

The Mexican bromeliad weevil (*Metamasius callizona*): Changing Florida's canopy



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Metamasius callizona.



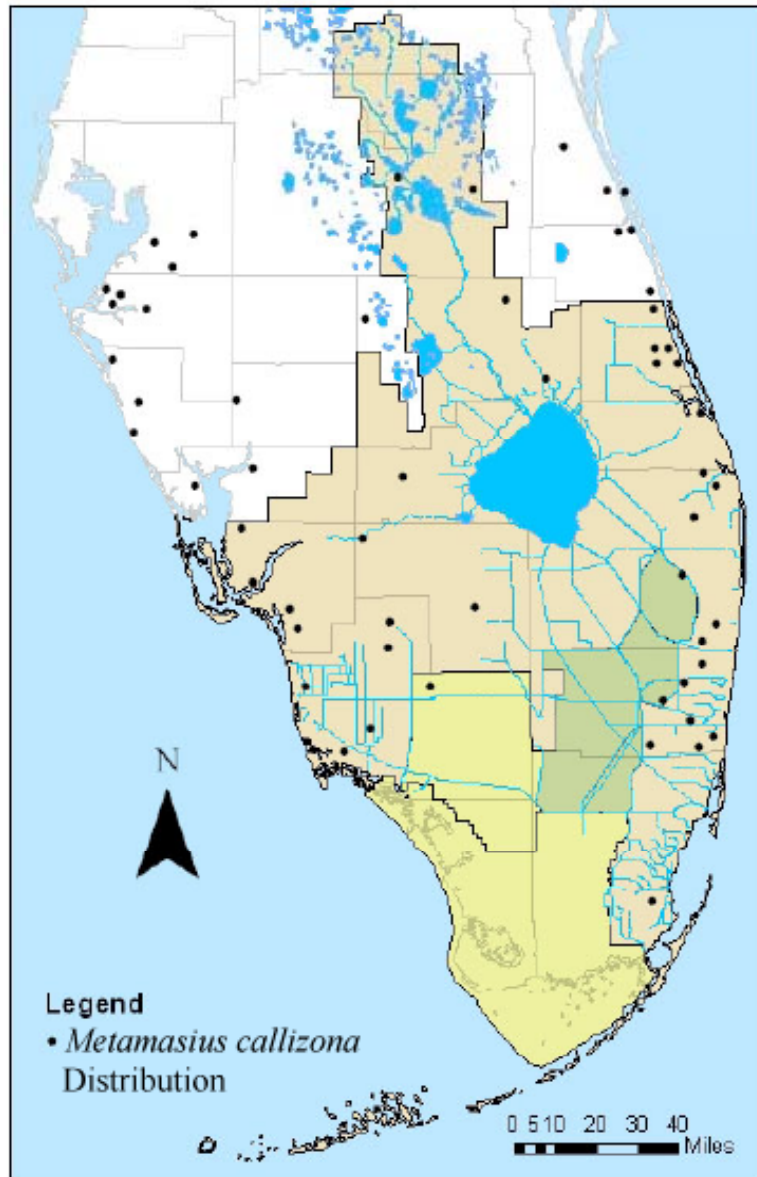
1 to 1.5 cm long, black with stripe across the elytra.

Discovered established in Broward County, Florida in 1989.

Native range:
Southern Mexico and Guatemala.



***M. callizona*: expansion since 1989.**



Nearly expanded to fill new range.

22 counties, south and central Florida.

Dispersal:

Self movement.

(Unwitting) human dispersal.

M. callizona damage on bromeliads.



Florida's native bromeliads.



Guzmania monostachia

Florida's native bromeliads.



Tillandsia pruinosa

Florida's native bromeliads.



Tillandsia variabilis

UF / B. Larson

Florida's native bromeliads.



Catopsis berteroniana



Catopsis nutans



Tillandsia flexuosa



Tillandsia floribunda

Florida's native bromeliads.



Tillandsia simulata

Florida's native bromeliads.



