

IFAS Assessment of Non-Native Plants in Florida's Natural Areas



Nandina domestica (heavenly bamboo)

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@IFASassessment

<http://plants.ifas.ufl.edu/assessment/>

- ~85% of all non-native plants enter through Florida
- 1300 non-native species established in Florida /124 currently found in state parks
- Significant impacts to recreation/expensive to manage
- Cost >\$34 million/year to control on public land (2004-05)



Lygodium microphyllum



Melaleuca quinquenervia



Eichhornia crassipes

What is The Assessment?

- Tools to assess the status of species currently present in the state
 - Reduce cost & increase efficiency of management efforts
- Protocol to predict the potential invasiveness of species proposed for release
 - Preemptively stop future invasions

Outline

- History & purpose of the Assessment
- 3 tools
 - Status assessment
 - Predictive tool
 - Intraspecific taxon protocol
- New species additions
- Reassessments
- The website



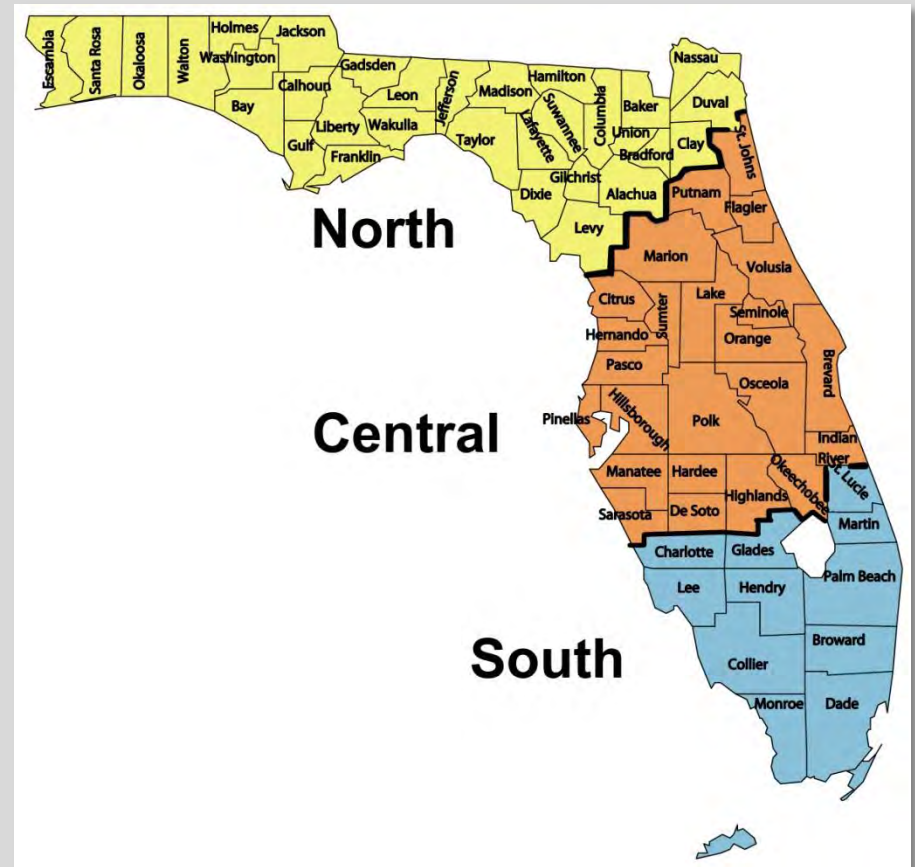
History & Purpose

- Developed in 1999
- UF/IFAS Invasive Plants Working Group
- Descriptions & recommendations for use & management
- 2008 Predictive Tool & Intraspecific Taxon Protocol



Status Assessment

- Evaluates species *already* in Florida
- 3 Zones
- Describe the status of the species
 - Ecological impacts
 - Potential for expanded distribution in Florida
 - Management difficulty
 - Economic value
- Incorporates field data from experts



Status Assessment

Possible Results

1. **Not considered a problem** species at this time & may be recommended (reassess in 10 years)
2. **Caution** – may be recommended but manage to prevent escape (reassess in 2 years)
3. **Invasive & not recommended except for any 'specified & limited'** use approved by IFAS Invasive Plants Working Group (reassess in 2 years)
4. **Invasive & not recommended** (reassess in 10 years)

