardly exceeding 60 cm. Inflorescence branches less numerous with side branches overtopping the main axis. Apex of involucral bracts often purplish. Tubular florets, ca. 13-16 per capitulum. Stem leaves sublinear, entire or minutely toothed, less than 4 mm wide. Capitula ca. 6-10 mm wide at anthesis**E. bonariensis**

Status in Park

Probably has been confused/lumped with *E. bonariensis* for a long time, but herbarium samples have not been examined yet. Found at 'Ainahou Ranch, steam vents/sulphur banks, and Mauna Loa Rd.

Locality	Latitude	Longitude
'Ainahou Ranch	19.343709	-155.229593
Sulphur Banks	19.430499	-155.25904
Mauna Loa Rd.	19.475241	-155.360708

Grass—*Bothriochloa macra* (Steud.) S.T.Blake [WRA score unknown]

[red-leg grass]

Misapplied as *B. pertusa*



Bothriochloa macra (Kevin Faccenda)

General Notes

New state record. Commonly confused with *B. pertusa* in Hawai'i. Widespread on Kona side. Present in the State of Hawai'i since at least 1936. Collected in park in 1966. Both *B. macra* and *B. pertusa* occur within or near HAVO. *B. macra* is native to eastern Australia and New Zealand while *B. pertusa* is native to Asia. Neither *B. macra* nor *B. pertusa* have WRA scores.

Identification Notes

From Faccenda (2022) and K. Faccenda, personal communication, Feb. 7 2023:

Bothriochloa macra—Pedicellate spikelets generally similar to sessile spikelets occasionally slightly reduced; pedicellate spikelets with or without a pit; sessile florets 3–4 mm long; caespitose or stoloniferous.

Bothriochloa pertusa—Pedicellate spikelets reduced compared to sessile spikelets; pedicellate spikelets lacking a pit; sessile florets 5–7 mm long; caespitose.

Status in Park

2 individuals found along 'Ainahou Ranch Rd., both of which were collected. Additionally, the two historical HAVO herbarium specimens identified as *B. pertusa* were actually *B. macra*. One was collection from Mauna Loa Strip Road in 1966; the other was collected “between keahou trail and kipuka nene on jeep road” in 1987. Therefore, currently there are no voucher specimens for *B. pertusa* within HAVO. However, K. Faccenda collected *B. pertusa* along Highway 11 between Volcano and Nā'ālehu, so *B. pertusa* also likely occurs within HAVO boundary.

Locality	Latitude	Longitude
'Ainahou Ranch Rd.	19.335877	-155.223398

Sedge—*Cyperus stoloniferus* Retz. [WRA score unknown]

Syn. *Cyperus stolonifer*

Misapplied as *C. sanguinolentus*



Cyperus stoloniferus (Kevin Faccenda)

General Notes

New park record. Recent new state record [published 29 April 2020](#). In HAVO confused with *C. sanguinolentus*. Widespread in Kahuku paddocks and previously misidentified as *Cyperus sanguinolentus*. Note that true *C. sanguinolentus* is also found in HAVO along upper Escape Road and Wright/Amaumau Roads.

Identification Notes

Extracted from eFloras—Flora of China, [Cyperus stoloniferus](#) [23 Sep 2022]:

“Perennials. rhizomes long, ± thick, ± hardened, base of shoot with ellipsoid to ovoid tubers. Culms solitary, 8–22 cm tall, 3-angled, smooth, basal sheaths usually disintegrating into fibers. Leaves usually shorter than culm to rarely longer; leaf blade medium green, 2–4 mm wide, usually folded, rarely flat. Involucral bracts 2 or 3, ± erect, leaflike, basal 2 longer than inflorescence. Inflorescence a simple anthela; rays 3 or 4, 0.5–3 cm, each with 3–8 congested spikelets. Spikelets narrowly oblong-ovoid to narrowly ovoid, 6–12 × 2–3 mm, slightly thickened, 10–18-flowered; rachilla narrowly winged. Glumes yellow to brownish yellow on both surfaces variegated with brownish blood-red but middle green, densely imbricate, broadly ovate, ca. 3 mm, papery, 5–7-veined, keel obtuse, margin broadly white hyaline, apex acute to subobtuse. Nutlet dark brown when mature, ellipsoid to subobovoid, ca. 2/3 as long as subtending glume, 3-sided.”

