

## **IFAS Assessment - Intraspecific Taxon Protocol**

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In most cases, the IFAS Assessment of Non-Native Plants – Status Assessment has been applied to the “resident species” (a.k.a. “wildtype”<sup>2</sup>, “full species”, “type species”, “named species” or “parent species”). The term “resident species” in this context refers to a non-native species that is found in Florida, regardless of whether it is documented in any flora outside cultivation or is only grown in cultivation.

The Intraspecific Taxon Protocol is relevant when it is to be decided whether recommendations about a particular infraspecific taxon (cultivar, variety, or sub-species) should be the same, or different, from the resident species.

There are a few examples where only the cultivar, variety, or sub-species has been assessed so far (e.g., *Epipremnum pinnatum* ‘Aureum’; *Aglaonema commutatum* var. *maculatum*). If the Conclusions are needed for the resident species, the existing infraspecific assessment can be re-evaluated for that resident species using this approach.

<sup>1</sup> Intraspecific in this context refers to cultivars, varieties, and sub-species. Hybrids should be addressed as full species.

<sup>2</sup> “Wildtype” *sensu* Wilson and Mecca (2003. J. Environ. Hort. 21: 137-143) or “wild-type selection” of Knox and Wilson (2006. J. Environ. Hort. 24: 137-142).

## **Procedures for Applying the Intraspecific Taxon Protocol**

- A. The IFAS Assessment Team is requested to assess an infraspecific taxon independently of the resident species. The request must include: supporting evidence that the infraspecific taxon is recognized as a distinct entity and can be consistently and verifiably labeled; and reasons for expecting the infraspecific taxon to behave differently and, hence, to have different Conclusions from the resident species. A template for such requests and needed evidence will be provided. The request must be supported by as much evidence as possible.
- B. The IFAS Assessment team initiates use of the Intraspecific Taxon Protocol. To answer question 1.1 with a “YES” response, the opinions of at least three botanists / field experts are required and such people must be identified by the requestor. Information about the date of first introduction of the infraspecific taxon to Florida (or to the USA if Florida data are not available) for question 1.5 should be provided by the requestor.
- C. If evidence for responses to all questions in Sections 2 and 3 is clearly provided by data from peer-reviewed publications, the Intraspecific Taxon Protocol can be completed by the IFAS Assessment Team and the Conclusions are provided to the requestor prior to being posted online.

- D. Otherwise, the IFAS Assessment team provides a draft of the results from the Intraspecific Taxon Protocol and any consequent Conclusions to at least three experts for review. Experts must be professional botanists, horticulturalists, plant breeders, etc. Suggestions for such experts will be provided by the requestor but the final selection will be identified by the IFAS Assessment team. Consensus among the experts completes the Intraspecific Taxon Protocol and the Conclusions are provided to the requestor prior to being posted online.
- E. Despite every effort, if it is not possible to complete the Intraspecific Taxon Protocol because of a lack of appropriate evidence, lack of three suitable experts, or a lack of agreement between the experts, then the intraspecific taxon is not listed separately online and is assumed to have the same Conclusions per zone as the resident species. A file is kept for the intraspecific taxon so that the incomplete status of the assessment is known by the IFAS Assessment team and it can be completed when the necessary evidence becomes available. This incomplete status is also indicated on the online Conclusions table as a footnote under the resident species.
- F. If the requestor is not satisfied after the application of the Intraspecific Taxon Protocol, any appeal must be addressed to the IFAS Invasive Plant Working Group for case-by-case review.
- G. Conclusions for intraspecific taxa that have been independently assessed or completely evaluated using the Intraspecific Taxon Protocol are listed separately from the resident species in the online Conclusions table.
- H. For intraspecific taxa that have been assessed using the Intraspecific Taxon Protocol, re-assessment through the Intraspecific Taxon Protocol will follow the schedule based on the assigned Conclusions. The timetable for this is: “Invasive: not recommended” = 10 years; “Caution: may be recommended but manage to prevent escape” = 2 years; “Not a problem intraspecific taxon, may be recommended” = 10 years). However, taxa that are recommended by the group of three experts based on data from research studies of limited duration (e.g., only 2 years of data) may be tagged (footnote in the online Conclusions Table) for a more frequent rate of re-assessment than for taxa for which several year’s-worth of data were available.
- I. If the Conclusion for the intraspecific taxon is assigned to be the same as the resident species, the option for proposing “Specified and limited uses” will only be available if that option is available via the Conclusion assigned to the resident species. If the Conclusion for the intraspecific taxon is “Invasive: not recommended” and was assigned by the Intraspecific Taxon Protocol (from section 3), then a “Specified and limited use” could be proposed to the IFAS Invasive Plant Working Group following the protocol described in the Status Assessment section D. This allowance recognizes that intraspecific taxa are likely to be proposed for the Intraspecific Taxon Protocol because they have economic value and there is some difference from the resident species that is likely to reduce the likelihood of invasion by at least one pathway.

## Infraspecific Taxon Protocol

### 1. Section 1

- 1.1. Will botanists / field personnel typically be able to easily distinguish the infraspecific taxon from the resident species or other infraspecific taxa?

If **YES** then go to question 1.2

If **NO** then go to question 1.3

- 1.2. Is there evidence that the infraspecific taxon is likely to regress, revert, or produce hybrids that would revert to the characteristics of the resident species? (If there is no evidence, the answer is NO.)

If **YES** then **evaluate the infraspecific taxon using the Status Assessment and compare these Conclusions to those for the resident species.** For each zone, use the most precautionary Conclusions from these two assessments for the infraspecific taxon.\* (Conduct reassessments as appropriate and re-compare Conclusions whenever such reassessments are completed.)

