

# Current Status of the Invasive Raspberry Crazy Ant *Nylanderia* sp. nr. *pubens* in Texas



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Bart Drees  
Roger Gold  
Danny McDonald,  
Department of Entomology  
Texas A&M University  
Darwin, 27 April 2010

Houston, ... we got a problem.



# Outline

## Introduction to RCA

- Where/when detected
- Features
- Systematics
- Problems
- Management
- Surveys and real time risk maps



Raspberry Crazy Ant

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- **Where/when detected**
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# Raspberry Crazy Ant

*Nylanderia* sp. nr. *pubens*

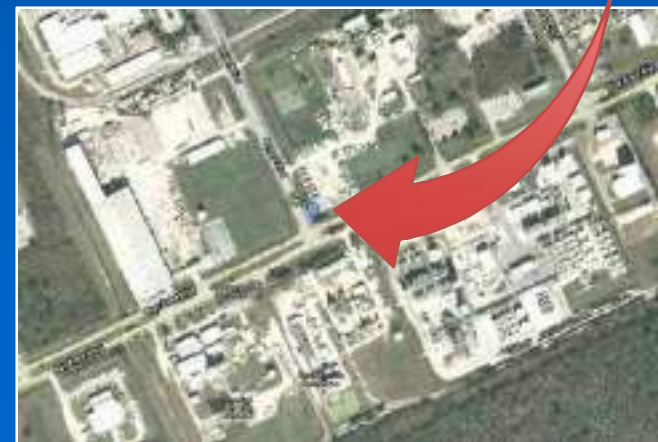
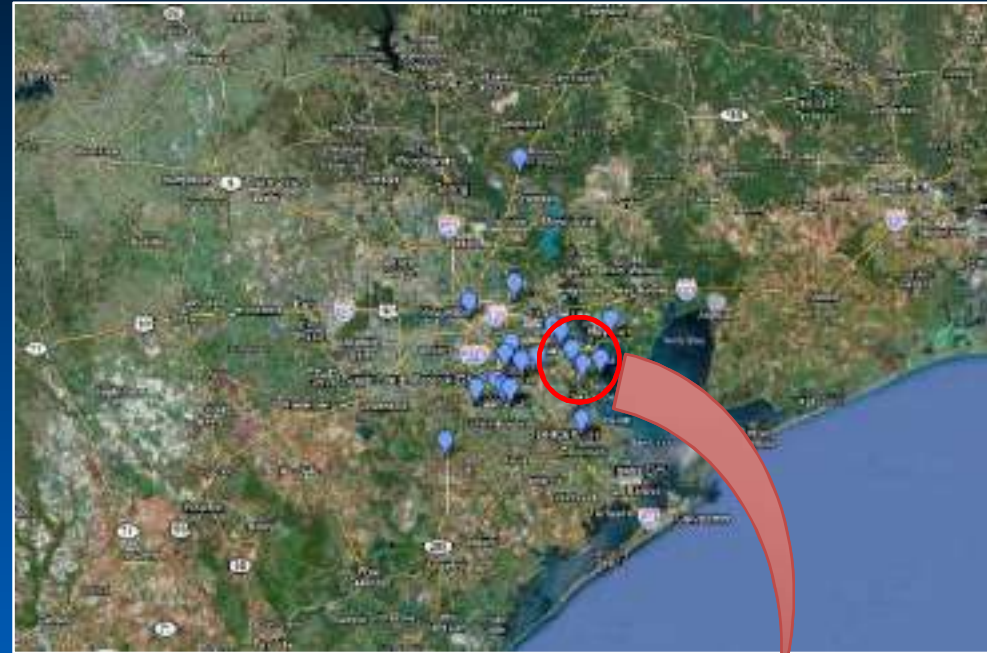
- Discovered by PCO  
(Tom Rasberry) 2002



# Raspberry Crazy Ant

*Nylanderia* sp. nr. *pubens*

- Pasadena, TX (2002)
  - Industrial area
  - Large numbers
- From the Caribbean or South America ??

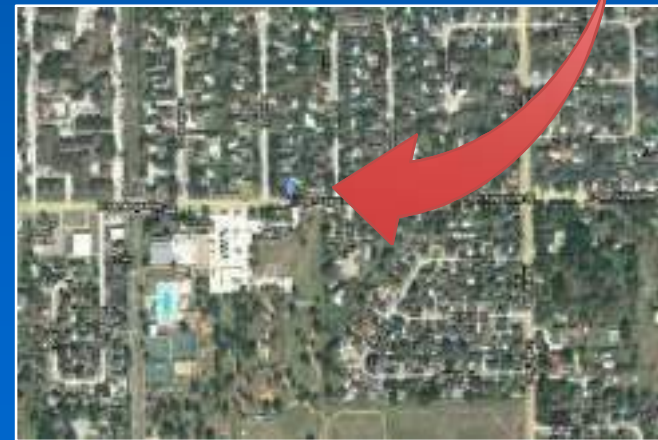
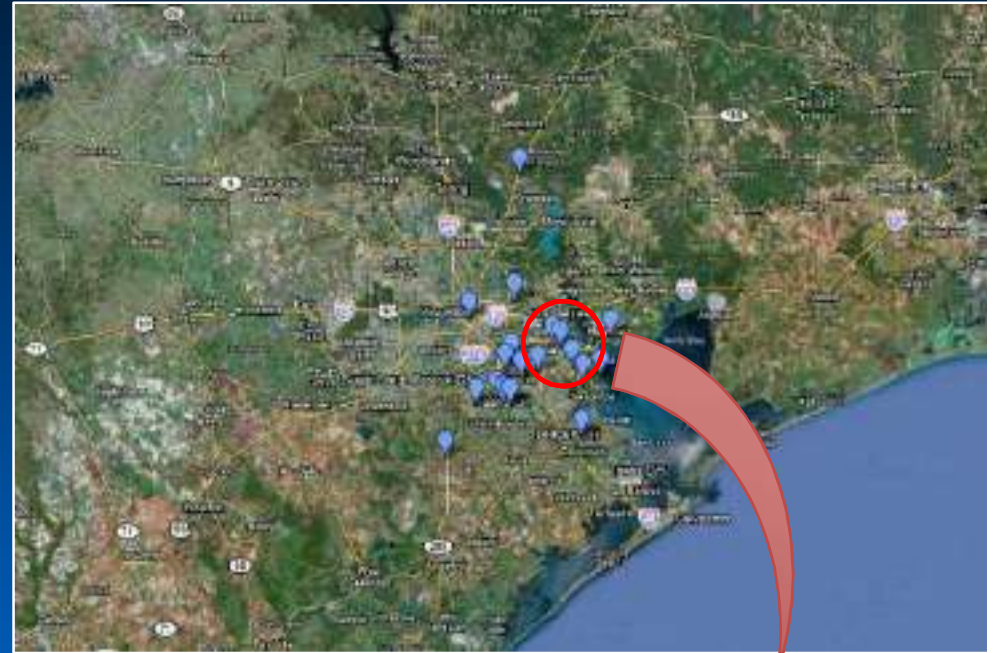




