# STATUS ASSESSMENT RESPONSE FORM

Species (Botanical name): Mangifera indica				
(Common name): Mango				
Where the voucher specimen is held: FTG, FLAS, USF, FSU				
☐ Assessment				
Date assessment started: 11/29/2016 Date assessment completed: 11/29/2016				
INSTRUCTIONS  Either check appropriate response or enter it in the designated space.  Attach additional sheets with evidence as necessary using appropriate section numbers.				
SUMMARY OF ASSESSMENT RESULTS				
BY STATE If species is NOT invasive in Florida, check one of the following three conclusions:				
From Section A Automatic Exemption				
☐ Use Predictive Tool ☐ Prohibited				
☐ Not considered a problem species at this time				
BY ZONE  North: Central: South  North: Central: South				
Index Score $I = 0$ : {3.75} : 3.75 $M = 13.5$				
Category $I = L : L : P = L : H : M = L V = H$				
Conclusions North OK; not considered a problem species at this time & may be recommended				
Central Caution; may be recommended but manage to prevent escape				
South Caution; may be recommended but manage to prevent escape				

# In case of incomplete assessment:

Where did assessment stop?

Who could provide the answer to this question?

Automatic Exemption					
Is this sp	ecies listed on any federal or state noxious or prohibited plant lists?				
☐ Yes	Under "BY STATE" on page R-1 check Prohibited				
✓ No	Go to Section I-a below				

# **Step-by-Step Assessment Responses**

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I-a	Current In	<u>nvasion in Florida</u>				
1.	1. Is there a proposed or new use for a species that would result in higher propagule pressure* in Florida? For example, cultivation of ≥2 contiguous ac of a species for bioenergy (corresponding to DPI biofuel rule), or commercial cultivation of a species present in Florida for a new use, or increase in acreage cultivated from 1-10 ac to 10 times that acreage (10-100 ac), 10-100 ac to 5 times that acreage (50 to 500 ac), or >100 ac to 2.5 times that acreage.					
	Yes	Use the Predictive Tool				
	✓ No	Go to question I-a 2				
2.	Does this	species occur in any natural areas of Florida?				
	✓ Yes	Attach distribution records and Go to question I-a 3				
	☐ No	Go to Section A				
3.	Does it O	<b>NLY</b> occur in natural areas of Florida because it has persisted from its previous n?				
	Yes	Attach evidence of previous cultivation for each site and Go to Section A				
	✓ No	Go to Section I-b				
		Section A is on page R-3 and Section I-b is on page R-4				
		<ul><li>✓ Check box if distribution records are attached</li><li>✓ Check box if evidence of previous cultivation is attached</li></ul>				

Section	Section A					
A1	Does this species hybridize with any Federal or Florida-listed Endangered or Threatened species, Species of Special Concern, or economically important species (e.g., exhibit pollen /genetic invasion)?					
	Yes	Provide <i>information below</i> . Enter a conclusion on page R-17 of <b>No unless limited use approved. Go to Section D</b> for details on how to make a proposal for specified and limited use for the species.				
	☐ No	Go to question A2				
If yes	, then provide	e name of listed or economically important species & information sources:				
A2	Has this spe 20 years if v	ecies been introduced to Florida within the last 10 years if herbaceous, or last woody?				
	Yes	Use Predictive Tool and so indicate on page R-1				
	☐ No	Highlight attached distribution records that show presence in Florida before 10 or 20 years ago or attach other evidence and <b>Go to question A3</b>				
A3	Does this sp and climate	pecies have a record of causing problems in other regions with similar habitats to Florida?				
	Yes	Provide evidence below, Use Predictive Tool and so indicate on page R-1				
A1  If yes  A2	□ No	Enter a conclusion of Not considered a problem species at this time and may be recommended by IFAS faculty on page R-1 but reassess if invasion of natural areas is recorded or within 10 years, whichever is earlier.				
If yes	, then give evi	idence of where and what problems this species has caused:				
		Section D is on page R-19				

