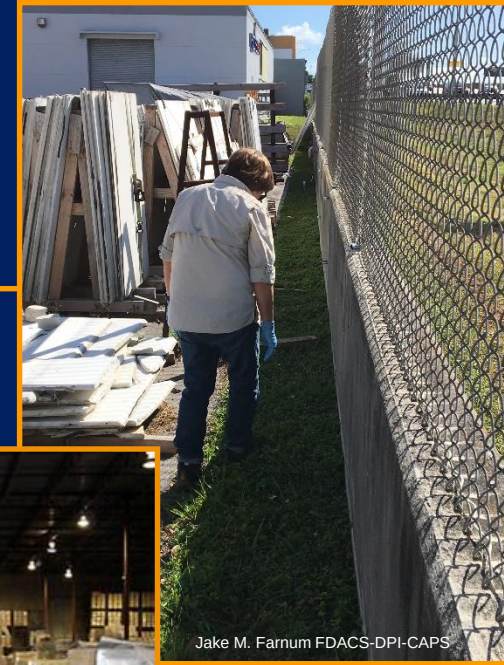




Mollusk Survey 2017 - 2020

Mollusk survey methods

- ❑ Visual & hand collection
- ❑ High Risk sites:
 - ❑ Tile import warehouses
 - ❑ Port of Entry environs
 - ❑ Nurseries, cut flowers
 - ❑ Machinery, military
- ❑ Targets prefer cool & damp environmental conditions
- ❑ Heavily vegetated areas, gardens, under objects that loosely contact the ground surface





Mollusk targets 2017 & 2018

Belocaulus spp.
Colosius spp.
Laevicaulis spp.
Sarasinula spp.
Semperula spp.
Veronicella spp.
Monacha spp.
Cernuella spp.
Cochlicella spp.
Lissachatina fulica
Meghimatium pictum

Mollusk targets 2017 & 2018

Belocaulus spp.
Colosius spp.
Laevicaulis spp.
Sarasinula spp.
Semperula spp.
Veronicella spp.
Monacha spp.
Cernuella spp.
Cochlicella spp.
Lissachatina fulica
Meghimatium pictum

Leatherleaf Slugs



Mollusk targets 2017 & 2018

Belocaulus spp.
Colosius spp.
Laevicaulis spp.
Sarasinula spp.
Semperula spp.
Veronicella spp.
Monacha spp.
Cernuella spp.
Cochlicella spp.
Lissachatina fulica
Meghimatium pictum

Hygromiid snails,
Maritime garden snail,
& cochlicellid snails



Mollusk targets 2017 & 2018

Belocaulus spp.
Colosius spp.
Laevicaulus spp.
Sarasinula spp.
Semperula spp.
Veronicella spp.
Monacha spp.
Cernuella spp.
Cochlicella spp.
Lissachatina fulica
Meghimatium pictum

Giant African Snail



Mollusk targets 2017 & 2018

Belocaulus spp.
Colosius spp.
Laevicaulus spp.
Sarasinula spp.
Semperula spp.
Veronicella spp.
Monacha spp.
Cernuella spp.
Cochlicella spp.
Lissachatina fulica
Meghimatium pictum

Chinese slug



Paulo Lenhard, Project AM, <http://terrrslugs.lifedesks.org/pages/31164>



Mollusk survey rationale

❑ 2016-2019

❑ Total U.S. POE Interceptions of Target Genera: **655**

(AQAS, ARM 2020)