# Raspberry Crazy Ant

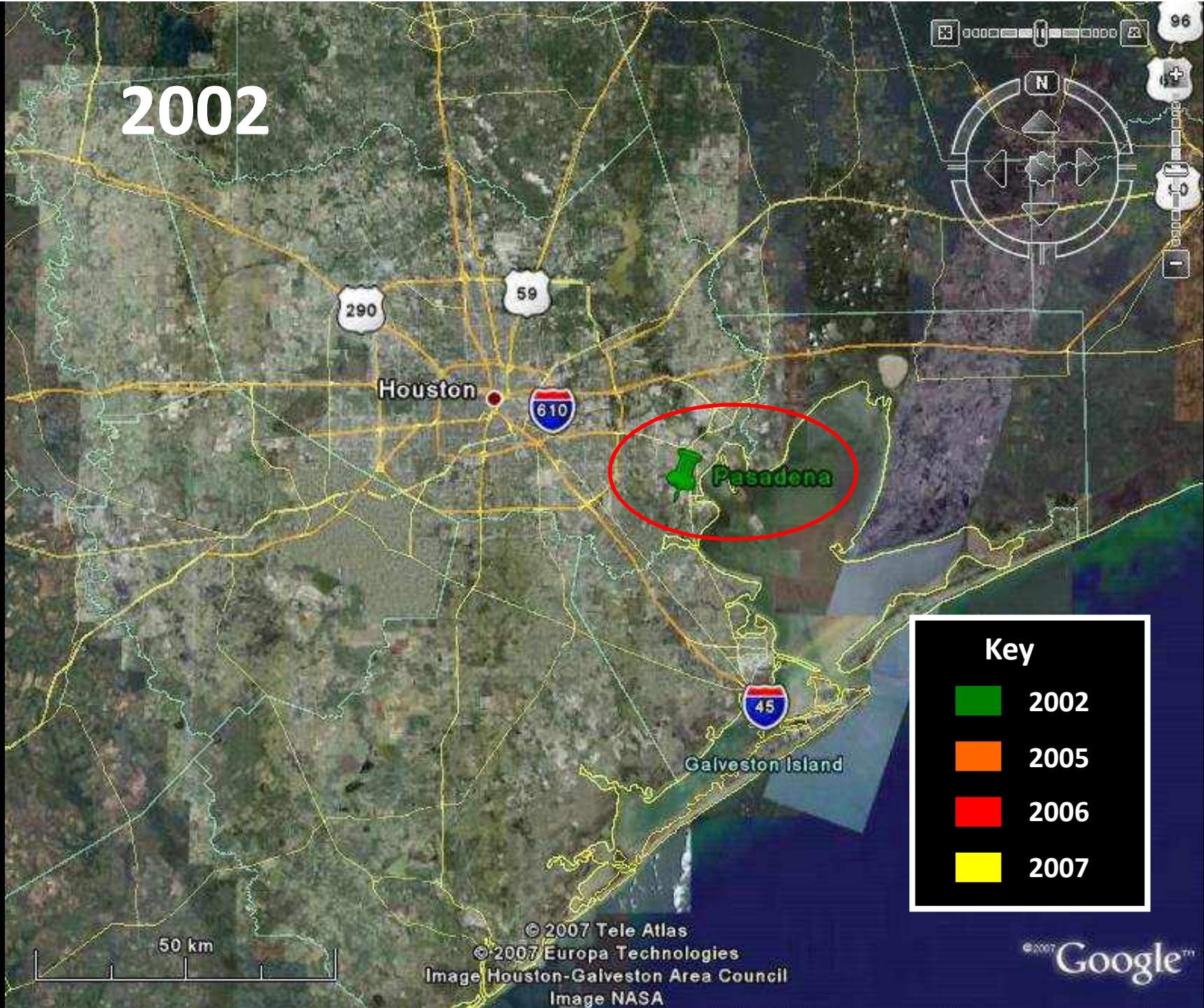
*Nylanderia* sp. nr. *pubens*

- Deer Park (2005)
  - Neighborhood





2002

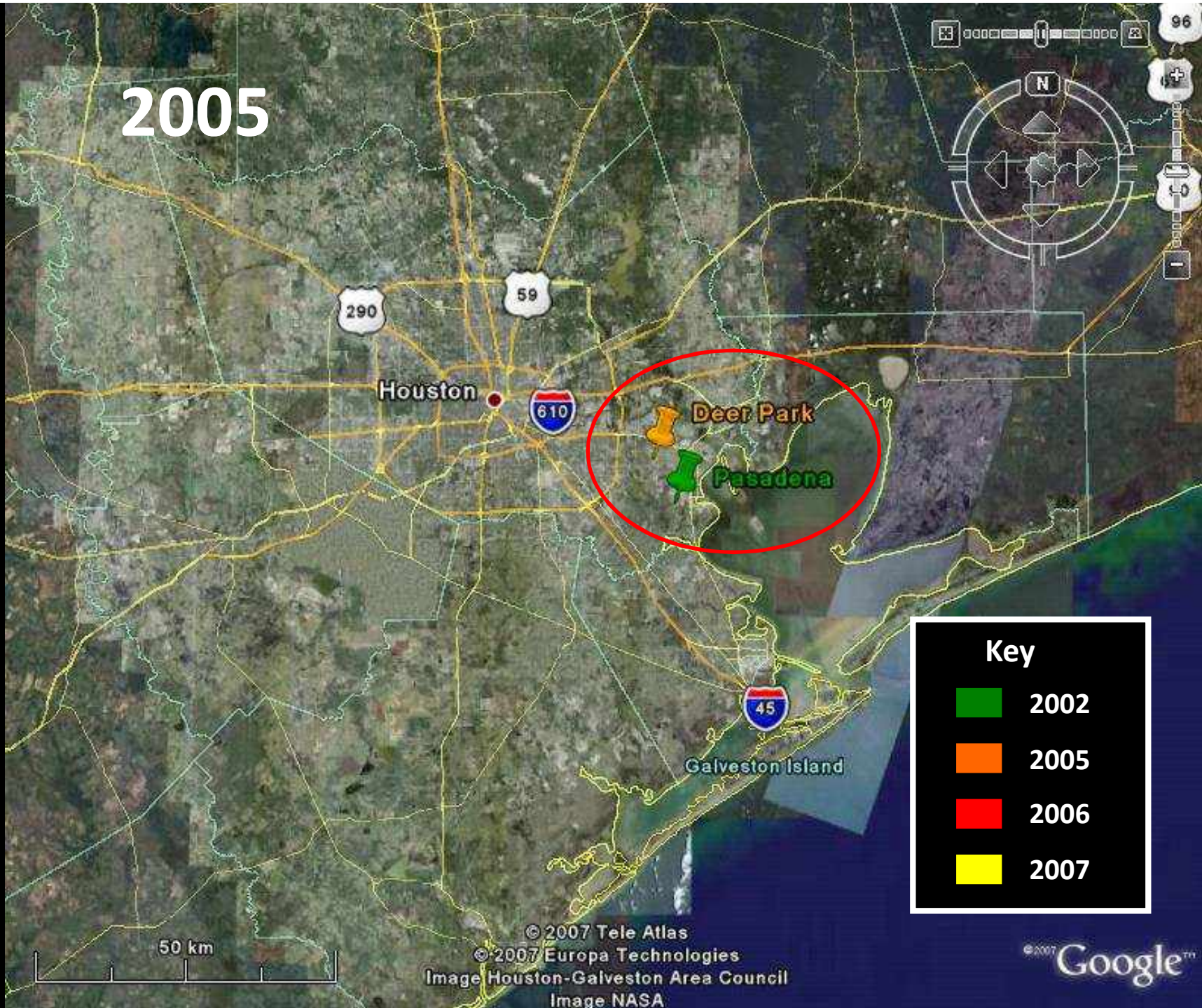


**Key**

- 2002
- 2005
- 2006
- 2007



2005



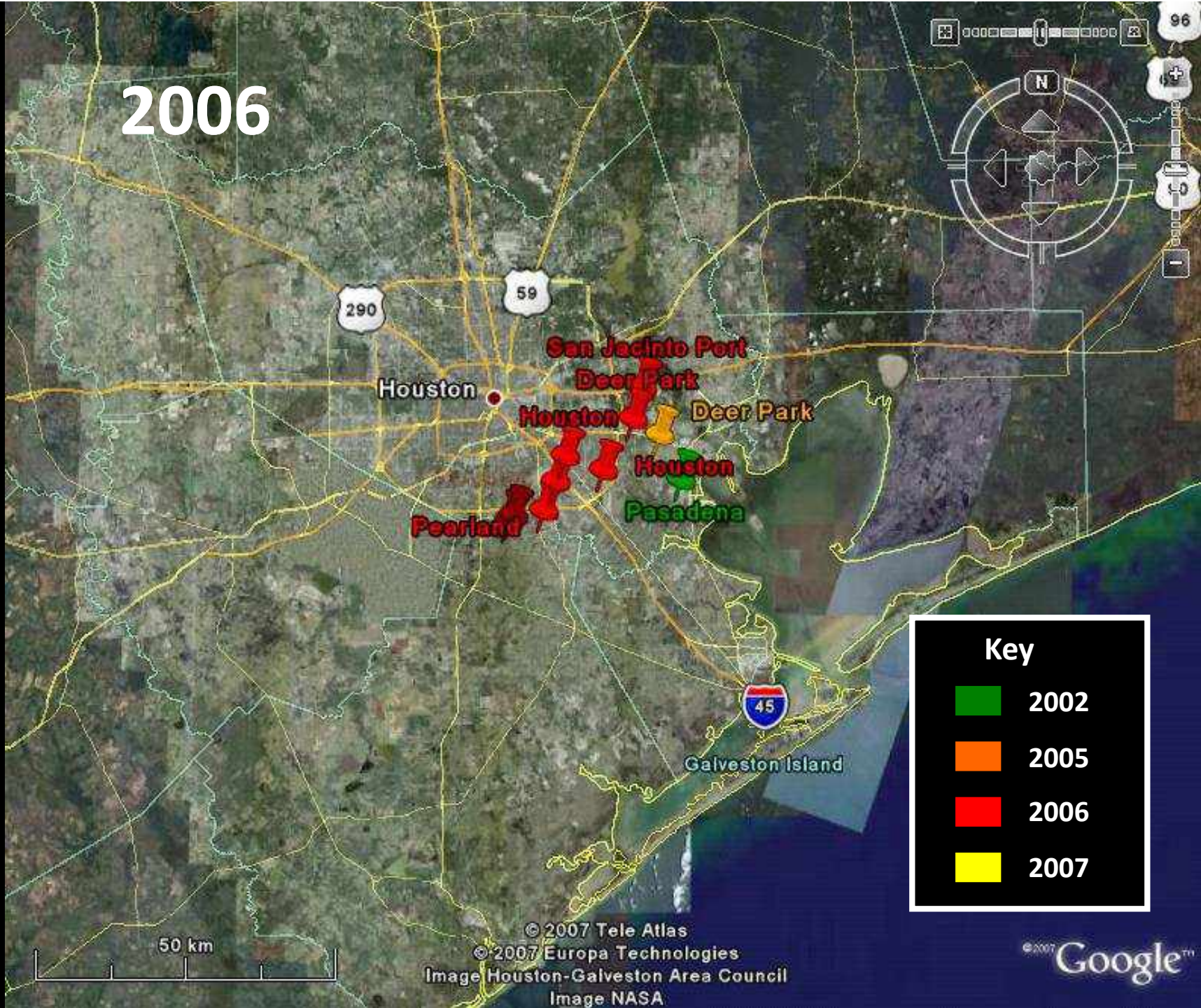
50 km

© 2007 Tele Atlas  
© 2007 Europa Technologies  
Image Houston-Galveston Area Council  
Image NASA