Tillandsia paucifolia

Florida's native bromeliads.



Tillandsia balbisiana

Florida's native bromeliads.



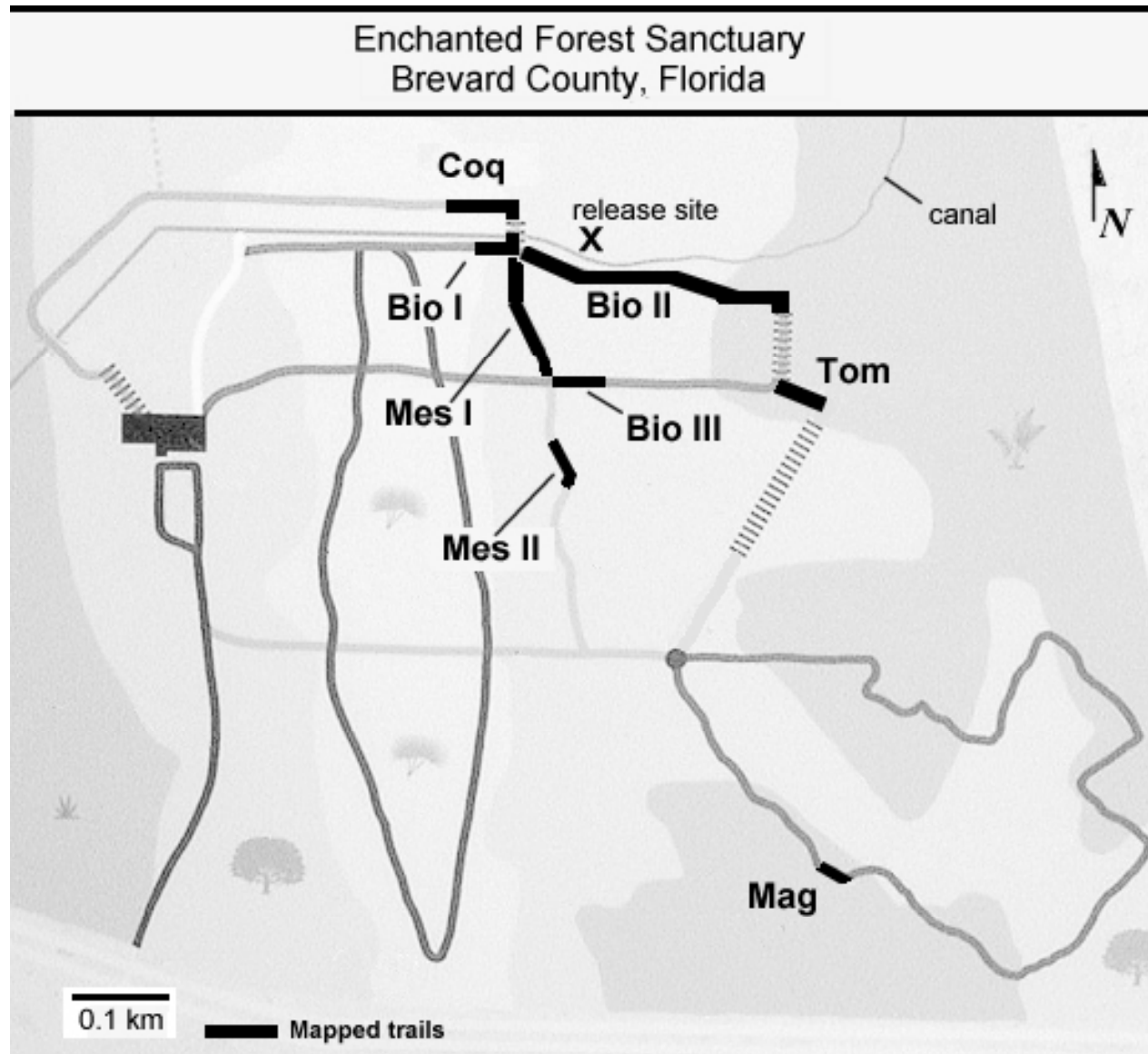
Tillandsia fasciculata

Florida's native bromeliads.