Extracted from eFloras—Flora of North America Online, *Cyperus sanguinolentus* [23 Sep 2022]:

“Herbs, perennial; rhizomes* $\pm$ horizontal, to 12 cm $\times$ 0.8–1.2 mm. Culms $\pm$ terete to roundly trigonous, 3–25(–60) cm $\times$ 0.3–2 mm, glabrous. Leaves 1–3, V-shaped, 1–8(–15) cm $\times$ 1–2 mm. Inflorescences: spike 1, loosely ovoid, 7–14 $\times$ 8–20 mm; rays (0–)1–4, to 2(–3) cm; bracts 2–4, horizontal to ascending at 30(–45)°, V-shaped to flat, 1–8(–18) cm $\times$ 0.5–1.5(–2) mm. Spikelets 3–5(–14), oblong to linear-lanceoloid, 8–18 $\times$ 2–2.6(–3) mm; floral scales (6–)10–26(–32), laterally clear to light brown, sometimes with purplish margins, medially light brown, 2-keeled, laterally ribless, medially 2–3-ribbed, oblong to ovate, 1.9–2.2(–2.7) $\times$ 1.8–2.3 mm, apex obtuse. Flowers: stamens 3; anthers ellipsoid, 0.3–0.6 mm, connective not prolonged; styles 0.6–1 mm; stigmas 1–1.5 mm. Achenes brown, $\pm$ stipitate, obovoid to ovoid, 1–1.4 $\times$ 0.6–0.8 mm, apex truncate, apiculate, surfaces minutely punctate.”

*Kevin Faccenda was unable to find any *C. sanguinolentus* specimens with elongate rhizome and therefore suggests little or no rhizome for *C. sanguinolentus*.



Cyperus sanguinolentus (Kevin Faccenda)

Status in Park

Abundant in mowed areas and in grassy areas of Kahuku paddocks. Underside of leaves lighter than the upper side. Strongly rhizomatous and easily competes with *Cenchrus clandestinus* and *Digitaria eriantha*, although it does not get as dense as those. Flowers are rarely seen in unmowed areas, but frequent along the mowed roads and trails. Flowers blackish.

Rush—*Juncus acuminatus* Michx. [WRA score unknown]

[tapered rush]

Misapplied as *J. ensifolius*



Juncus acuminatus (Kevin Faccenda)

General Notes

Present on Hawai'i Island, on [Imada 2019 checklist](#).

Identification Notes

From Wagner et al. (1990, 1999):

Juncus acuminatus—more rounded stem than *J. ensifolius*, septa complete, 1-2 mm sheath auricles.

Juncus ensifolius—more flattened stem than *J. acuminatus*, leaves equitant, septa incomplete, no auricle.”

Status in Park

Widespread around upper Escape Rd. and Wright/Amaumau Rd.

Locality	Latitude	Longitude
Upper Escape Rd.	19.419229	-155.240447
Wright Rd.	19.462094	-155.247918

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Appendix 1. NPSpecies Data Form

New NPSpecies plant records for Hawai'i Volcanoes National Park arranged by Family.											
Species Name	Family	Common Name	Hawaiian Name	Abundance	Abundance Notes	Nativity	Sensitivity	Date Detected	Habitat Comments	If known, more precise location	Comments
Erigeron sumatrensis	Asteraceae	Tropical Horseweed	NA	Common	Seen in a range of habitats, possibly been misidentified as <i>Conyza bonariensis</i> in the past.	Non-native	Non-sensitive	8/19/2022	Dry/Mesic/Wet Forest	Mauna Loa Rd.: 19.475241, -155.360708	New state record, often confused/lumped with <i>E. bonariensis</i> . Herbarium samples need examination to determine extent of misapplication.
Pseudognaphalium attenuatum	Asteraceae	tapered cudweed	NA	Uncommon	individuals seen scattered along Mauna Loa Rd. and Ainahou Ranch Rd.	Non-native	Non-sensitive	8/19/2022	mesic and dry disturbed areas	Mauna Loa Rd: 19.45936, -155.342475; Lower Ainahou Ranch Rd.	
Diplazium esculentum	Athyriaceae	edible fern, vegetable fern, paca	hō'io	Uncommon	Population found in open forest patch 5 m off upper Escape Rd.	Non-native	Non-sensitive	8/19/2022	Mesic/Wet Forest	19.421033, -155.242471	Previously Listed as "Unconfirmed" on HAVO NPSpecies list.
Cyperus croceus	Cyperaceae	Baldwin's Flatsedge	NA	Rare	Small clumps in isolated areas from Tree Molds Rd. to Steam Vents to Napau Crater trail parking lot.	Non-native	Non-sensitive	8/19/2022	Montane Mesic	19.43400253, -155.2822803	New state record.
Cyperus gracilis	Cyperaceae	McCoy grass, Slender Flat-Sedge	mau'u hunehune	Rare	Around perimeter of Ainahou Ranch house.	Non-native	Non-sensitive	8/19/2022	Lowland Dry	19.343913, -155.229401	Previously listed as "unconfirmed" on HAVO NPSpecies list.
Cyperus stolonifer	Cyperaceae	None known	NA	Abundant	Widespread in Kahuku paddocks, misidentified as <i>Cyperus sanguinolentus</i> .	Non-native	Non-sensitive	8/19/2022	Wet forest	Kahuku Paddocks	All Inventory and Monitoring FTPC and EIPS records for Kahuku wet forest mentioning CYP SAN will be changed to CYPSTO; Note that true <i>C. sanguinolentus</i> is also found in HAVO along upper Escape Road and Wright/Amaumau Roads.
Fimbristylis cf. dichotoma	Cyperaceae	—	NA	Rare	Found along Escape Rd. and within horse paddocks area by Tree Molds.	Non-native	Non-sensitive	8/19/2022	Wet forest	Escape Rd.: 19.392396, -155.228100	Possibly a morph of <i>F. dichotoma</i> or possibly a new species.
Rhynchospora globularis	Cyperaceae	Globe Beaksedge, Globe Beakrush	NA	Common	Common around Tree Molds Rd. and Horse Paddocks.	Non-native	Non-sensitive	8/19/2022	Montane Mesic/Wet Forest	19.43196888, -155.2843886	

