

# ENVIRONMENTAL SUSTAINABILITY:

<http://www.youtube.com/watch?v=3zyizEz9XUs>  
The Human Impact on this Earth, 5:54

# Negative Impacts..

- At your tables....

What are some personal behaviors  
that negatively impact the  
environment?

## Lesson of Easter Island:

- One goal of environmental science is to help understand how our actions affect the environment. **What could the people of Easter Island have done differently to avoid what happened?**

# Environmental Science



- Devoted to studying the impacts humans have on the environment
- Lesson of Easter Island, p.28-29

NYC Today and 400 yrs ago

# Goal of environment science



## **To understand and solve environmental problems**

- Ecosystem functions
- Air Pollution
- Water Pollution
- Toxic Chemicals
- Climate Change
- Resource usage

*Newer field of study*

# Environmentalism

- Is a social movement dedicated to protecting the natural world.







What are the environmental consequences of choosing these types of energy sources?

*What are the benefits and costs of these energy sources?*

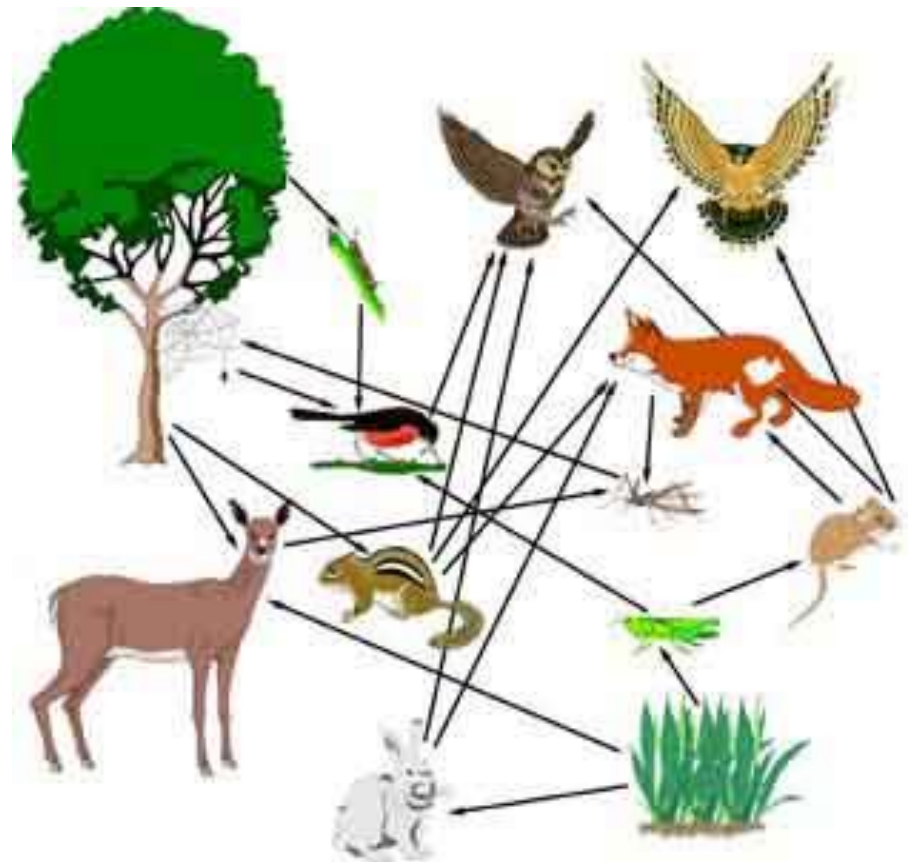
*Why does 50% of our current electricity come from coal?*



# Foundation of Environmental Science

Ecology!!

What is ecology?





