Chapter 10
Land, Public and Private

Who owns a tree

Julia Butterfly Hill

Luna – Redwood Tree

Human Uses of Environment

Figure 10.1a
Environmental Science

Figure 10.1b
Environmental Science

Figure 10.1c
Environmental Science

The Tragedy of the Commons

- In 1968, ecologist Garrett Hardin described the “tragedy of the commons”.
- Tragedy of the commons- the tendency of a shared, limited resource to become depleted because people act from self-interest for short-term gain.

Individuals benefit by putting their sheep onto the common pasture, but everyone pays the long-term cost.

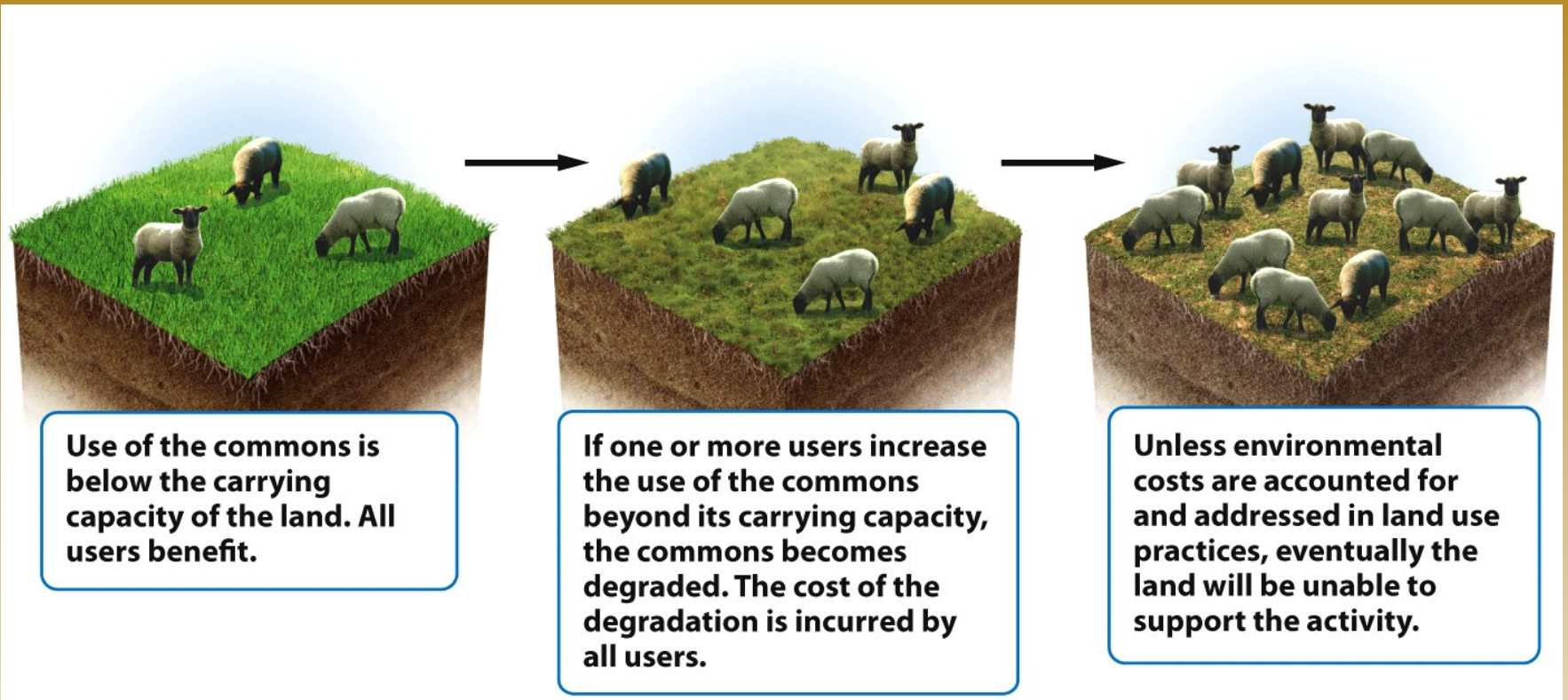


Figure 10.2
Environmental Science

Externalities

- Externalities- a cost or benefit of a good or service that is not included in the purchase price of the product or service.
- In environmental science we are concerned about negative externalities because of the environmental damage for which no one bears the cost.

Maximum Sustainable Yield

- The maximum amount of a renewable resource that can be harvested without compromising the future availability of that resource.