❑ Total Florida POE Interceptions of Target Genera: **151**

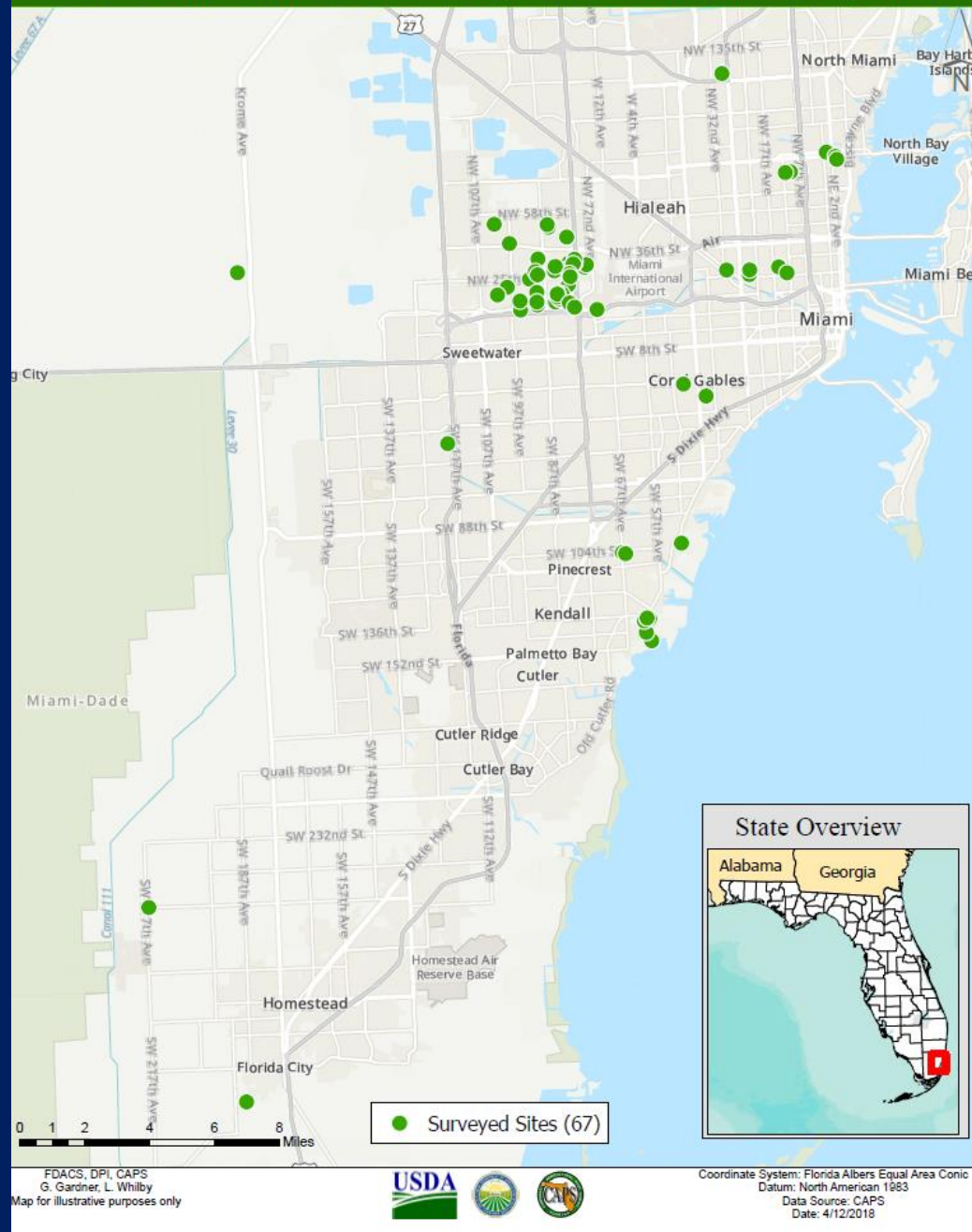
(AQAS, ARM 2020)

❑ Port Everglades, Miami Seaport, Miami Airport, Miami PIS

*AQAS: Agriculture Quarantine Activity System

*ARM: Agricultural Risk Management

❑ Markets exist for snails and slugs as food, pets, medicinal purposes, and other niches



