

***Bidens menziesii* (Gray) Sherff**
ASTERACEAE

ko'oko'olau

Synonymns: *Coreopsis menziesii* A. Gray
Bidens menziesii subsp. *filiformis* (Sherff) Ganders & Nagata
Bidens m. var. filiformis Sherff
Bidens lepida Degener & Sherff



General Description.—*Bidens menziesii*, known as ko'oko'olau, is a sparingly branched shrub with erect stems reaching 1 to 4 m in height. Leaves are 4 to 26 cm long, including petiole, bipinnately divided into long linear divisions and may be glabrous or pubescent. Margins are entire. Densely branched compound cymes terminate the main stem and lateral branches. Flowers measure 5 to 7 cm in diameter. Ray florets are 4 to 5 per head, disk florets 6 to 8 per head. Corollas are yellow. Fruits are indehiscent, dry, grayish black, straight, wingless or very rarely winged, barbless and 9 to 12 mm long (Wagner 1990).

Range.—Ko'oko'olau can be found on Molokai and West Maui scattered on arid, leeward slopes and cliffs in shrubland vegetation, generally between the elevations of 200 to 750 m. On leeward sides of Mauna Loa and Mauna Kea of Hawaii, this species is common on slopes of cinder cones in montane a'ali'i shrublands, and in subalpine forest, from elevations of 750 to 2,200 m. The species is one of 19 *Bidens* unique to the Hawaiian islands (Wagner 1990).

Ecology.—Ko'oko'olau is an important dryland shrub and forest plant of ecosystems seriously under threat by agriculture and development. On the island of Hawaii, the species is a minor component of the Ohi'a forest. In montane dry

shrublands of leeward Mauna Kea and Mauna Loa, ko'oko'olau becomes structurally codominant with a'ali'i. Due to its tall growth habit, it appears dominant over other species when it is in flower. Ko'oko'olau appears intollerant of wildfire and is conspicuously absent from burned areas on leeward Hawaii. Ko'oko'olau does not resprout following fire (Sherry and others. 1999). The plant is worth preserving because, like the honeycreepers, *Loxops spp.* and *Hemignathus spp.*, ko'oko'olau serves as an example of the adaptive radiation that occurred in Hawaii, with all 19 species of *Bidens* having a single ancestor.

Reproduction.—Seed production is fairly prolific as the inflorescence is a large terminal panicle composed of 8 to 100 disc florets. Fruits are achenes. Chromosome number has been identified as $2n = 72$ (Wagner 1990). Interestingly, the species hybridizes readily and for this reason individuals unique to a particular local should not be introduced to a different zone, in order to protect the integrity of endemic species.

Growth and Management.—Reasonably fast growing, ko'oko'olau may not be long-lived. Ko'oko'olau can be grown easily from seeds or from terminal cuttings using a root hormone. It prefers light to moderate watering and full sun (Krauss 1998).

Benefits.—Ko'oko'olau was widely used by Hawaiians prior to European arrival and is still sold as tea, although the introduced pantropical *B. pilosa* is usually the species incorrectly labeled and sold as the traditional Hawaiian tea.

References

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