

An underwater photograph showing a diver in the upper left, a fish in the upper right, and a large field of sea urchins on the seabed. The text 'CONSERVATION ECOLOGY' is overlaid in the center.

# CONSERVATION ECOLOGY

<http://www.nps.gov/chis/photosmultimedia/santa-cruz-island-photo-gallery.htm>



Santa Cruz-Watsonville Inquiry-Based Learning in Environmental Sciences

An NSF GK-12 Graduate Training Program at the University of California, Santa Cruz





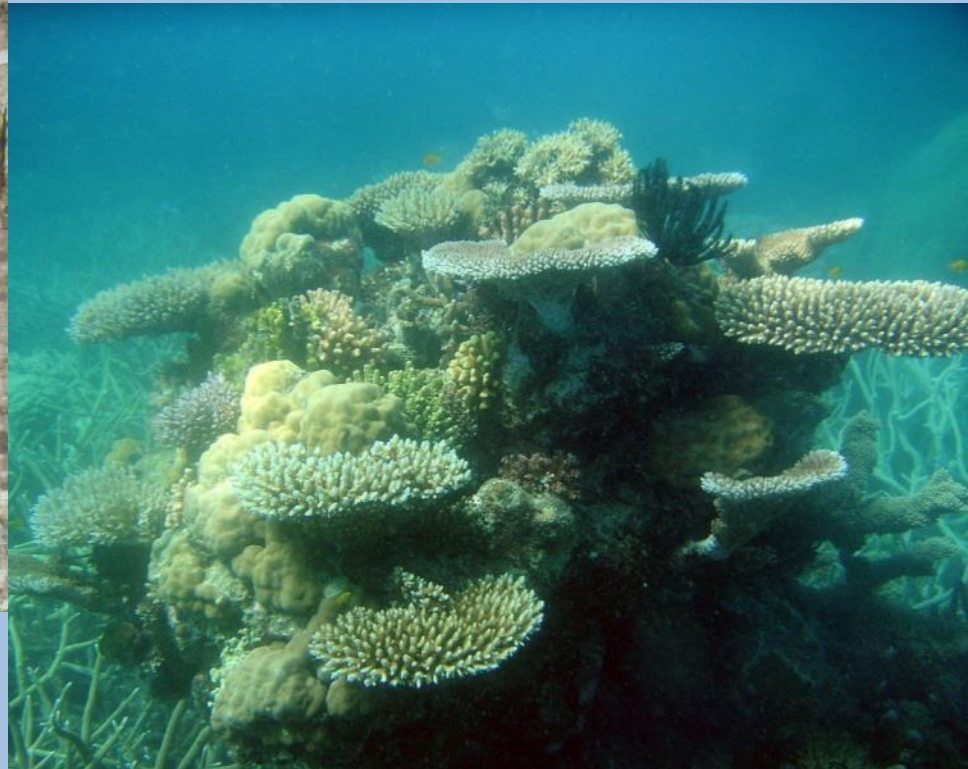
# BIODIVERSITY

- Biodiversity = the variety of organisms in a community