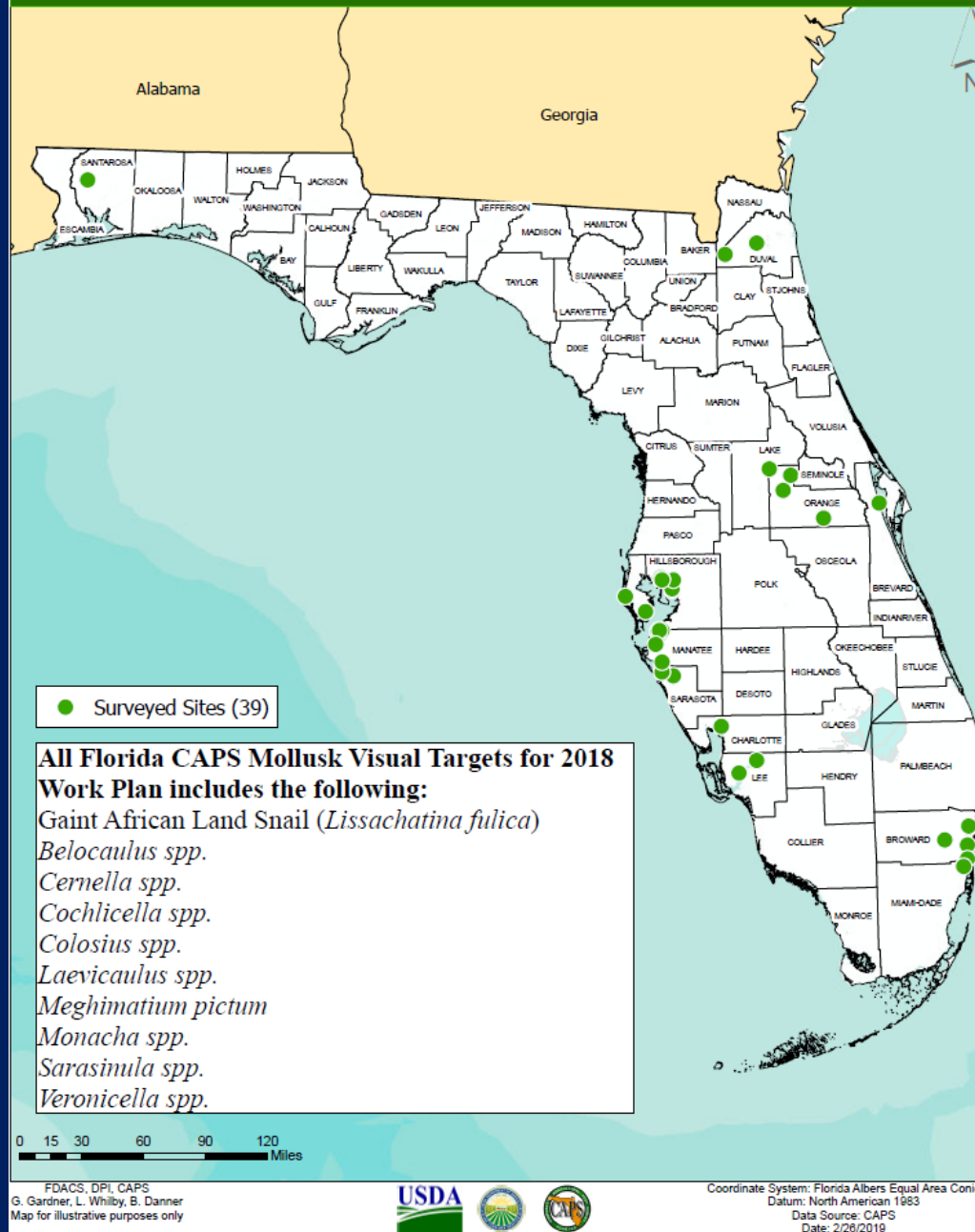
2017 Mollusk survey Blitz

Miami-Dade Co.

67 sites were surveyed

- Nurseries
- Produce importers
- Tile/stone
- Port environs

Florida CAPS Mollusk Survey 2018 - Visual Survey Sites



2018 Mollusk survey by Area

12 counties:

Brevard, Broward, Charlotte, Duval, Hillsborough, Lee, Manatee, Miami-Dade, Orange, Pinellas, Santa Rosa, Sarasota

39 sites were surveyed



Mollusk survey results

2017

40 samples
collected

214 specimens

2018

2 samples
collected

21 specimens

No targets were found

Mollusk Survey 2020 Workplan

Target list 2018:

Belocaulus spp.
Cernuella spp.
Cochlicella spp.
Colosius spp.
Laevicaulis spp.
Lissachatina fulica
Meghimatium pictum
Monacha spp.
Sarasinula spp.
Semperula spp.
Veronicella spp.

❖ Added (in 2019):

- *Cernuella virgata*
- *Eobania vermiculata*

Mollusk Survey 2020 Workplan

Target list 2018:

Belocaulus spp.

Cernuella spp.

Cochlicella spp.

Colosius spp.

Laevicaulis spp.

Lissachatina fulica

Meghimatium pictum

Monacha spp.

Sarasinula spp.

Semperula spp.

Veronicella spp.

❖ Added (in 2019):

➤ *Cernuella virgata*

➤ *Eobania vermiculata*

Maritime garden snail



P. Marquez

Mollusk Survey 2020 Workplan

Target list 2018:

Belocaulus spp.

Cernuella spp.

Cochlicella spp.

Colosius spp.

Laevicaulis spp.

Lissachatina fulica

Meghimatium pictum

Monacha spp.

Sarasinula spp.

Semperula spp.

Veronicella spp.

