REGION 4
INTRA-SERVICE SECTION 7 BIOLOGICAL EVALUATION FORM

[Note: This form provides the outline of information needed for intra-Service consultation. If additional space is needed, attach additional sheets, or set up this form to accommodate your responses.]

Originating Person: *ANDREW G. GUDE*
Telephone Number: *703.622.3896* **E-Mail:** *ANDREW_GUDE@FWS.GOV*
Date: *6 APRIL 2020*

PROJECT NAME (Grant Title/Number):
Field Release of Pseudophilothrips ichini*, (Thysanoptera: Phlaeothripidae), for Biological Control of Brazilian Pepper Tree,* Schinus terebinthifolius*, at the Lower Suwannee National Wildlife Refuge, Florida; April 2020.*

I. Service Program:
- ___ **Ecological Services**
- ___ **Federal Aid**
  - ___ **Clean Vessel Act**
  - ___ **Coastal Wetlands**
  - ___ **Endangered Species Section 6**
  - ___ **Partners for Fish and Wildlife**
  - ___ **Sport Fish Restoration**
  - ___ **Wildlife Restoration**
- ___ **Fisheries**
- *X* **Refuges/Wildlife**

II. State/Agency: *FLORIDA / U.S. FISH & WILDLIFE SERVICE*

III. Station Name: *LOWER SUWANNEE NATIONAL WILDLIFE REFUGE, 16450 NW 31ST PLACE, CHIEFLAND, FLORIDA 32626; 352/493.0238; x224*

IV. Description of Proposed Action (attach additional pages as needed):

This is a Special Use Permit request by the Florida Department of Agriculture and Consumer Services, Division of Plant Industry's Ms. Sedonia Steininger (Biological Scientist IV, Florida Department of Agriculture and Consumer Services, Division of Plant Industry, Bureau of Methods Development and Biological Control, in Gainesville, FL 32608 (Phone: (352) 395-4737 Email: Sedonia.Steininger@fdacs.gov)

This will be a cooperative effort lead by the FDACS-DPI Bureau of Methods Development and Biological Control in Gainesville, Florida. DPI will be working in collaboration with:
Dr. Aditya Singh, University of Florida, Institute of Food and Agricultural Sciences, Department of Agricultural and Biological Engineering, Gainesville, Florida, and the Lower Suwannee National Wildlife Refuge staff.

Brazilian pepper-tree (BP), *Schnius terebinthifolius*, is considered one of Florida□s worst noxious, invasive weeds. This native of Argentina, Brazil, and Paraguay was first introduced into Florida in the 1840s and has since become one of the most widespread and aggressive plants in

the state. It grows and spreads rapidly, is a prolific seed producer, and tolerates a wide variety of environmental conditions. It is a major threat to Florida's natural areas and native flora. A combination of chemical and mechanical control practices are routinely used to combat the dense, monoculture stands that this species creates. However, these conventional control methods are expensive, labor intensive, and in most cases control is temporary. Biological control provides a relatively low cost, safe, persistent, and selective means to reduce BP plant pressure throughout Florida and other infested regions of the U.S.

The Florida Department of Agriculture and Consumer Services, Division of Plant Industry (FDACS-DPI) is working on mass rearing of approved biological control agents for eventual widespread release across the state of Florida. In order to determine that agents are establishing, spreading, and impacting the target weed (BP), they are seeking natural areas around the state of Florida in which BP infestations are present, to carry out research related to biological control of this noxious, invasive weed.

Permit Request Objective: This request seeks permission to access parks and natural areas around the state of Florida, including the Lower Suwannee National Wildlife Refuge in which the invasive weed *Schinus terebinthifolius*, aka Brazilian Peppertree (BP), infestations are present to carry out research related to its biological control.

Study Objective: This study has one primary objective with two parts. The primary objective is to set up long-term research plots to evaluate the establishment, spread, and impact of two insect biological control agents on the target weed (BP) at the landscape level. The first part of this objective involves boots-on-the-ground monitoring. The second involves the use of remote sensing and unmanned aerial vehicles (UAVs). The agents to be released include the Brazilian pepper tree feeding thrips, *Pseudophilothrips ichini* (Hood) (Thysanoptera: Phlaeothripidae), and the yellow Brazilian pepper tree leaf-galler, *Calophya latiforceps* (Burckhardt) (Hemiptera: Calophyidae). Both insects are specific to BP and have been approved for field release by the United State Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS), Plant Protection and Quarantine (PPQ) (Permit #s P526P-19-02417 & P526P-19-02419). Currently, only *P. ichini* thrips are available for release. *C. latiforceps* leaf gallers are anticipated to be released at a future date (TBD).

