

Utah's Emergency Insect and Quarantine Pests Program

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Background

- UT has a \$1 billion Ag Industry
- UT has a \$25 million Nursery Industry
- UDAF and USU monitor for invasive pests
- CAPS Program (Cooperative Ag Pest Survey)
 - Insects
 - Disease
 - Weeds



Utah's high priority insects

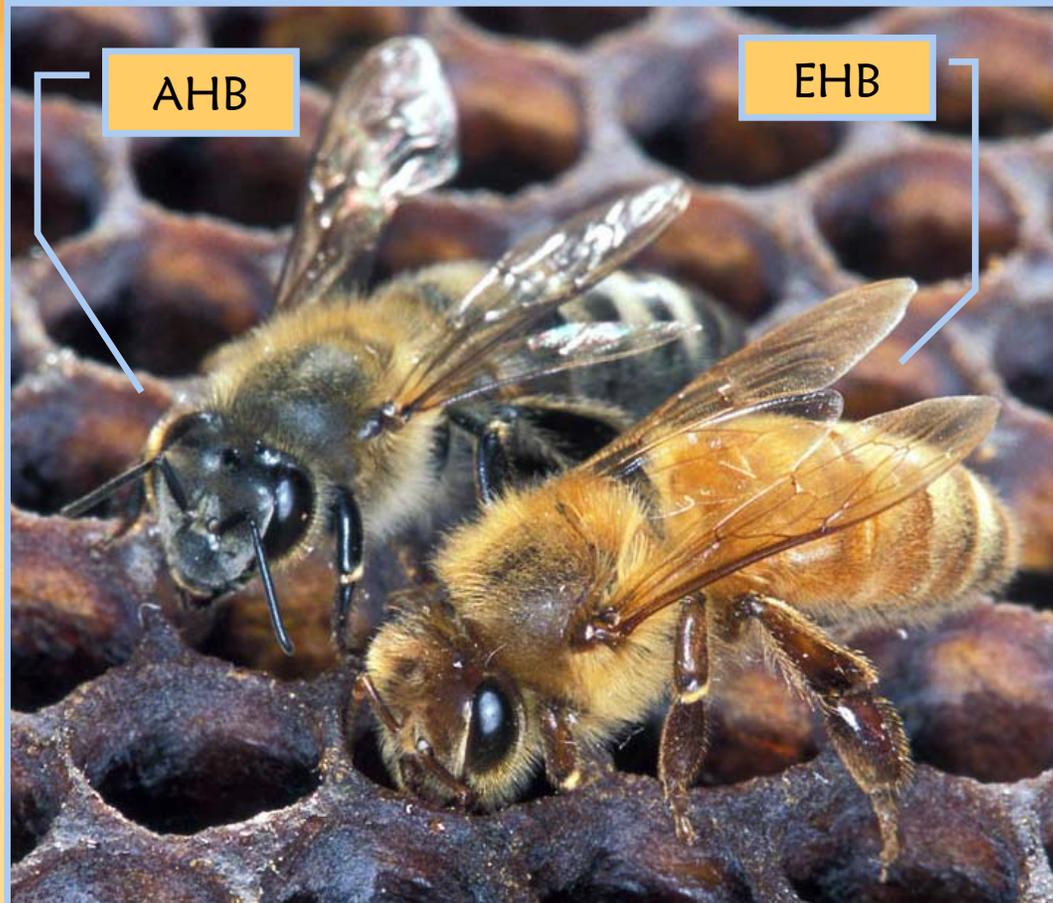
- African honey bee
- Apple maggot/
cherry fruit fly
- Cereal leaf beetle
- European corn borer
- Gypsy moth
- Imported fire ant
- Japanese beetle
- Mormon cricket/
grasshopper

