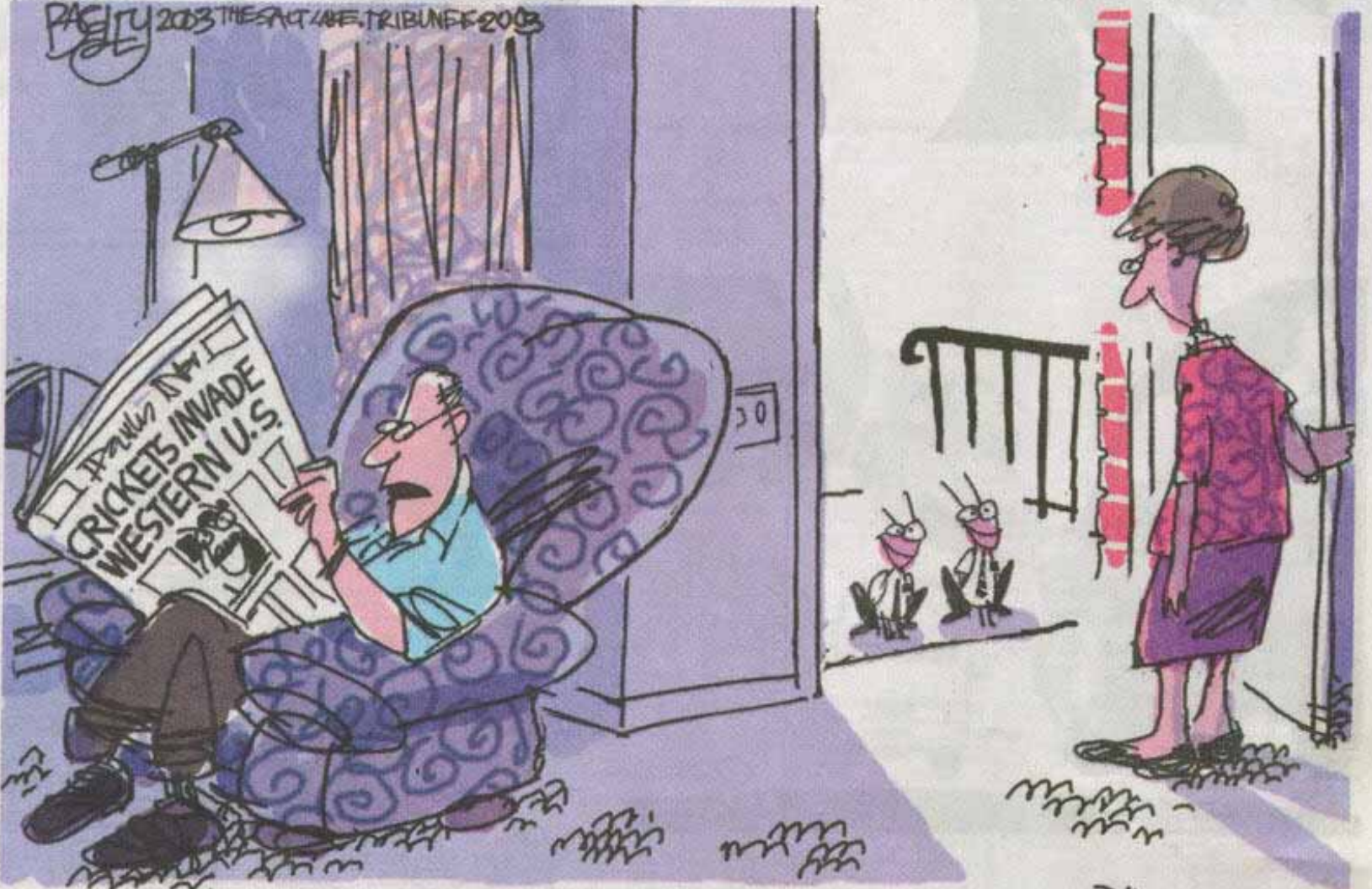


PACIFIC 2003 THE SACT/BE TRIBUNE 2003



"HOW DO YOU KNOW THEY'RE MORMON CRICKETS?"



