

A photograph of a residential street. On the left is a concrete sidewalk. In the center is a large, bare tree with many thin branches. To the right is a paved road. In the background, there are houses and utility poles. The text is overlaid on the tree.

Might Argentine Ants be a Significant Contributor to the Spread of Invasive Weeds?

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Background

- Argentine Ants (*Linepithema humile*)

- Introduced through the Port of Orleans 1890 – 1900
- Spread rapidly throughout the southern and western United States
 - Significant spread within just the first couple decades
 - No biocontrols
- They are the small ants that invade nearly every household
- Native landscaping/restoration didn't become truly popular until long after Argentine ants were established in California
 - Many of the historic problems may actually trace back to Argentine ant infestations

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Argentine ant
Linepithema humile
Dolichoderinae

Background

- This presentation is the result of observation from installing and maintaining hundreds of native landscapes and restoration work
 - Many of these observations need to be confirmed by scientific investigation
 - Areas of potential research will be identified at the end of the presentation

Background

- In 2014 it was noted that dead and dying native plants, especially those considered the most “difficult”, were associated with Argentine ant populations
 - For example, root-balls of dying Ceanothus were often “boiling” with ants
 - Soil would just fall away from the roots
 - Certain weed species were congregated along ant trails and at root crowns

What damage do they do?

- Displace (extirpate) native ant species and 25-75% of all beneficial insects in their range
 - Harvester ant losses are seriously threatening Horned Lizard populations
 - Endanger native plant species dependent on native ants for seed dispersal
 - Compete with pollinators for flower nectar

Courtesy of Alex Wild – Myrmecos.net

What damage do they do?

- Argentine ant infestation appears to be one of the major causes of native plant mortality, especially in landscapes/restoration.
 - Excavate soil and build nests in the rootballs of native plants
 - Place sucking insects (Hemipterans) all over the upper root system
 - Farm the excretion product, called “Honeydew”
 - They protect their “herds” with their lives and move them from plant to plant
 - Kill plants at the root level
 - Especially target Malvaceae, Rhamnaceae, Ericaceae, and everything else
- Spread disease to infested plants
 - Studies have shown them to be moving *Phytophthora* spp. through Citrus orchards.

What damage do they do?

- They appear to be planting numerous invasive species in great numbers
 - Not just Spotted spurge and Petty spurge
 - Often see explosions of certain weeds in areas devoid of them before

How are ants supporting exotic dispersal?

- Argentine ants don't appear to be very selective about target species
 - For instance they appear to spread Miner's lettuce (*Claytonia perfoliata*)
- They eat the fleshy attachment points of the seed
 - Seed itself is dropped and therefore germinates (ant agriculture!)

How are ants supporting exotic dispersal?

- They can move 100 to 200 meters away from a moisture source
 - May be receiving additional moisture from honeydew
 - Can lead to a massive weed infestation where none existed before
- Can virtually take over wetlands, vernal pools, and coastal marshes (if not too saline)

Weeds often associated with Argentine Ants

- Australian Brass Buttons (*Cotula australis*)

Courtesy of Floradecanarias

Weeds often associated with Argentine Ants

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Weeds often associated with Argentine Ants

- Scarlet pimpernel (*Anagallis arvensis*)

Courtesy Lucid Central



Weeds often associated with Argentine Ants

- Purslane (*Portulaca oleracea*)

Courtesy of The Survival Gardener

Weeds often associated with Argentine Ants

- Chickweed (*Stellaria media*)

Courtesy of Oregon State

Weeds often associated with Argentine Ants

- Fireweed (*Epilobium strictum*)

Courtesy Phytoimages

Weeds often associated with Argentine Ants

- Horseweed (*Conyza canadensis*)

Courtesy of Foragefax



Weeds often associated with Argentine Ants

- Weedy wood sorrel (*Oxalis corniculata*)

Courtesy of Plantis.info

Weeds often associated with Argentine Ants

- Mexican feather grass (*Stipa tenuissima*)

Courtesy of Wilsonbrosgardens.com

Weeds often associated with Argentine Ants

- Sow or other similar thistles (*Sonchus arvensis*, etc.)

