"I wanted an ideal animal to hunt," explained the general. "So I said: 'What are the attributes of an ideal quarry?' And the answer was of course: 'It must have courage, cunning, and, above all, it must be able to reason.'"

- Richard Connell, *The Most Dangerous Game*
Consumptive Exploitation

- Harvesting wildlife populations for the purpose of subsistence or recreation
- Forms include
  - Commercial hunting
    - often regulated, though not in the case of black markets (poaching)
  - Subsistence hunting
    - difficult to regulate
  - Collection for parks, zoos, and the pet trade

Causes of Extinction
Causes of Extinction

- Habitat alteration 40%
- Commercial hunting 23%
- Competition with introduced species 16%
- Pollution 1%
- Pest control 7%
- Captured to serve as pets 5%
- Hunted for food 6%
- Killed because of superstition 2%

Case Study: Collapse of the Steller’s Sea Cow

Hydrodamalis gigas

- Largest member of order Sirenia (sea cows)
  - up to 8 meters long, > 5000 kg
  - range: eastern Bering Sea
  - diet: kelp (primarily)
  - discovered in 1741 by shipwrecked crew of Vitus Bering’s ship the ’St. Peter’
  - hunted for meat and fat
  - extinct by 1768 (just 27 years later!)

Case study: Sustainable Trophy Hunting for Lions

Nose pigmentation can be used to harvest only old males (> 8 yrs) that are no longer reproductive active.

Whitman et al. (2004) *Nature*

Comparing Human and Non-Human Predation

Figure 2. Age distributions of female northern Yellowstone elk killed by hunters in the Gardiner Lake Hunt (1986–2001) and by wolves (1998–2001).

Wright et al. (2006) *J Wildl Manage*
Comparing Human and Non-Human Predation

Wolves kill elk with little reproductive value

![Graph of wolf predation comparison]

Figure 3. Reproductive values of female northern Yellowstone elk and age distributions of hunter (Caldiner Lake Hunt, 1994–2001) and wolf-killed females (1995–2001). Note the scale change for the Y axis on the right side of the chart for wolf-killed calves (49% of total wolf-kills).

Wright et al. (2006) J Wildl Manage

Comparing Human and Non-Human Predation

Human hunters kill elk with high reproductive value

![Graph of human predation comparison]

Figure 3. Reproductive values of female northern Yellowstone elk and age distributions of hunter (Caldiner Lake Hunt, 1994–2001) and wolf-killed females (1995–2001). Note the scale change for the Y axis on the right side of the chart for wolf-killed calves (49% of total wolf-kills).

Wright et al. (2006) J Wildl Manage
Evolutionary Effects

Figure 5. Overall temporal trend in horn length of harvested males in hunting units one to five of Matetsi Safari Area, Zimbabwe, for (a) impalas; and (b) sable antelopes. Lines are used for significant trends. Dots represent the average horn length of trophy animals per year, and bars the standard deviations.

Crosmary et al. (2013) Animal Conservation

Non-Consumptive Exploitation

- Use of wild animals that does not involve removing individuals from populations
  - non-extractive
- Examples include
  - bird watching
  - catch-and-release fishing
  - feeding wildlife
  - photography
  - ecotourism
On the Rise

- A 2006 survey by the US Fish and Wildlife service found that, in the USA alone
  - 71.1 million participated in at least one type of wildlife-watching activity including observing, feeding, or photographing wildlife
  - up 40% from 1996
  - generated 45 billion dollars

Not Without Costs

- e.g., feeding wildlife can
  - habituate wildlife (“a fed bear is a dead bear”)
  - foster dependence on humans
  - spread disease (if animals congregate)
  - create traffic hazards (feeding from cars)
  - promote predation (birds at feeders falling prey to cats)
Responsible travel to natural areas that conserves the environment and improves the welfare of local people

- (The International Ecotourism Society)

Ecotourism is growing 10% per year

Potential Ecotourism Benefits

- build environmental awareness and respect
- provide positive experiences for both visitors and hosts
- provide direct financial benefits for conservation
- provide financial benefits and empowerment for local people

But, ecotourism can have costs, too...
Ecotourism and the Dolphins of Monkey Mia

- Shark Bay’s Eastern Gulf
  - Home to 2nd longest running dolphin research project (1982)
  - Indian Ocean bottlenose dolphins (*Tursiops aduncus*)

- Population roughly 200 individuals
  - Focus of ecotourism cruises

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**Ecotourism and the Dolphins of Monkey Mia**

**Figure 1.** Study site in Western Australia: (a) Shark Bay and Peron Peninsula (bathymetric area, approximately 300-km² site of long-term dolphin research) and (b) 36-km² tourism site (black dots, tour-vessel movements) and an adjacent control site of equal size (shaded square).

Bejder et al. (2006) Conservation Biology
Ecotourism and the Dolphins of Monkey Mia

![Graph showing time spent with dolphins](image)

**Figure 2.** Total time spent within 50 m of dolphins by tour and research vessels in tourism and control sites during the time periods, T0 (pre-tourism), T1 (one tour vessel operating), and T2 (two tour vessels operating).

**Figure 3.** Average percent change in dolphin abundance within tourism (solid) and control (dotted) sites among the time periods, T0 (before tourism), T1 (one tour vessel operating), and T2 (two tour vessels operating). Vertical lines depict 95% confidence intervals.

Bejder et al. (2006) Conservation Biology

Take Home Message

- Ensure that, wherever ecotourism occurs, benefits outweigh costs
  - recognize that ecotourism is potentially harmful to some wildlife species
  - costs can be hard to detect (e.g., displacement of sensitive species and individuals)
Five Minute Paper

Questions & Insights