Predictive Tool

- Evaluates species
 - New to state
 - Causes problems elsewhere
 - Proposed for new use
- Rigorous literature search
- Correctly identified high and low risk species with 90 & 70% accuracy (Gordon et al. 2009)



Eucalyptus grandis

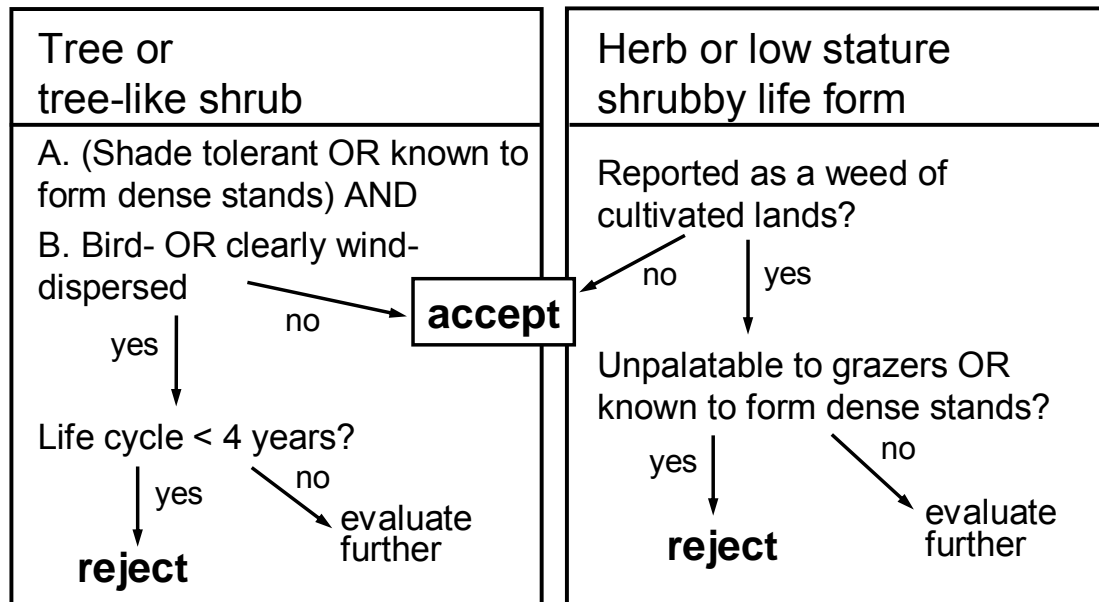
Predictive Tool

- Series of 49 questions
 - Domestication/cultivation
 - Climate/distribution
 - Weed elsewhere?
 - Weedy traits
 - Plant type
 - Reproduction
 - Dispersal mechanisms
 - Persistence attributes
 - Scoring
 - <1 Low Risk for Invasion**
 - >6 High Risk for Invasion**
 - 1-6 Evaluate Further**
-
- History/biogeography
- Life history/ecology

Secondary Screening

Pacific second screening: decision rules for species with WRA scores between 1 and 6

(from Daehler *et al.* 2004)



Vines must pass both tests

Microstegium vimineum

Example Q & A's

- 2.03 “Broad climate suitability (environmental versatility) “ **+1**
 - Yes, USDA zones 5a-11
- 4.09 “Is a shade tolerant plant at some stage of its life cycle” **+1**
 - Yes, although a C4 grass, adapted to low light
- 7.04 “Propagules adapted to wind dispersal” **-1**
 - No, adaptations for wind dispersal
- 7.06 “Propagules dispersed by animals (externally)” **+1**
 - Yes, seeds can attach to fur, feathers, etc.

Scores & Predictions

Species	Score	Risk of Invasion
<i>Arundo donax</i>	11	High
<i>Barringtonia racemosa</i>	3	Evaluate
<i>Eucalyptus gunnii</i>	1	Low
<i>Eucalyptus macarthurii</i>	5	Evaluate
<i>Eucalyptus tereticornis</i>	10	High
<i>Lantana montevidensis</i>	29	High
L 79-1002 Sugarcane	-1	Low
<i>Microstegium vimineum</i>	24	High

74 species evaluated to date

43 species scheduled for evaluations in 2013

Biomass Planting Rule

“to control the introduction into, or movement within, Florida of plant species intended for biomass plantings.”