Courtesy of Wilsonbrosgardens.com

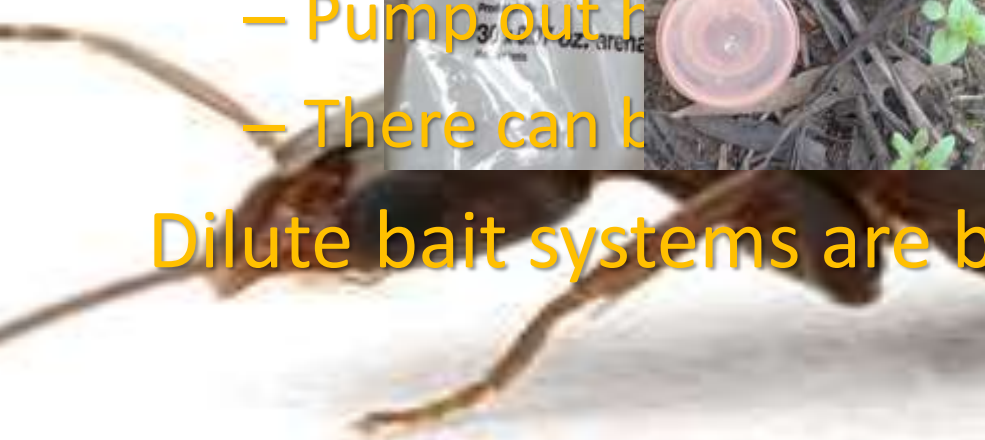
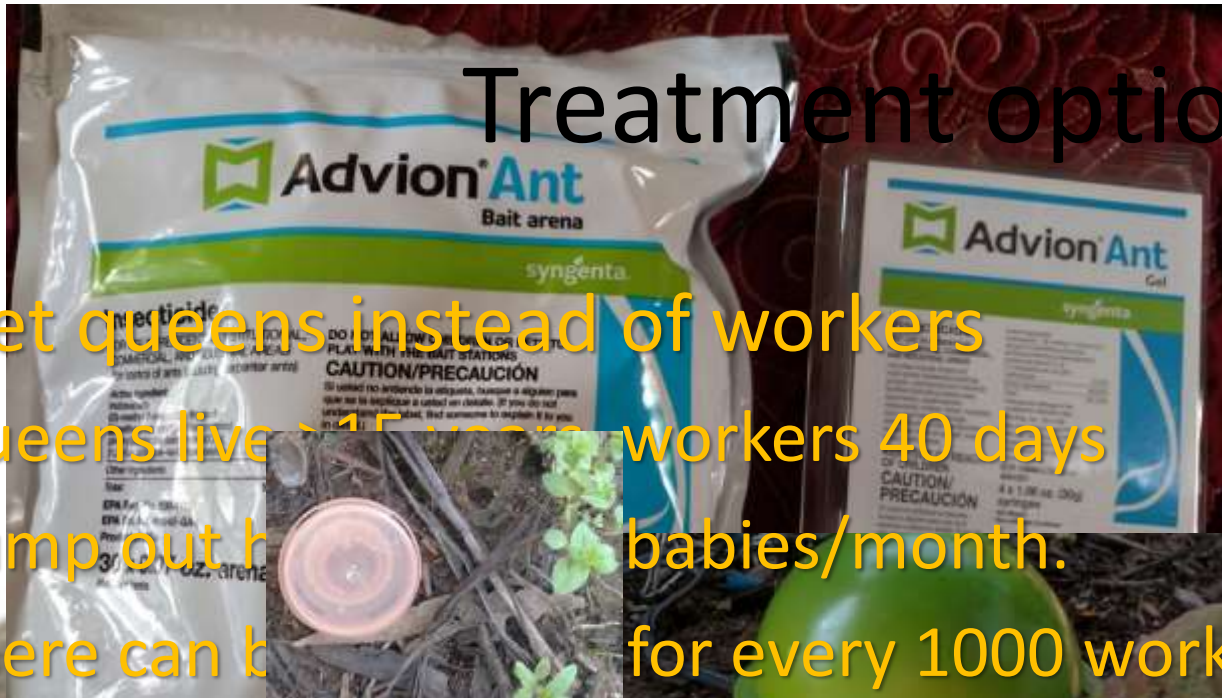
Weeds often associated with Argentine Ants