African honey bee

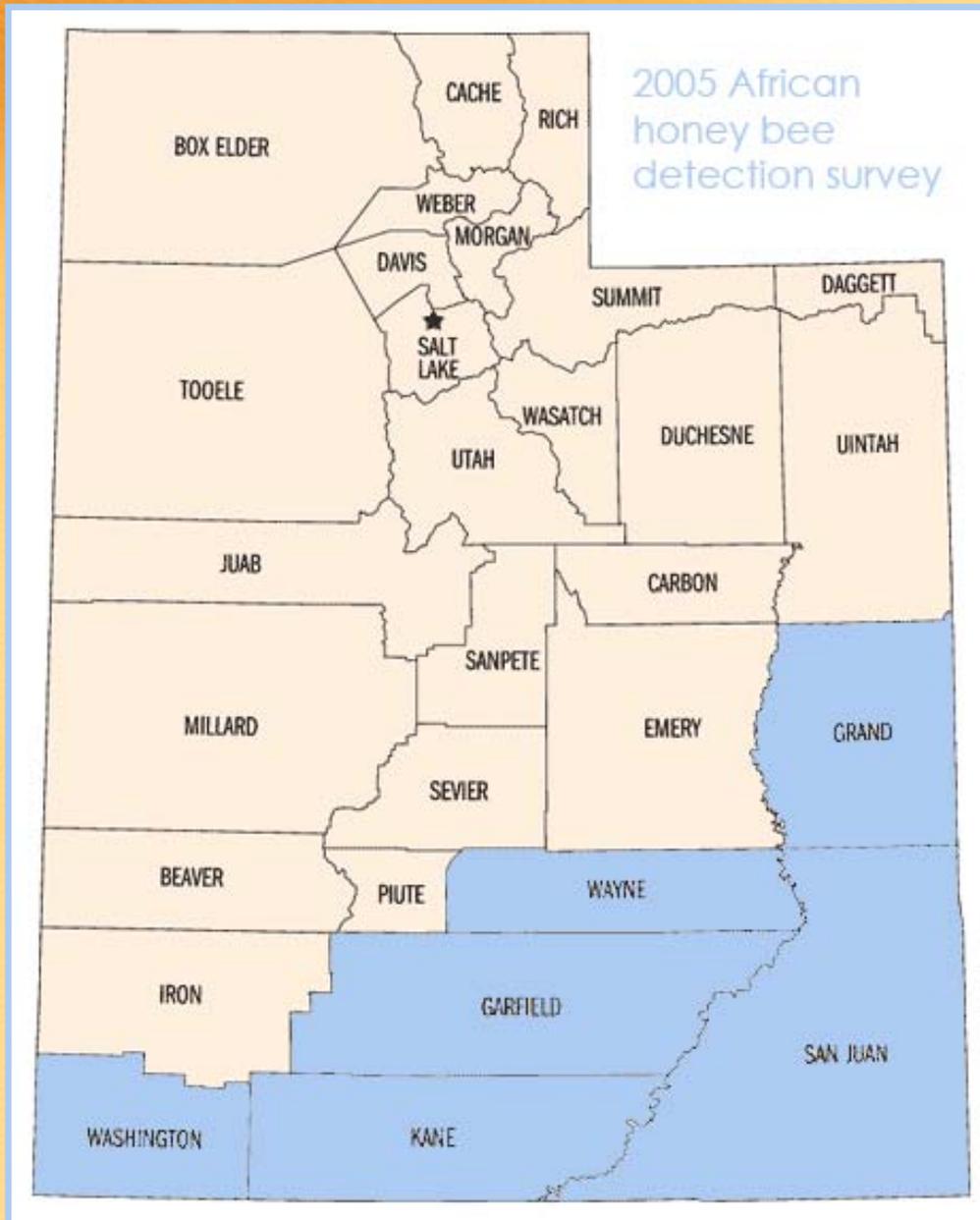
- Accidentally released in Brazil (1965)
- Moved north to U.S. (1990)
 - AZ, NV, NM, TX, CA
- Northern migration cannot be stopped
- Threatens \$2.6 million honey industry
- Public health threat, aggressive

More about honey bees

- All honey bees will sting when their nest is threatened by invaders
- *A single African bee sting is no more venomous than a single European bee sting*
- African bees produce more offspring
- African bees defend their nests with less provocation, in greater numbers and for longer distances than their cousins



- Indistinguishable
- African honey bee has not been detected in UT...yet
- UDAF uses detection surveys each summer



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Apple maggot/cherry fruit fly