# ECOLOGY

- Biology: the study of living organisms
- Chemistry: the study chemicals and their interactions
- Physics: the study of matter and energy
- Earth Science: the study of earth's nonliving systems
- Social Sciences: the study of human populations

# ECOLOGY: NATURAL SYSTEMS

- ORGANISMS
- SPECIES
- POPULATIONS
- COMMUNITIES
- INTERACTIONS
- HABITATS / ECOSYSTEMS
- ENVIRONMENTS / BIOMES

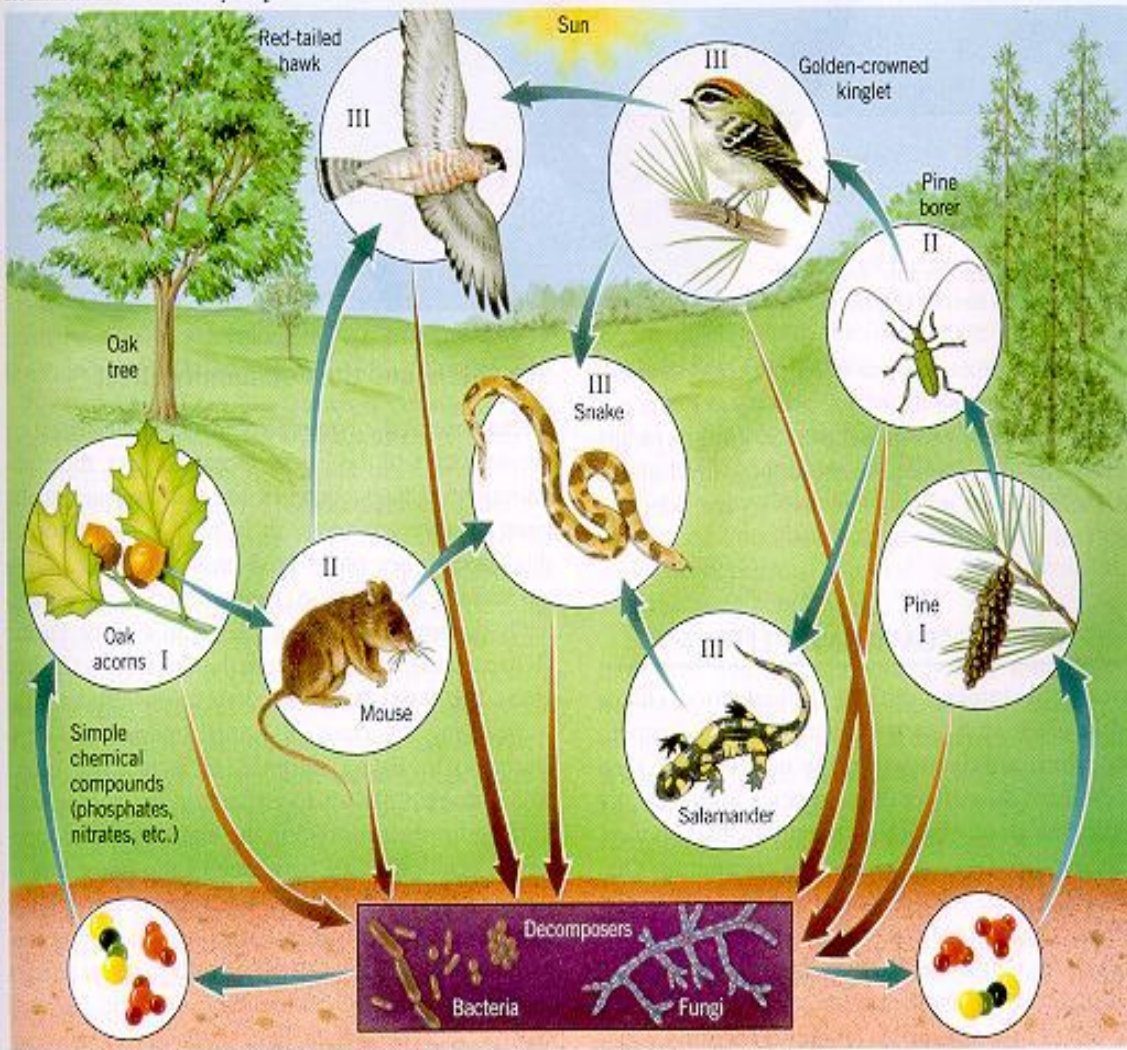
# ECOLOGY

- “ECO” → “OIKOS” → HOMES
- “OLOGY” → The Study of
- \* Ecology = \_\_\_\_\_
- \* Study of interactions or interrelationships between different living organisms and their environment

# (3) Rules in ECOLOGY

- 1.) EVERYTHING IS CONNECTED.....
- 2.) SOMETHING THAT AFFECTS ONE THING.....
- 3.) SYSTEM HANGS TOGETHER.....
- State of balance = \_\_\_\_\_
- \*regulate body via this means

FIGURE 6.3 Food webs: (a) a typical terrestrial food web. Roman numerals identify trophic levels.