# Get a Jump On Mormon Cricket and Grasshopper Management

Matt Palmer  
USU Extension Agent  
Tooele County

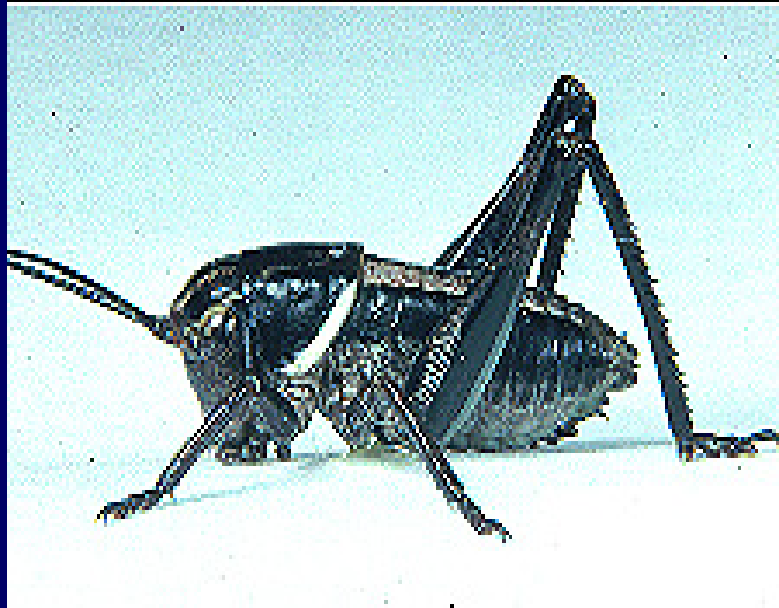


# Mormon Cricket Biology

- Shieldbacked katydid (*Anabrus simplex*)
- Well adapted to harsh Western U.S. environment
  - From valley floors to 11,000 feet alpine tundra



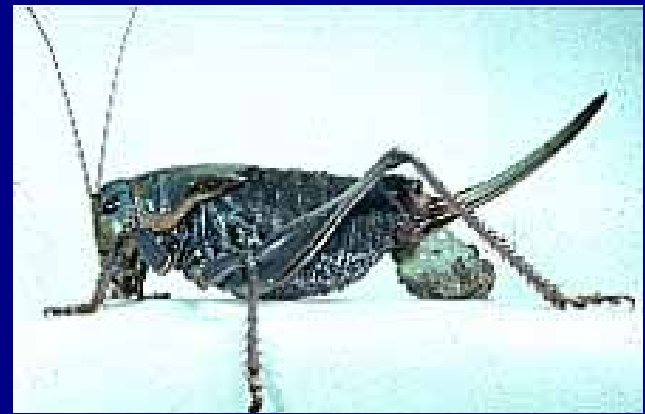
# Life Cycle



- Hatch when soil reaches 40° F
- Pass through 7 growth stages (instars)
- Takes 60 to 90 days

# Life Cycle Continued

- Adult crickets mate 10-14 days after 7<sup>th</sup> molt
- Females deposit single eggs in bare ground
- One female lays about 86 eggs/year



# Food Habits



- Feed on over 400 species of plants
- Prefer succulent forbs and cultivated crops
- Other feed includes: shrubs, grasses, seeds, and fungi



# Cricket Population

- Generally small areas with density of 1 per square yard
- During favorable conditions, population grows to 100 per square yard and migration begins
- High densities may persist for many years
  - An outbreak in the 1930's lasted 17 years

# Grasshopper Biology



- Nearly 400 species inhabit the Western US
- 70 species are most common
- Some are beneficial and some cause damage
- Lifecycles vary between species
- 4 to 6 Growth stages (instars)



