



# **Invasive Species Management Plans for Florida**

# Lantana

## *Lantana camara* (L.) Verbenaceae

### INTRODUCTION

Lantana became a favorite greenhouse plant in the 18<sup>th</sup> century. This plant was such a desired species that many new varieties were bred, resulting in hundreds of cultivars available for sale in the European market. The newer cultivars were introduced to several countries on a regular basis, assisting in the worldwide distribution of Lantana.

*Lantana camara* is native to the West Indies. Florida has its own native species of Lantana (*L. depressa*) that is now considered endangered. The native Florida lantana is often confused with the invasive species. Lantana is found in almost every county in Florida but also found in Georgia and Texas. It is a serious pest in California and Hawaii, as well as in other countries including Australia, New Zealand, and China.

*Lantana camara* is grown as hedge plant and has various medicinal and practical uses. The stalks are used as raw material for paper pulp, which is used for wrapping, writing and printing paper. Lantana bark is astringent and used as a lotion in leprosy ulcers and other eruptions of the skin. *Lantana camara* leaves are boiled and applied for swellings and pain of the body. Alkaloids from lantana have been found to stimulate intestinal movements in experimental animals, lower blood pressure and accelerate deep respiration.

### DESCRIPTION

Lantana is a perennial, erect or prostrate shrub growing to 6 feet or more in height. Leaves are ovate in shape, oppositely arranged, commonly 6 inches long and 2 ½ inches wide. To the touch, lantana leaves feel like fine sandpaper or a cat's tongue. Leaf blades are serrate and have an aroma when crushed or rubbed. Flowers of lantana are clustered at the tip of stems. Small, multicolored flowers change color over time from white to pink or lavender, or yellow to orange or red. Typically the more mature flowers are darker in color (lavender and red). Fruit of lantana is tiny (0.2 inches in diameter) and round. Initially green, the seeds will change to a deep purple and eventually black color.

Leaf characteristics can be used to distinguish the native lantana (*L. depressa*) from the invasive lantana (*L. camara*). Native lantana has a tapered leaf base, whereas the invasive lantana has a truncate leaf base. Flower color can also be used to distinguish between species. Native lantana has a yellow flower whereas invasive lantana has a multitude of flower colors. *Lantana camara* has successfully hybridized with native lantana, making identification of the invasive species more difficult.

Lantana reproduces vegetatively and via seed. Flowers are produced year round and are able to self and cross-pollinate. Lantana is an extremely prolific seed producer, with approximately 12,000 fruits per plant. Birds and other animals that consume lantana fruit can spread seed across large distances. Normally seed germination is low; however, when seed is passed through the digestive system of an animal, the germination rate is increased. Vegetative reproduction occurs when lantana stems come into contact with moist soil, initiating root formation at the contact site. Lantana can also regrow from the base of the stem, but does not sucker from damaged or broken roots.

## IMPACTS

In Florida lantana can grow in a variety of areas including forests, roadsides, pastures, and citrus groves. It thrives in shaded or sunny, moist or dry locations. Lantana continues to be sold as an ornamental plant in garden centers and nurseries throughout the U.S. Through wide cultivation and establishment in the landscape, lantana is able to spread and survive by escaping from home landscapes.

In Florida citrus groves lantana is a serious economic weed pest. Propagation, reduction of manual weeding, herbicide tolerance, and reduced competition from other weedy species has allowed lantana to proliferate and spread successfully. It also decreases productivity in pastures and is toxic to cattle and other animals when grazed.

Lantana invades disturbed natural ecosystems by establishing in creek banks and roadsides. Native species establishment is inhibited by the dense understory created by lantana. In the homeowner setting, there are reports of children being poisoned by consuming unripened fruit. It is also thought that lantana produces allelopathic substances in shoots and roots which inhibits the growth and development of plants near lantana.

## MANAGEMENT

An integrated approach should be taken when attempting to control lantana. Integrated control tactics include manual removal, burning, chemical control, shading, prevention and revegetation. Natural restoration may prove difficult due to the reduction of seeds of native plants.

