

Natural Area Weeds: Air Potato (*Dioscorea bulbifera*)¹

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Introduction

Plants provide us with food and fiber, decorate our yards and gardens, and provide habitat for wildlife. But when plants grow where they are not wanted, we call them weeds. To home owners, weeds may be unwanted plants in lawns or gardens. To farmers, weeds are plants that interfere with raising crops or livestock. To biologists who manage natural areas, weeds are plants that interfere with the functions of natural communities.

Natural area weeds are often exotic plant species (plants whose natural range does not include Florida and were brought here after European contact, about 1500 AD) that have become naturalized (capable of reproducing outside of cultivation). Invasive exotic plants are weeds that alter the functions and value of natural areas by displacing native species (plants whose natural range included Florida at the time of European contact) and disrupting natural processes such as fire and water flow. Natural area managers must remove invasive exotic plant species to maintain the integrity of natural areas.

Air potato is an invasive plant species in Florida that should be removed from public and private properties to help protect the state's natural areas. It has been listed by the Florida Exotic Pest Plant Council as one of Florida's most invasive plant species since 1993 and was added to the Florida Noxious Weed List (5b-57.007 FAC) by the Florida Department of Agriculture and Consumer Services in 1999. Plants on the Florida Noxious Weed List may not be introduced, possessed, moved, or released without a permit.

Impacts

Air potato can quickly engulf native vegetation in natural areas, climbing high into mature tree canopies (Figure 1). It produces large numbers of bulbils, which facilitate its spread and make it extremely difficult to eliminate because new plants sprout from even very small bulbils. It invades a variety of habitats including pinelands and hammocks of natural areas (Langeland and Burks 1998).

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Figure 1. Air potato vine engulfing native cabbage palm.

Distribution

Native to tropical Asia, air potato was introduced to the Americas from Africa during the slave trade (Coursey 1967), and introduced to Florida in 1905 (Morton 1976). It is found throughout the state from Jackson and Franklin Counties in the Panhandle, and Alachua and Marion in the north-central peninsula, south to Dade (Langeland and Burks 1998).

How to Recognize Air Potato

Air potato is a vigorously twining herbaceous vine, which often arises from an underground tuber. Freely branching stems grow to 60 ft in length. Stems are round or slightly angled in cross section (not winged as in *D. alata*) and twine to the left (counter-clockwise). Aerial tubers (bulbils) freely form in leaf axils (Figure 2). Bulbils are usually roundish, to 5 in x 4 in, with mostly smooth surfaces (Figure 2). Leaves are long petioled (stalked), alternate; blades to 8 in or more long, broadly heart shaped, with basal lobes usually rounded and with arching veins all originating from one point (Figure 3, Figure 4). Flowers rare (in Florida), small, fragrant, male and female arising from leaf axils on separate plants (i.e., a dioecious species), in panicles or spikes to 4 in long. Fruit a capsule; seeds partially winged.

Winged yam (*Dioscorea alata*), also a non-native invasive species and similar in appearance, often arises from a massive underground tuber, has opposite leaves, and stems are square in cross section, with corners “winged,” these often red-purple tinged. Our native wild yams, (*D. floridana* and *D. quarternata*) are infrequent in hammocks and floodplains of north and west Florida, never form aerial tubers, and the leaf blades rarely to 6 in long.



Figure 2. Air potato bulbils form in leaf axils.