If **NO** then **evaluate the infraspecific taxon using the Status Assessment** and list independently of the resident species\*

- 1.3. Has the resident species been assessed?

If **YES** then go to question 1.4

If **NO** then first assess the resident species using the Status Assessment, then go to question 1.4

- 1.4. Is the Conclusion for the previously assessed, resident species “Not a problem species; may be recommended” or “Use of a predictive tool is recommended” for all three zones?

If **YES** then go to question 1.5

If **NO** then go to question 2.1

- 1.5. Has the infraspecific taxon been in Florida (or in the USA if Florida data are not available) for > 10 years for herbaceous species or > 20 years for woody plants? (If there is no evidence, the answer is NO.)

If **YES** then **list the infraspecific taxon with the same Conclusions per zone as the resident species\***

If **NO** then go to question 1.6

1.6. Are there *obvious* characteristics of the infraspecific taxon that make it likely to spread more quickly or have worse ecological impacts than the resident species?

If **YES** then **Use of a predictive tool is recommended\***

Examples for a YES answer include:

- Intraspecific taxon produces many more fruit/viable seeds than resident species
- Intraspecific taxon hybridizes with Federal or Florida-listed Species of Special Concern, Threatened or Endangered plants or commercially-important species
- Intraspecific taxon has been documented to be a problem elsewhere but the resident species has not been

If **NO** then **list the infraspecific taxon with the same Conclusions per zone as the resident species\***

\* If the Conclusion is “Use of a predictive tool is recommended” then apply the predictive tool separately to the infraspecific taxon if possible. However, if this is not possible, apply the outcome of the predictive tool from the resident species to the infraspecific taxon.

**Note:** If the infraspecific taxon cannot be distinguished in the field from the resident species but it escapes and turns out to be more invasive than the resident species, it is assumed that the Conclusions for the resident species will become more precautionary over time as invasions of the infraspecific taxon are documented as new sites and impacts of the resident species. Because they must match those of the resident species, the Conclusions for the infraspecific taxon will also become more precautionary.

## 2. Section 2

(Only applies to infraspecific taxa that cannot be distinguished in the field from the resident species and for which the previously assessed resident species has a Conclusion of “Caution; manage to prevent escape” or “Invasive; not recommended” for at least one zone)

- 2.1. Is there evidence that the infraspecific taxon is likely to regress, revert, or produce hybrids that would revert to the characteristics of the resident species? (If there is no evidence, the answer is NO.)

If **YES** then **list the infraspecific taxon with the same Conclusions per zone as the resident species\***

If **NO** then go to question 2.2

- 2.2. Is there evidence that the combined characteristics that differ between the infraspecific taxon and the resident species will result in such decreased dispersal and spread compared to the resident species that the infraspecific taxon would be unlikely to become abundant in natural areas? Consider seed or vegetative propagules, spores, vegetative growth, etc. and the mechanism(s) by which the resident species has likely spread (including landscape waste material).

If **YES** then go to 2.3

If **NO** then go to 2.4

- 2.3. Is the primary negative ecological impact of the resident species linked to pollen-caused hybridization with natives or commercially important species, or another characteristic (e.g., host of pest/pathogen) that allows negative impacts in natural areas despite no or low spread and this characteristic is present in the infraspecific taxon ?

If **YES** then go to 3.1

If **NO** list in the Response form the characteristics identified in questions 2.2 and 2.3 with the answers to the other questions and post Conclusion of **“Not a problem infraspecific taxon, may be recommended”** on the IFAS Assessment website

Examples for a NO answer include:

- Production of only sterile seeds by a species that survives or spreads only through seed production and dispersal
- *Lantana* cultivars that are both pollen- and seed- sterile

- 2.4. Is there evidence that the combined characteristics that differ between the infraspecific taxon and the resident species will result in such decreased ecological impacts compared to the resident species that the infraspecific taxon would be unlikely to have negative ecological impacts in natural areas in any zones? If there is insufficient information about which traits in the resident species cause ecological impacts (see the Status Assessment of ecological impacts for the resident species), then answer NO.

If **YES** then list in the Response form these characteristics with the answers to the other questions and post Conclusion of “**Caution; may be recommended but manage to prevent escape**” on the IFAS website  
Examples for a YES answer include:

- Intraspecific taxon can spread but seedlings do not survive because of intolerance to heat, salinity, insufficient water, etc.

If **NO** then go to 3.1

Examples for a NO answer include:

- Change in flower color or leaf shape but no influence on plant architecture, shading, and growth rate
- Greater tolerance to cold, salinity, water, etc. than resident species
- The infraspecific taxon has pollen that can hybridize with a congener and this increases the invasiveness of that congener (e.g., the invasive congener is pollen-limited) even though the resident species cannot similarly hybridize with the congener

### 3. Section 3

- 3.1. Does the infraspecific taxon have any characteristics that would shift its response per zone (e.g., changed tolerance to temperature)?

If **NO** then **list the infraspecific taxon with the same Conclusions per zone as the resident species\***

If **YES** then go to 3.2

3.2. Does the shift in response per zone make the infraspecific taxon more likely to survive, and cause ecological impacts, in zones in which the resident species did not survive?

If **NO** then evaluate in which zones the infraspecific taxon would not now be able to survive compared to the resident species. For those zones, the Conclusion can be **“Caution; manage to prevent escape”**. For all other zones, the **Conclusions for the infraspecific taxon must be the same as for the resident species\***.

If **YES** then evaluate in which additional zones the infraspecific taxon would now be able to survive compared to the resident species. For these zones, **give the infraspecific taxon the most precautionary Conclusion that was assigned to any zone of the resident species**. For all other zones, the **Conclusions for the infraspecific taxon must be the same as for the resident species\***.