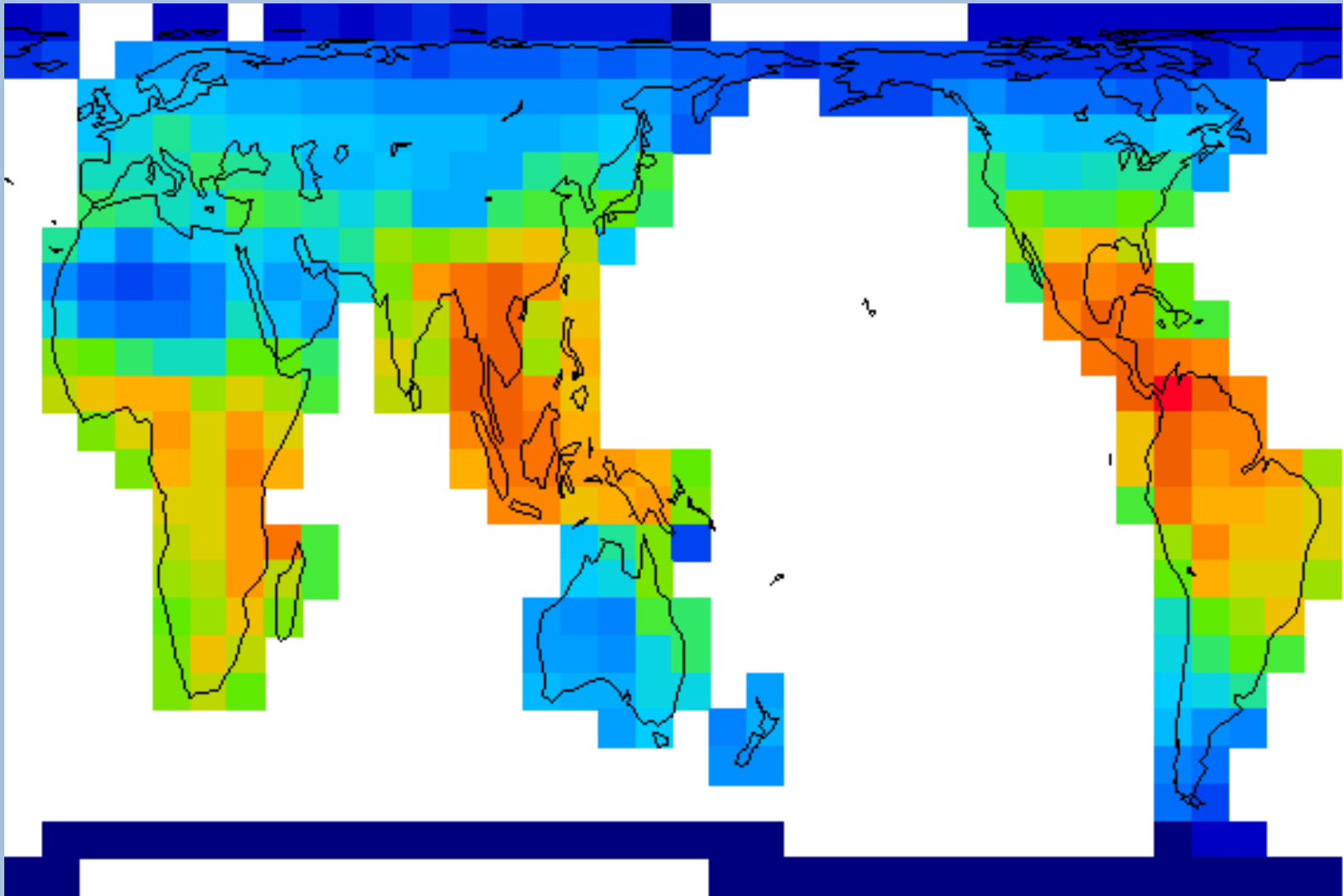


Tropical Rainforest

Coral Reef

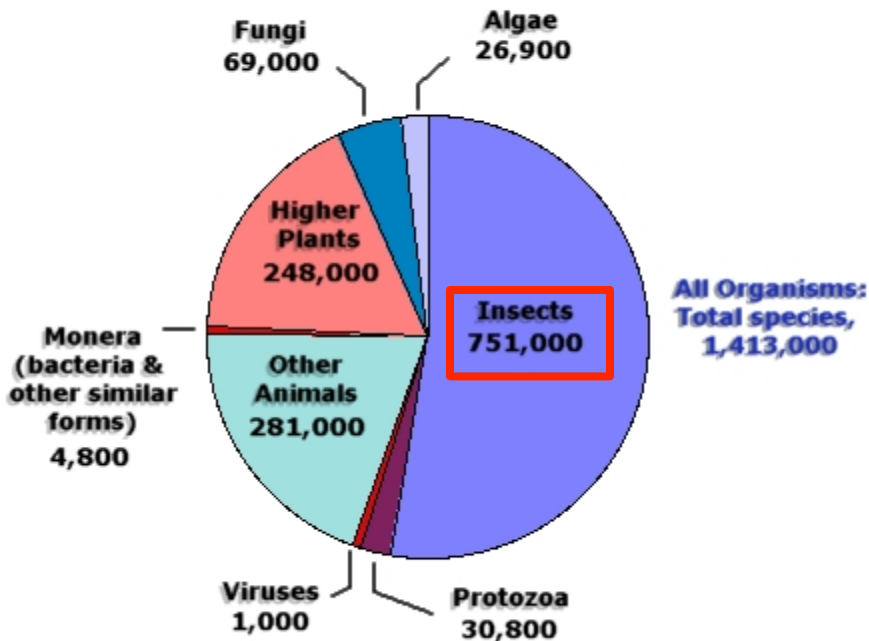


# World Biodiversity

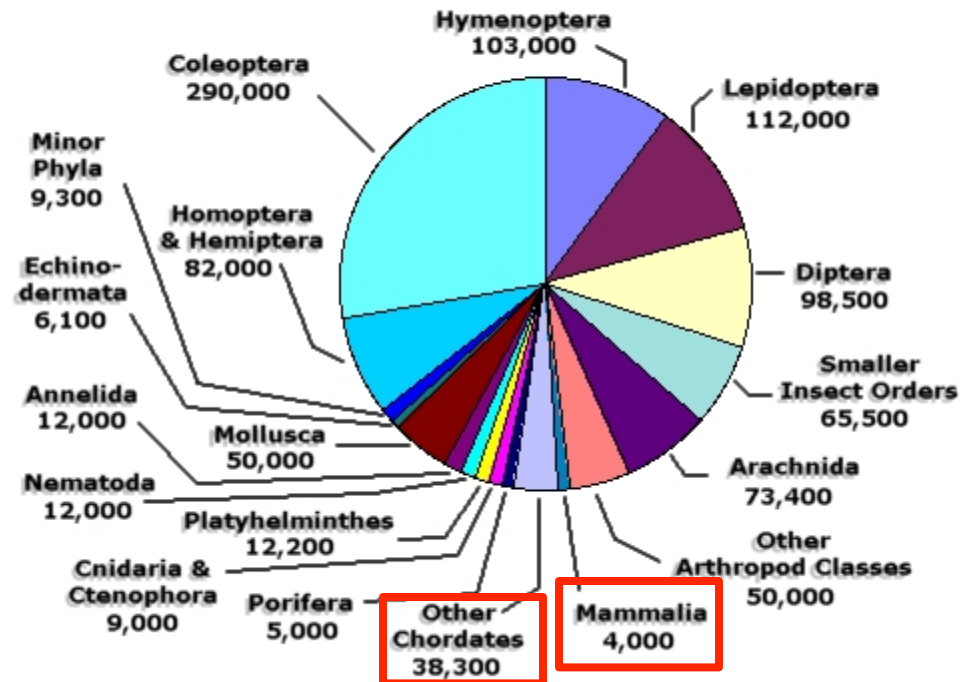


# World Biodiversity

**Number of Living Species of All Organisms Currently Known**

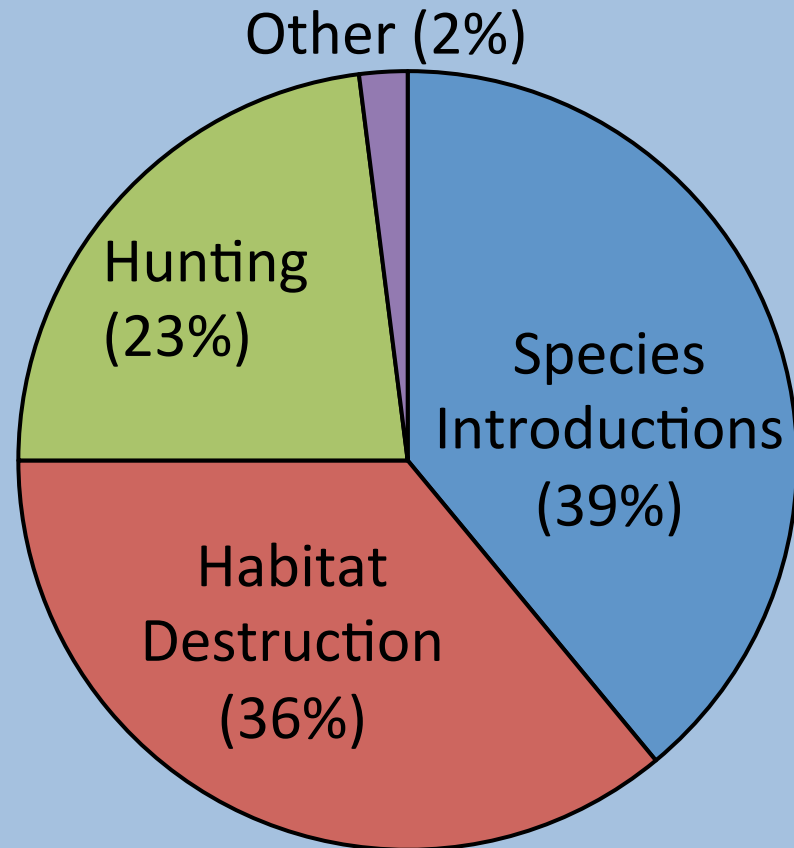


**Number of Living Animal Species Currently Known**  
**Animals: Total Species, 1,032,000**



# How do humans impact biodiversity?

- Introduction of exotic species
- Habitat destruction
- Hunting/fishing
- Pollution
- Climate change



## Known Causes of Animal Extinctions Since 1600

Modified from: <http://www.globalchange.umich.edu/globalchange2/current/lectures/biodiversity/biodiversity.html>



# Invasive Species

## Light Brown Apple Moth



## California's #1 Invasive Species

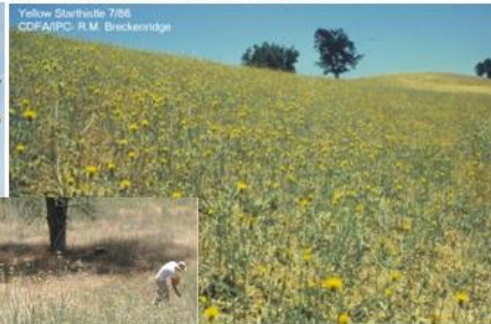
Yellow Starthistle 7/73  
CDFA/IPC - W.J. Forst



Yellow starthistle (YST) (*Centaurea solstitialis*) causes brain lesions and death in horses, uses large amounts of water and degrades rangelands through competition with desired beneficial plant species.