© 2007 Google™



2006



**Key**

- Green 2002
- Orange 2005
- Red 2006
- Yellow 2007

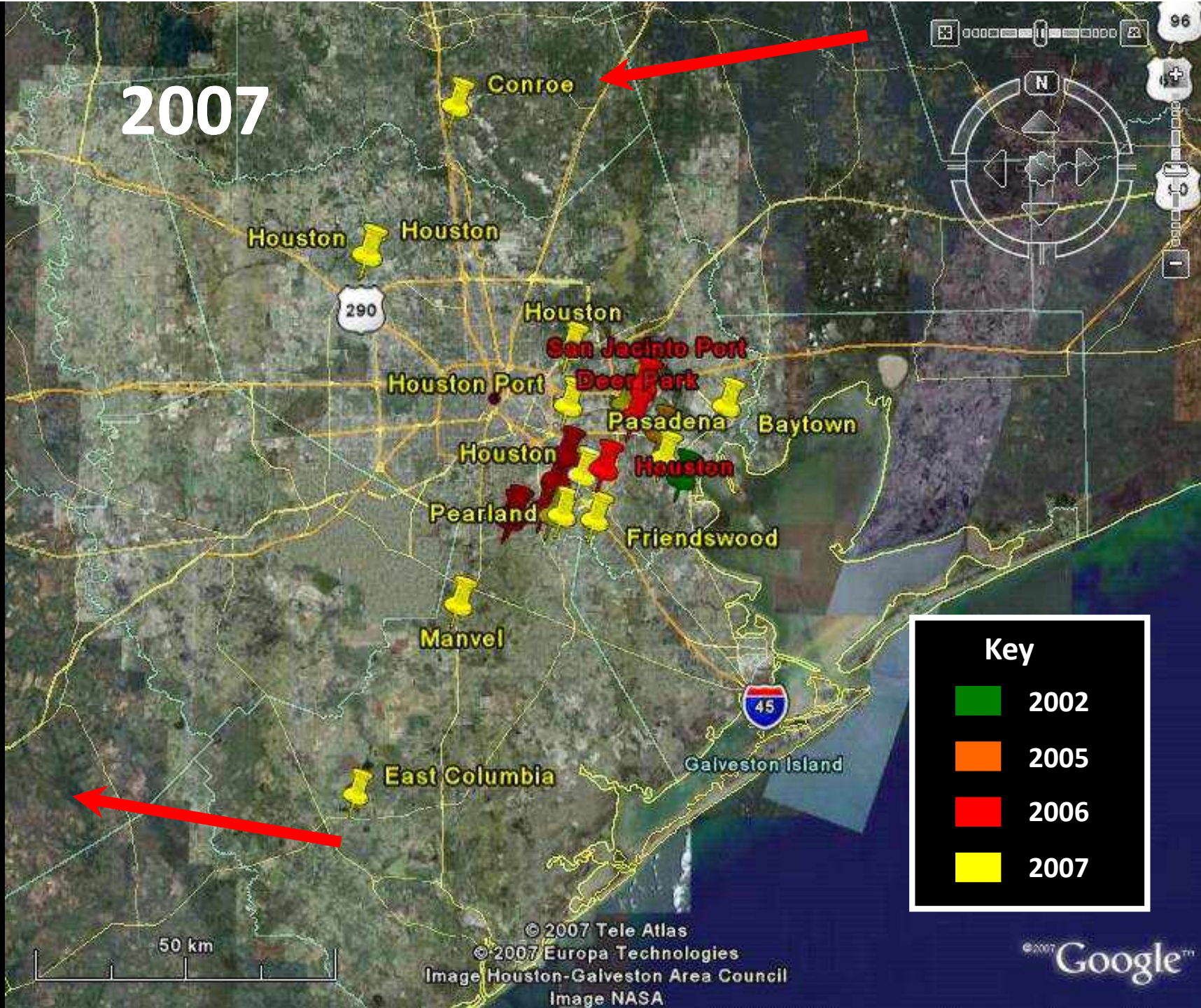
50 km

© 2007 Tele Atlas  
© 2007 Europa Technologies  
Image Houston-Galveston Area Council  
Image NASA

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2007



© 2007 Tele Atlas  
© 2007 Europa Technologies  
Image Houston-Galveston Area Council  
Image NASA

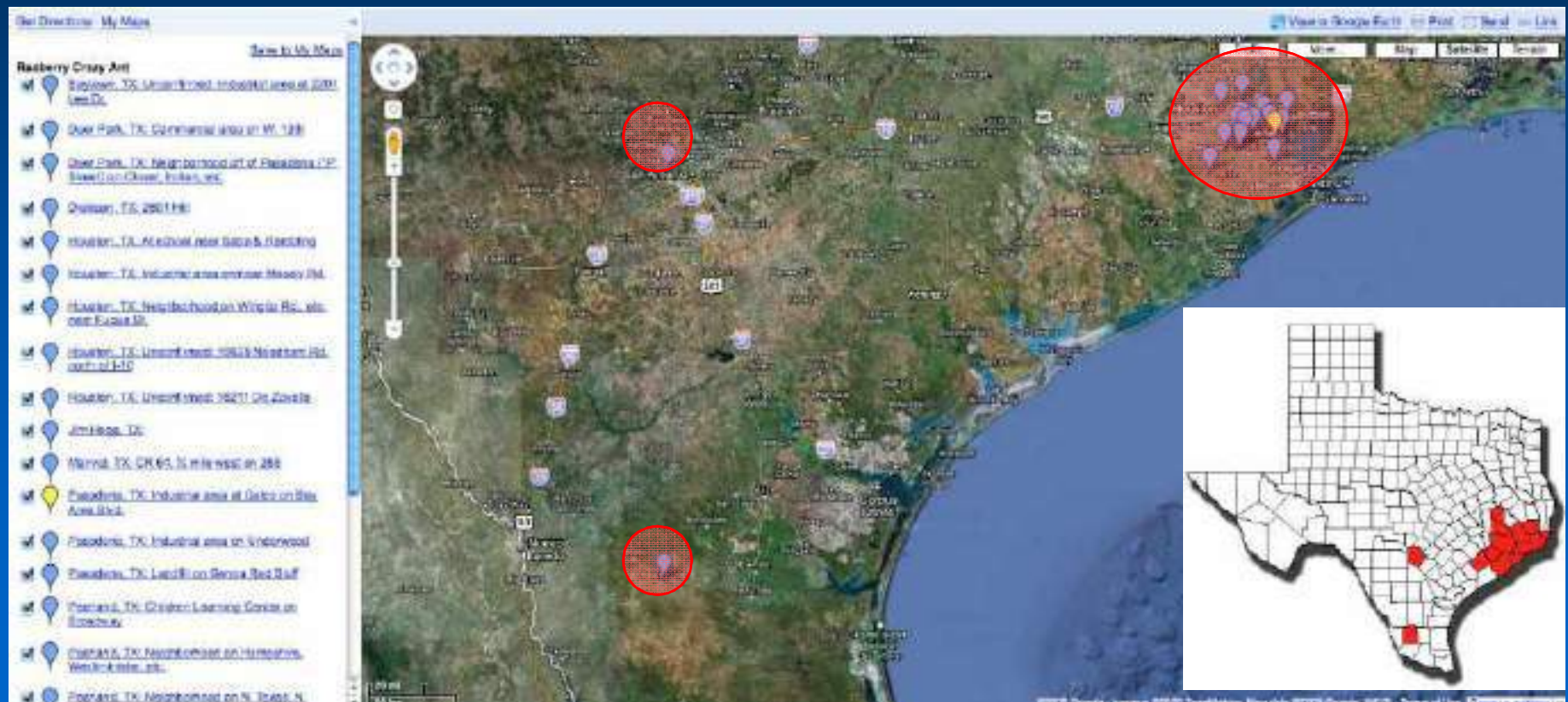
© 2007 Google™



# Raspberry Crazy Ant

*Nylanderia* sp. nr. *pubens*

- 14 Counties, November 2009



Brazoria, Chambers, Fort Bend, Galveston, Hardin, Harris, Jefferson, Jim Hogg, Liberty, Montgomery, Orange, Walker and Wharton



Tom Ralbeny  
© deadbug.com



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# Raspberry Crazy Ant

*Nylanderia* sp. nr. *pubens*

- **High** reproductive rate



# Raspberry Crazy Ant

*Nylanderia* sp. nr. *pubens*

- **High** reproductive rate
- Polygyne - Polydomas



# Raspberry Crazy Ant

*Nylanderia* sp. nr. *pubens*

- **High** reproductive rate
- Polygyne - Polydomas
- **Loose** foraging trails





# Raspberry Crazy Ant

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- Crawl rapidly and erratically = “**crazy**”



# Raspberry Crazy Ant

*Nylanderia* sp. nr. *pubens*

- **High** reproductive rate
- Polygyne - Polydomas
- **Loose** foraging trails
- Crawl rapidly and erratically = “**crazy**”
- Synanthropic





# Raspberry Crazy Ant

*Nylanderia* sp. nr. *pubens*

- **High** reproductive rate
- Polygyne - Polydomas
- **Loose** foraging trails
- Crawl rapidly and erratically = “**crazy**”
- Synanthropic
- **Displaces** other ant spp. including *S. invicta*!!



