

The California Ground Squirrel

March 21, 2016

Royce Larsen
UC Cooperative Extension
Thank you to *Bill Tietje*

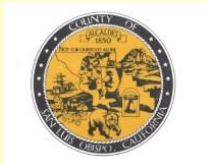
Otospermophilus beecheyi



History
Biology
Predators
Livestock
Disease



Cooperative
Extension,
San Luis Obispo
County



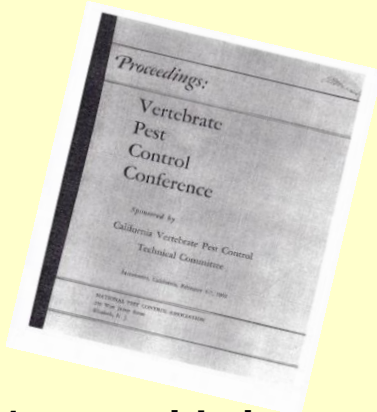
University of California
Agriculture and Natural Resources

Brief History



Santa Barbara Mission—1808

First Squirrel Campaign,
1,000's Killed in 9 days



1901 statewide interest in control
First Vertebrate Pest Conference
(Sacramento, 1956)

The Bounty! (repealed 1877)



3 cents/squirrel – lots of
Squirrels Claimed

- County Budgets were Strained
- Abuses Occurred
- Control was not very good

Biology

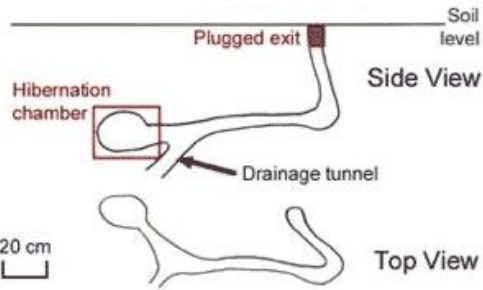
Annual Cycle

Hibernate (Nov-Jan)

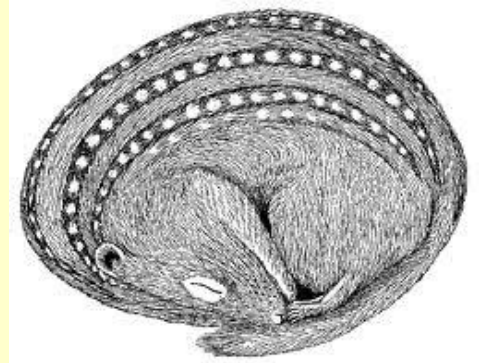
Active (Feb-Jun)

Estivate (Jun-Aug)

Individual Basis, Environmental and Nutritional Factors



© Gail R. Michener



Hibernate Coldest Part of Year
They are not Obligate Hibernators

Sleep During Hottest Period



Biology

Breeding



Several Openings, ~100 ft of Burrow,
2-4 Feet Deep

- **1 litter/year**
- **30 day gestation**
- **5-7 (10-11) young nursed underground 6 wks.**
- **Males disperse/Clusters of females; Jv/Yrl: 80% of Population**
- **Yrl are reproductively mature)**
- **Live up to 6 years in wild**

Feeding Habits

Variety of Fresh Greens (spring), Seeds, Dried Nuts
Well Adapted to Find Sparsely Dispersed Food
Build a Cache for Later Use



How many squirrels?
Population Density



Stay near their
burrows, home range
about 150 yards

Population Density



30-35/acre

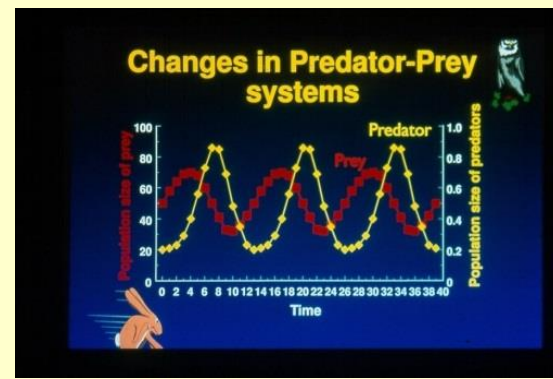


Oak Tree & Squirrels

- Provides ideal habitat
 - shelter (predators)
 - food (acorns)
- Burrowing dries roots
- Soil moved to surface may be contaminated w/oak root fungus
- Destroys seedlings



Predators



Need IPM Program



Raptor Post

- Squirrel 70% of rattlesnake diet
- Blood proteins (older have immunity)
- Hemotoxin (old) /Neurotoxin (young)

Squirrels will rub/eat rattlesnake skins

Cattle & Squirrel

Squirrel populations Increase in Grazed Areas

A. Forage Competition

- Reduce gain by 1 lb./day
- 200 squirrels = one 1,000 lb. Cow

B. Most critical time: Late winter
(period of inadequate forage growth for
cattle)

C. Study: Fehmi, Russo, Bartolome. 2005.
Effects of Livestock on CA Gd Sq. J. Range Ecology
& Mgmt.

Conclusion: At moderate grazing
intensity and during years of
adequate rainfall, can have cattle,
squirrels, & predators the
squirrels support.