Schoenus apogon	Cyperaceae	common bog-rush	NA	Uncommon	Patches of <i>S. apogon</i> found from Tree Molds Rd. horse paddocks to Wright/Amaumau Rd. to Escape Rd.	Non-native	Non-sensitive	8/19/2022	Montane Mesic to Lowland Dry	19.436259, -155.286221	
Hypolepis dicksonioides	Dennstaedtiaceae	Giant hypolepis	NA	Uncommon	Seen along roads in Kahuku Paddocks and around offices in HAVO.	Non-native	Non-sensitive	9/21/2022	Wet Forest	Kahuku Paddocks. 19.119326, -155.680275	
Kummerowia striata	Fabaceae	Korean/Japan clover	NA	Rare	Found sparingly along roadside from base of Mauna Loa Rd., starting at Belt Road and traveling mauka ~1km.	Non-native	Non-sensitive	8/19/2022	Montane Mesic	19.431135, -155.284235	
Juncus acuminatus	Juncaceae	Tapered Rush	NA	Common	Widespread around upper Escape Rd. and Wright/Amaumau Rd.; Misidentified as <i>Juncus ensifolius</i> .	Non-native	Non-sensitive	8/19/2022	Wet forest	Upper Escape Rd.: 19.419229, -155.240447	
Sida ciliaris	Malvaceae	bracted fanpetals, fringed fanpetals	NA	Rare	Less than 20 plants noted at edge of parking lot at the end of Chain of Craters Rd.	Non-native	Non-sensitive	8/19/2022	Lowland Dry	19.295652, -155.097191	
Epidendrum calanthum	Orchidaceae	Beautiful Blooming Epidendrum	NA	Rare	1 individual identified in the park on Nāpau trail near Maunaulu.	Non-native	Non-sensitive	1/14/2023	Montane Mesic	19.373863, -155.198075	Reported by visitor on iNaturalist.org. https://www.inaturalist.org/observations/146592878
Plantago rugelii	Plantaginaceae	Rugel's Plantain, American Plantain	NA	Common	Widespread around park headquarters and the upper half of Escape Rd. Likely widespread elsewhere in the park as well. Previously misapplied with <i>Plantago major</i> . Not sure how many in park are <i>P. rugelii</i> vs. <i>P. major</i> .	Non-native	Non-sensitive	8/19/2022	Wet/Mesic Forest	Upper Escape Rd.: 19.420474, -155.242893	New state record, often confused with <i>P. major</i> . Herbarium samples need examination to determine extent of misapplication.
Andropogon bicornis	Poaceae	—	NA	Uncommon	Widespread but uncommon (1–2 individuals per encounter) along Mauna Loa Rd., Kahuku Rd., Escape Rd., Park Offices.	Non-native	Non-sensitive	8/19/2022	Lowland Dry Forest & Shrubland to Mesic Forest	19.442669, -155.315950	