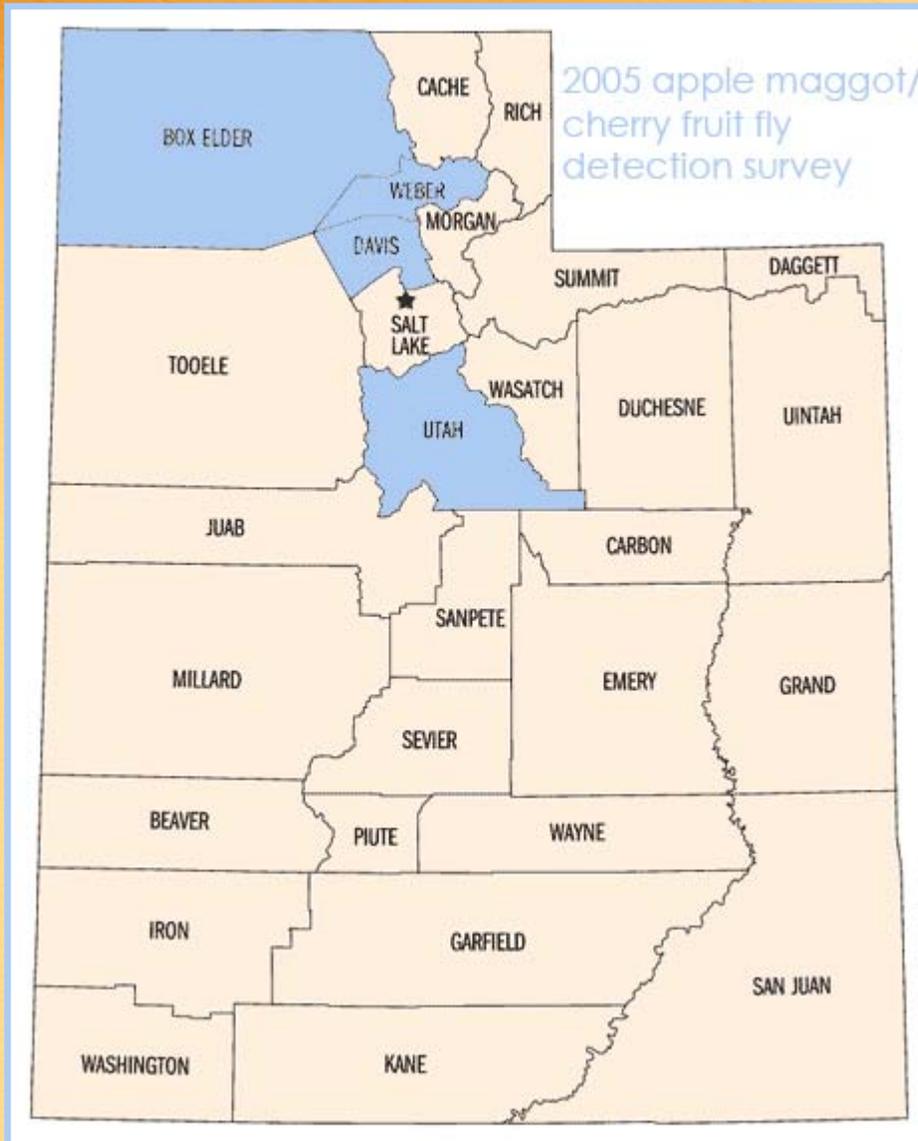
- Major pests of fruit trees in U.S./Canada
- Apple maggot detected in UT (1985)
- Threatens \$27 million Fruit Industry
- Quarantined insects, restricts exporting

apple maggot



cherry fruit fly





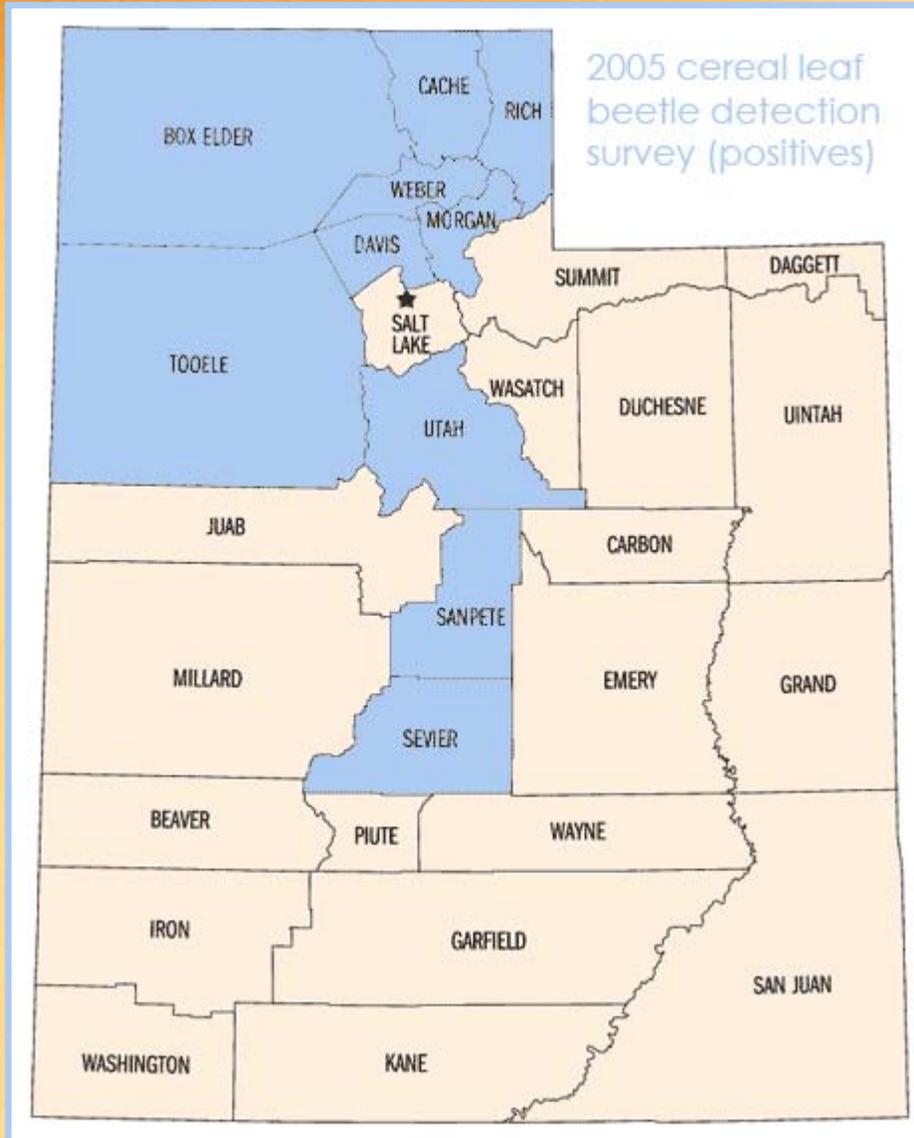
- Detection surveys in 4 counties (600 traps)
- Most catches are in abandoned orchards
- Apple maggot catches slowly decreasing