Preventative: Preventing seed production is a very important step in lantana management. Removing flower heads prior to seed set will greatly reduce the number of seeds released into the seed bank, as well as reduces the number of seeds available for spread by birds or other animals. Homeowners can also help prevent the spread of lantana by removing plants from their landscape, and not purchasing plants from garden centers. An additional consideration is the removal of seeds prior to ripening.

Cultural: Weeds such as lantana generally invade open or disturbed areas – following a burn, clearing mowing, etc., so these areas are particularly vulnerable to invasion. Maintaining a healthy ecosystem with an abundance of native plant species will help deter infestations of lantana. Seeds may be hand picked from shrubs and discarded properly, however this may not be a realistic or cost effective tactic for larger infestations.

Mechanical: Fire, dozing or stick-raking, and slashing or cutting can reduce dense infestations. These tactics can make spot treatments with chemicals more economically effective. Part of a management plan to control dense infestations includes the use of fire. A suggested control program is:

- To establish a fuel load exclude stock from the area.
- Only burn when you can get a permit.
- Revegetate areas with native plant species.
- Keep stock out until the pasture is established and seeded.
- Carry out another burn in the hot dry months before rain. Spot spray regrowth when it is vigorously growing between 20 inches and 5 feet tall.

Follow-up controls after each burn, with spot spraying or mechanical methods, are essential for the next few years. Burning without follow-up treatments is ineffective and may increase populations.

Smaller plants may be hand pulled, whereas older individuals should be dug out.

Biological: There are also some biological controls under consideration control of lantana as there are very effective biological control agents available for this species. Over 20 biocontrol agents have been released to control lantana in Hawaii with varying results. The most effective are the defoliating caterpillar *Hypena strigata*; the seed-destroying fly *Ophiomyia lantanae*, and the lace bug *Teleonemia scrupulosa*. Due to popularity of this species in the ornamental industry, the release of biological control agents is controversial.

Chemical: Glyphosate is marginally effective as a foliar spray and regrowth is common. Fluroxypyr (Vista) plus aminopyralid (Milestone VM) at rates of 2.6 pt and 7 oz/A, respectively, applied twice within 6 months is effective, but costly. Fluroxypyr or imazapyr applied as a basal application is consistently effective. However, mowing and spraying the freshly cut stumps is the easiest application technique and requires the least amount of herbicide.

#### REFERENCES AND USEFUL LINKS:

Institute of Pacific Islands Forestry, Pacific Island Ecosystems at Risk:  
<http://www.hear.org/pier/index.html>

University of Florida Center for Aquatic and Invasive Plants:  
<http://aquat1.ifas.ufl.edu/welcome.html>

University of Florida's Cooperative Extension Electronic Data Information Source:  
<http://edis.ifas.ufl.edu/index.html>

Lantana camara (Fankatavinakoho, Fotatra, lantana, Mandadrieko, Rajejeka, Radredreka, Ramity) (in press) In Goodman S.M. and J.P. Benstead (Eds) The natural history of Madagascar. University of Chicago Press, Chicago.  
<http://members.lycos.co.uk/WoodyPlantEcology/docs/mad-lanta.RTF>

Mount Morgan Council Homepage: <http://www.mountmorgan.com/lantana.html>

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.

## Mature Plant

- Perennial shrub, can be erect growing or prostrate
- Often highly branched, creating a dense hedge



## Leaves

- Oppositely arranged
- Ovate shape with serrate margins
- Aromatic when crushed
- Rough, sandpaper-like texture



## Flowers and Fruit

- Flowering occurs year-round
- Borne in clusters at tip of stem
- Change color after pollination
- Fruit are small and dark purple



## Seed

- Prolific seed producer
- 12,000 fruits per plant
- Seed germination is normally low
- Dispersal via birds and other animals
- Passage through animal digestive system increases germination rate