Yellow Starthistle 7/86  
CDFA/IPC - R.M. Breckenridge



22 million acres infested in California.



YST is invasive in rangelands, orchards, vineyards, pastures, parks, roadsides & natural areas.

## Destructive Seaweed Threatens California

*Caulerpa taxifolia*



If you see it, immediately report it, but DO NOT disturb it!



# Habitat Destruction



Jami Dywer (Wikimedia)



NOAA

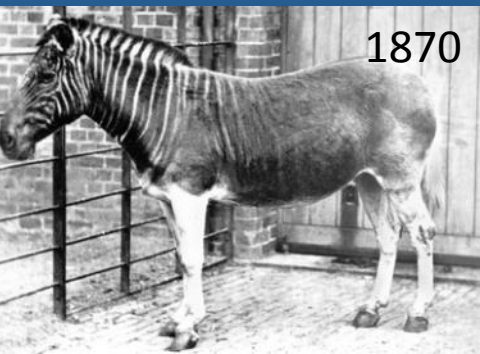


Kristin McCully



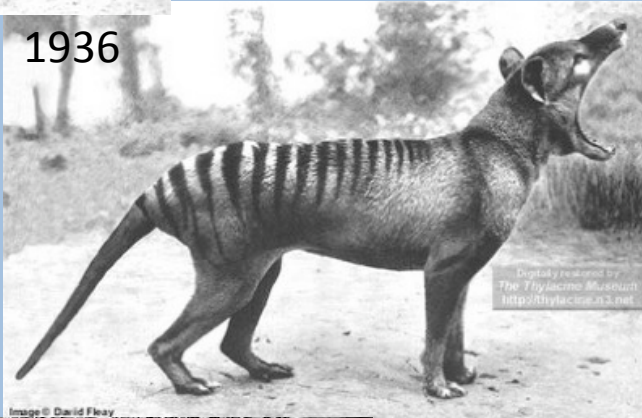
João Carvalho (Wikimedia)

- Ex: Deforestation
- Why?
  - Agriculture
  - Logging
  - Mining
  - Urban sprawl
- Why not?
  - Loss of biodiversity
  - Increased vulnerability to natural disasters
  - Loss of ecosystem services



1870

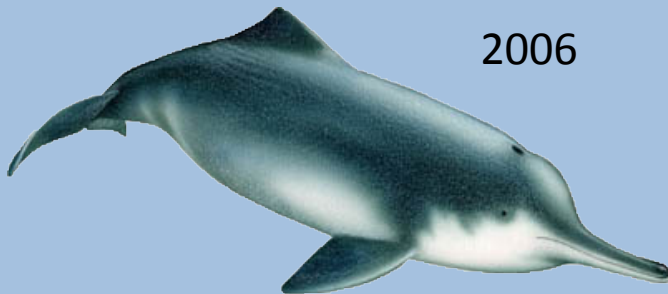
# Hunting/Fishing



1936



1952



2006

Alessio Marrucci (Wikimedia)

MONTEREY BAY AQUARIUM®

# Seafood WATCH®



[www.seafoodwatch.org](http://www.seafoodwatch.org)

## BEST CHOICES

Abalone (farmed)  
 Barramundi (US farmed)  
 Catfish (US farmed)  
 Clams, Mussels, Oysters (farmed)  
 Cod: Pacific (Alaska longline)+  
 Crab: Dungeness  
 Halibut: Pacific+  
 Lobster: Spiny (US)  
 Pollock (Alaska wild)+  
 Rockfish: Black (CA, OR)  
 Sablefish/Black Cod (Alaska+, BC)  
 Salmon (Alaska wild)+  
 Sardines  
 Scallops: Bay (farmed)  
 Shrimp: Pink (OR)  
 Spot Prawn (BC)  
 Striped Bass (farmed)  
 Sturgeon, Caviar (farmed)  
 Tilapia (US farmed)  
 Trout: Rainbow (farmed)  
 Tuna: Albacore (US+, BC troll/pole)  
 Tuna: Skipjack (troll/pole)  
 White Seabass

