

***VICIA HIRSUTA* (FABACEAE)
NEW TO THE FLORA OF HAWAI'I**

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ABSTRACT

The naturalized occurrence of *Vicia hirsuta* in Hawai'i is reported here. This species was found in a disturbed area along a paved access road at Pōhakuloa Training Area on the island of Hawai'i. An updated key to the *Vicia* of Hawai'i is provided.

Vicia hirsuta (L.) Gray (Fig. 1) was discovered on December 14, 2022, and later collected on March 9, 2023, in Hawai'i Co., Hawai'i. No prior collections were found during a search for *Vicia hirsuta* specimens in Bishop Museum Herbarium (BISH), the Consortium for Pacific Herbaria, and the Southeastern Regional Network of Expertise in Collections (SERNEC 2023). A research grade observation of this species was posted to iNaturalist on May 11, 2022, on the north side of Mauna Kea within the Mauna Kea Forest Reserve, suggesting this species may be more widespread (<https://www.inaturalist.org/observations/116618795>). A map showing the collection location of the voucher specimen and iNaturalist observations of *Vicia hirsuta* is shown in Figure 2.



Figure 1. *Vicia hirsuta* near a paved access road, Pōhakuloa Training Area, Hawai'i.

Voucher specimen. Hawai'i. Hawai'i Co.: Pōhakuloa Training Area, S side of access road, N 19.80965° W 155.702377°, elevation 1164 meters, several patches, each approximately 2–4 m² scattered near the edge of pavement and adjacent disturbed areas, with *Cenchrus clandestinus*, *Cenchrus ciliaris*, *Dysphania carinata*, *Senecio madagascariensis*, and *Vicia sativa*, 9 Mar 2023, Fischer 1 (ERDC).

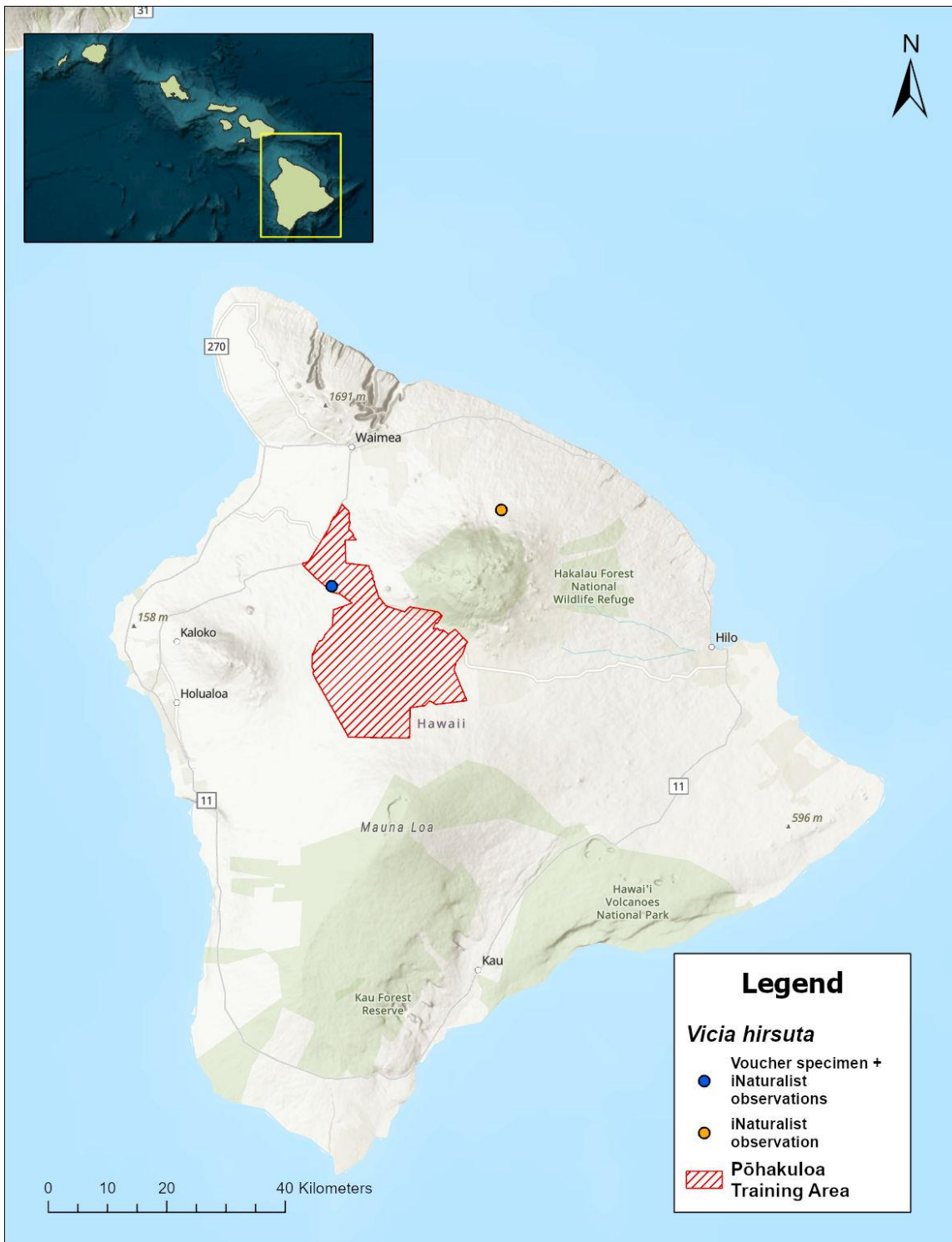


Figure 2. *Vicia hirsuta* specimen collection locality and iNaturalist observations, Hawai'i, Hawai'i.