Ecology wants to study how all of these living and nonliving things interact





# What is *interdependence*?

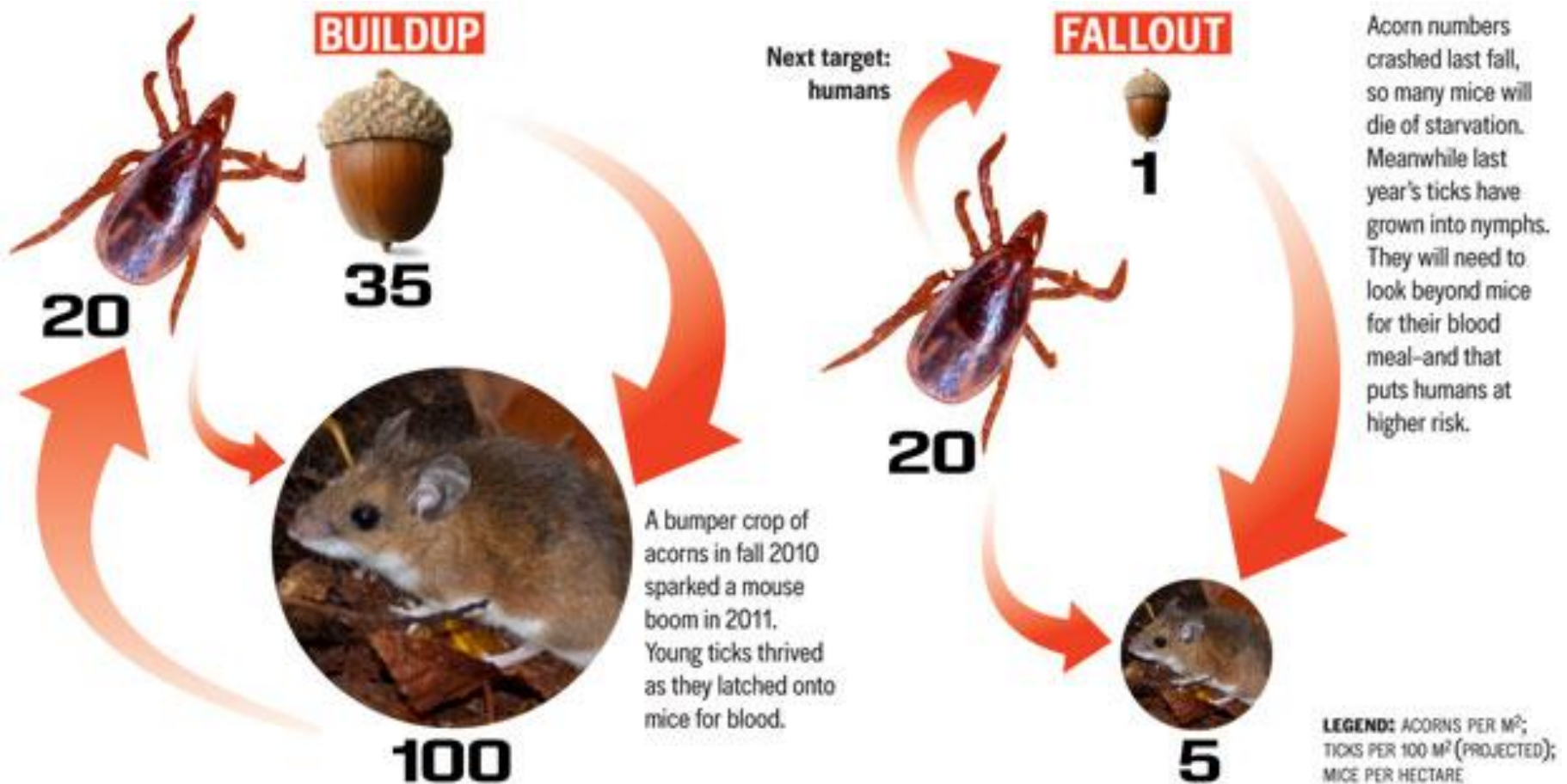
- All organisms *interact* with other organisms
  - in their surroundings
  - and with the nonliving portion of their environment.
- Each member is mutually dependent on the other members → Survival depends on these interactions