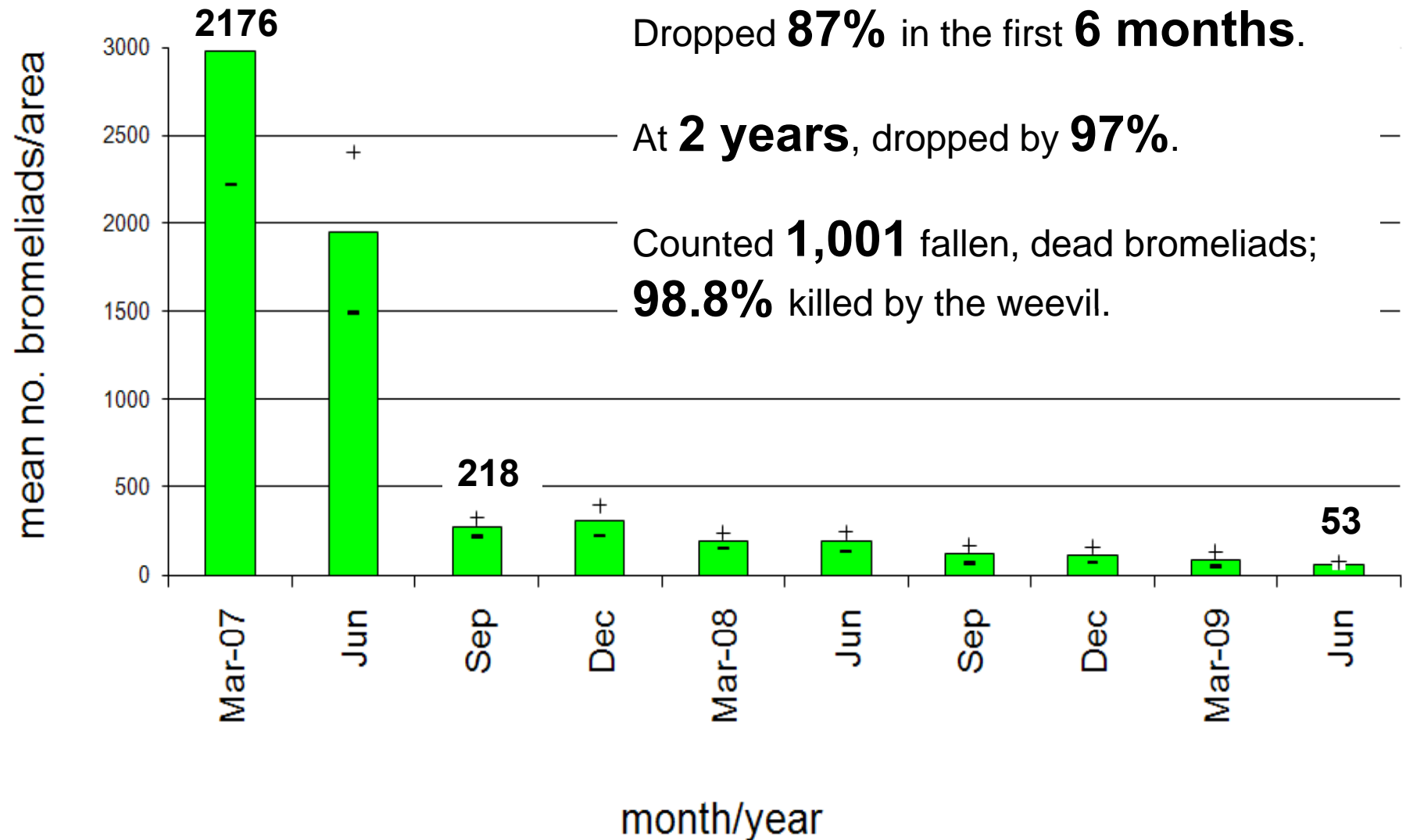


Tillandsia utriculata

Enchanted Forest: decline of a bromeliad population.



