

6:1a Extinct and Endangered Species

**Many plants and animals
around the world have become extinct**



**Sometimes this
occurs
due to natural
events
as in the case of
the dinosaurs**

**More recently however, extinction rates are
accelerating and are taking place as a result
of human activities and impacts such as**

- Loss of habitat,
- Climate change
- Overhunting
- Overfishing
- Pollution
- and Competition with humans and exotic species

6:1b Biodiversity



**As we convert
more of the natural
world to human uses
*more wild species
are threatened or
endangered***

DIMINISHING BIODIVERSITY

**In order to lessen
this problem,
*we must understand
its causes*
and
replace negative
impacts with
positive impacts**



6:1c Understanding Our Impacts

**One way we harm other species
is by OVERHUNTING and OVERFISHING**

Examples:



- **The American bison**
- **Sea turtles**
- **Baleen whales**
- **Giant *Tridacna* clams**
- **Cod and sturgeon**

**Sailing ships discovered STELLER'S SEA COW
(a relative of the manatee) in 1741**

**BY THE WINTER OF 1768
IT HAD BEEN HUNTED TO EXTINCTION**

**If humans have access to a wilderness,
it takes only a few of us to enter and destroy**

**To protect many species, there must be sanctuaries,
set asides, and inviolate reserves**

6:1d Habitat Loss and Fragmentation

Many species are endangered
due to HABITAT LOSS AND FRAGMENTATION



As forests
are converted into
into subdivisions,
cities, farms, fuelwood,
charcoal and pastures

the natural habitats that support
tigers, elephants, orangutans, and gorillas disappear

Forests
and wilderness
areas are also
becoming
FRAGMENTED

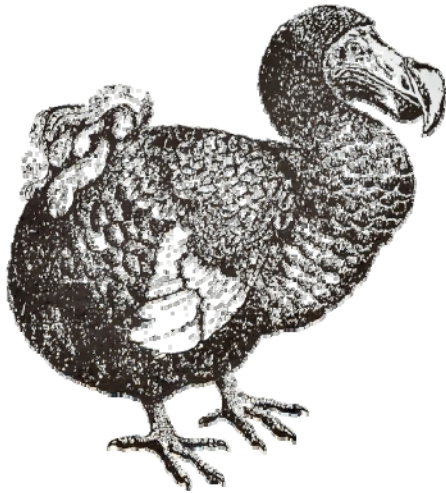


into tiny "ISLANDS IN A SEA OF HUMANITY"

blocking migratory routes
*and leaving breeding populations
isolated from each other*

6:1e The Impacts of Exotic Species

EXOTICS *are invasive non-native species that become established in a new environment*



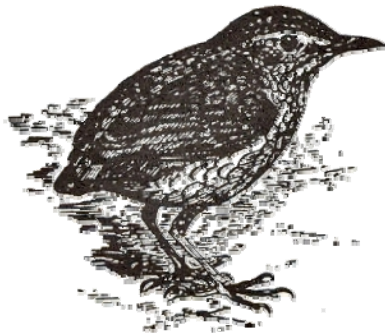
Sailors and exotic species drove all three species of “dodo” birds to extinction between 1507 and 1681

- ✓ **The birds were flightless and unafraid so the sailors ate both the dodo birds and their eggs**
- ✓ ***The sailors also left pigs on the islands so that on their next voyage they could have “ham and eggs”***
(And the pigs soon ate Dodo eggs)
- ✓ **In addition, rats escaped from the ships (more exotics) and soon began eating dodo eggs**

The flightless dodo had no experience with these dangers and was gone within 175 years

6:1f Stephen's Island Wren

WHEN AN EXOTIC ARRIVES IN A NEW ENVIRONMENT
NATIVE SPECIES CAN DISAPPEAR QUICKLY



**In 1894,
the world's only
population of
the Stephen's Island
wren
*Xenicus lyalli***

**was discovered by a lighthouse keeper's pet cat
AND THE CAT DROVE THEM TO
EXTINCTION WITHIN ONE YEAR**

***Today,
exotics are
being
transported
everywhere***

- ✓ Shipping containers
- ✓ Ship's ballast and bilge water
- ✓ Air freight and cargo
- ✓ Passengers and luggage

**As one biologist has warned, today we may
soon see exotic species
“produce extinctions on an epic scale”**

6:1g Climate Change

*Some species and ecological communities
can be put at risk by global warming*



**As earth's climate
warms, in many places
SPRING IS ARRIVING EARLIER
and autumn
is beginning later**

**Polar bears are thinner as ice
for hunting melts sooner**

**Mosquito seasons are longer,
disrupting the lives of caribou**

**Life cycles of pollinators move
out-of-sync with the flowers
that they pollinate**



and plant species are unable to migrate elsewhere

**FINALLY, WARMING RELEASES METHANE (CH₄)
INTO THE ATMOSPHERE – *an undesirable
feedback that produces still more warming***

6:1h An Unraveling Web

Is the web of life unraveling?

- ✓ Poverty, pollution, and population
- ✓ Bushmeat, poaching, and hunger
- ✓ Fuelwood, charcoal, and logging
- ✓ Drying of aquifers and the Aral Sea
- ✓ Collapse of a centuries-old cod fishery
- ✓ Invasion of exotic pests and diseases

Some species are threatened by overhunting, overfishing, and poaching

Others are endangered because their habitats are being converted to human uses

Forest habitats are being logged, burned, flooded for hydroelectric projects or converted into farms, cities, and pasturelands

WHAT CONSERVATION STRATEGIES ARE AVAILABLE?