*****				
I-b	Invasion Status in Three Zones of Florida	***************************************	***************************************	
Che	eck responses to the following questions for each zone	e (north, centr	al, south) sepa	arately.
and	"Yes" responses to questions 1-3, distributional evidence expanding populations within a plant community ociated) must be attached and distinguished for each and distinguished for eac	with which	` _	_
1.	Does species exist in areas outside its current, or former, cultivation in this zone?  If Yes Go to question I-b 2  If No Go to question I-b 4	North Yes No □ ✓	Central Yes No ☐ 🔽	South Yes No
2.	Is species invading in this zone <b>ONLY</b> when natural disturbance regime and scale have been altered?  If Yes <b>Go to question I-b 3</b> If No (or unknown) <b>Go to Section II-a</b>	North Yes No	Central Yes No	South Yes No □ ☑
			~	G 41
3.	Has this species ever been <b>known</b> to persist if the natural regime is resumed and the natural flora/communities recover?  If <i>Yes</i> (or unknown) <b>Go to Section II-a</b> If <i>No</i> <b>Go to question I-b 4</b>	North Yes No	Central Yes No	South Yes No
<ol> <li>4.</li> </ol>	if the natural regime is resumed and the natural flora/communities recover?  If Yes (or unknown) Go to Section II-a			
	if the natural regime is resumed and the natural flora/communities recover?  If Yes (or unknown) Go to Section II-a  If No Go to question I-b 4  Are there other zones in which this species has invaded or persisted after restoration?  If Yes indicate I = 0 for this zone  on page R-1 then Go to Section III-b	Yes No  North Yes No  S  S  S  S  S  S  S  S  S  S  S  S  S	Yes No  Central Yes No  Solve III	Yes No  South Yes No  """

☐ Check box if distribution records by zone are attached

### II-a Known Impacts at WORST SITE(S) (without, or before, any control effort)

Add up points for **ALL** impact statements (i through vi) that are true at the <u>worst affected site(s) in</u> that zone then **Go to Section II-b**.

If scores are assigned, attach Ecological Impacts Worksheets that include citations and/or log of expert evidence.

Documentation of evidence of impacts for each zone (as defined in the Assessment Glossary) must be attached and include specific locations of observed impacts. If experts are providing evidence, their <u>written and signed observations</u> must be attached. Scientific names of impacted species (e.g., state-listed or native species with which hybridization occurs) must be included.

If there is no evidence of an impact then assign 0 points <u>unless</u> the impact is considered very likely (e.g., fixes  $N_2$  in low nutrient soil which can change the flora) OR the impact (except vi) has been demonstrated in similar habitats in other zones or outside the state, OR if only one expert has documented the impact within the zone under consideration. In these cases assign 0.5 points.

		Points	North	Central	South
i)	Long-term alterations in ecosystem processes	15	X	X	0.5
ii)	Negatively impacted T & E species:				
	Documented loss has occurred	12	X	X	0
	Loss is considered very likely	4	X	<u>X</u>	0.5
iii)	Displaces or precludes native vegetation (see criteria in assessment)	8	X	X	0
iv)	Changes community structure	4	X	X	0.5
v)	Hybridizes with native or economic plants	4	X	X	0
vi)	Covers over 15% of invaded stratum (unless iii)	1	<u>X</u>	X	1
		Total	X	X	2.5