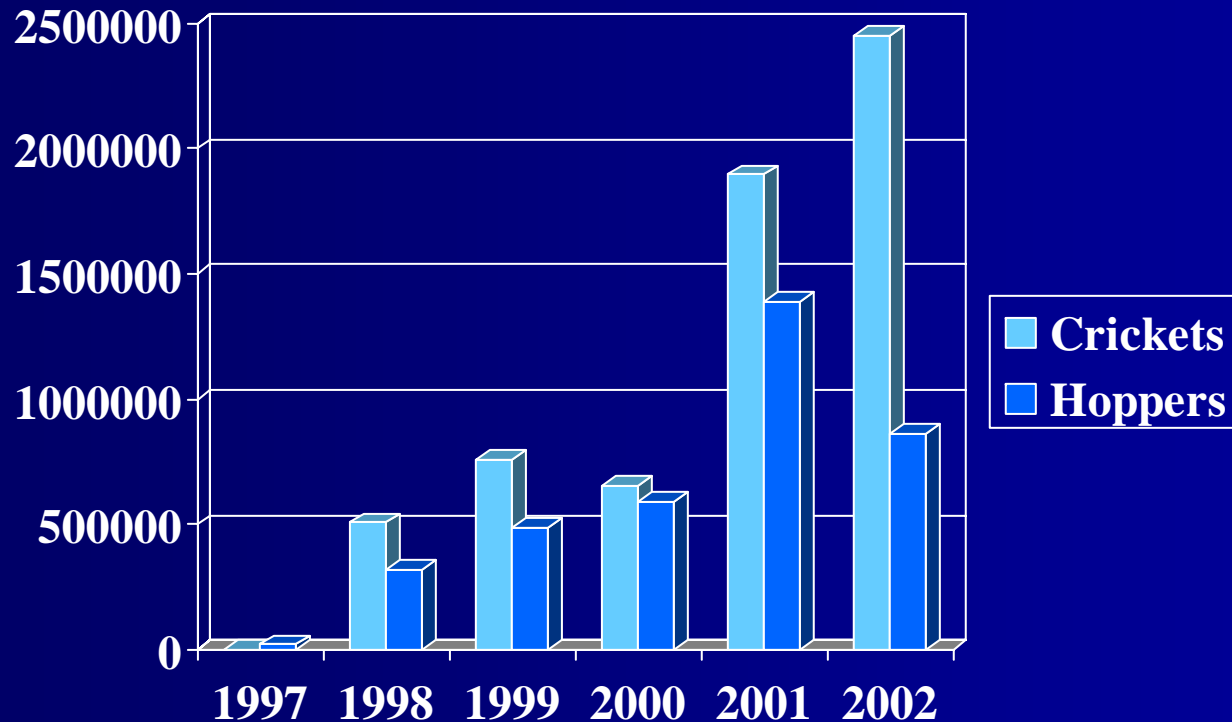
# Drought/Crickets and Hoppers



# 1998-2002

## Cricket/Hopper Outbreak

Infested acres in Utah from USDA-APHIS





# Cricket/Hopper Control

- Early Utah Settlers
  - Brooms, Sticks, Ditches, and Sea gulls
- 1930's
  - Turkeys, Arsenic and Lime Dust, Trenches, Fences and Fire, and Sea gulls
- Today
  - Dimilin
  - Malathion
  - Carbaryl bait
  - Turkeys
  - Ducks
  - Chickens
  - Sea gulls



# Control Coordination

- Work with USDA-APHIS and UDAF to:
  - Monitor area
  - Disseminate info on control programs
  - Design and implement a control plan that reduces crop/yard and garden damage
  - Advise Landowners on products to use and timing of control

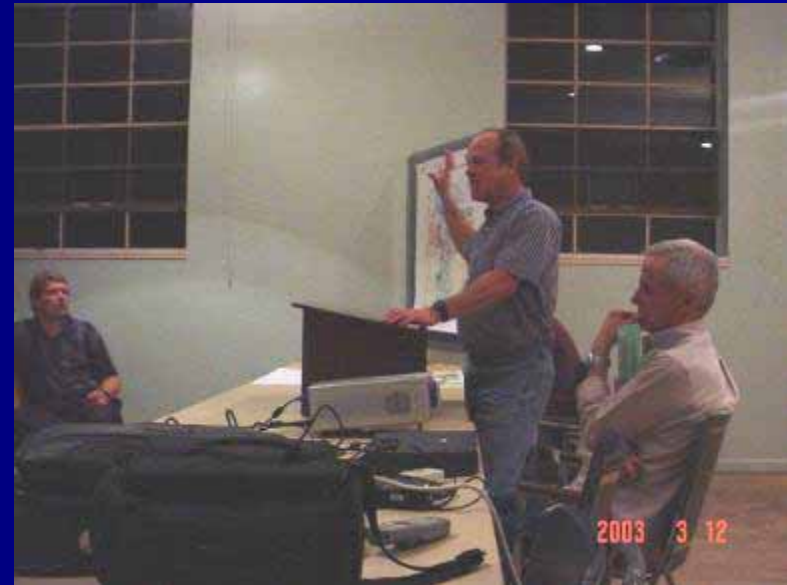


# Monitor Area

- Keep a close eye on the cricket and hopper populations and growth stage
- Alert Ed Bionco (UDAF) and Greg Abbot (USDA-APHIS) when 3-7 per square yard