Bothriochloa macra	Poaceae	red-leg grass	NA	Rare	2 individuals found along Ainahou Ranch Rd., both of which were collected.	Non-native	Non-sensitive	8/19/2022	Lowland Dry	Ainahou Ranch Rd.: 19.335877, -155.223398	The two historical HAVO herbarium specimens identified as <i>B. pertusa</i> were actually <i>B. macra</i> . One was collection from Mauna Loa Strip Road in 1966, the other was collected “between keahou trail and kipuka nene on jeep road” in 1987. Therefore, currently there are no voucher specimens for <i>B. pertusa</i> within HAVO. However, Faccenda collected <i>B. pertusa</i> along highway 11 between Volcano and Naalehu, so <i>B. pertusa</i> also likely occurs within HAVO boundary.
Bromus carinatus	Poaceae	California Brome	NA	Rare	6 plants found near Mauna Loa Trail, approximately 200 m up from trailhead. All flowering individuals were collected.	Non-native	Non-sensitive	8/19/2022	Subalpine to Montane Dry	19.494346, -155.384911	
Digitaria eriostachya	Poaceae	—	NA	Common	Common along roadsides near Kilauea Visitor Center area, Escape Rd., and Wright Rd.	Non-native	Non-sensitive	8/19/2022	Montane Mesic/Wet Forest	19.415216, -155.240826	Not to be confused with <i>Digitaria eriantha</i> . <i>D. eriostachya</i> was first collected on Hawai'i Island in 2001, but not correctly identified until 2022.
Digitaria henryi	Poaceae	—	NA	Uncommon	Populations along parking lot island by visitor center and lower Chain of Craters Rd.	Non-native	Non-sensitive	8/19/2022	Montane Mesic to Lowland Dry	19.429601, -155.258072	
Digitaria scalarum (syn. Digitaria abyssinica)	Poaceae	African couchgrass, abyssinian finger grass	NA	Uncommon	Abundant in one location along Ainahou Ranch Rd.	Non-native	Non-sensitive	8/19/2022	Lowland Dry Forest & Shrubland (Non-native dominated)	19.347737, -155.226622	On HAVO NPSpecies as synonym <i>Digitaria abyssinica</i> “unconfirmed.” New Hawai'i country record.
Entolasia marginata	Poaceae	Australian panicgrass	NA	Uncommon	Detected in several EIPS and FTPC monitoring sites in Kahuku Paddocks.	Non-Native	Non-sensitive	8/9/2022	Wet Forest	Kahuku Paddocks. 19.125410, -155.692293	Detected on Inventory and Monitoring EIPS & FTPC Protocols in Kahuku Paddocks.
Eragrostis curvula	Poaceae	African love grass, weeping love grass	NA	Rare	Approx. 12 individuals seen along Ainahou Ranch Rd. during early detection.	Non-native	Non-sensitive	8/19/2022	Lowland Dry Forest & Shrubland (Non-native dominated)	19.337928, -155.224598	

Eragrostis tenuifolia	Poaceae	elastic grass, wiry lovegrass	NA	Common	Common along roadsides, trails, and parking lots throughout park.	Non-native	Non-sensitive	3/1/2022	Compacted substrate along roadsides and trails	19.477522, -155.373458	First reported in Hawai'i County in 1998. Often found on roadsides and parking areas growing within compacted substrates.
Eragrostis unioides	Poaceae	Chinese lovegrass	NA	Rare	Less than 10 plants noted on edge of parking lot, growing from crack in asphalt.	Non-native	Non-sensitive	8/19/2022	Montane Mesic/Wet Forest	19.29504197, -155.098351	
Eremochloa ophiuroides	Poaceae	centipede grass	NA	Rare	Not recognized as naturalized currently in state of Hawai'i. However, during early detection this species was observed spreading from the bathroom parking lot at Kahuku visitor center into adjacent natural areas and was established at other locations in the park including lower and bottom Ainahou Ranch Rd.	Non-native	Non-sensitive	8/19/2022	Lowland Dry Forest & Shrubland (Non-native dominated)	19.338351, -155.224088	
Panicum longivaginum	Poaceae	longsheath panicgrass	NA	Rare	Only known from voucher collected in Kahuku in 1977 along Kahuku Ranch (Jeep?) Road in 1977.	Native	Sensitive	8/19/2022	All specimens mention bog habitat	One specimen collected	Historical Voucher Specimen from 1977
Panicum pygmaeum	Poaceae	Pygmy Panic, Dwarf Panic	NA	Rare	Two specimens collected from Olaa small tract unit in 1989.	Non-native	Non-sensitive	8/19/2022	Wet Forest	Olaa Small Tract Unit	Historical Voucher Specimen, new state record. Collected in park in 1989. Identified as <i>Panicum</i> sp. (HAVO voucher 17011)
Paspalum jesuiticum	Poaceae	—	NA	Uncommon	Several patches around Kilauea Visitor Center and Escape Rd.	Non-native	Non-sensitive	8/19/2022	Montane Mesic/Wet Forest	19.41996, -155.24379	
Sporobolus fertilis	Poaceae	Bloomsbury Grass, giant Parramatta grass	NA	Uncommon	Widespread, but uncommon from Mauna Loa Rd. to Kahuku Visitor Center down to coast.	Non-native	Non-sensitive	8/19/2022	Mesic Montane to Lowland Dry Forest & Shrubland	19.389963, -155.225956	New state record. Higashino et al. (1988) and Fosberg (1975) checklists for HAVO included <i>S. fertilis</i> but NPSpecies had it listed as “unconfirmed” which means that evidence/vouchers were weak or lacking.

