UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE
Honolulu, Hawai'i
and the
COLLEGE OF TROPICAL AGRICULTURE AND HUMAN RESOURCES
UNIVERSITY OF HAWAI'I AT MANOA
Honolulu, Hawai'i

NOTICE OF RELEASE OF MAKAKUPA`IA GERMPLASM `AWEOWEO SOURCE IDENTIFIED CLASS OF NATURAL GERMPLASM

The U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) and the College of Tropical Agriculture and Human Resources, University of Hawai'i at Manoa, announce the release of a source identified ecotype of aweoweo *Chenopodium oahuense* [(Meyen) Aellen] for the Maui Nui group of Hawaiian Islands. The Maui Nui group is comprised of the islands of Kaho`olawe, Lana`i, Maui, and Moloka`i. As a source identified release, this plant will be referred to as Makakupa`ia Germplasm `Aweoweo to document its original collection location. It has been assigned the NRCS accession number 9079729.

This alternative release procedure is justified because there are no existing commercial seed sources for `aweoweo. Propagation material of specific ecotypes from the Maui Nui group is needed for revegetation and ecosystem restoration. The potential for immediate use is high for these purposes on the island of Kaho`olawe.

`Aweoweo, also known as `aheahea, `ahea, `ahewahewa, alaweo, alaweo huna (Ni`ihau), and `aweoweo kaha`iha`i, is endemic to Hawaii and is found on all of main islands. In addition, it can be found growing on the islands of Lisianski, Laysan, French Frigate Shoals, Necker, and Nihoa. `Aweoweo is an unusual woody member of a largely herbaceous plant genus including lambsquarters and goosefoot weeds.

Collection Site Information: The collection site is in the upper Makakupa`ia area on the island of Moloka`i at approximately 21 degrees 6.0 minutes 26 seconds north latitude and 156 degrees 57 minutes 92 seconds west longitude. The elevation is approximately 1680 to 2000 feet above sea level. The land is owned by the State of Hawaii Department of Hawaiian Homes Lands and is located in the County of Maui. The soil is classified as very stony land (rVS). On Moloka`i this land type consists of stones and boulders underlain by soft, weathered rock and bedrock. In a few places there is a shallow, clayey soil among the

stones and boulders. The climate at the site is relatively hot and dry with a mean annual precipitation of approximately 25 inches. The slope ranges from 7 to 30 percent. The natural vegetation includes: *Sida fallax*, `ilima; *Prosopis pallida*, keawe; *Leucaena leucocephylla*, haole koa; *Heteropogon contortus*, pili; *Bidens menzeisii*, ko`oko`olau; *Melinis minutiflora*, molasses grass and *Dodonaea viscosa*, a`ali`i.

Ecotype Description: Makakupa`ia Germplasm `Aweoweo is a lightly scented to non-scented shrub that sometimes takes the form of a small tree. Plants may be erect, ascending or prostrate, branched and attain a height between 20 to 78 inches. Older branches turn gray and woody with age, while younger sometimes reddish to purplish branches remain freshly, and mealy pubescent. Leaves are rhombic to broadly deltate ¾ to 1 ½ inches long, ½ to 1 inch wide, with both surfaces pubescent, the upper surface less so and greener than the lower surface. Leaves three-lobed, teeth rounded to obtuse, base truncate to cuneate, petioles ½ to 1 inch long. Leaves are strongly scented when crushed. Flowers form in small dense clusters at terminal, almost leafless panicles. Seeds are entirely encased in a calyx 1/16 inch in diameter. Seeds are flat, somewhat round in shape and light to dark brown at maturity. There are approximately 861,840 seeds per pound. `Aweoweo occurs most commonly in dry habitats, including dry forests, coastal and subalpine shrub land from sea level to 8190 feet.

Ecological Considerations and Evaluation: Makakupa`ia Germplasm `Aweoweo is a naturally occurring native plant collection which has not been altered. Makakupa`ia Germplasm `Aweoweo did meet the assessment of a plant which would not become invasive based on guidelines when evaluated through the "Worksheet for Conducting an Environmental Evaluation of NRCS Plant Releases."

Anticipated Conservation Use: The potential use of Makakupa`ia Germplasm `Aweoweo include erosion control, ecosystem restoration, enhancing cultural sites, increasing plant diversity in native dryland communities and wildlife cover and food.

Potential Area of Adaptation: Makakupa`ia Germplasm `Aweoweo is a drought resistant plant that is dispersed across Hawaii's dryland habitats from coastal to subalpine climatic regimes. `Aweoweo is somewhat fire tolerant and has been observed to recover and increase in population density after wildfires.

Cultural Use: Leaves and younger leaf tips can be cooked and eaten like spinach. Hawaiians used the crushed leaves medicinally as a poultice for wounds. The reddish bark was also used to make a drink to be ingested by pregnant women to beautify the skin of their newborn infant. Fish hooks were also made from the rigid stems of this plant.

Landscape Use: `Aweoweo makes an attractive plant when planted alone or in a mass. Its bluish green to grayish green color makes `aweoweo an ideal focal plant or a screen hedge plant. It is well suited for xeriscape plantings though it is a short lived perennial.

Plant Materials: Seeds of Makakupa`ia Germplasm `Aweoweo will be maintained by the USDA-NRCS Plant Materials Center, Ho'olehua, Moloka'i, Hawai'i. To make collections from the original collection site, contact the Plant Materials Center.

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Signatures for release of:
Makakupa`ia Germplasm Release Aweoweo (Chenopodium oahuense (Meyen.) Aellen.)

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