- Cheesweed?! (*Malva parviflora*)

Treatment options

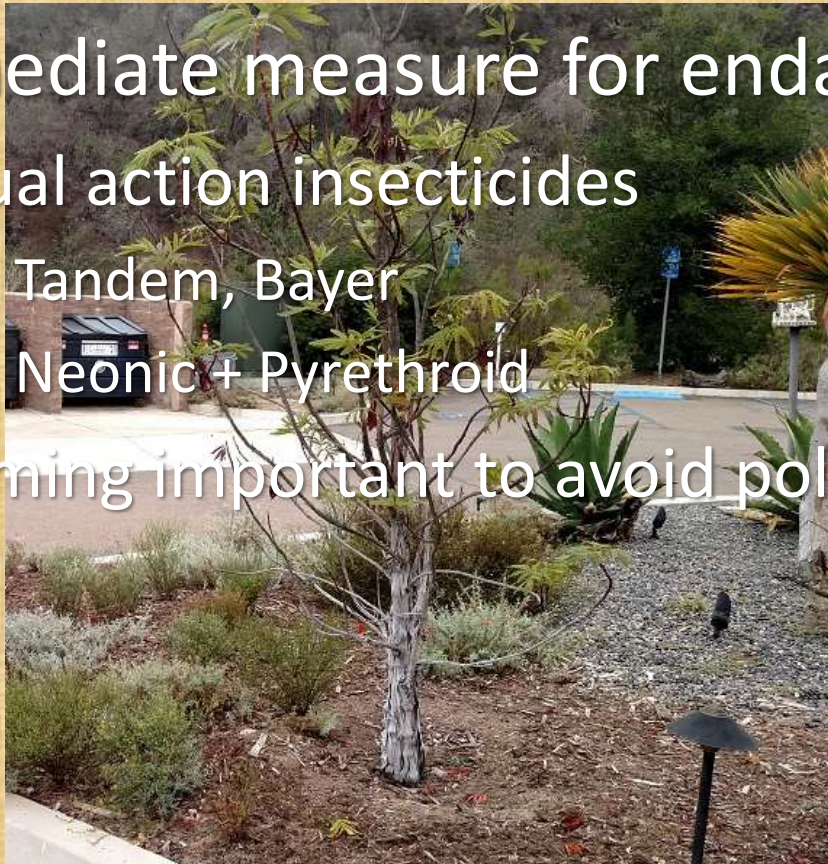
- Target queens instead of workers
 - Queens live ~15 years, workers 40 days
 - Pump out babies for every 1000 workers
 - There can be 1000 babies/month.

Dilute bait systems are best for eliminating ant colonies



Treatment options

- Immediate measure for endangered plants
 - Dual action insecticides
 - Tandem, Bayer
 - Neonic + Pyrethroid
 - Timing important to avoid pollinators



Treatment options

- Trying to get away from systemics
- Looking at Pyrethrin spray and root drenches in critical cases
- For large scale control
 - Experimenting with extraordinarily dilute bait
 - Distributed in water absorbing polymer spheres

Areas of needed research:

- To what degree are ants responsible for movement of invasives into natural plant communities?
- What species of invasives are preferred by ants?
- How far can invasive species be moved into restoration areas receiving irrigation vs. undisturbed natural plant communities?
- What is the actual statistical relationship between plant failure and ant infestation?
- Is plant mortality due more to Hemipteran feeding, disease, or some other process?

Areas of needed research:

- Why aren't all plant species affected equally?
- What are the most effective & least toxic control strategies?
- Am I simply becoming a paranoid schizophrenic who sees ants everywhere?

The End