Section II-b is on page R-6

Check box if Impacts Worksheet is attached

II-b Range of Community Groups in Which S	pecies is Invasive		
Is this species known to be invasive in at least a one community group of each of the terrestrial	, ,		it occur in at least
If <i>Yes</i> list community groups below and multiply score from II-a by 1.5	North Yes No	Central Yes No	South Yes No ✓ □
If No multiply score from II-a by 1.0	I = X	X	3.75
Copy these Impact scores to page R-1. If $I \ge 1$ to Section III-a on page R-9.	2, Go to Section	<b>II-c</b> on page R	-7; If I < 12, <b>Go</b>
If yes, then <i>list relevant community groups for</i> <b>North</b> :	each zone:		
Central:			
<b>South:</b> FERRESTRIAL: Coastal uplands, Mesic flatlands, MeAQUATIC: Basin wetlands, Floodplain wetlands, See	esic uplands, Rockli page wetlands, Wet	ands, Xeric flatlands	

				,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		
II-c <u>Propo</u>	rtion of Inva	ided Natural Arc	eas/Sites with	Significant I	<u>mpacts</u>	***************************************
Of the invaded sites, might any of the worst (statements i to v in Section II-a) impacts <i>only</i> occur under a few, identifiable, environmental conditions (i.e., conditions that occur in only 1 to 10% of the sites)?						
	To answer this question, for each statement in Section II-a, $i - v$ that gets a score (> 0.5), determine the percentage from this table. Calculate the percentage separately for each zone.					
	A) Number	of Natural Area a Yes Answer*		B) To	tal Number of N Areas/Sites	Vatural
	North	Central	South	North	Central	South
i)						
ii)						
iii)						
,						
iv)						
v)						
TOTAL						
Total A/Total B x 100 = %						
	If the percentage is between 1-10% from the table above, check <i>Yes</i> :					
		North Yes No □ □	Central Yes No □ □		th No	
If Yes			ntation of evide ets and <b>Go to</b> S		included in Eco	ological Impacts
If No	or <i>No score</i>	Go to Se	ction III-a			

\*Yes responses must receive a score. If only 1 individual reports any impacts, the result of which would be a 1-10% score, seek a second opinion on that impact/site.

Section B is on page R-8 and Section III-a is on page R-9

Sectio	n B		***************************************	***************************************	
B1	communities i	ic habitats and in which significant be clearly defined as invaded sites where uch impacts?	North Yes No	Central Yes No	South Yes No
	If Yes	Attach such a site definition in to Question B2	ncluding docume	ntation of evide	ence and Go
	If No	Go to Section III-a			
B2		n distance of propagule/ al be estimated?	North Yes No	Central Yes No	South Yes No
	If Yes	Attach a definition of that dist evidence, complete Sections I Potential for Expansion, Mana Enter a conclusion of No unle Section D for details on how t use for the species.	II, IV, and V to a agement Difficul ss limited use ap	lerive informati ty and Commer proved on page	ion on reial Value. R-17. Go to
	If No	Go to Section III-a			
		Section III-a is	s on page R-9 an	d Section D is c	on page R-19
		Check box i	f site definition is	s attached	
		☐ Check box if	definition of dist	tance of dispers	al is attached

	ONLY For Zones	s Where Plant Has Inva	aded (Strike	out un-invaded z	ones)
III-a	Known Rate of Invasi	on.			
1.	Was this species rep two new discrete po month period within	pulations in any 12	North Yes No	Central Yes No	South Yes No ✓ □
	If Yes	Indicate <b>P</b> = <b>High</b> , <i>hig</i> records and list these			
	If No or Unknown	Indicate $P = Low$ and	Go to Section	n IV	
			North	Central	South
		<b>P</b> =	X	X	H
	Сору	these Potential values to	o page R-14; S	Section IV is on p	page R-12
If yes	s, then list relevant new	sites invaded for each z	zone:		
Nortl	h:				
Cent	ral:				
6 4					
<b>Soutl</b> See file	<b>1</b> :				