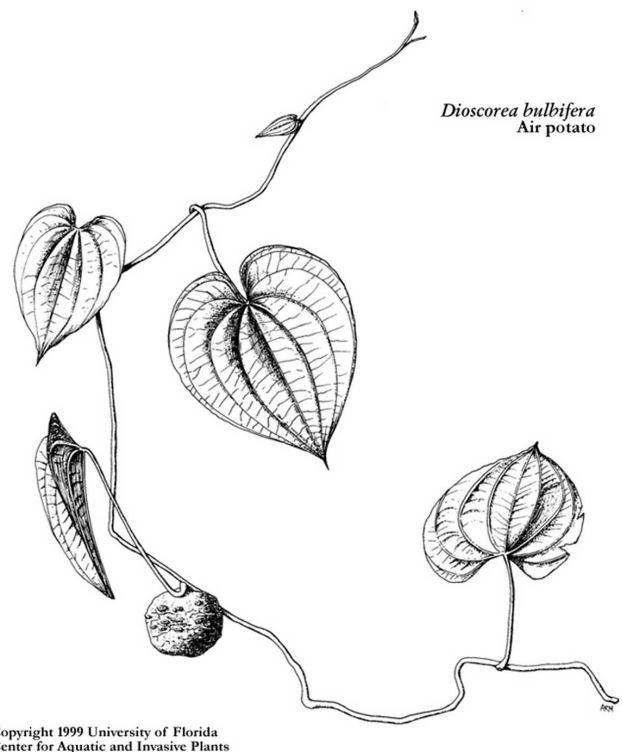


Figure 3. Air potato (*Dioscorea bulbifera*).



Figure 4. Air potato flowers.

Remove Air Potato From Your Property to Protect Florida's Natural Areas

The herbicides Garlon 3A diluted with water to 1.25%- 2.0% (1.6-2.6 ounces per gallon of spray) or Garlon 4 diluted with water to 0.5%-2.0% (0.6-2.6 ounces per gallon of spray) are effective for controlling air potato when sprayed onto the foliage. Garlon 3A and Garlon 4 can be purchased from agricultural supply stores. When the vines are growing up into trees and mixed with desirable plants, the air potato vines should be cut and destroyed; and the remaining plants sprayed with the herbicide solution. As many bulbils as possible must be removed from the site (Figure 5). Those which remain will produce new vines. All plant material including bulbils must be disposed of in such a way that they do not spread the vines to new areas; for example, in a landfill where they will be incinerated. Several follow-up applications of herbicide will be necessary through the growing season and perhaps in successive years. Plants become dormant in winter (during short day-length). Locating and removing bulbils is easier during winter months when air potato and other vegetation are not as dense as during summer. Herbicide should be applied when plants are actively growing in spring and early to mid summer.

Herbicides must be applied according to instructions on the label. It is highly recommended that those who have not had previous training in application of pesticides contact the Cooperative Extension Office in their county for information on training opportunities. Property owners may wish to



Figure 5. Remove air potato bulbils and other plant material from site and dispose of in such a way that they do not spread the vines to new areas.

hire a vegetation management contractor to remove air potato for them.

Additional Information About Invasive Plant Species

Center for Aquatic and Invasive Plants Web site
<http://plants.ifas.ufl.edu>.

Florida Exotic Pest Plant Council Web site
<http://fleppc.org>.

Identification and Biology of Non-Native Plants in Florida's Natural Areas. K.A. Langeland and K. Craddock Burks. 165 pp. 1998. IFAS Publication SP 257.

Control of Non-Native Plants in Natural Areas of Florida. K.A. Langeland and R.K. Stocker. 34 pp. 2001. IFAS Publication SP 242.

Help Protect Florida's Natural Areas from Non-Native Invasive Plants. K.A. Langeland. 1999. IFAS Circular 1204.

Literature Cited

Coursey, D.G. 1967. Yams: an account of the nature, origins, cultivation, and utilization of the useful members of Dioscoraceae. London: Longmans, Green and Co. Ltd. 230 pp.

Langeland, K.A. and K. Craddock Burks. 1998. Identification and Biology of Non-Native Plants in Florida's Natural Areas, IFAS Publication SP 257. University of Florida, Gainesville. 165 pp.

Morton, J.F. 1976. Pestiferous Spread of Many Ornamental and Fruit Species in South Florida. Proc. Fla. State Hort. Soc. 89:348-353.