Methods - Part One: Three to five transects measuring 100 m each will be delineated and marked appropriately using flagging tape and/or markers. Each transect will receive *P. ichini* and/or *C. latiforceps* insects at the center point. Transects will be frequently visited (every 4-6 weeks) to assess insect establishment and spread on the target weed. Establishment and spread of insects from the center of each transect will be assessed by visual inspection and the use of beat sheets at 10 m increments over the length of each transect. This process will be repeated for at least one year. Sleeve cages may be used to assist in early establishment for the first generation of *P. ichini* thrips at each release site.

Methods - Part Two: Two sets of up to three plots each (one set of control plots and one set of insect release plots) measuring at least 10 x 100 m will be delineated and marked appropriately using posts or high visibility markers. There may be overlap between sites selected for parts one and two. The differences are that 1) impacts will be monitored using remote sensing cameras affixed to an unmanned aerial vehicle (UAV) which will be flown directly overhead to quantify changes to the canopies of infested vs un-infested BP plants and 2) plots will be visited every 4-6

weeks for at least six months of the year when BP plants are actively growing (April to October). Images from UAV flights will be processed using image analysis software to determine impacts to the canopy of BP plants from the biological control agents. This process will be repeated for at least three years.

Other Considerations:
We request that research plots be protected from BP and insect pest control efforts (spraying, trimming, mechanical removal, etc.) for the duration of the study, including a reasonable buffer zone around each plot to avoid accidental biocide drift onto research areas.

Schinus terebinthifolius Raddi (Anacardiaceae) cuttings and/or seeds may be collected to rear insect biological control agents (if permitted).

Pseudophilothrips ichini (Hood) (Thysanoptera: Phlaeothripidae) and/or *Calophya latiforceps* (Burckhardt) (Hemiptera: Calophyidae) insect biological control agents may also be collected for redistribution, after establishment (if permitted).

Equipment to be used in this study includes plot markers/flagging tape, insect beat sheets, insect sleeve cages, UAV(s).

FDACS-DPI and UF-IFAS are working collaboratively on impact assessment using remote sensing. However, only UF-IFAS personnel will handle or operate UAV(s) on the selected lands and only FDACS-DPI personnel will handle/collect plant material or release insects. All appropriate laws, restrictions, rules, and regulations regarding the use of UAV(s) will be followed and great care will be taken to avoid flying over non-Refuge/private property in proximity of research plots. All plant materials (cuttings/seeds) collected from the parks (if permitted) will be used to rear biological control agents and all remnants of the materials will be destroyed via autoclave, freezing, or drying before disposal in the landfill.

Assuming that the agents are effective, the impacts should slow the growth and spread of *S. terebinthifolius*, thereby aiding in the effectiveness of mechanical and chemical control, as well as the re-establishment of native plant species. Agents are anticipated to exert a more cost effective and environmentally friendly measure of control than existing mechanical and chemical measures.

V. Pertinent Species and Habitat:

A. Include species/habitat occurrence map: *SEE TABLE BELOW.*

B. Complete the following table:

SPECIES/CRITICAL HABITAT	STATUS[1]
1. Salt Marsh Vole (isolated patches of salt marsh)	E
2. Eastern Indigo Snake (throughout the refuge terrestrial habitats)	T
3. West Indian Manatee (Suwannee river & Gulf coast)	T
4. Gulf Sturgeon (Suwannee river and Gulf of Mexico)	T
5. Wood Stork (throughout refuge aquatic areas)	T
6. Green sea turtle	T
7. Kemp's Ridley sea turtle	E
8. Leatherback sea turtle	E
9. Loggerhead sea turtle	T
10. Gopher Tortoise (throughout the refuge terrestrial habitats)	C
11. Black Rail	C

[1]STATUS: E=endangered, T=threatened, PE=proposed endangered, PT=proposed threatened, CH=critical habitat, PCH=proposed critical habitat, C=candidate species

VI. Location (attach map):

A. Ecoregion Number and Name: North Florida Ecosystem

B. County and State: Levy and Dixie counties, Florida

C. Section, township, and range (or latitude and longitude):
29 degrees, 22' latitude
83 degrees, 02' longitude

D. Distance (miles) and direction to nearest town:
15 miles southwest of Chiefland, FL, 18 miles north of Cedar Key.

E. Species/habitat occurrence:
Salt marsh for species 1, 11. Entire refuge for species 2, 5, and 10.
Open water areas for 3,4,6,7,8 and 9.