# What is *interdependence*?

- ANY change in the environment can spread through the network of interactions
  - Can affect organisms that appear far removed from the change
- Example: Bald Eagle – affected by DDT
- [http://www.cbsnews.com/8301-18563\\_162-20067233.html](http://www.cbsnews.com/8301-18563_162-20067233.html)
- Example: Forests in the eastern United States → “When Nature Goes Nuts” Article

# “When Nature Goes Nuts”

- Article
- Worksheet (vocabulary and questions)



- <http://discovermagazine.com/2012/jul-aug/06-worried-about-lyme-disease-blame-the-acorns#.Uid7bXddDR8>

“From little acorns mighty oaks do grow”





# “THE PLAYERS”

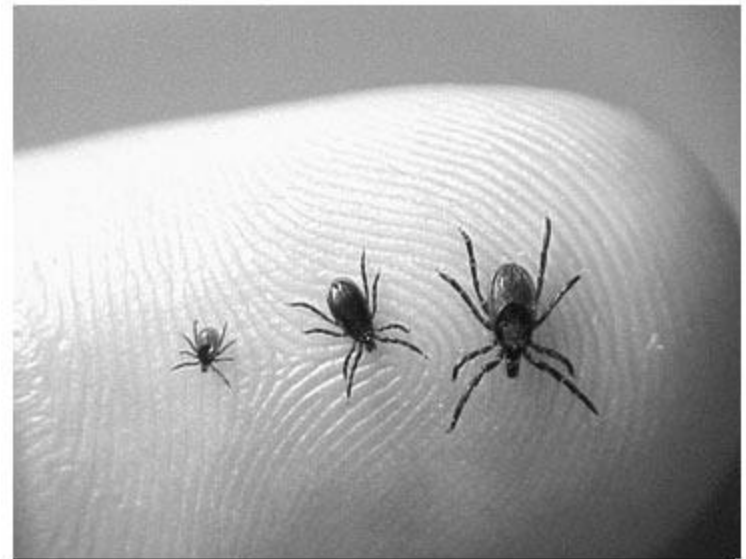
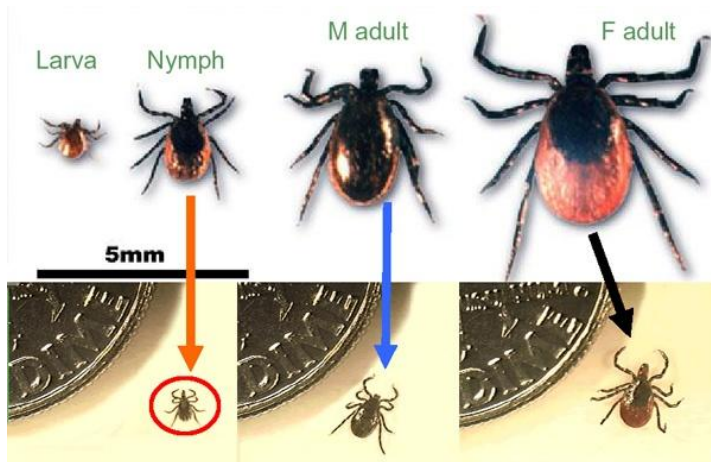


# GYPSY MOTH





# TICK



Western black-legged ticks on a finger. Left to right: nymph, adult male, adult female. Source: California Department of Health Services.