Enchanted Forest: decline of a bromeliad population.



Bromeliads as a part of the ecosystem.



Water source.

Nutrient cycling.

Phytotelmata: aquatic ecosystems in leaf axils.

Invertebrates, reptiles, birds, mammals use bromeliads for nesting, hunting, refuge.

What is *M. callizona*'s potential damage?



Destroy up to 27 species (12 bromeliads, 15 invertebrates).

Remove habitat and water sources from the canopy.

Alter nutrient cycles.



Lixadmontia franki.

Specialist parasitoid of bromeliad-eating weevils.

About the size of a house fly.

Native range: Honduras.

Lixadmontia franki.



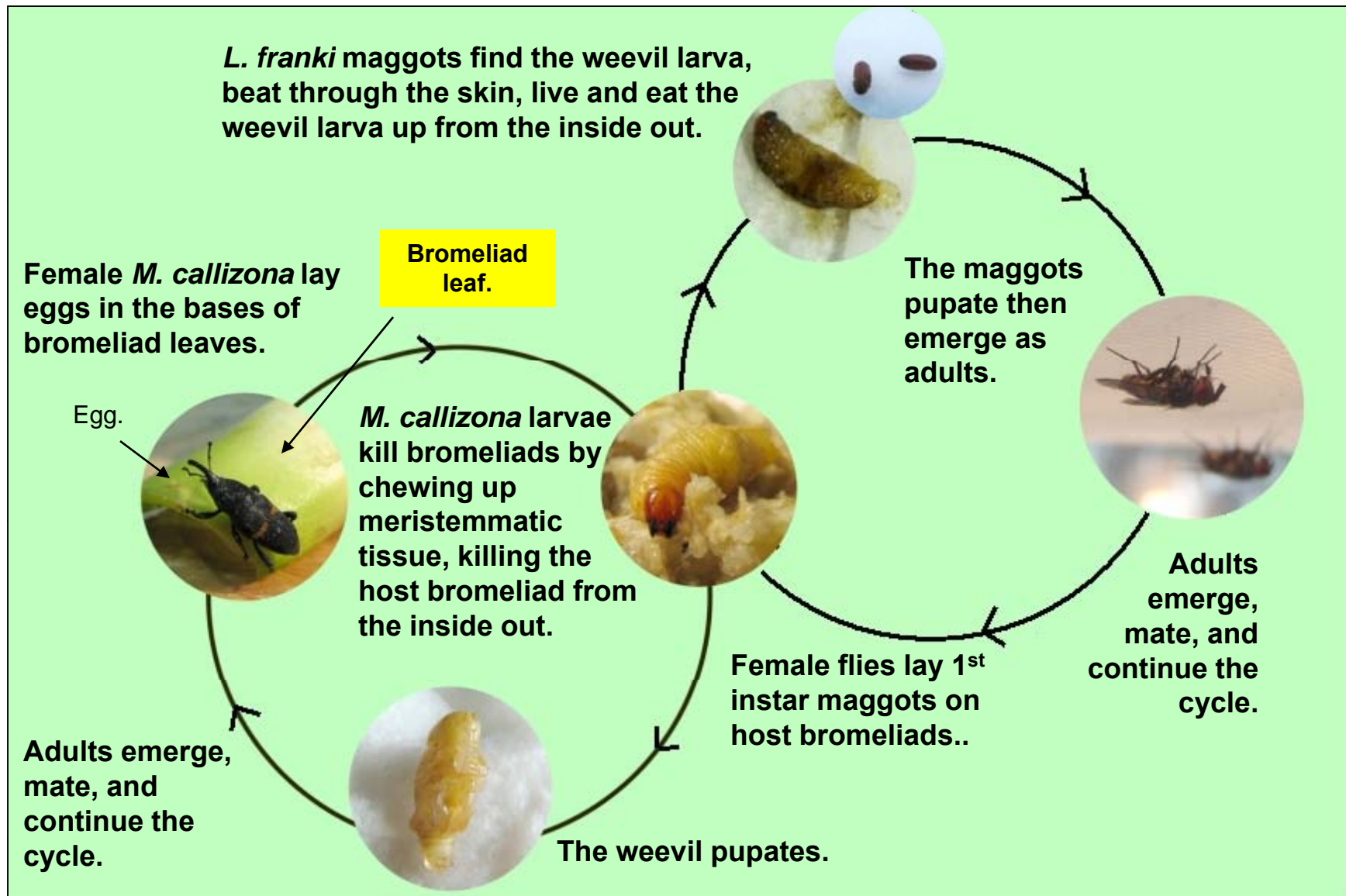
M. quadrilineatus



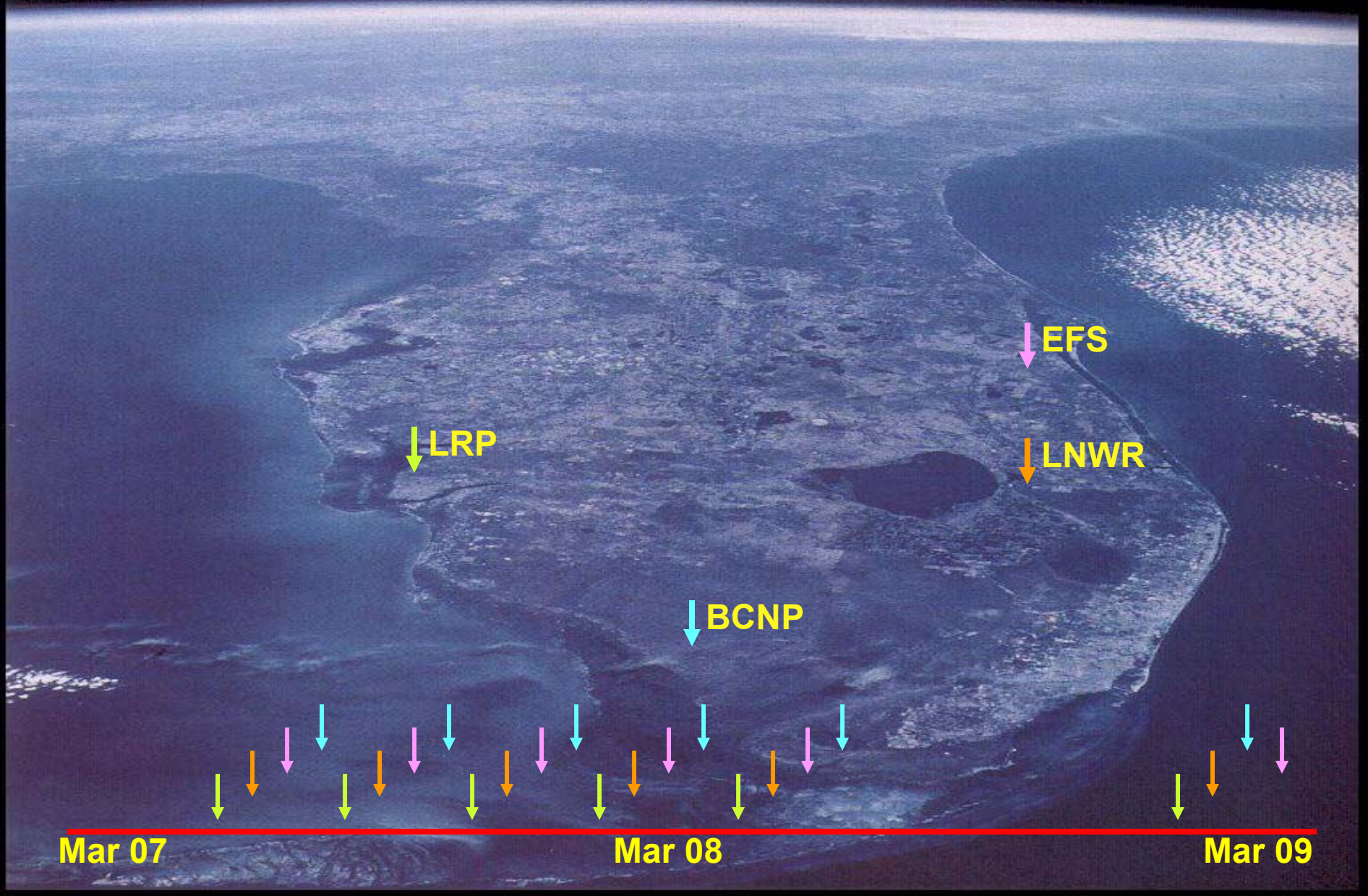
M. callizona



M. callizona and *L. franki* life cycles.



Testing *L. franki* in the field.



Lake Rogers Park.



Tillandsia fasciculata



Tillandsia simulata



Tillandsia balbisiana

*L. franki* released:

Date	♀	♂
29 Jun 07	27	29
21 Sep 07	84	80
14 Dec 07	47	46
3 Apr 08	33	36
3 Jun 08	48	46