	ONLY Fo	or Zones Where Plant Has NO	Γ Invaded. (St	rike out invaded	zones)
III-b	Potential for	r Invading Non-invaded Zones			
1.		s species be able to survive, and disperse in the <u>climate</u> e?	North Yes No □ ✓	Central Yes No ✓ □	South Yes No
	If Yes If No	<i>Provide documented evidence</i> Indicate <b>P</b> = <b>Low</b> below and		-	-b 2
2.		-types suitable for the growth cies occur in this zone?	North Yes No	Central Yes No ✓ □	South Yes No
	If Yes	Provide documented evider invaded zone is equal to the Section III-a - if there is an Low, use High).  If an adjacent zone is If the only adjacent z	P assigned to option between invaded Go to	the nearest invac n two zones wit Section III-c	ded zone (from th <b>P</b> = High or
	If No	Indicate $P = Low$ below and	Go to Section	IV	
			North	Central	South
		P =	Copy these <b>P</b> o	<u>H</u> otential categorie	X es to page R-14
in 701	$ne(s) \cdot Zone =$	e evidence that suitable climate de :: Brevard Co (USF, FLAS); All habit			d impacts exist
		Section III-c	is on Page R-11	and Section IV i	s on page R-12

ONLY	Y For Zones	Where Plant Has NOT Invaded But Has The Potential To Invade.	
III-c	Potential fo	or Causing Ecological Impacts in Non-invaded Zones	
1.	For zones invaded by this species, identify all communities in which any ecological impacts identified in Section II-a occur. Do these communities occur in the un-invaded zone under consideration (e.g., do the negatively impacted Federal- or Florida-listed Endangered or Threatened species or Species of Special Concern occur in this zone)? If no impacts were documented in any zones for this species, the response here is <b>NO</b> .		
		North Central South   Yes No Yes No   □ □ □ □     The state of	
	If Yes	Provide documented evidence below and revise the Ecological Impact Score for this zone from zero to match the Ecological Impact Score for the adjacent invaded zone (use highest value if there is an option; mark this revised score with brackets{} to show this score was derived from Section III-c) then Go to Section IV	
	If No	Go to Section IV	
zone(s	provide evid ): Zone = Cent types occur		
	000000000000000000000000000000000000000	Section IV is on page R-12	

### IV Factors That Increase the Difficulty of Management

If scores are assigned, attach Management Worksheets that include citations and/or log of expert evidence.

Add up all points from statements that are true for this species and documentation of evidence must be provided. Assign 0.5 point for each statement for which a true/false response is not known.

	<b>Points</b>	All Zones
i) No known permitted control techniques.	15	0
ii) Difficult to control without damage to native species in: ≥50% of discrete sites; 25% to 50% of discrete sites.	10 7	0
iii) Total costs of control per acre in <b>first year</b> are > \$1,500/acre	5	0.5
iv) Further site restoration is necessary following plant death.	5	0
v) Total area to be managed: ≥ 500 acres; < 500 but > 50 acres.	5 2	2
vi) Re-treatments following the first year of control expected: at least once a year for the next 5 years; 1 to 4 times over the next 5 years OR regrowth not known.	5 2	5
vii) Access to most areas is difficult.	3	0
viii) Occurs in more than 20 discrete populations.	3	3
ix) Many persistent or dispersed propagules per plant	3	3
x) Early reproduction.	2	0
	Total for M =	13.5

Copy these Management scores to page R-1 then Go to Section V on page R-13

V	Economic Value						
1.	Does this	s species have any economic value in Florida?					
	✓ Yes	Go to question $V - 2$ Indicate $V = No$ on page R-1, but treat as Low in the Conclusions table of					
	☐ No	Indicate $V = No$ on page R-1, but treat as Low in the Conclusions table on page R-16. Go to Conversion of Index Scores to Index Categories.					
2.	-	ecies sold in national or regional retail stores? (E.g., WalMart, Home Depot, permarkets.)					
	Yes	Go to Conversion of Index Scores to Index Categories on page R-14 and indicate $V = High$					
	✓ No	Go to question V - 3.					
3.	State-wid	le are there more than 10 commercial growers of this species?					
	✓ Yes	Go to Conversion of Index Scores to Index Categories on page R-14 and indicate $V = High$					
	☐ No	Go to question V - 4.					
4.	Does this purposes	species have economic value for forage, biomass, or remediation?					
	Yes	If net value $\geq \$50,000$ / yr, Go to Conversion of Index Scores to Index Categories (page R-14) and indicate $V = High$					
	☐ No	If net value $< $50,000 / yr$ , <b>Go to Conversion of Index Scores to Index Categories</b> (page R-14) and indicate $V = Low$					