Vicia hirsuta is considered native to Asia, Europe, and northern Africa and introduced to Australia, New Zealand, southern Africa, and both North and South America (POWO 2023). It is an annual herb with a climbing growth form, occurring in temperate woodlands, grasslands, and thickets in its native range. It commonly occurs in anthropogenically disturbed settings that include fields, pastures, and transportation corridors (Preston & Isley 2012).

In Hawai'i, *Vicia hirsuta* occurs along the edges of an access road at the Pōhakuloa Training Area (PTA). No additional localities of this species were observed during a search of roadsides and other disturbed areas, but it likely occurs elsewhere at PTA due to routine disturbance from military training activities. *Vicia sativa* L. and *V. villosa* Roth were abundant and common at sites suitable for *V. hirsuta* but can be distinguished based on a combination of leaflet length and width, number of flowers per inflorescence, and length and vestiture of the pods.

An updated key to the *Vicia* of Hawai'i is provided here with the addition of two species. It includes *Vicia hirsuta* reported here along with *Vicia faba* L. (fava bean) collected at sites of cultivation as a waif but is not considered naturalized in Hawai'i. It was not included in the revised edition of the Manual of the Flowering Plants of Hawai'i but provided here for coverage of *Vicia* material collected from Hawai'i (Wagner et al. 1999). Most species of *Vicia* in Hawai'i are herbaceous annuals clambering among other herbs or climbing using tendrils located at the tip of each compound leaf. *Vicia menziesii* Spreng. is the only species that is native and is a Hawai'i endemic. It is listed as federally endangered and currently restricted to wet or mesic forests on the island of Hawai'i. The remaining species are introduced and primarily occur in anthropogenically disturbed settings such as roadsides, utility corridors, pastures, and fields.

Key to the *Vicia* taxa of Hawai'i

1. Plants lacking tendrils at leaf apex; leaflets 2–6 per leaf; corolla white with prominent purplish-black markings and veins on the banner; pods 80–200 mm long, pubescent [only known from cultivation] ***Vicia faba***
1. Plants with tendrils at leaf apex; leaflets 8–24 per leaf; corolla various colors but without prominent purplish-black markings and veins on the banner; pods 6–100 mm long, pubescent or glabrous.
 2. Flowers solitary in axils or in racemes up to 4 (rarely to 7).
 3. Flowers solitary or paired in leaf axils (occasionally up to four); corolla purple, lavender, or bluish-white, 10–18 mm long; leaflets 6–16 per leaf, 6–25 mm long, 1.5–6 mm wide; pods 25–80 mm long, 4–6 mm wide, glabrous, glabrescent, or pubescent ***Vicia sativa*** subsp. ***nigra***
 3. Flowers in racemes of 2–4; corolla white to blueish-purple, 2–4 mm wide; leaflets 8–16, 5–15 mm long, 1–4 mm wide; pods 6–10 mm long, 3–4 mm wide, densely hirsute ***Vicia hirsuta***
 2. Flowers in racemes of five or more.
 4. Leaflets 15–30 mm wide; racemes with 6–9 flowers; corolla 25–30 mm long, yellowish-white aging to pink then purple; pods 15–20 mm wide, glabrous and strongly glaucous ***Vicia menziesii***
 4. Leaflets 1–15 mm wide; racemes with 10–40 flowers; corolla 2–30 mm long; pods <15 mm wide, glabrous.
 5. Plant annual or biennial (rarely perennial), glabrous to villous; flowers in dense racemes of 10–30 per inflorescence; calyx conspicuously gibbous at the base; corolla lavender, purple, pink, or whitish; leaflets 10–35 mm long, 2–6 (-10) mm wide.
 6. Plant glabrate or with loosely appressed hairs < 1 mm long; lower calyx lobe lanceolate to linear-lanceolate, 1–2 (-3) mm long; leaflets 2–4 mm wide ***Vicia villosa*** subsp. ***varia***
 6. Plant villous, the hairs spreading and 1–2 mm long; lower calyx lobe acicular (2-) 3–4 mm long; leaflets 3–6 mm wide ***Vicia villosa*** subsp. ***villosa***
 5. Plant perennial with sparsely appressed pubescence; flowers in racemes of 15–40; calyx slightly gibbous at the base; corolla deep blue to purple, rarely white; leaflets 10–26 per leaf, 10–30 mm long, 2–6 mm wide ***Vicia tenuifolia***

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