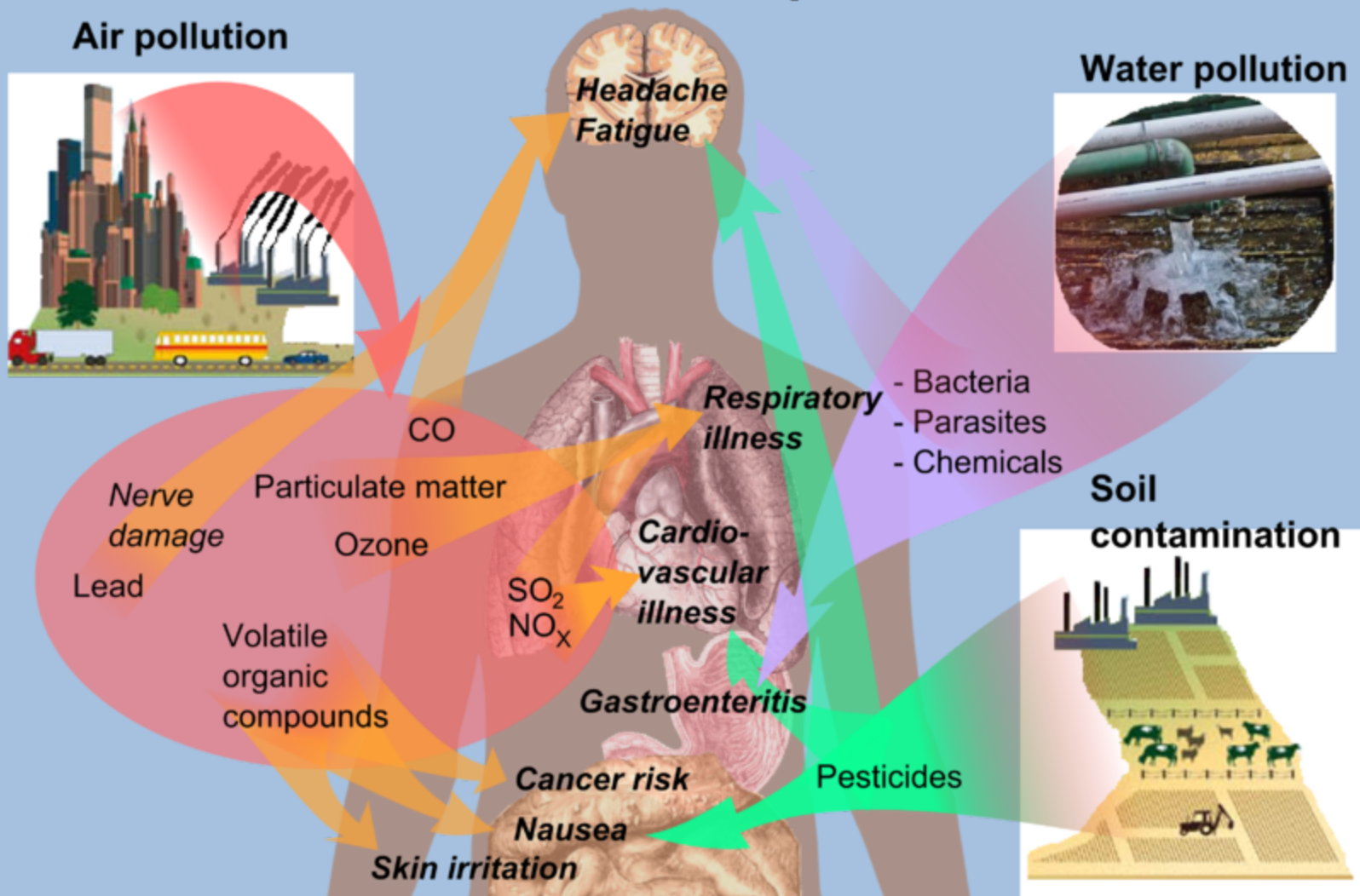
Chil  
 Cod  
 Cral  
 Dog  
 Gre  
 Lob  
 Mah  
 Monkfish  
 Orange Roughy\*  
 Rockfish (trawled)  
 Salmon (farmed, including Atlantic)\*  
 Scallops: Sea (Mid-Atlantic)  
 Sharks\*  
 Shrimp (imported farmed or wild)  
 Sturgeon\*, Caviar (imported wild)  
 Swordfish (imported)\*  
 Tuna: Albacore, Bigeye, Yellowfin (longline)\*  
 Tuna: Bluefin\*