# Outline

## Introduction to RCA

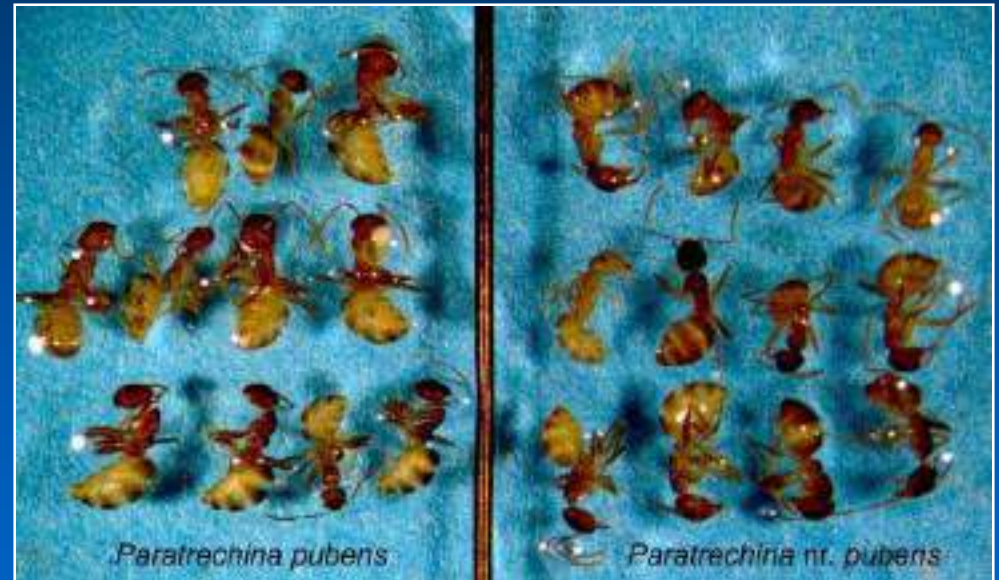
- Where/when detected
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# Raspberry Crazy Ant

*Nylanderia* sp. nr. *pubens*

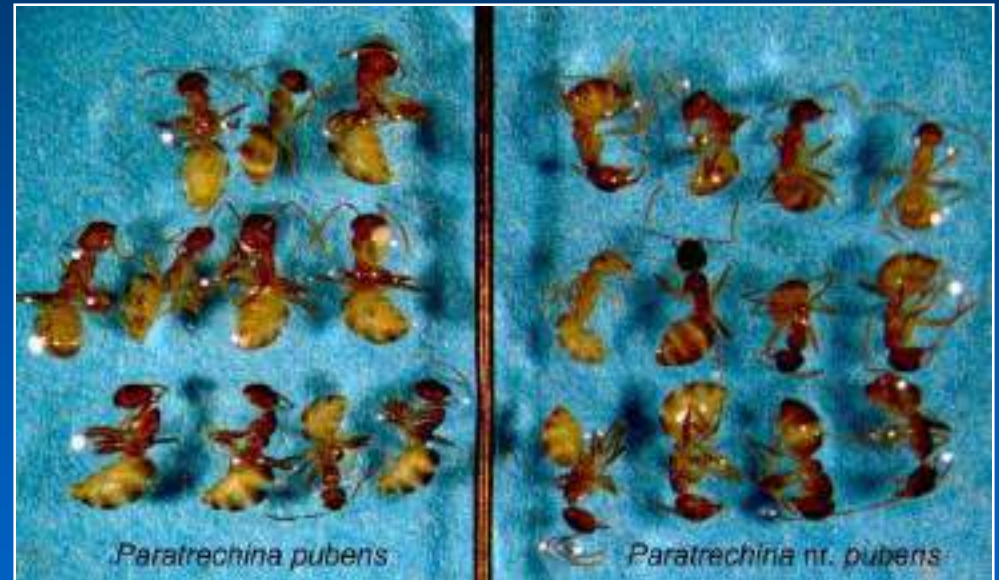
- Morphometric and molecular
  - Close to *P. pubens*



# Raspberry Crazy Ant

*Nylanderia* sp. nr. *pubens*

- Morphometric and molecular
  - Close to *P. pubens*
  - New species ??

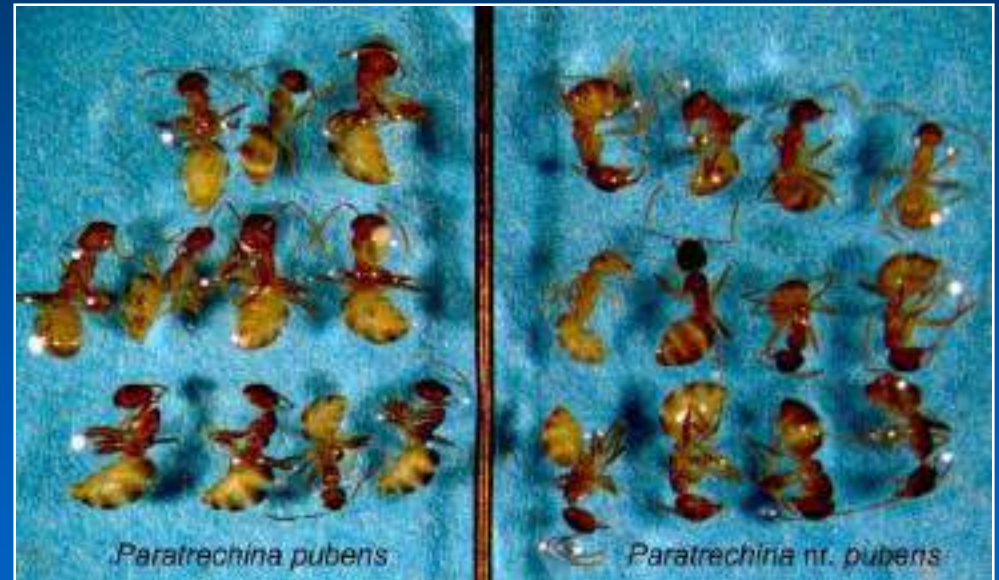




# Raspberry Crazy Ant

*Nylanderia* sp. nr. *pubens*

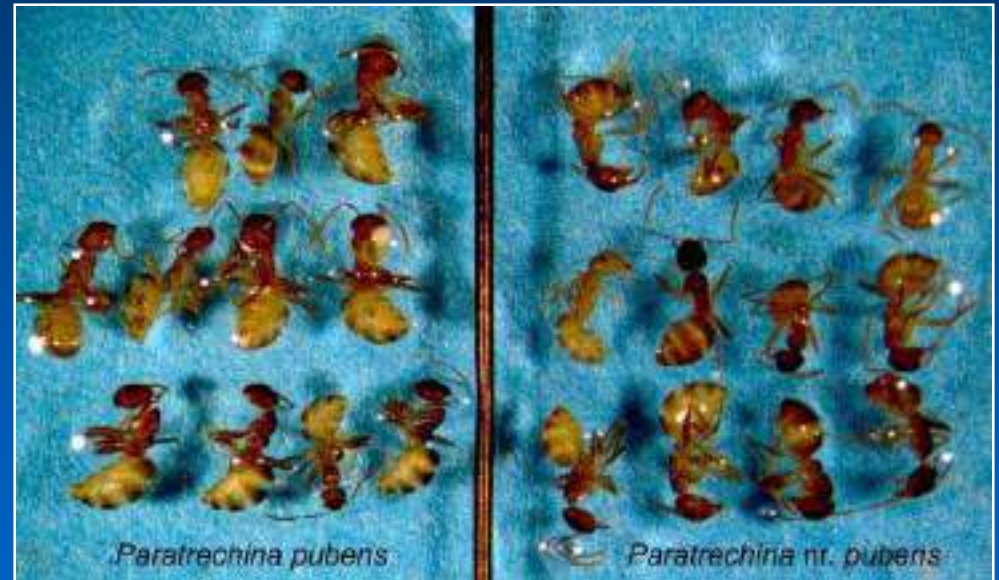
- Morphometric and molecular
  - Close to *P. pubens*
  - New species ??
  - Close to *P. fulva* ??
    - Well known in South America since 1967 (Colombia)