Cereal leaf beetle

- Detected in U.S. (1962), in UT (1984)
- Adults and larvae feed on small grains
- Can reduce yield by 75%
- Threatens \$185 million Small Grain Industry
- Biological control can reduce beetles
 - Larval parasitic wasp is getting established



- All grain-growing counties are surveyed
- 16 counties infested
- Restricted export to other quarantined states

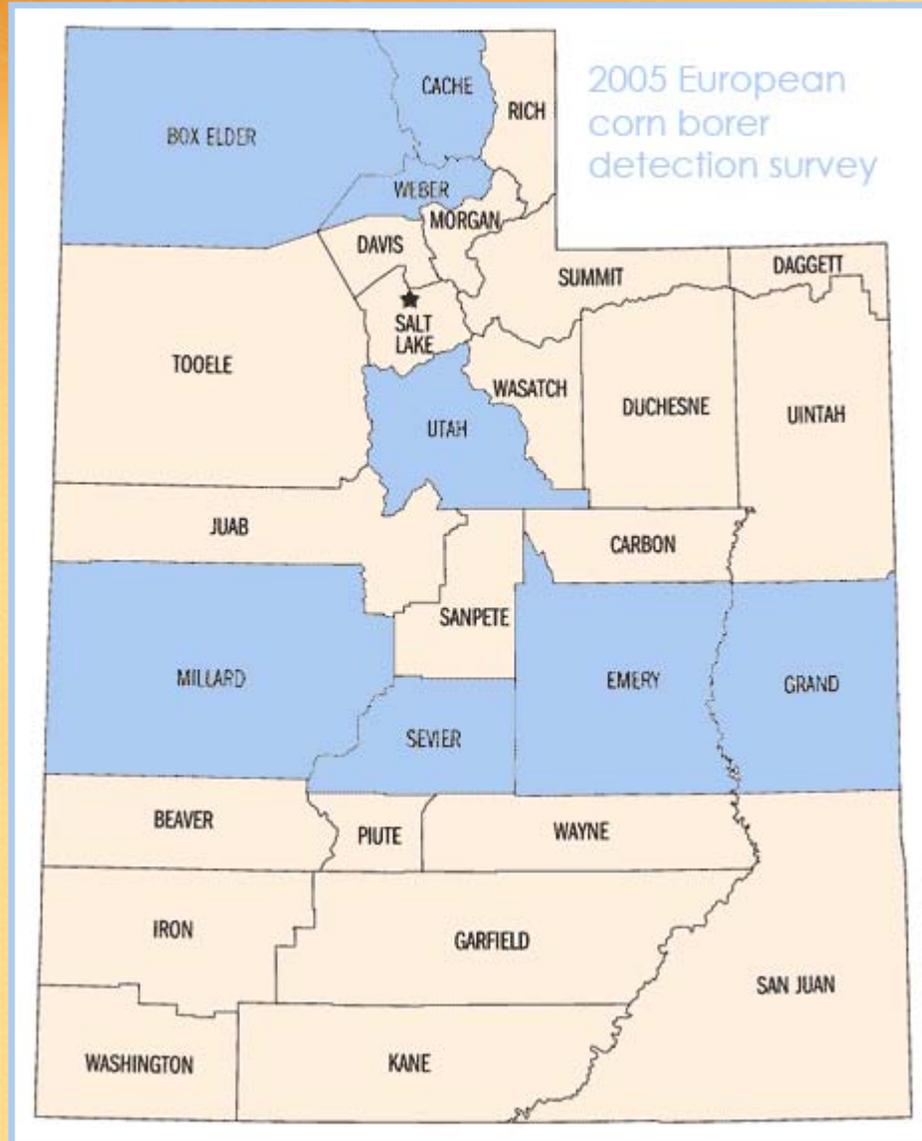


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European corn borer

- Leaf feeding, midrib feeding, stalk tunneling, leaf sheath and ear damage
- Damage results in poor ear development, broken stalks, and dropped ears
- Plants are impaired, cannot produce normal amounts of grain