# Pollution

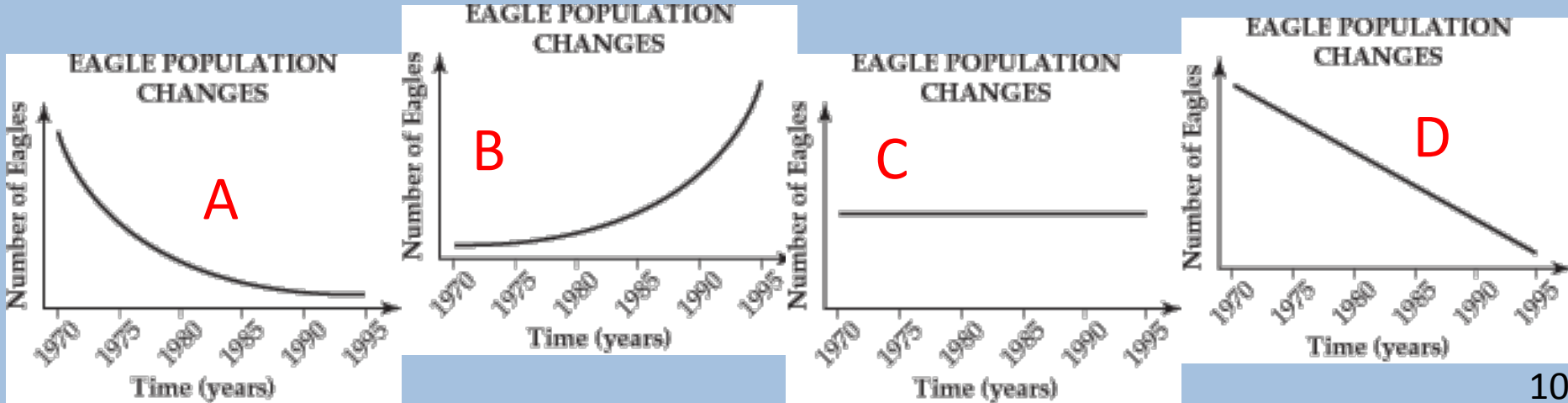
## Health effects of pollution



# REVIEW FOOD WEB ACTIVITY

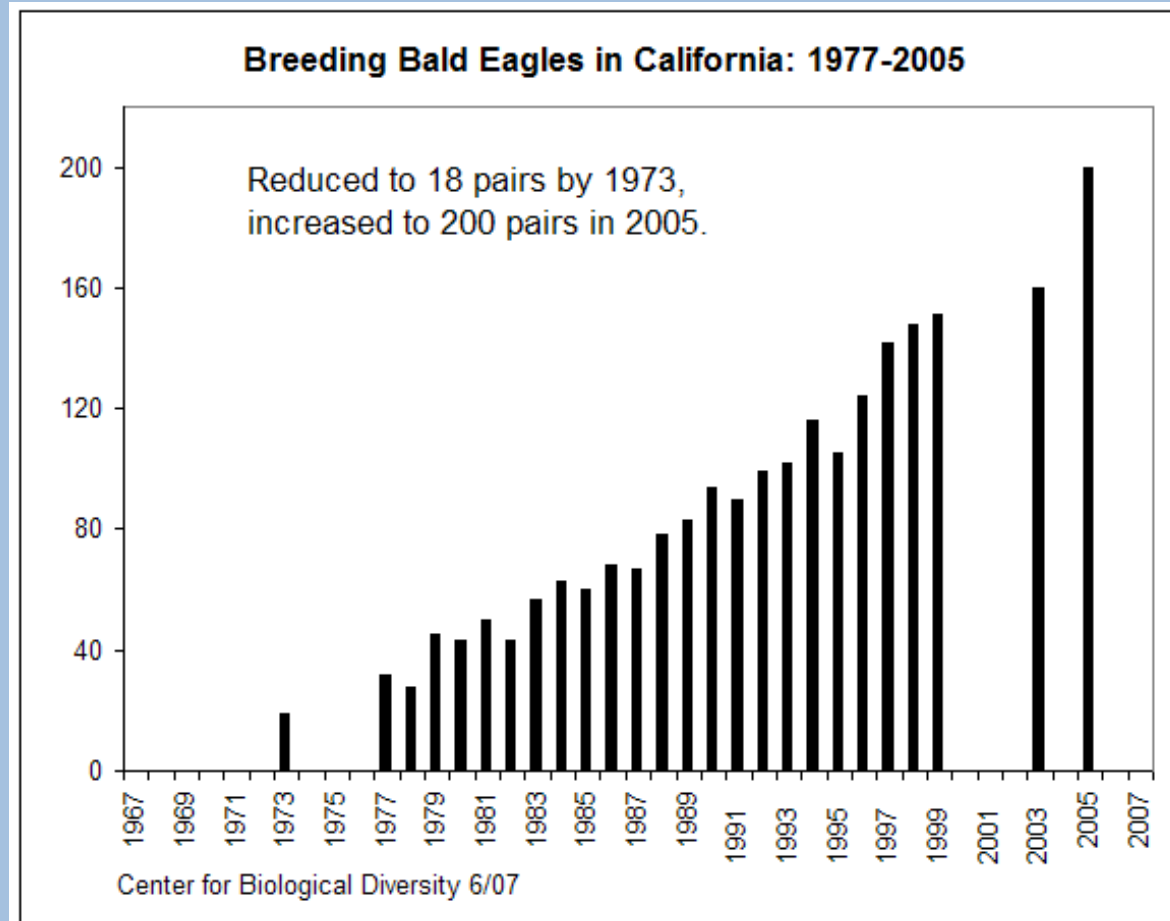
The pesticide DDT was used to kill mosquitoes for many years. DDT entered bodies of water, moved up the food chain, and built up in the tissues of fish. When female bald eagles ate these fish, they produced eggs with very thin shells. The eggs broke when the eagles sat on their nests. The U.S. government banned the use of DDT in 1972.