# Raspberry Crazy Ant

*Nylanderia* sp. nr. *pubens*

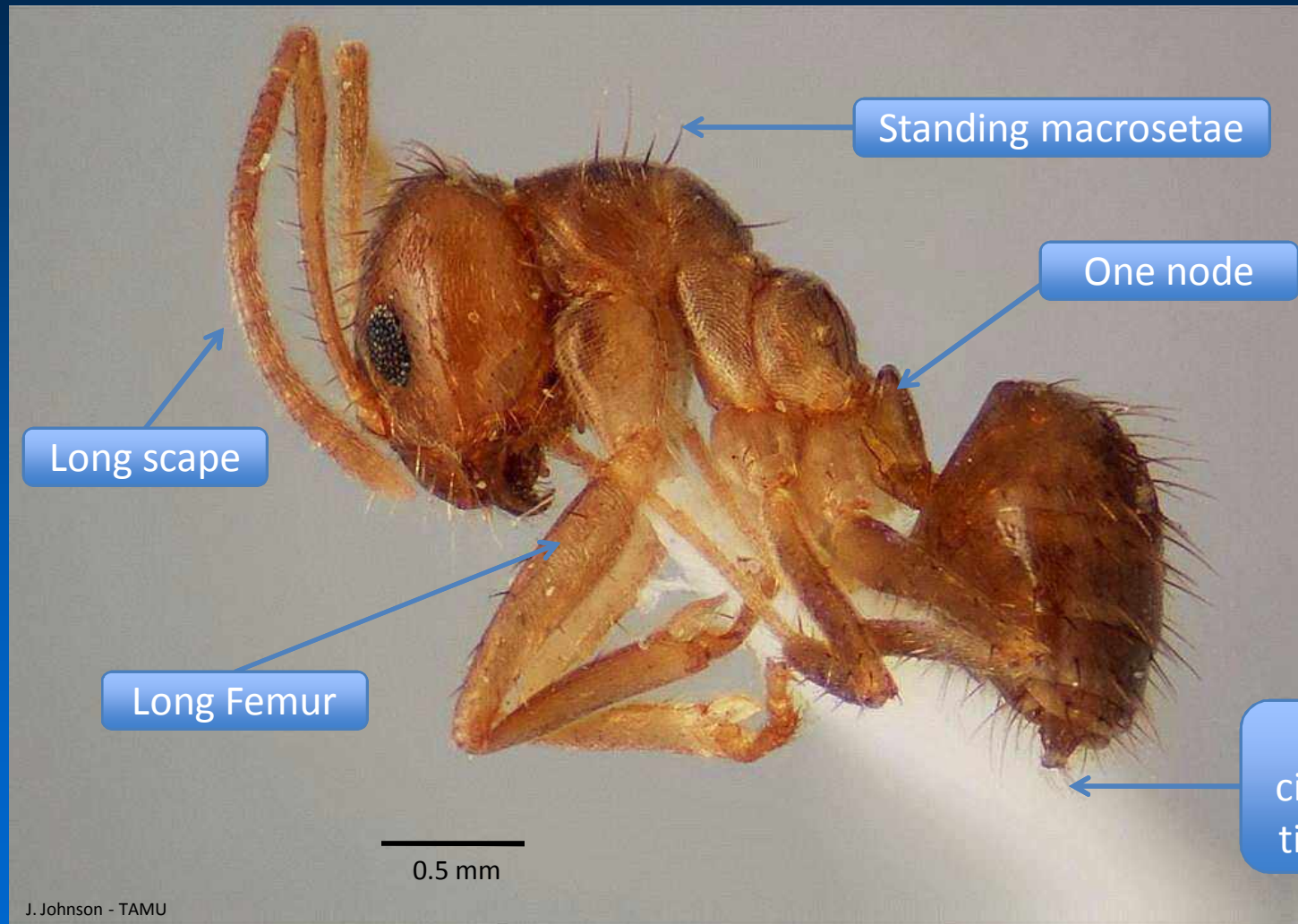
- Morphometric and molecular
  - Close to *P. pubens*
  - New species ??
  - Close to *P. fulva* ??
    - Well known in South America since 1967 (Colombia)
  - Inconclusive ...
  - **La Polla** group currently taking over (2010)





# Raspberry Crazy Ant

*Nylanderia* sp. nr. *pubens*



Look for

- 1) One node
- 2) Macrosetae
- 3) Acidopore
- 4) Scape
- 5) Femur
- 6) Reddish to brown
- 7) ~2-3 mm

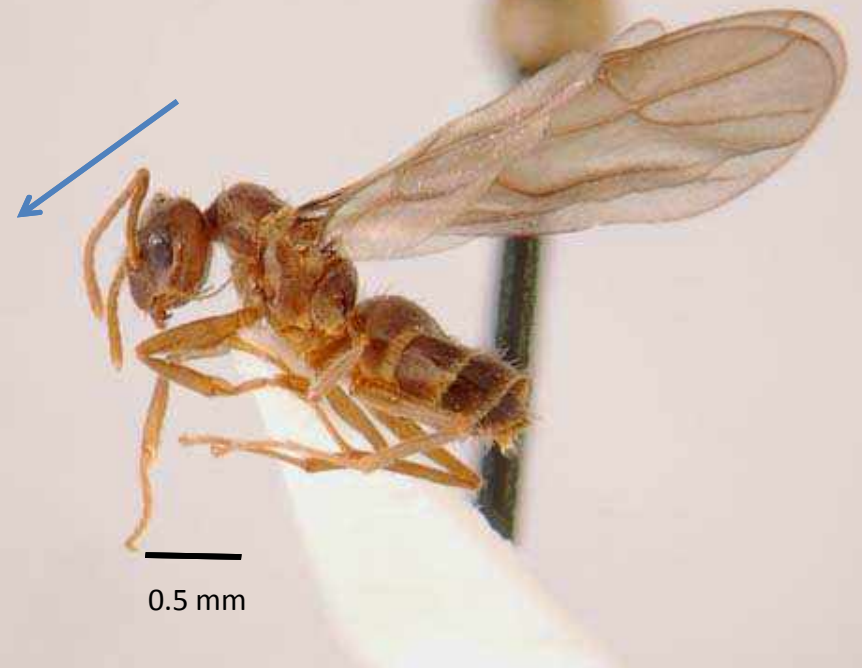
# Raspberry Crazy Ant

*Nylanderia* sp. nr. *pubens*

Male



Female



# Raspberry Crazy Ant

*Nylanderia* sp. nr. *pubens*



A. Calixto - TAMU





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# Raspberry Crazy Ant

*Nylanderia* sp. nr. *pubens*

- Reported to impact
  - Hay production





# Raspberry Crazy Ant

*Nylanderia* sp. nr. *pubens*

- Reported to impact
  - Hay production
  - **Honey** bees



# Raspberry Crazy Ant

*Nylanderia* sp. nr. *pubens*

- Reported to impact
  - Hay production
  - Honey bees
  - Nurseries



# Raspberry Crazy Ant

*Nylanderia* sp. nr. *pubens*

- Reported to impact
  - Hay production
  - Honey bees
  - Nurseries
  - **Electrical** equipment



# Applied Research

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# Raspberry Crazy Ant

*Nylanderia* sp. nr. *pubens*

- Conventional Fire Ant baits use corn/soybean oil



# Raspberry Crazy Ant

*Nylanderia* sp. nr. *pubens*

- Conventional Fire Ant baits use corn/soybean oil
- RCA not attracted



# Raspberry Crazy Ant

*Nylanderia* sp. nr. *pubens*

- Conventional Fire Ant baits use corn/soybean oil
- RCA not attracted
- Changes in bait matrix and AI are needed





# Raspberry Crazy Ant Bait Preference

(May 6, 2009, East Columbia, Brazoria Co. TX)