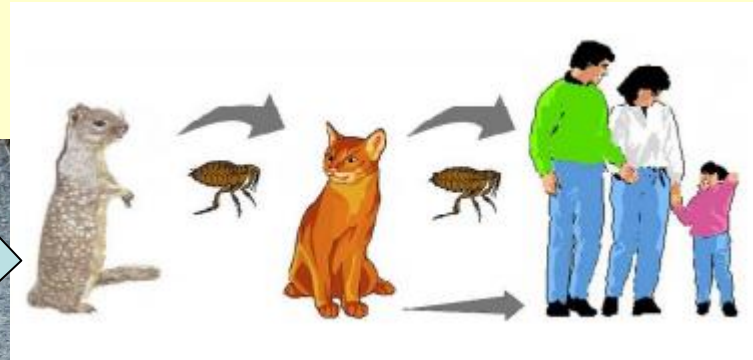
Diseases

Bubonic Plague

Tularemia

Leptosprosis

Cryptosporidosis?



**Should not
feed squirrels**

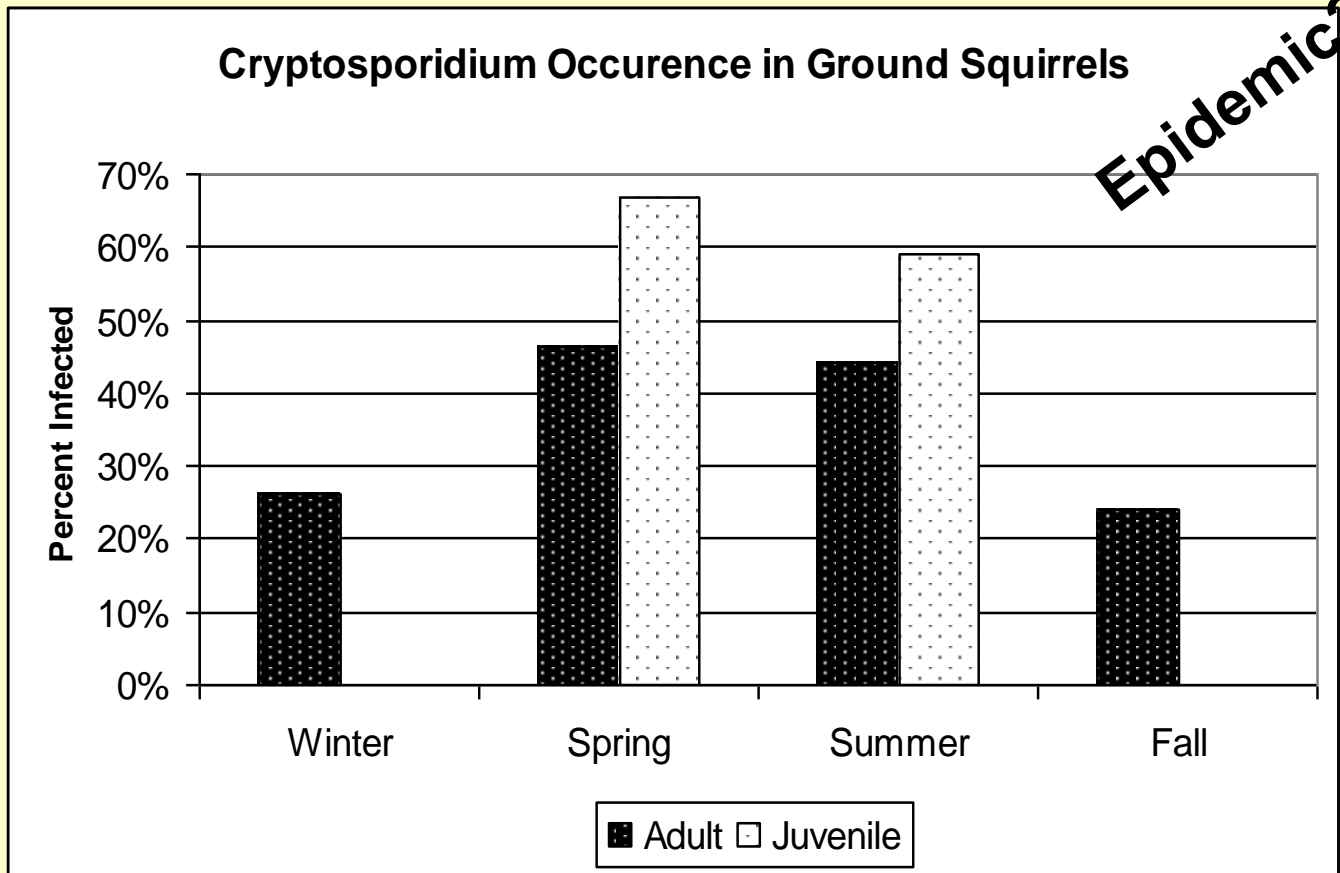
Posted on Thu, Sep. 02, 2004

County checks reports of waterborne illness

Several people have described feeling sick after visiting the water park; health officials believe one-celled parasite may be to blame
Nathan Welton and Laurie Phillips
The Tribune



Diseases



- 1) There were differences between age and season
- 2) There were no differences between male and female

Diseases - Recent Study

A new *Cryptosporidium* sp. was isolated through DNA testing.

New *Cryptosporidium* from ground squirrels named *C. rubeyi*.

Is this new species a threat to human health?????



Bad Guys!—w/a bit of Good

The Bad:

- Ag pest extraordinaire!
- Health hazard: Bubonic plague
- Oak seedling predator



The Good:

- Keystone Spp.: helps maintain predator & grassland diversity



Challenge: Maintain the functional roles of burrowing mammals in ways compatible with human activities—IPM Program!

END