Which of these graphs most likely shows how the ban of DDT affected the bald eagle population?





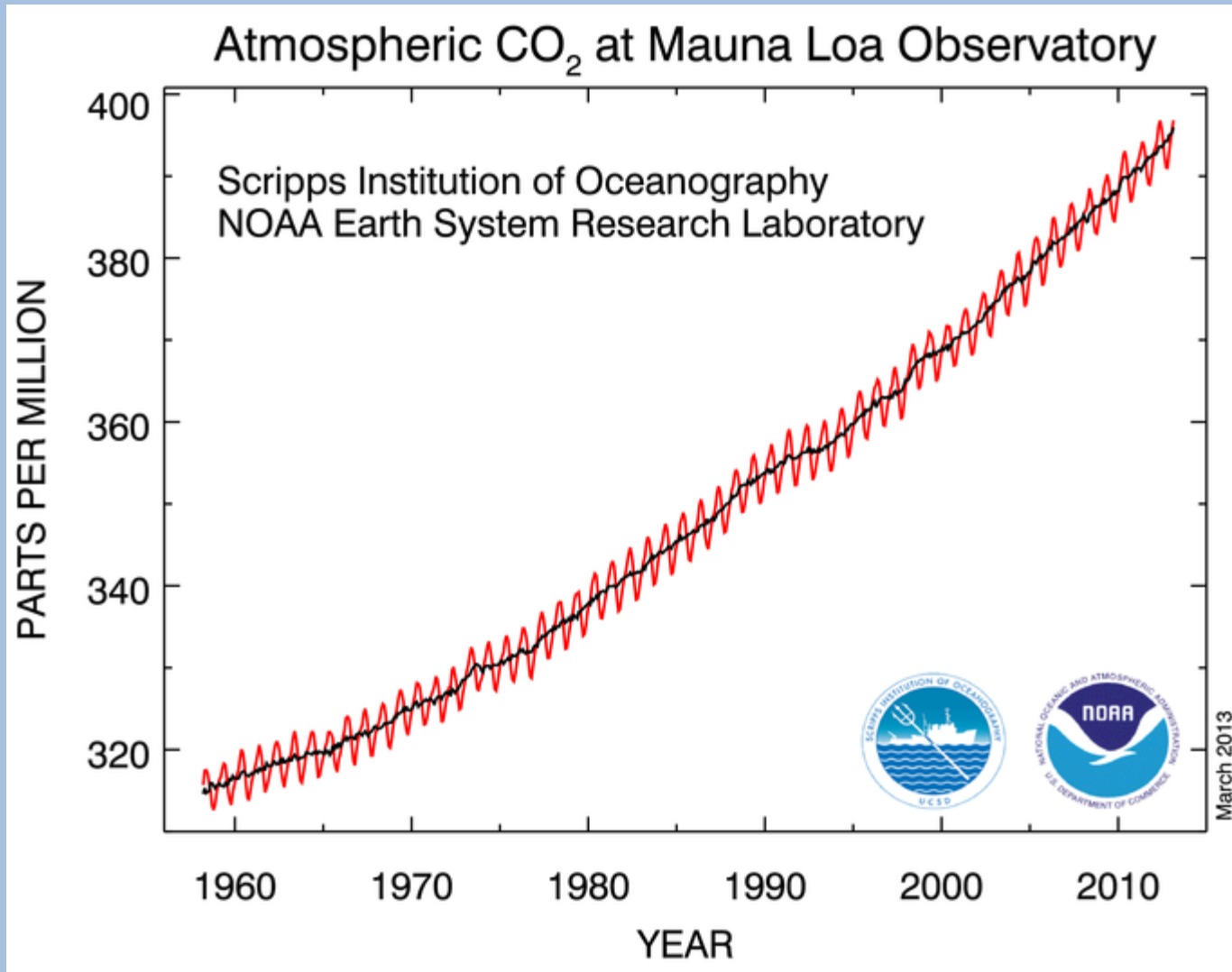
# REVIEW FOOD WEB ACTIVITY



Source: Center for Biological Diversity

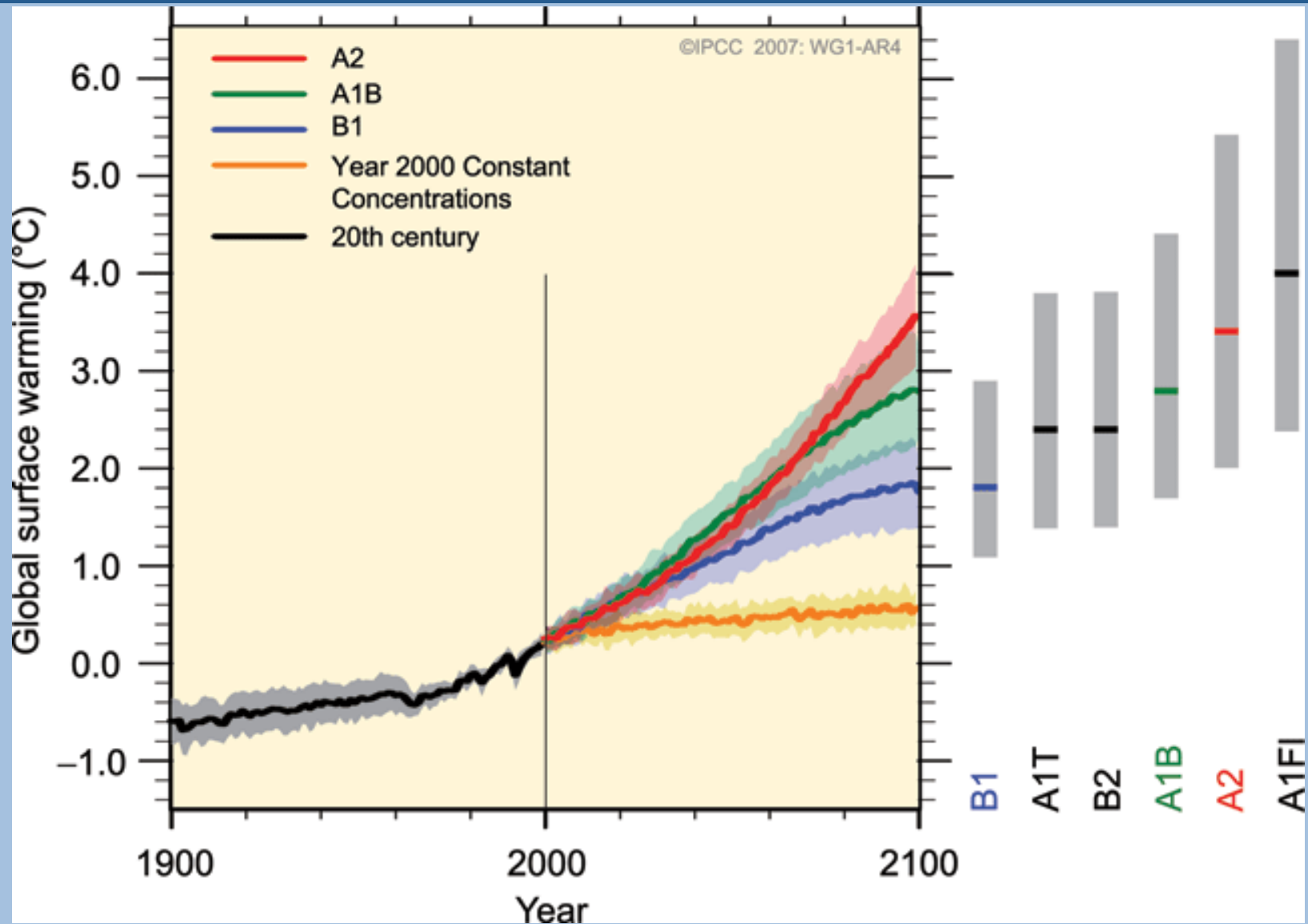
[http://www.biologicaldiversity.org/species/birds/bald\\_eagle/report/index.html](http://www.biologicaldiversity.org/species/birds/bald_eagle/report/index.html)

# Global Climate Change





# Global Climate Change



# Global Climate Change