- Requires permit to plant >2 contiguous acres
- By law, include weed risk assessment



Bioenergy Crops



Miscanthus x giganteus

← **LOW RISK**



Pennisetum purpureum

← **HIGH RISK**

Arundo donax

HIGH RISK



Infraspecific Taxon Protocol

- Cultivars, varieties, or sub-species of resident species
- Determine if recommendations for resident species apply
- Request submitted to IFAS Assessment staff
 - Supporting evidence indicating the taxon is a distinct entity
 - Reasons for expecting the taxon to behave differently resulting in different recommendations

Nandina domestica



- North, Central = Invasive
 - Specified limited use approved
- South = Caution
 - may be recommended/manage to prevent escape

Nandina domestica CVS.



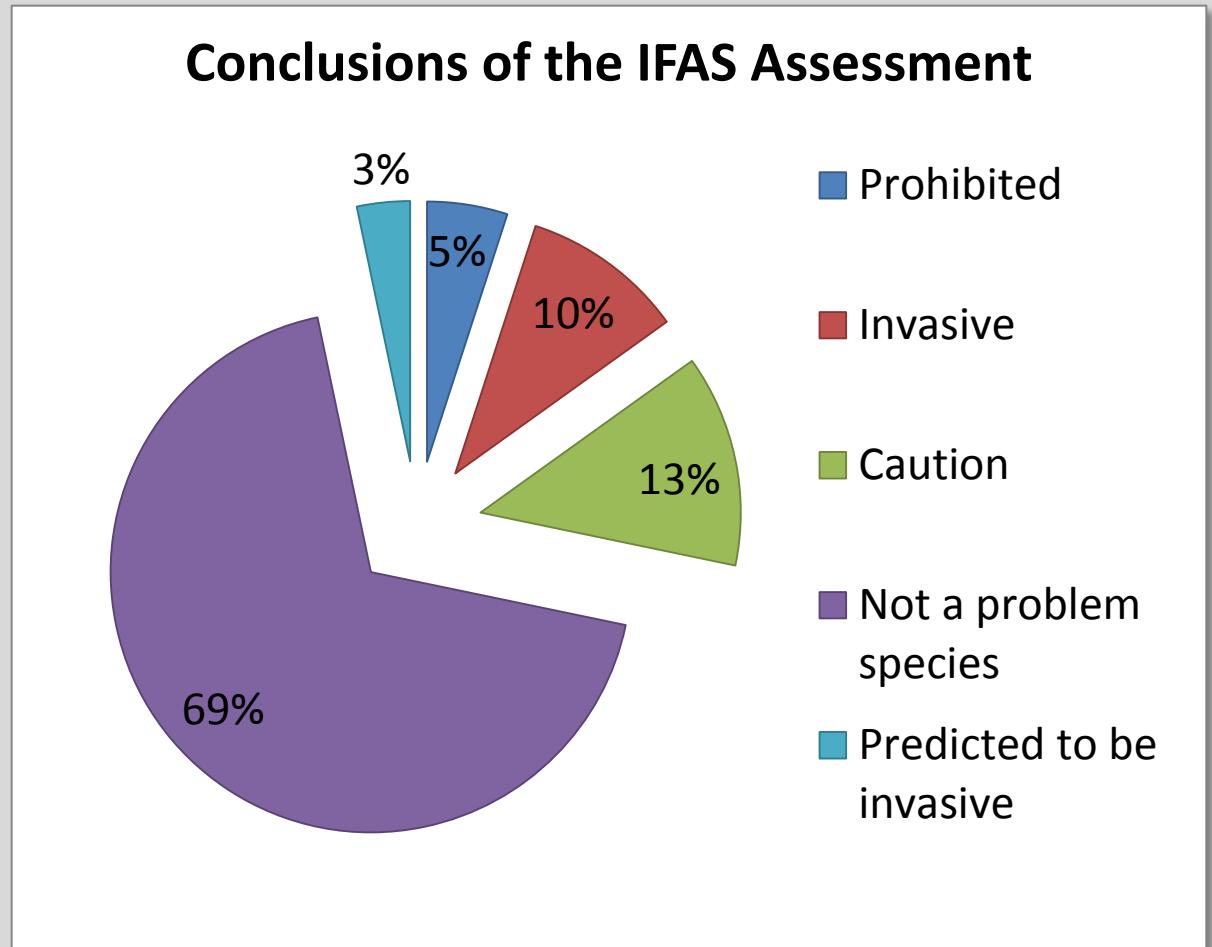
Firepower, Harbour dwarf, & Gulf Stream: ok to recommend
All zones