Mitracarpus hirtus	Rubiaceae	tropical girdlepod	NA	Uncommon	10+ individuals seen scattered along lower escape road.	Non-native	Non- sensitive	8/19/2022	distrubed (roadside) mesic sites	Other
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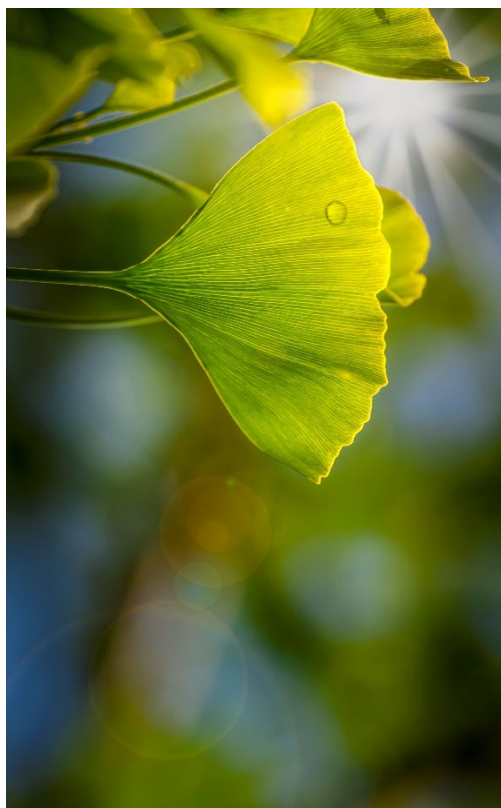
Appendix 2. Template

Lifeform—Scientific name (Original Auth.) New Auth. [WRA Score]

Synonyms previously used at the park following this format: *Syn. Scientific name (Original Auth.)*
New Auth.

[Common names used in the area]

Misapplied: If the 'new' species was previously misidentified in the park as something else, list species it was misidentified as here.



Species Photo Caption *Scientific Name* (photo credit)

General Notes

Notes about if it is new to state, island, or park; why it is or is not a risk; history of misidentification; other locations species has been documented; etc.

Identification Notes

Helpful identification notes with attention paid to other similar looking species.

If key copied/referenced, add link of reference to the source.

Compare species if needed:

E. floribundus—Robust plant, up to ca. 30–200 cm tall. Inflorescence grey-pubescent, not glandular, broad and profusely ramified, pyramidal or rhomboid, side branches not overtopping the main axis. Apex of involucre bracts not purplish. Tubular florets, ca. 7–10 per capitulum. Middle stem leaves

narrowly lanceolate, usually toothed, ca. 5-20 mm wide, side veins conspicuous. Capitula ca. (4) 5-7 mm wide at anthesis.

E. bonariensis—Plant hardly exceeding 60 cm. Inflorescence branches less numerous with side branches overtopping the main axis. Apex of involucral bracts often purplish. Tubular florets, ca. 13-16 per capitulum. Stem leaves sublinear, entire or minutely toothed, less than 4 mm wide. Capitula ca. 6–10 mm wide at anthesis.

Status in Park

Briefly describe all locations in the park where species was found. Include GPS coordinates if beneficial.

Locality	Latitude	Longitude
Local 1	XX.XXXXXX	-XXX.XXXXXX
Local 2	XX.XXXXXX	-XXX.XXXXXX
Local 3	XX.XXXXXX	-XXX.XXXXXX