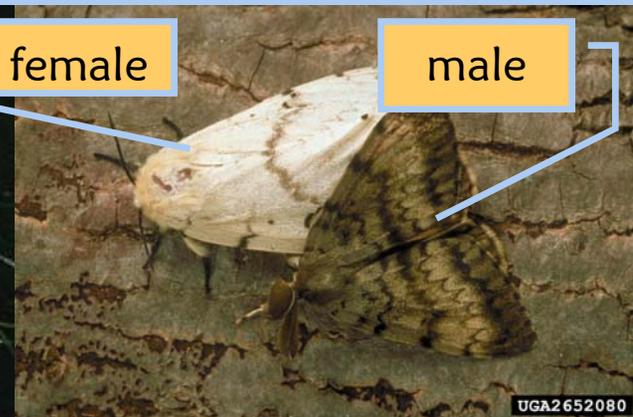


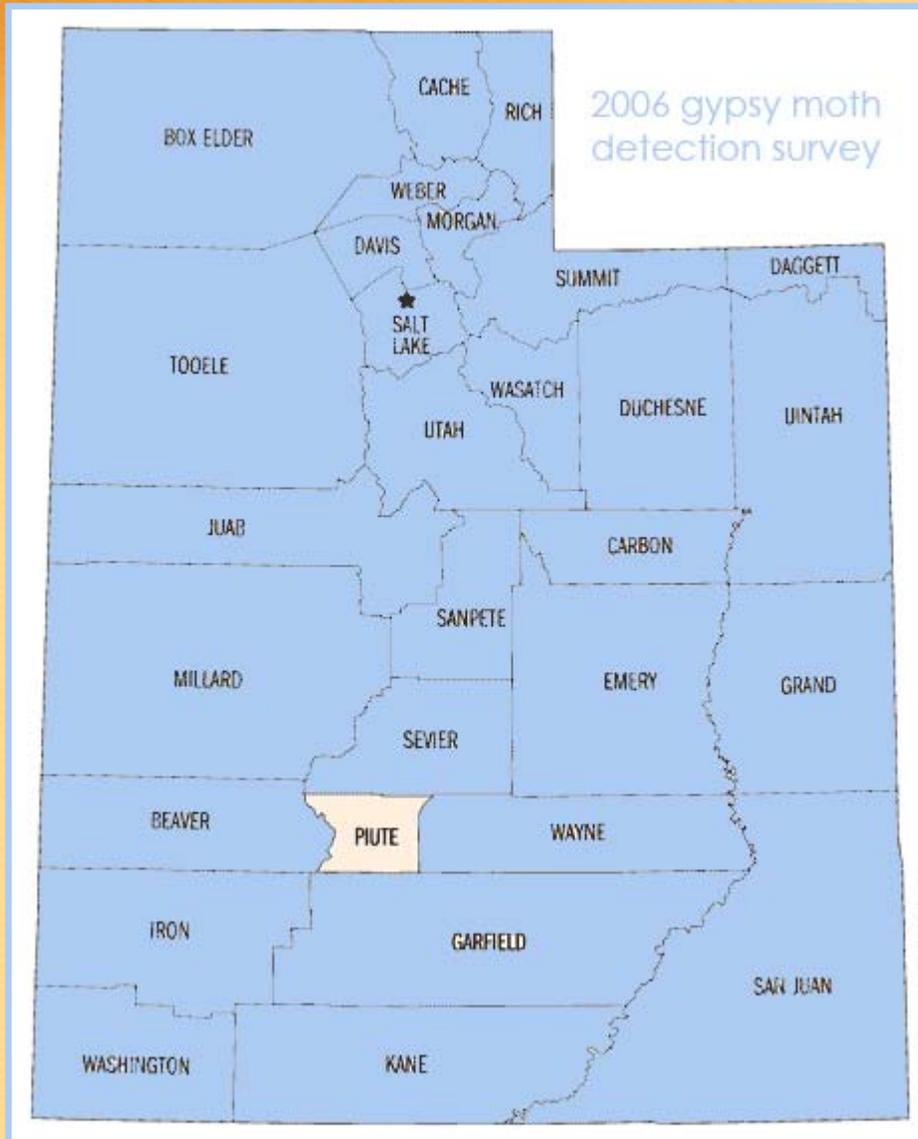


- Detection surveys in corn-producing counties (80 traps)
- Never detected in UT
- Can infest more than 200 species of plants