# Disseminate info on control programs

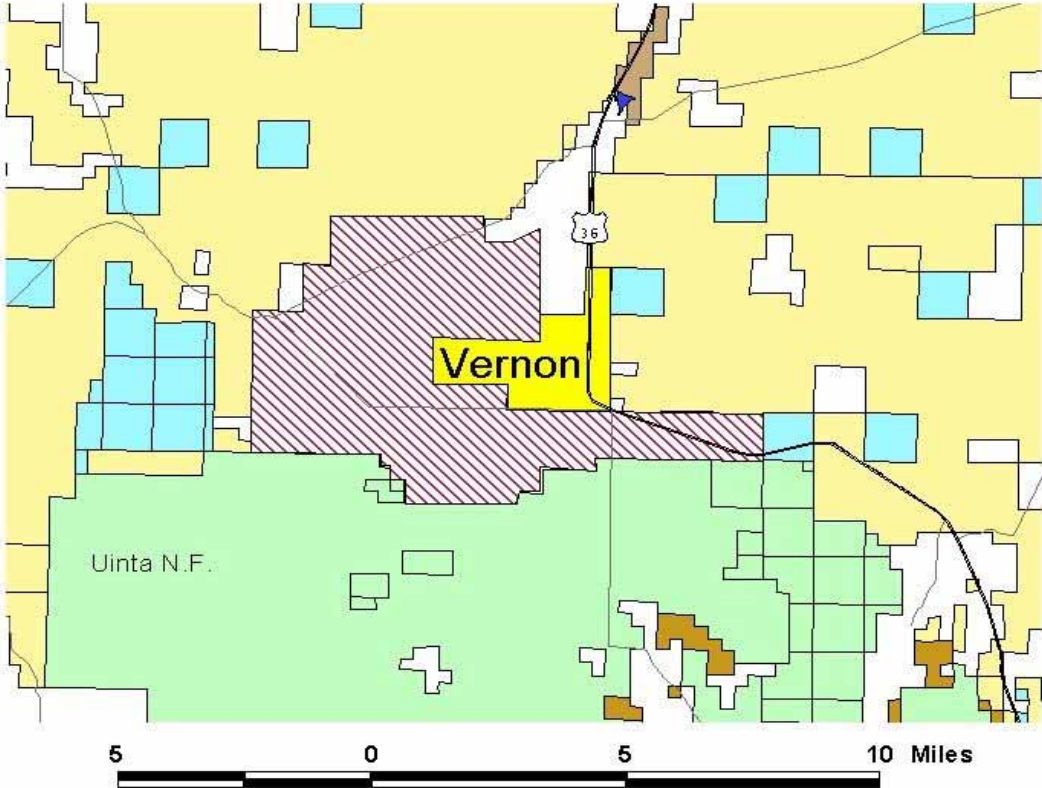
- Cricket/Hopper community meetings about the control programs
  - UDAF, 50% cost share on bait and spray
  - USDA-APHIS, Control on Federal Lands
  - Agencies, Local Government and Private Activists



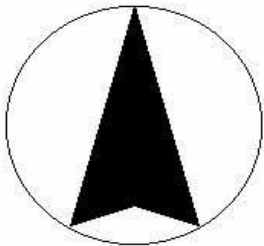
# Design and implement a control plan

- Determine infested acres and the area where control will be most effective (Clint Burfitt UDAF/USDA-APHIS)
- Include private and public lands
- Find activists or elected officials in the area to organize private land owners

# Estimated Aerial Treatment For Mormon Crickets 2002



- PAVED ROAD
- GRADED ROAD
- ESTIMATED TREATMENT AREA 2002
- MUNICIPAL BOUNDARY
- FOREST SERVICE
- BLM
- STATE
- PRIVATE





# Advise Landowners on control

## ■ Dimilin

- For large aerial rangeland application
- Use when insects are immature
- Must be 150 ft from Water
- Cost range from \$4 to \$5.50 per acre
- Lasts about 1 month
- Environmentally friendly
- Safe around humans, animals, and bees

# Advise Landowners on control

## ■ Carbaryl Bait

- Supplied at cost share from UDAF (128, 17<sup>th</sup> street, Ogden 1-801-392-2292)
- Good control on crickets, fair on hoppers
- Apply with a broadcast spreader
- 10 lb to the acre
- Safe if applied properly
- Comes in 50 lb bags

# Advise Landowners on control

- Malathion ULV
  - Apply when Hoppers and Crickets are small
  - Use 8 oz per acre
  - Hard on Bees and most other insects
  - Short lived (3 to 5 days)



# Advise Home Owners



- Biological controls
  - Turkeys
  - Chickens
  - Ducks
  - Nolo Bait
  - Slick metal fencing



# Tooele 2002 Control Results

- Community well-informed on Mormon Cricket Control
- Applied Dimilin to about 25,000 acres
  - More than 50,000 acres treated (RAATs + Bait)
- Advised ranchers and home owners on control methods
- Saved crops and range forage
  - Ensign Ranches saved about \$12,000 of alfalfa and \$3,500 on 120 acres of range.