Conversion of Index Scores to Index Categories is on page R-14

Using the following table, determine the appropriate category (Low to High or Very High) for each index. (Categories for Potential for Expansion Index and Commercial Value were copied from Pages R-9, R-10, and R-13)

Category		<u>Impacts</u>	Management Difficulty
Low	(L)	< 12	< 15
Medium	(M)	12 - 26.4	
High	(H)	26.5 - 41	≥15
Very High	(VH)	> 41	

	<u>Impact</u>			<u>Potential</u>			Management	<u>Value</u>	
	North	Central	South	North	Central	South	All zones	All zones	
Category	1	1	1	1	h	h	1	h	

Copy these Index categories to page R-1 then **Go to Conclusions** on pages R-15 & 16

### Conclusion

Conclusions are derived separately for each zone from the combined index categories using the table on page R-14. Whenever new information becomes available about the invasive status of a species (e.g., new populations, new data on ecological impacts) that species should be reviewed and if necessary reassessed. The following text corresponds to the abbreviations in the table on page R-14 (text in bold is approved language for IFAS documents, text in parentheses provides additional instructions to IFAS faculty and for reassessment):

OK =

**Not considered a problem species at this time** (may be recommended by IFAS faculty and reassess in 10 years).

Caution =

**Caution - manage to prevent escape** (may be recommended by IFAS faculty and reassess in 2 years).

*No - unless limited use approved =* 

Go to Section D for details on how to make a proposal for specified and limited use for the species.

If a proposal for specified and limited use has not been approved by the IFAS Invasive Plant Working Group (IPWG) the conclusion is:

**Invasive and not recommended by IFAS faculty** (reassess in 10 years - a proposal for specified and limited use may be submitted to the IPWG at any time). In IFAS publications, reference can be made to the Web site for the Center for Aquatic and Invasive Plants (<a href="http://plants.ifas.ufl.edu/assessment">http://plants.ifas.ufl.edu/assessment</a>) to determine if any specified and limited uses have been approved since the time of publication.

If a proposal for specified and limited use has been approved by the IPWG the conclusion is:

Invasive and not recommended by IFAS faculty except for "the specified and limited" use that has been approved by the IFAS Invasive Plants Working Group (reassess in 2 years).

OR

Predicted to be invasive\*: Recommended only under specific management practices agreed upon by the IFAS Invasive Plant Working Group (reassess in 2 years).

In IFAS publications the term "specified and limited" would be replaced by a summary of the specific use that has been approved (e.g., indoor foliage). Details of approved specified and limited uses are to be kept with other assessment documentation.

No =

**Invasive and not recommended by IFAS faculty** (reassess in 10 years).

<sup>\*</sup>Reported invasiveness in environments similar to but outside of Florida is one basis for this conclusion

Determine Index Categories for ALL zones before starting this Section.

For each zone identify the combination of Index categories from page R-14 in the table below. The asterisk indicates the appropriate Conclusion. Footnotes and space for recording the Conclusions are provided on page R-17.

### <u>Index Categories</u> L/H = either Low or High

<u>Conclusions</u>
See page R-15 for full text for conclusions

Impact	Potential	Manage.	Value	No	No unless limited use approved	Caution	OK
VH	L/H	L/H	L/H	*			
H H H H H H	H H H L L L	H H L L H H H	L H L H L H L	* * * * *	*1		
H M	L H	L H	H L	*	*1 *1		
M M M M M M	H H H L L L L	H L L H H L L	H L H L H L H	*	*1  *1  *1  *1  *1		
L L L L L	H H H H L	H H L L L/H	L H L H L/H			*2 *2 *2 *2	*2,3

### Footnotes for table of Conclusions

Conclusions North Not considered a problem species at this time

Central Caution - manage to prevent escape

South Caution - manage to prevent escape

Copy these Conclusions to page R-1; Section C is on page R-18; Section D is on page R-19.