❖ Added (in 2019):

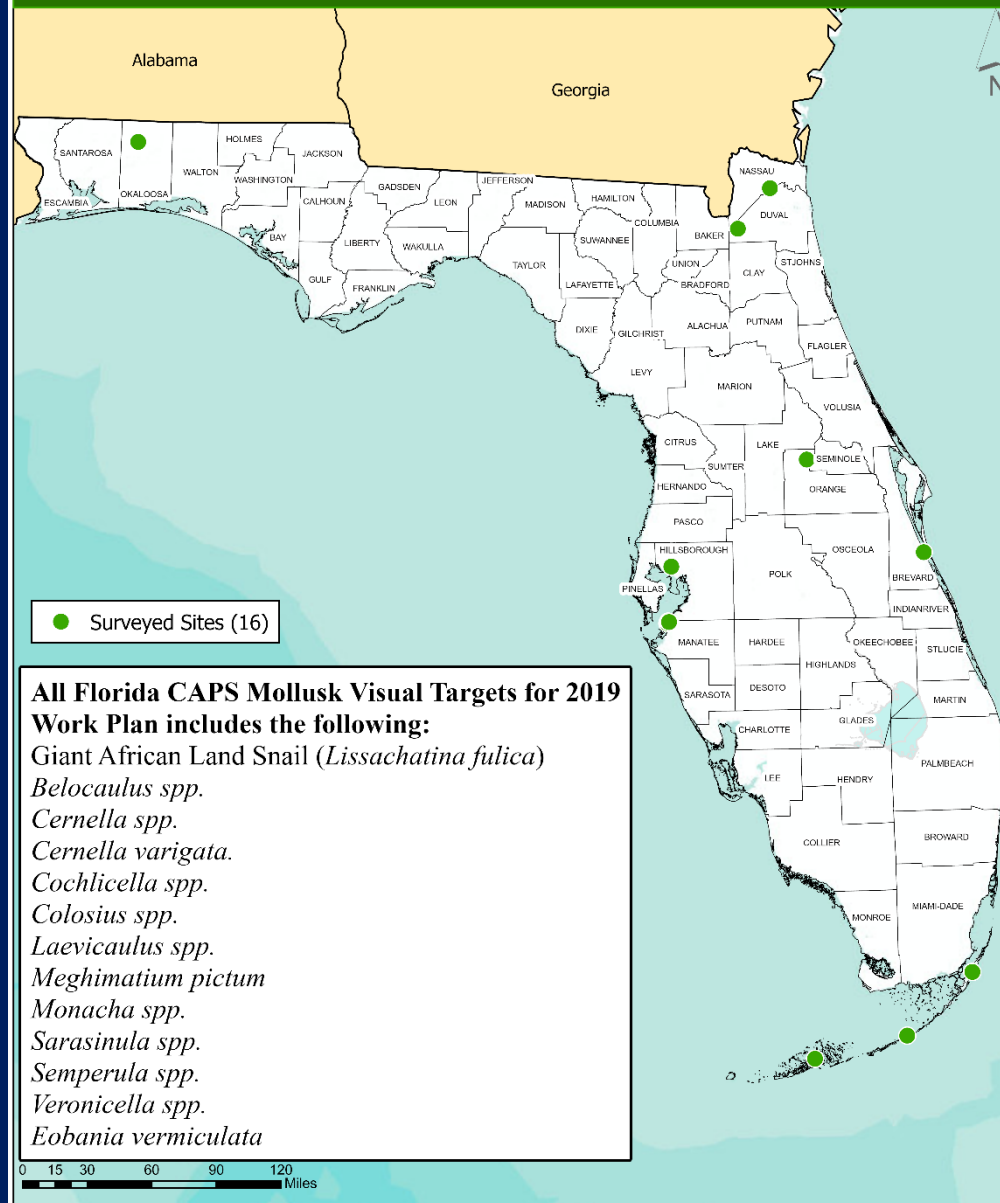
➤ *Cernuella virgata*

➤ *Eobania vermiculata*

Chocolate band snail



Florida CAPS Mollusk Survey 2019 - Visual Survey Sites



FDACS, DPI, CAPS
 G. Gardner, L. Whilby, B. Danner
 Map for illustrative purposes only



Coordinate System: Florida Albers Equal Area Conic
 Datum: North American 1983
 Data Source: CAPS
 Date: 3/9/2020

2019 Mollusk survey by Area

8 counties:
 Brevard, Duval,
 Hillsborough,
 Manatee, Miami-
 Dade, Nassau,
 Okaloosa, Orange,