Loxahatchee National Wildlife Refuge.

*L. franki* released:

Date	♀	♂
20 Jul 07	59	32
12 Oct 07	55	57
11 Jan 08	68	62
11 Apr 08	36	43
13 Jul 08	37	30



Tillandsia fasciculata



Tillandsia balbisiana

Enchanted Forest Sanctuary.



Tillandsia utriculata



L. franki released:

Date	♀	♂
3 Aug 07	69	63
26 Oct 07	58	59
18 Jan 08	56	57
28 Apr 08	53	48
22 Jun 08	52	48

Big Cypress National Preserve.



T. fasciculata



T. pruinosa



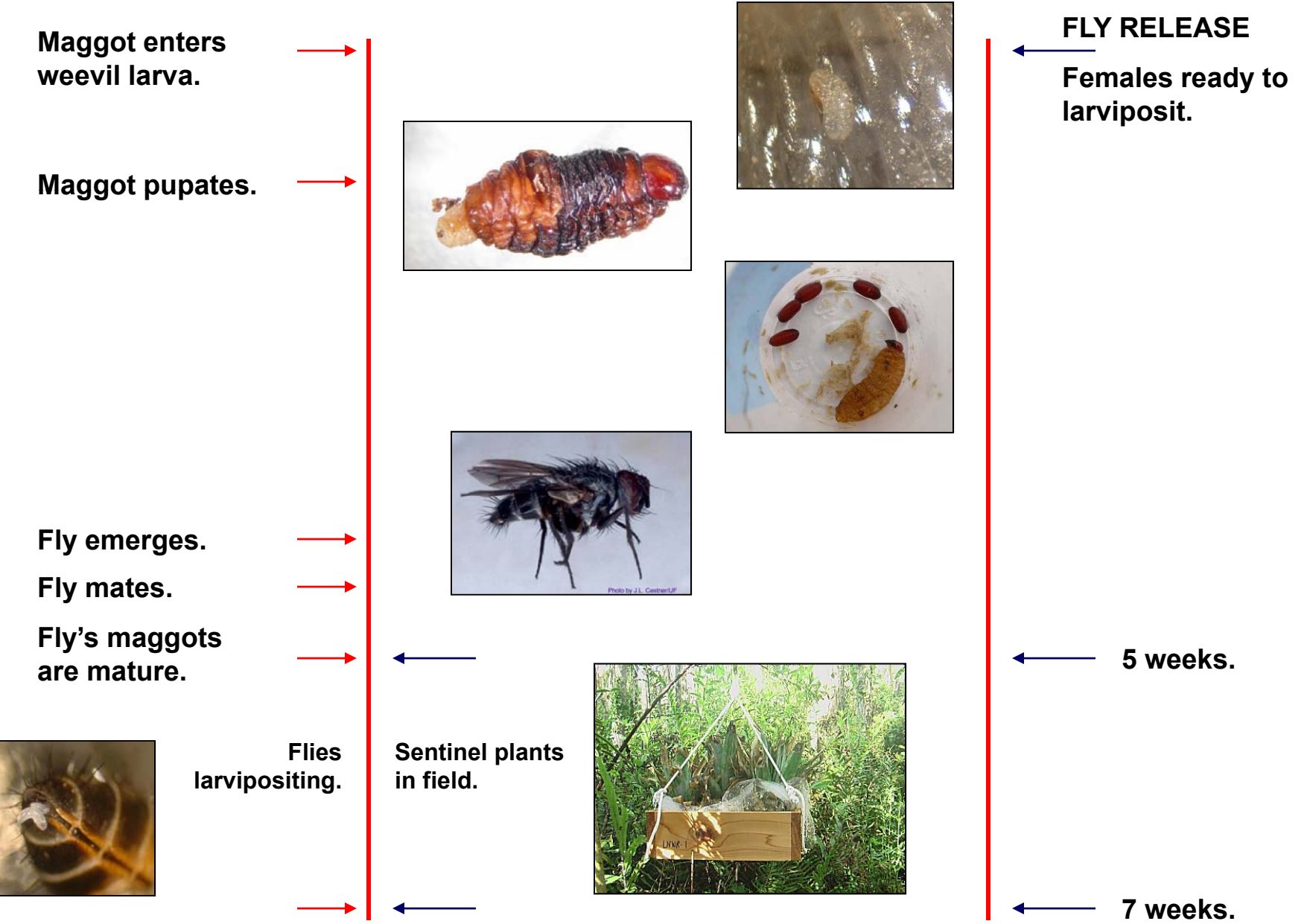
L. franki released:

Date	♀	♂
29 Aug 07	54	44
21 Nov 07	61	48
13 Feb 08	55	55
12 May 08	41	32
28 Jul 08	35	33

Post-monitoring: sentinel plants.



Post-monitoring: timing the sentinel plants.



Results: two F2 flies recovered from LRP.

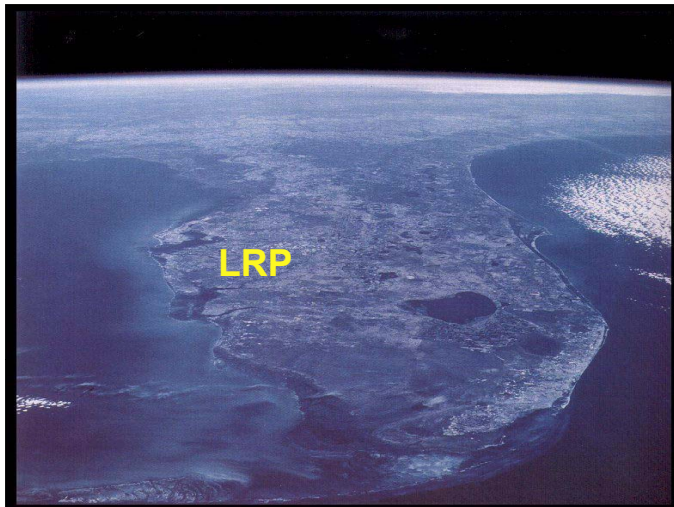


Lake Rogers Park

Release: 29 June 2007

Sentinel plants out: 7 August 2007

Sentinel plants retrieved: 21 August 2007



What does it mean?



What do we do in the future?

L. franki can survive and reproduce in Florida.

Lots of area to monitor.

Fly preference: sentinel plants vs. wild bromeliads.

Heavy, clumsy traps.

Continue releasing flies.

Continue lab research.

Future trips to Guatemala to search for alternative biological control agents.



Many thanks to our supporters...



South Florida Water Management District



**Florida Council
of Bromeliad
Societies, Inc.**



**Department of Environmental Protection
Florida Park Service**

University of Florida



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