VII. Determination of Effects:

A. Explanation of effects of the action on species and critical habitats in item V. B (attach additional pages as needed):

There are no anticipated direct, indirect, interdependent, interrelated, or cumulative adverse impacts from this action to native species or critical habitat.

Extremely limited to no exposure of listed species is expected.

SPECIES/ CRITICAL HABITAT	IMPACTS TO SPECIES/CRITICAL HABITAT
1. Salt Marsh Vole	NA - See Attachment A
2. Eastern Indigo Snake	NA - See Attachment A
3. West Indian Manatee	NE
4. Gulf Sturgeon	NE
5. Wood Stork	NA - See Attachment A
6. Green sea turtle	NE
7. Kemp's Ridley	NE
8. Leatherback	NE
9. Loggerhead	NE
10. Gopher Tortoise	NA - See Attachment A
11. Black Rail	NA – See Attachment A

VII. (Continued)

B. Explanation of actions to be implemented to reduce adverse effects:

SPECIES/ CRITICAL HABITAT	ACTIONS TO MITIGATE/MINIMIZE IMPACTS
Salt Marsh Vole	See Attachment B
Eastern Indigo Snake	See Attachment B
Gulf Sturgeon	Species not in project impacted areas
West Indian Manatee	Species not in project impacted areas
Wood Stork	See Attachment B
Green sea turtle	Species not in project impacted areas
Kemp's Ridley	Species not in project impacted areas
Leatherback	Species not in project impacted areas

SPECIES/ CRITICAL HABITAT	ACTIONS TO MITIGATE/MINIMIZE IMPACTS
Loggerhead	Species not in project impacted areas
Gopher Tortoise	See Attachment B
Black Rail	See Attachment B

VIII. Effect Determination and Response Requested:

SPECIES/ CRITICAL HABITAT	DETERMINATION[1]			RESPONSE[1] REQUESTED
	NE	NA	AA	
Salt Marsh Vole		x		"Concurrence"
Eastern Indigo Snake		x		"Concurrence"
Gulf Sturgeon	x			"Concurrence"
West Indian Manatee	x			"Concurrence"
Wood Stork		x		"Concurrence"
Green sea turtle	x			"Concurrence"
Kemp's Ridley	x			"Concurrence"
Leatherback	x			"Concurrence"
Loggerhead	x			"Concurrence"
Gopher Tortoise		x		"Concurrence"
Black Rail		x		"Concurrence"

[1]DETERMINATION/RESPONSE REQUESTED:

NE = no effect. This determination is appropriate when the proposed action will not directly, indirectly, or cumulatively impact, either positively or negatively, any listed, proposed, candidate species or designated/proposed critical habitat. Response Requested is optional but a "Concurrence" is recommended for a complete Administrative Record.

NA = not likely to adversely affect. This determination is appropriate when the proposed action is not likely to adversely impact any listed, proposed, candidate species or designated/proposed critical habitat or there may be beneficial effects to these resources. Response Requested is a "Concurrence".

AA = likely to adversely affect. This determination is appropriate when the proposed action is likely to adversely impact any listed, proposed, candidate species or designated/proposed critical habitat. Response Requested for listed species is "Formal Consultation". Response Requested for proposed or candidate species is "Conference".

7 APRIL 2020

Signature (originating station) **Date**

ANDREW G. GUDE. REFUGE MANAGER
Name, Title

IX. Reviewing Ecological Services Office Evaluation:

A. Concurrence X **Nonconcurrence** _____

B. Formal consultation required _____

C. Conference required _____

D. Informal conference required _____

E. Remarks (attach additional pages as needed):

JAY HERRINGTON Digitally signed by JAY HERRINGTON Date: 2020.04.14 14:06:00 -04'00'

Signature **Date**

Field Supervisor | Northeast Florida Ecological Services Field Office

Title **Office**