# Raspberry Crazy Ant

*Nylanderia* sp. nr. *pubens*

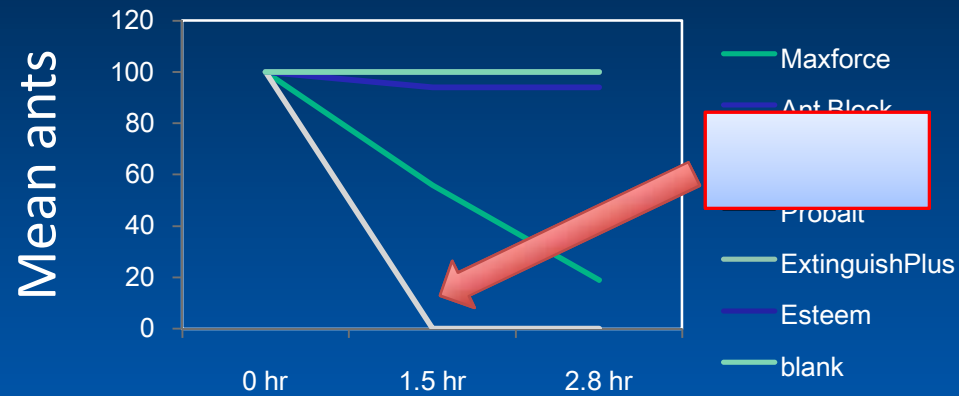
- Bait preference trials (5 reps)
  - Max Force<sup>®</sup> Insect Bait, hydramethylon 1.0%
  - Amdro<sup>®</sup> Ant Block, hydramethylon 0.88%
  - Advance<sup>®</sup> Carpenter Ant Bait, abamectin 0.011%
  - ProBait<sup>®</sup>, hydramethylon 0.73%
  - Extinguish<sup>®</sup> Plus, hydramethylon 0.365%
  - Esteem<sup>®</sup> Ant Bait, priproxyfen 0.50%
  - Blank, Granular - No AI



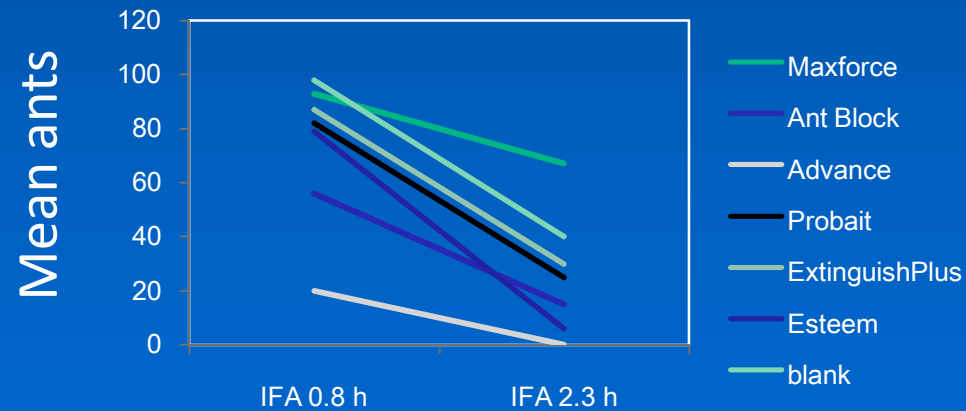
# Results: Fire Ant Bait Product Preferences

(Percent of 1/8 tsp. remaining per well; n = 5)

*N. sp. nr pubens*



*S. invicta*



# Raspberry Crazy Ant Product Efficacy

(May 6, 2009, East Columbia, Brazoria Co. TX)

## Advance<sup>®</sup> Carpenter Ant Bait

(abamectin plus “marine” inert ingredient)



# Raspberry Crazy Ant

*Nylanderia* sp. nr. *pubens*

- Product efficacy – **Rangeland** treatments
  - **Advance**® Carpenter Ant Bait, Abamectin 0.011%
  - **Untreated**