<sup>&</sup>lt;sup>1</sup> Enter a conclusion of **No unless limited use approved** in the spaces below. **Go to Section D** on page R-19 for details on how to make a proposal for specified and limited use for the species.

<sup>&</sup>lt;sup>2</sup> If a zone is invaded and has Impact = Low or Medium but the <u>adjacent zone</u> has Impact = High or Very High or has received a **No** or **No unless limited use approved** conclusion via Section C, then for the invaded zone under consideration **Go To Section** C.

<sup>&</sup>lt;sup>3</sup> For zones where a species has <u>not</u> invaded, if Potential = Low but Impacts in an <u>adjacent invaded</u> zone are Medium, High, or Very High, then use **Caution** for the un-invaded zone. If Impact = Low in the adjacent zone or it is not yet invaded, then retain **OK**.

Because the Conclusion for one zone can be modified by the Index Categories or Conclusions for an adjacent zone, be sure to check Conclusions for each zone twice.

Section C								
<b>C</b> 1	Was the first record of this species in natural areas of this zone less than 10 years herbaceous or less than 20 years ago if woody?							
	Yes	Highlight distribution records that show first documentation in Florida is less than 10 or 20 years ago then Go to question C2						
	☐ No	Conclusion for this zone remains as Caution - manage to prevent escape OR Not considered a problem species at this time.						
C2	Can this s	species reproduce and disperse in this zone?						
	Yes	The conclusion for this zone is <b>Invasive</b> and not recommended by <b>IFAS</b> faculty OR <b>Invasive</b> and not recommended by <b>IFAS</b> faculty except for the specified and limited use that has been approved by the <b>IFAS Invasive Plants Working Group</b> to match the adjacent, highly impacted zone. However, do not alter the <b>Ecological Impact</b> category for this zone from Low or Medium. (Thus, if there is an adjacent non-invaded zone, the <b>Ecological Impact</b> category for that zone will remain Low or Medium.) The assessment for this zone can be considered complete now, even if the "documentation of evidence" requirement for <b>Ecological Impacts</b> is not fulfilled (i.e., there are only one or two expert opinions on this species in this zone).						
	☐ No	Conclusion for this zone remains as Caution - manage to prevent escape OR Not considered a problem species at this time						
	Select appropriate Conclusion and enter it on Page R-1 and R-16							
If yes	s, then <i>provi</i>	de evidence of reproduction and dispersal in this zone: Zone =						

#### **Section D**

If there are specific circumstances in which this species could be used that would not be expected to result in escape and invasion (e.g., foliage plants that are only used indoors and which can be reasonably prevented, by conspicuous labeling, from use or disposal in the landscape) **OR** if it is possible to define how to avoid dispersal of this species to habitats where its impacts are high (i.e., from Section B), then based on a proposal that is approved by the IPWG the conclusion becomes **Invasive and not recommended by IFAS faculty except for "the specified and limited" use that has been approved by the IFAS Invasive Plants Working Group**. The proposal for specified and limited use should document how invasion would be prevented, and should stipulate that disposal of any propagules must ensure their destruction. Reassess this species in 2 years (or in the case of referrals from Section B, immediately if the incidence of worst-case impacts increases above 10%.)

In IFAS publications the term "the specified and limited" would be replaced by a summary of the specific use that has been approved (e.g., indoor foliage).

Conditions of Acceptable Specified and Limited Use:

Further information needed:	- 22
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	90000000000
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	30000000000000000000000000000000000000
	80000