Jaytee (Harbour Belle) = Same as resident species
(North, Central = No unless limited use approved; South = Caution)

New Additions 2012-2013

- 775 species evaluated
- 12 new species
 - Conclusions amended 104 species



Re-evaluations 2013

- *Miscanthus sinensis*
 - Not a problem all zones 10 yr
- *Elaeagnus pungens*
 - Caution all zones 2 yr
- *Cinnamomum camphora*
 - Invasive, not recommended North, Central
 - Not a problem South 10 yr
- *Lonicera japonica*
 - Invasive, not recommended all zones 10 yr



Re-evaluations 2013

<i>Adenantha pavonina</i>	<i>Elaeagnus pungens</i>	<i>Pennisetum alopecuroides</i>
<i>Agave sisalana</i>	<i>Hibiscus cannibinus</i>	<i>Pennisetum setaceum</i>
<i>Ardisia crenata</i>	<i>Koelreuteria elegans subsp. formosana</i>	<i>Pithecellobium dulce</i>
<i>Ardisia japonica</i>	<i>Landoltia punctata</i>	<i>Rotala rotundifolia</i>
<i>Asparagus setaceus</i>	<i>Ligustrum lucidum</i>	<i>Salvinia minima</i>
<i>Bischofia javanica</i>	<i>Lonicera japonica</i>	<i>Sansevieria hyacinthoides</i>
<i>Broussonetia papyrifera</i>	<i>Melia azedarach</i>	<i>Sesbania punicea</i>
<i>Buddleja lindleyana</i>	<i>Melinis minutiflora</i>	<i>Sporobolus indicus</i>
<i>Canavalia brasiliensis</i>	<i>Miscanthus sinensis</i>	<i>Syzygium cumini</i>
<i>Cinnamomum camphora</i>	<i>Momordica charantia</i>	<i>Thespesia populnea</i>
<i>Citrus × aurantium</i>	<i>Nandina domestica</i>	<i>Urena lobata</i>
<i>Cocos nucifera</i>	<i>Nymphoides cristata</i>	<i>Zamia furfuracea</i>
<i>Colocasia esculenta</i>	<i>Panicum repens</i>	<i>Zeuxine strateumatica</i>

Website

IFAS Assessment of Non-native Plants



in Florida's Natural Areas

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The IFAS Assessment of Non-Native Plants in Florida's Natural Areas (IFAS Assessment) was developed by the UF/IFAS Invasive Plants Working Group so that Extension faculty could provide consistent recommendations concerning the use of non-native plants. The Assessment and the Working Group were created in response to the growing awareness of the threat posed (especially to threatened and endangered species) by non-native invasive species. [Learn more about how and why the IFAS Assessment was developed.](#)

The process by which recommendations are derived is well-documented and open to review. When plant species are assessed, data are collected from all available resources by designated IFAS staff. The IFAS Assessment system is typically applied to species in each of three climate zones in Florida: north, central, and south. The IFAS Assessment has three components. The main one is the Status Assessment and from this the use of the Predictive Tool or Intraspecific Taxon Protocol may be directed.

If a species is already prohibited by state or federal law no further assessment is needed because the species cannot be recommended for use. All other species are initially evaluated using the Status Assessment and as this is completed, information is organized to provide Results that describe the status of the species for four specific topics:

- Ecological impacts
- Potential for expanded distribution in Florida
- Management difficulty
- Economic value

Such Results are reported as scores (for Ecological impacts and Management difficulty) or as a low or high status (for Potential for expanded distribution in Florida and Economic value). For examples of results, click on the "Results Table" link in the sidebar.