Gypsy moth

- Detected in U.S. (1869)
- Devastating forest pest
- Found in UT (1988)
- Several eradication programs





- Detection surveys in each county
- >3,500 traps
- 0 catches in 2006



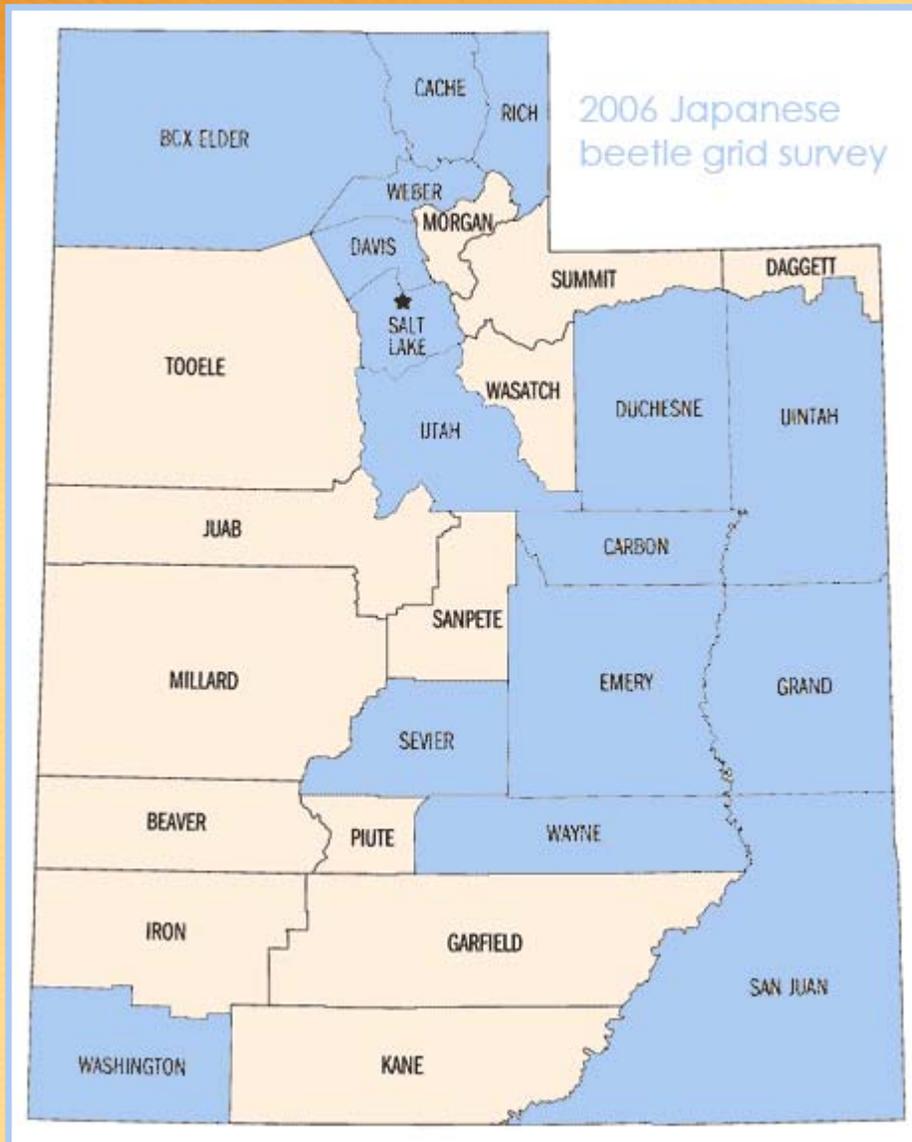
Japanese beetle

- Detected in U.S. (1916), in Orem UT (2006)
- Threatens \$25 million Nursery Industry
- Host range of >300 plants





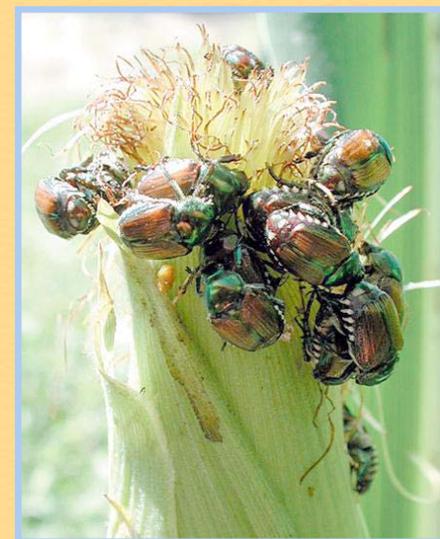
- Double lure (floral and pheromone)
- Detection surveys in 16 counties
- >600 trapped in 2006; >2100 trapped in 2007