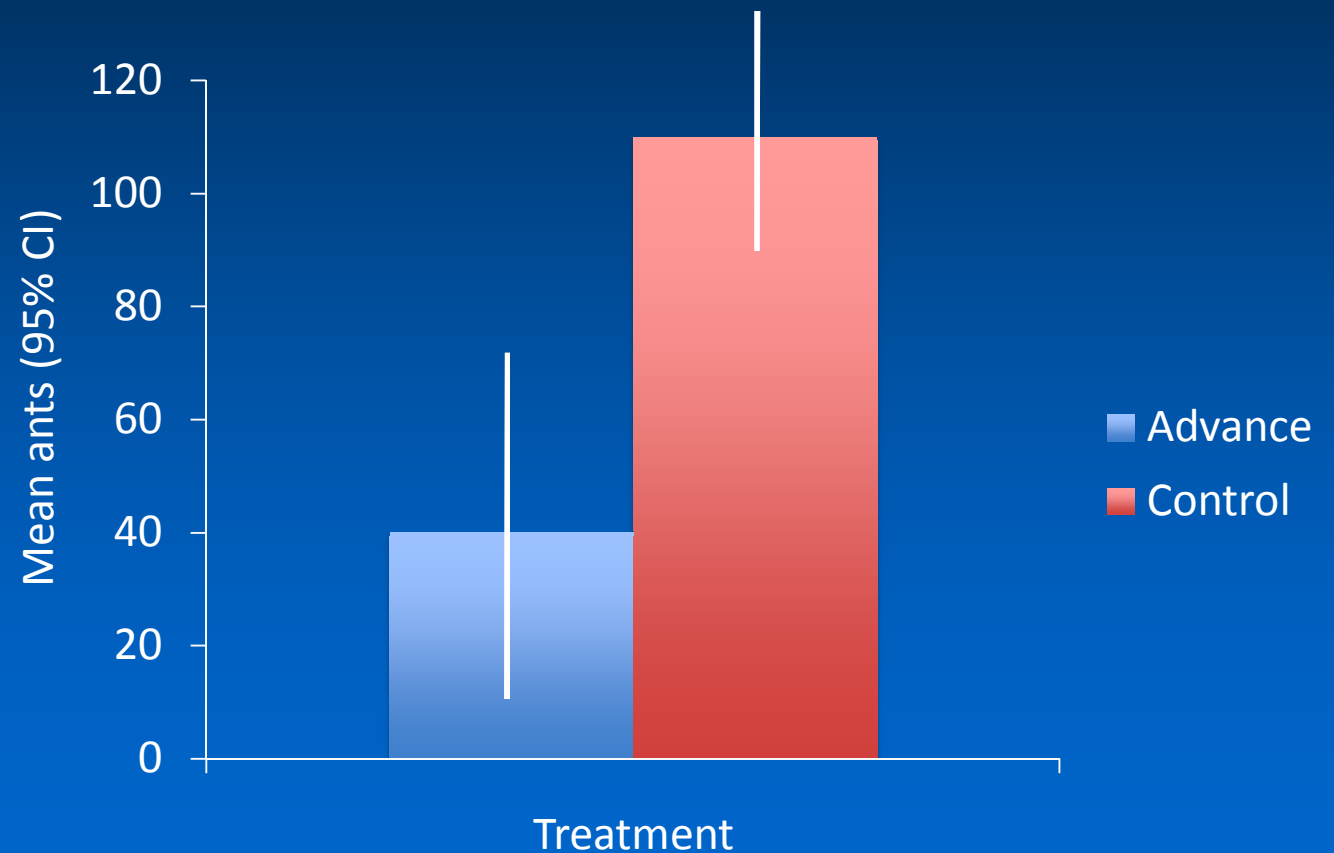


# Raspberry Crazy Ant

*Nylanderia* sp. nr. *pubens*

Advance<sup>®</sup> Carpenter Ant Bait, Abamectin 0.011%

~56% control





# Raspberry Crazy Ant

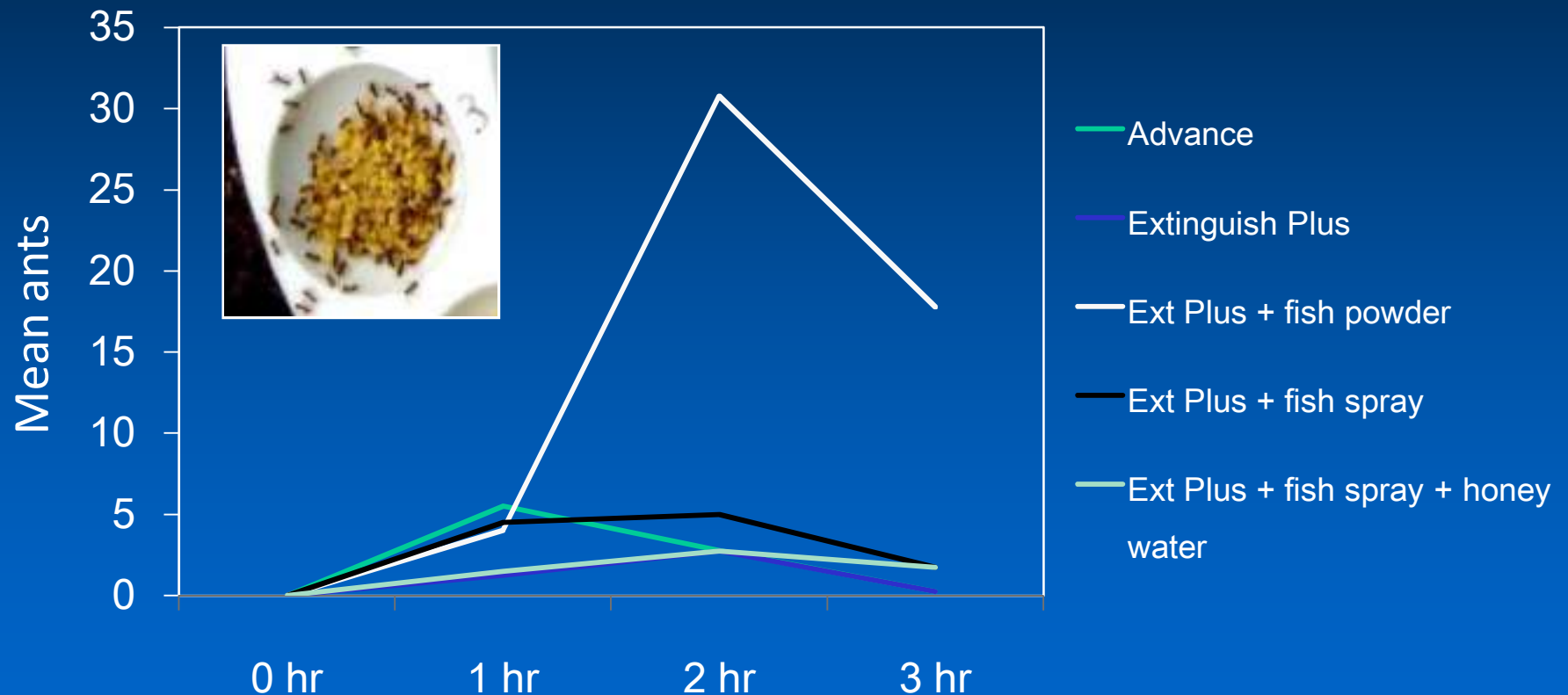
*Nylanderia* sp. nr. *pubens*

- Product efficacy – **Rangeland** treatments
  - Advance<sup>®</sup> is labeled at a **1 lb/acre** rate and can only be used for residential areas
  - **59%** control 6 days post treatment and **30%** control 13 days post treatment
  - Advance<sup>®</sup> **1lb/acre** vs **3lb/acre**
    - No differences were observed between the plots.



# Results: Mean number of RCA in well with bait (n = 4)

(Sept. 9, 2009, East Columbia, Brazoria Co., TX)



**Note:** All Advance® bait removed at 1 hr



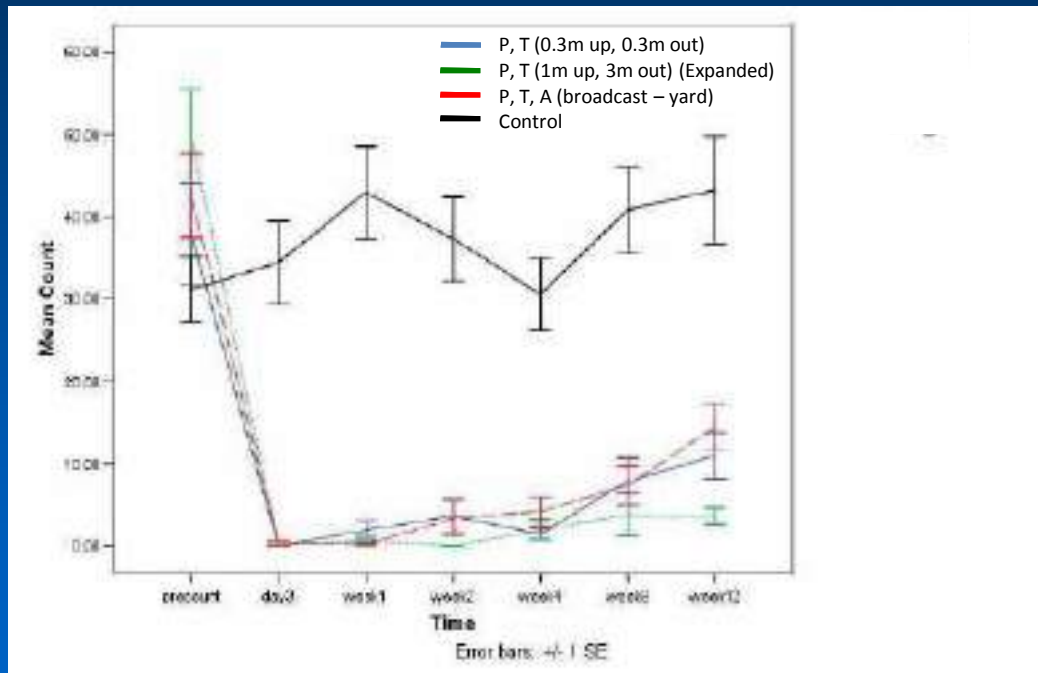
# Raspberry Crazy Ant

*Nylanderia* sp. nr. *pubens*

- Product efficacy – **House** treatments (~10 reps)
  - **Phantom**<sup>®</sup>, **Termidor**<sup>®</sup> (0.3m up, 0.3m out)
  - **Phantom**<sup>®</sup>, **Termidor**<sup>®</sup> (1m up, 3m out) (expanded)
  - **Phantom**<sup>®</sup>, **Termidor**<sup>®</sup> (same as above), **Advance**<sup>™</sup> (broadcast – yard)
  - **Controls**

# Raspberry Crazy Ant

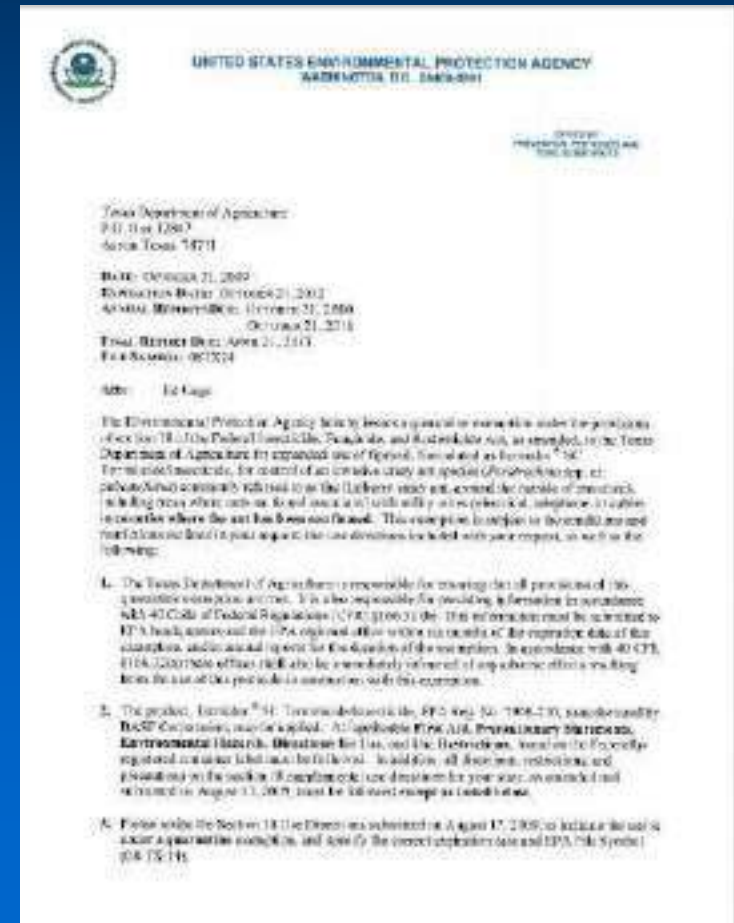
*Nylanderia* sp. nr. *pubens*



# Raspberry Crazy Ant

*Nylanderia* sp. nr. *pubens*

- October 2009 – Termidor® SC exemption
  - TDA issued a Quarantine Exemption for Termidor® for the control of Crazy ants in TX - Urban
  - Only for infested counties
  - Effective for 3 years







A. Calixto - TAMU

# Raspberry Crazy Ant

*Nylanderia* sp. nr. *pubens*

- Difficult to estimate “population” densities
- New food lure monitoring methods tested



# Methodology: Preference Testing in Laboratory and Field

(Jun. 6, 2009, East Columbia, Brazoria Co., TX)