From these Results, Conclusions are derived which specify what recommendations can be made about each species. These Conclusions are:

- Not considered a problem species at this time and may be recommended by IFAS faculty (reassess in 10 years)
- Caution – may be recommended by IFAS faculty but manage to prevent escape (reassess in 2 years)
- Invasive and not recommended by IFAS faculty except for any 'specified and limited' use that has been approved by the IFAS Invasive Plants Working Group (reassess in 2 years)
- Invasive and not recommended by IFAS faculty (reassess in 10 years)

If the species has not yet been assessed, the Conclusion is essentially that for a non-invasive species (*Not yet assessed: not considered a problem species at this time and may be recommended by IFAS faculty*). However, this Conclusion may be changed upon assessment; please check for the latest updates in the Conclusions Tables (link in the sidebar).

If species have not escaped into Florida's natural areas but are either recent arrivals to the state or are known to cause problems in areas with similar habitats and climate to Florida, the Status Assessment directs the use of a predictive tool. The Australian Weed Risk Assessment system has been adapted for use in Florida to complete the assessment of such species ("The Predictive Tool" link in the sidebar).

The Status Assessment is generally applied at the species level. It is only applied independently to infraspecific taxa (e.g., cultivars, varieties, or sub-species) if these taxa can be clearly distinguished in the field and are not likely to revert. (Throughout the Status Assessment, reference to the species under consideration could also refer to such distinct infraspecific taxa). Other infraspecific taxa may be proposed for assessment using the Intraspecific Taxon Protocol (link in the sidebar). This protocol uses the same conclusions as the Status Assessment so even though they are derived differently, the conclusions for these infraspecific taxa are reported in the Conclusions Tables with those for all species evaluated using the Status Assessment.

Website

Status Assessment - PDF (277 KB)

Detailed Data

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The Predictive Tool - PDF (194 KB)

Conclusions Page

Results Table - PDF (562 kb)

View results

- Comprehensive list
- By zone
- By recommendation

Conclusions are updated several times a year and should be referenced. Please check the Conclusions Tables each time you cite the IFAS Assessment to be sure that you are using the most up-to-date information.

All Species & Zones	North Zone	Central Zone	South Zone
Conclusions by Genus Updated Oct 2011 - PDF (294 KB)	Prohibited Updated Feb 2011 - XLS (30 KB)	Prohibited Updated Feb 2011 - XLS (30 KB)	Prohibited Updated Feb 2011 - XLS (30 KB)
Conclusions by Common Name Updated Oct 2011 - PDF (437 KB)	Invasive - Not Recommended Updated Oct 2011 - XLS (45 KB)	Invasive - Not Recommended Updated Oct 2011 - XLS (46 KB)	Invasive - Not Recommended Updated Oct 2011 - XLS (47 KB)
	Caution Updated Oct 2011 - XLS (37 KB)	Caution Updated Oct 2011 - XLS (42 KB)	Caution Updated Oct 2011 - XLS (43 KB)
	Can Be Recommended Updated Oct 2011 - XLS (121 KB)	Can Be Recommended Updated Oct 2011 - XLS (117 KB)	Can Be Recommended Updated Oct 2011 - XLS (108 KB)
Footnotes DOC (41 KB) - Contains all footnotes found on the Conclusions table by genus and common names only.			

(If the documents in the above table open with formatting errors in the header, please [click here](#))

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Assessment Zones - PDF (10 kb)

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Citation Examples - DOC (117 KB)

Invasive Plants Working Group

Relevant Links

We Need Your Help! - PDF (16 kb)

Contact Us

- Links to protocols & request forms
- Additional tabs
 - Detailed data: results by species
 - Description of zones by county
- **Experts always needed**

We need your help!

Expert opinion is still needed for some of the species that have been assessed so far. In the Conclusions tables on the main page, conclusions for incomplete zones are shown in parentheses. In the results table on the main page, species that have incomplete conclusions for a zone are highlighted in orange, as in the following example:

	Ecological Impacts			Expansion Potential			Management difficulty	Economic Value	Conclusions (see Assessment for full text)	No ¹ unless limited use approved ²	Caution ²	OK ¹
	North	Central	South	North	Central	South	All Zones	All Zones				
<i>Albizia lebbbeck</i>	L	(L)	L	L	L	H	H	L			S	N, (C)
index score	0	--	0	L	L	H	16	L				
# of experts / literature	lit	2	3	lit	lit	lit	5	lit/store visits				
	III-b								Last assessed: Nov 2003			

At least three individuals who have expertise on the particular species and zone in question must be identified in order to provide sufficient documentation of evidence for the assessment.

Contact Us

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