16 sites were surveyed



Mollusk survey results

2019

3 samples
collected

All 27 specimens were
Bulimulus sporadicus

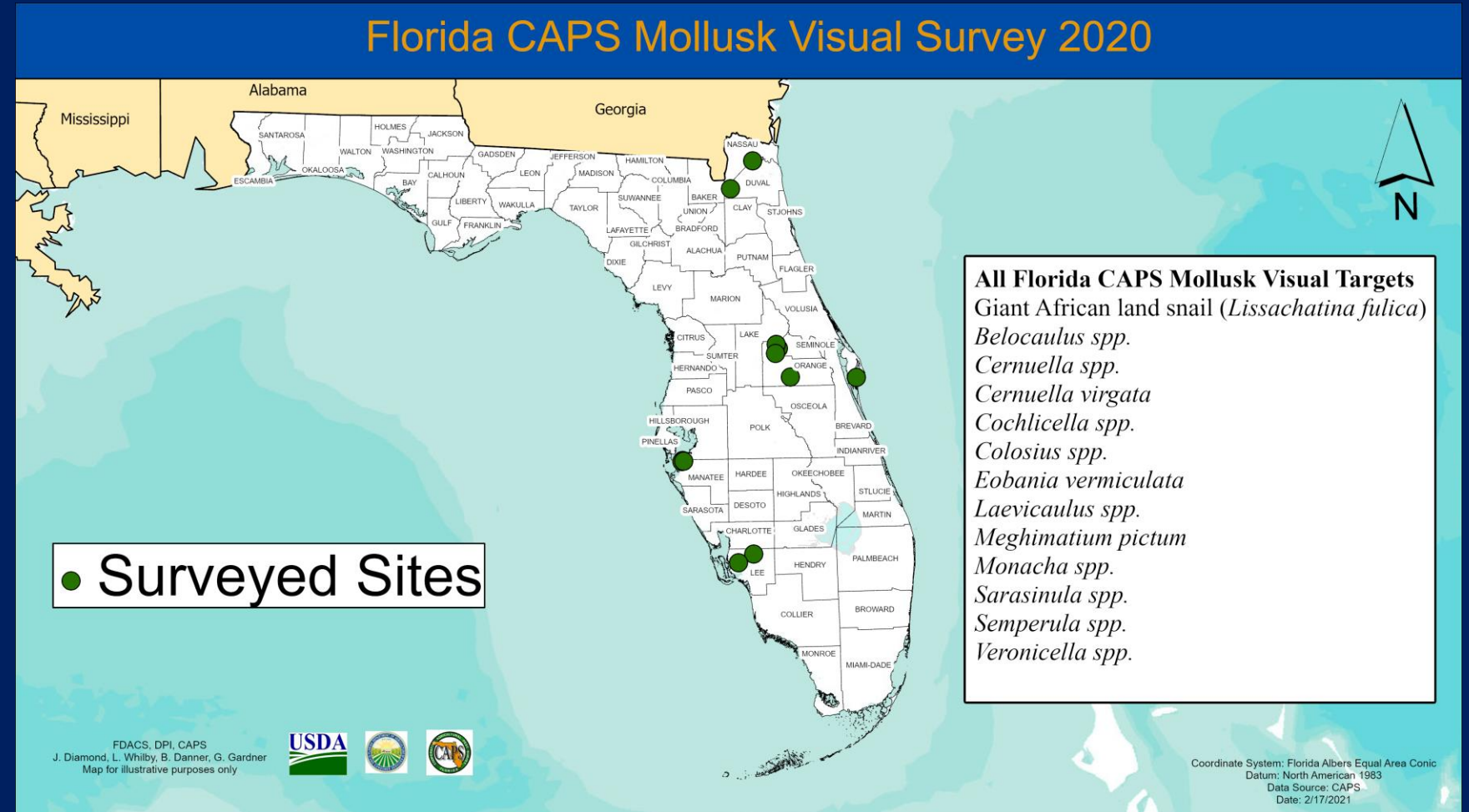
27 specimens

No targets were found

2020 Mollusk survey by Area

5 counties:
Brevard, Duval,
Lee, Manatee,
Orange

12 sites were
surveyed





Mollusk survey results

2020

1 sample
collected

Bulimulus sporadicus

1 specimen

No targets were found

Small Grains 2021 Workplan

Target list:

Cernuella virgata – Maritime garden snail

Cochlicella spp. – Cochlicellid snails

Diabrotica speciosa – Cucurbit beetle

Eurygaster integriceps – Sunn pest

Helicoverpa armigera – Old world bollworm

Laodelphax striatellus – Small brown planthopper

Meloidogyne aritella – British root-knot nematode

Magnaporthe oryzae Triticum pathotype – Wheat blast

Sipha maydis – Hedgehog grain aphid

Thank You!