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JB biology

- Adults have a broad host range
 - Rose, apple, stonefruits, Virginia creeper, willow, elm, birch, maples, pin oak, sycamore
 - Strongly attracted to ripening fruit
 - Release a mating/feeding pheromone
- Grubs feed on turfgrass roots
 - Overwintering stage
 - Can weaken turf system



JB life cycle



JB adult damage

rose



blueberry



Virginia creeper



linden



JB grub damage

- Small patches of turf destroyed
- Patches coalesce, quickly
- Spongy turf, easily pulled back



JB adult control

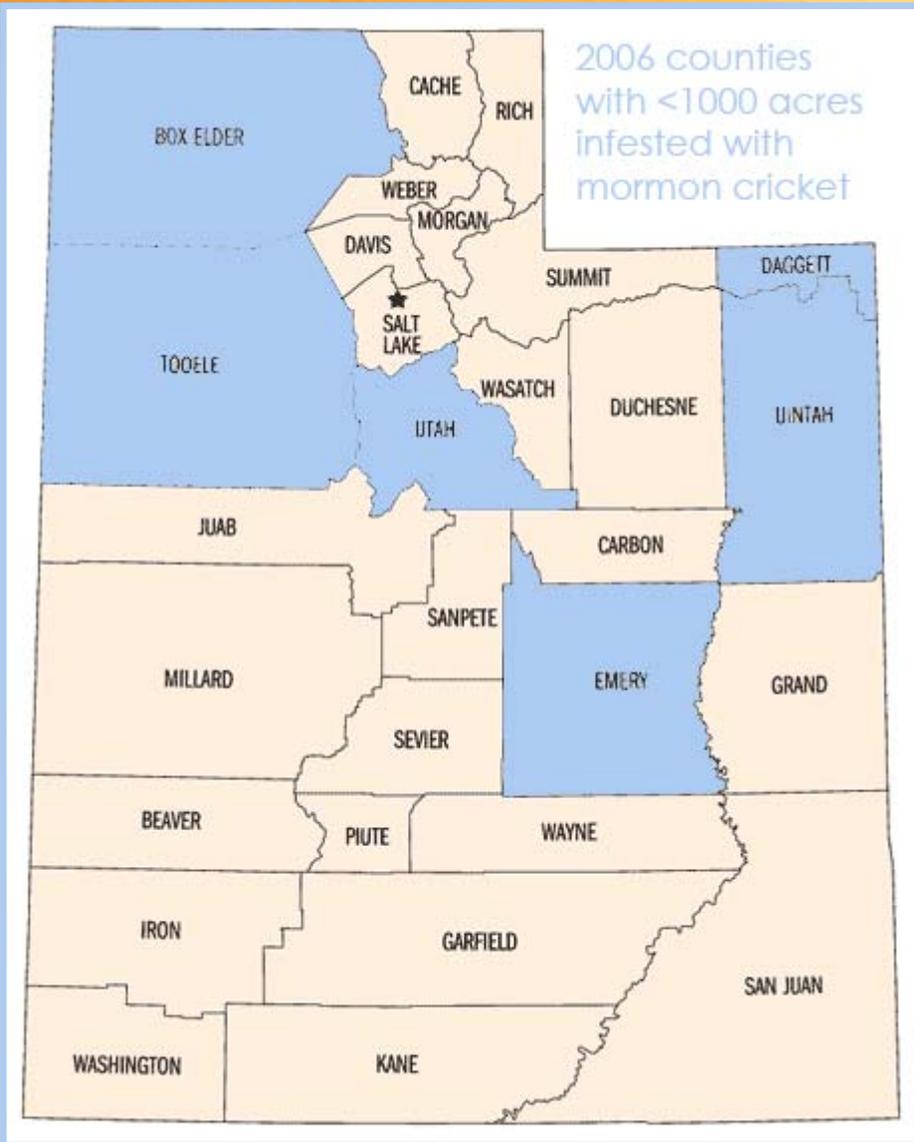
- Adult control is difficult
 - Wide host range
 - Continuous feeding/mating movement
- Many insecticides are available
 - Bayer Advanced®, Baythroid®, Concern®, malathion 5, Merit 2.5 G®, Orthene®, Pounce®, Proaxis®, Sevin 4F®, Warrior®
 - Insecticidal soap, Conserve®