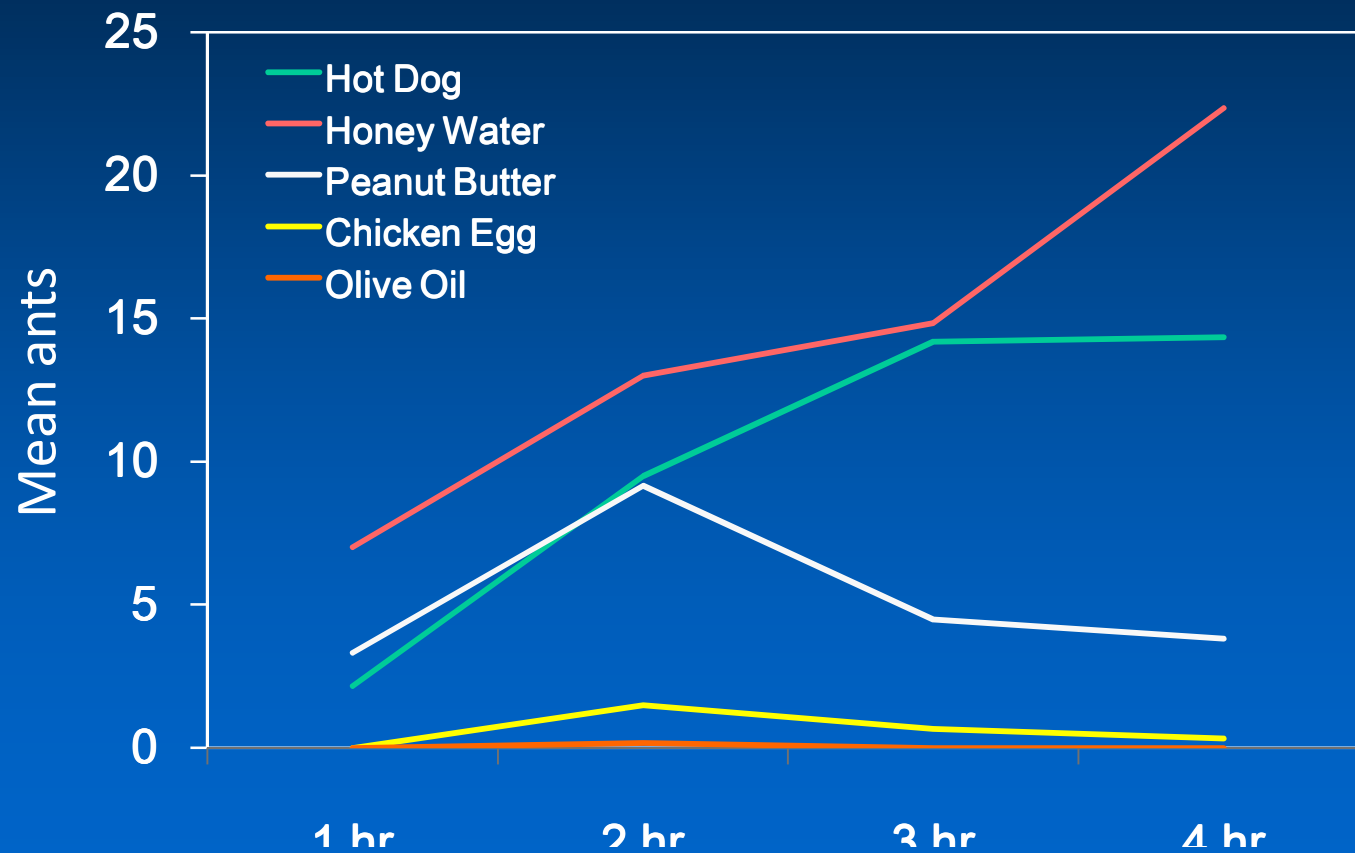
- Hot dog
- Honey water
- Peanut butter
- Chicken egg
- Olive oil





# Raspberry Crazy Ant Food Lures

(Mean no. ants on each food lure over time, Jan. 5, 2009)



# Raspberry Crazy Ant Surveys

(Fall 2009)

- **Already** and **new** infested areas
- **Range** expansion
- Annual **rate of spread**
- Production of **real-time maps**
- **Interactions** with other ant species



# Raspberry Crazy Ant Surveys

(Spring 2010)

## Pest Information Platform

**Raspberry Crazy Ant (*Nylanderia sp nr pubens*) Texas Scout Map**

**County Mapping Information**

County:

Location Name:

Location Details:

Latitude:

Longitude:

Collected By:

Year:

Status:  Confirmed  Unconfirmed

Confirmed By:

**County Information per Location**

bing

© 2010 Microsoft Corporation © 2010 INATTC. Imagery courtesy of NASA

150 miles

“Real-time” maps



# Raspberry Crazy Ant Surveys

(Spring 2010)

Pest Information Platform

### Raspberry Crazy Ant (*Nylanderia* sp n)

**County Mapping Information**

County:

Location Name:

Location Details:

Latitude:

Longitude:

Collected By:

Year:

Status:  Confirmed  Unconfirmed

Confirmed By:

**County Information per Location**

County



**Jim Hogg County**

**Location Name:** Hebronville

**Location Details:**

**Latitude:** 27.31423

**Longitude:** -98.66903

**Collected By:** Brad Vinson

**Year:** 2009

**Status:** Confirmed

**Confirmed By:** B. Summerlin - TAMU

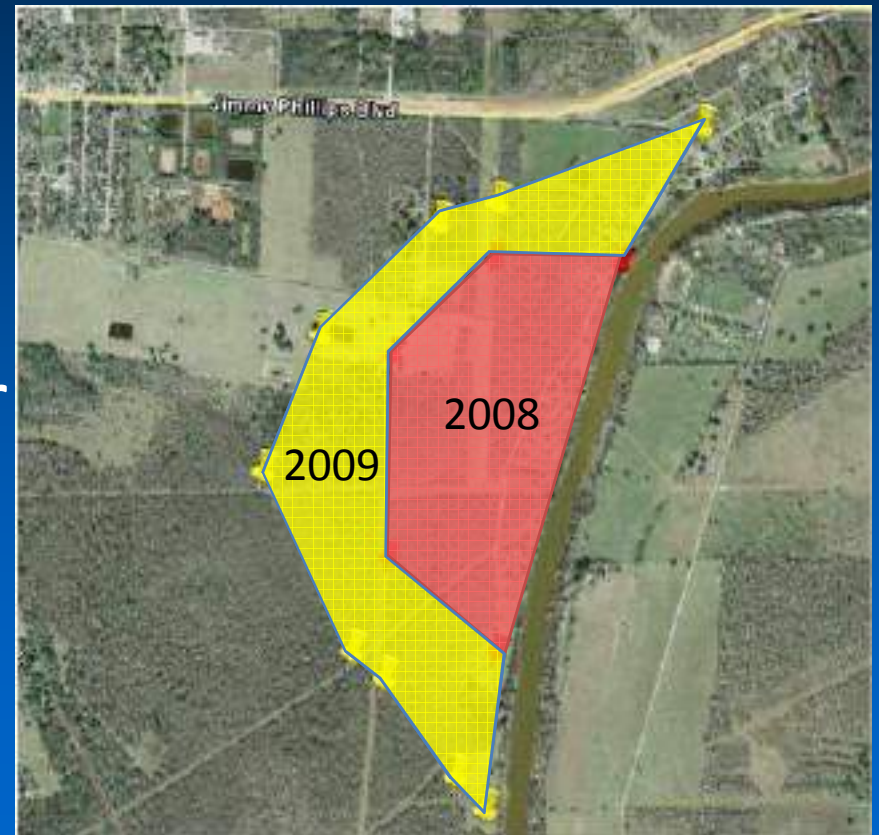


“Real-time” maps

# Raspberry Crazy Ant Surveys

(Fall 2009)

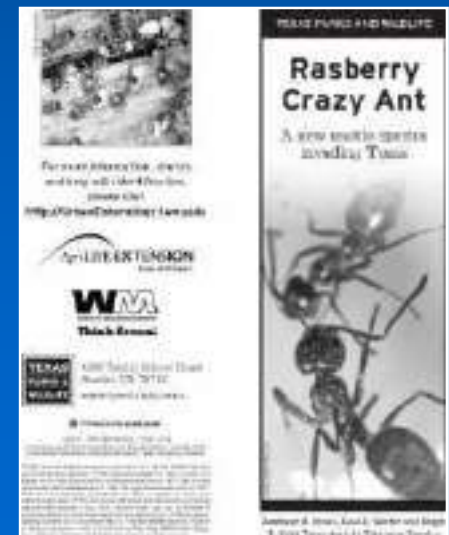
- East Columbia, TX
- Red = 2008
- Yellow = 2009
- Avg. Distance = 269 m/yr




# Outreach Education Efforts

(2009)

- At : <http://AgriLifeBookstore.org>
  - Marketing leaflet, Public Service Advertisement (PSA)
  - TPWD-AgriLife Leaflet
- “Control of Raspberry Crazy Ants In and Around Homes and Structures” - B. M. Drees, P. Nester, and R. Gold
- “Raspberry crazy ant - a new threat to nurseries,” Drees, B. 2009. American Nurseryman 11:6-8.







For more information

Raspberry Crazy Ants

<http://urbanentomology.tamu.edu/ants>

AgriLIFE RESEARCH  
& EXTENSION  
Texas A&M System

 TEXAS A&M  
UNIVERSITY

Center for Urban & Structural Entomology



# Recommendations

- **Report suspicious ant problems** in your area, and have ants identified by Texas A&M University





# Recommendations

- **Do not move infested items** to uninfested areas
  - i.e. Landscape plants, lumber, and yard waste





# Recommendations

- Remove all nonessential objects from the ground to discourage nesting sites



# Recommendations

- **Avoid feeding the ants** by eliminating food sources
  - i.e. Honeydew producing landscape pests such as aphids, scales, mealybugs, and whiteflies