JB grub control

- Grub control is difficult
 - Threshold is 8-10/ft² with *obvious damage*
 - Treat if persistent grub damage is visible
 - Pushing product down in the soil
- Insecticides are available
 - Merit 0.5G®, GrubEx® before egg hatch
 - Dylox 6.2G® for late summer grub outbreaks

Mormon cricket/grasshopper

- All counties are surveyed each year
 - >1 million acres infested in 2006
 - 160,000 acres treated by aerial/ground bait
 - Projected 187,000 acres treated in 2007
- Mormon cricket infestation has increased
- Grasshopper infestation has decreased





twostriped grasshopper



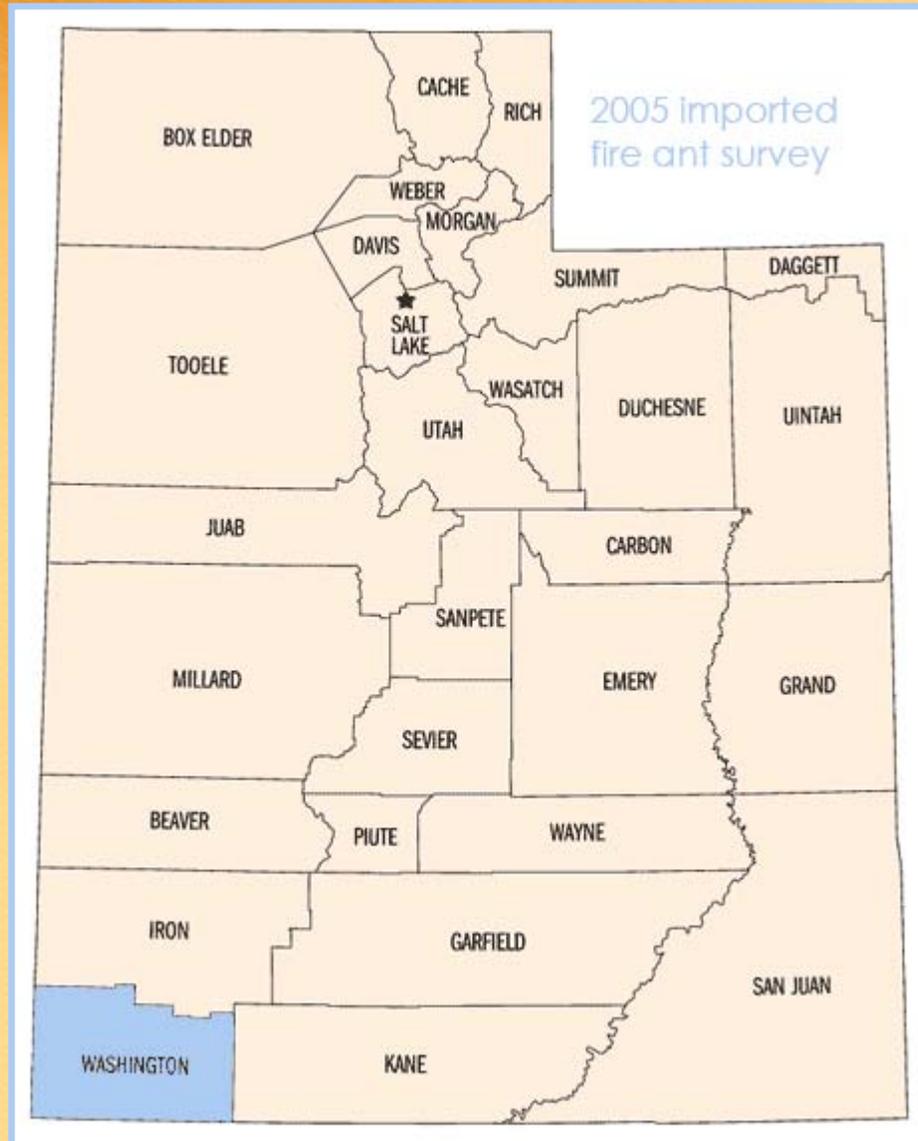
red legged grasshopper



Imported fire ant

- Detected in southern U.S. (1940s)
- Caused > \$5 billion damage so far
 - Will feed on anything
 - Aggressively defend colony
 - Fire ant mounds are common





Summary

- UDAF and USU work together on insect detection surveys with the CAPS Program
- Prevent establishment in Utah
- Most high priority insects are devastating
 - Often can restrict exports to other states
 - Can potentially reduce ag and hort profits

More Information

- <http://utahpests.usu.edu>
 - factsheets, powerpoints, photo gallery
- <http://www.ag.state.ut.us/>
- <http://www.aphis.usda.gov/>
- *Garden Insects of North America*. 2004. W. Cranshaw. ISBN 0691095612.



Thank you!

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