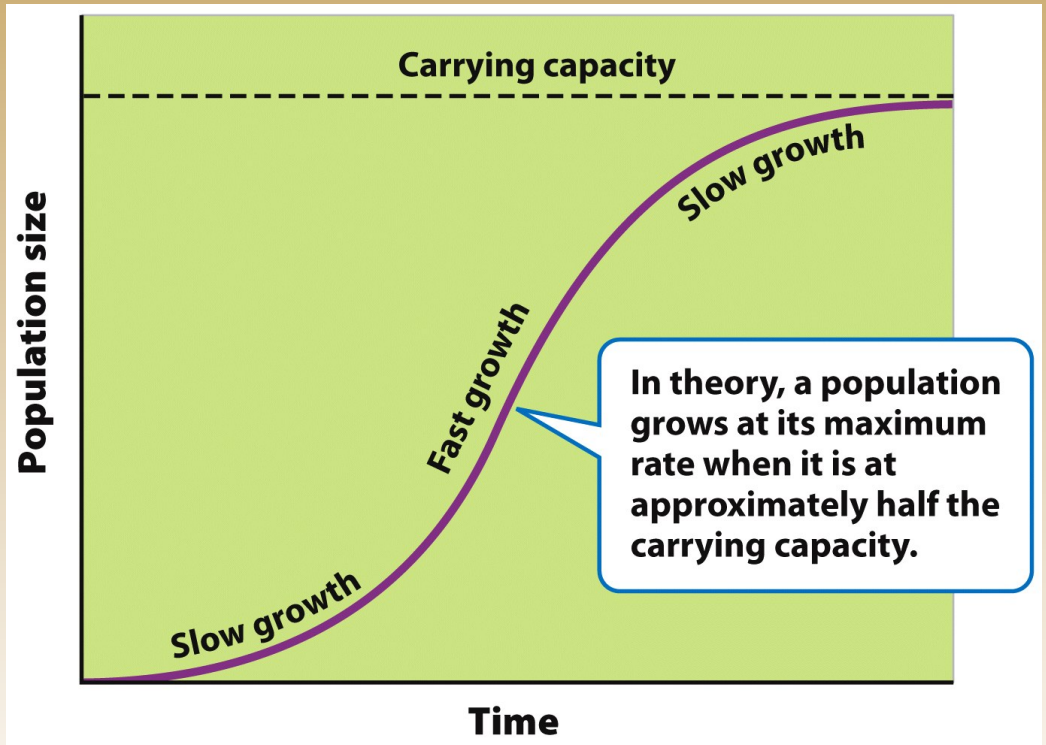


Figure 10.3
Environmental Science

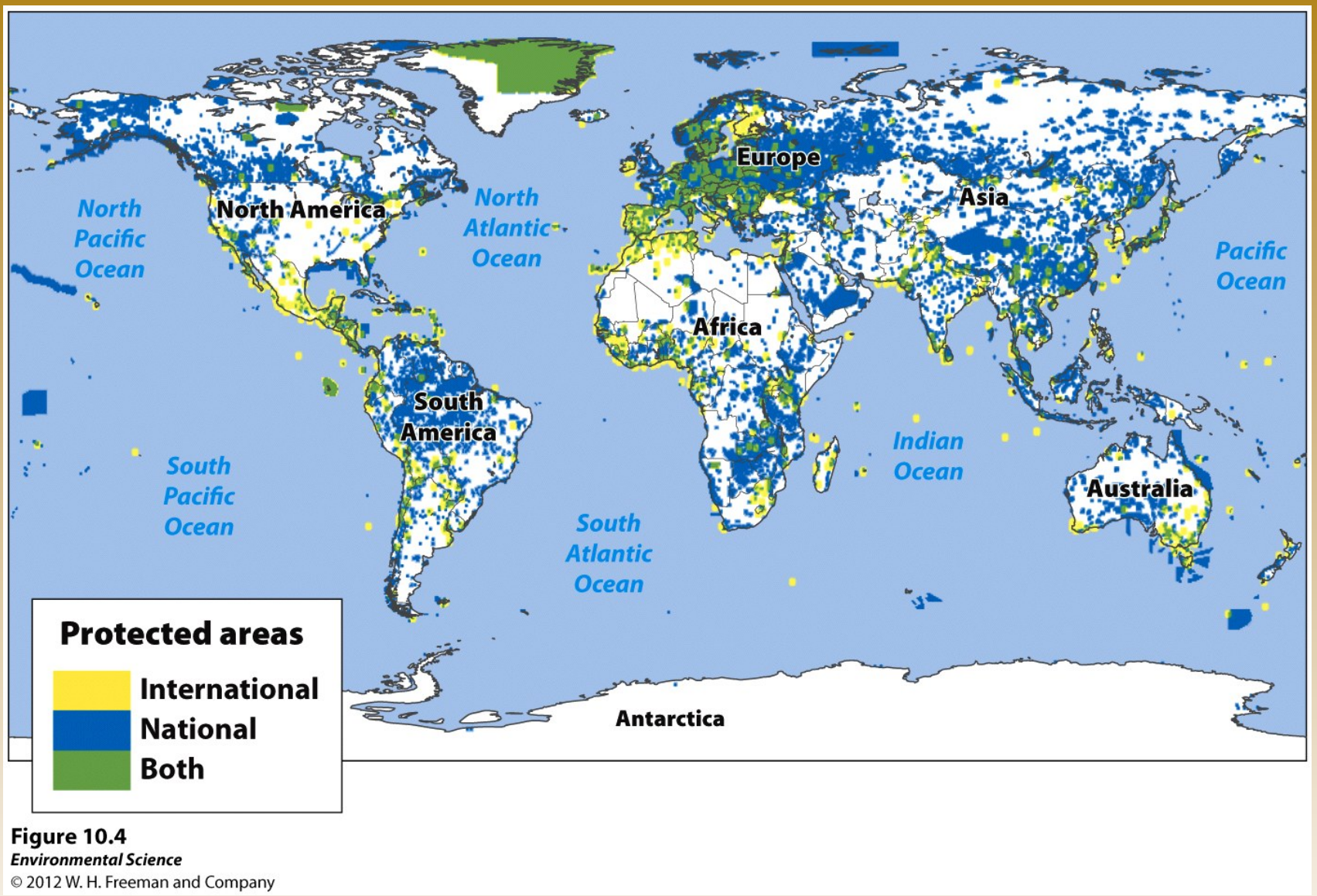


Figure 10.4
Environmental Science

Public Lands

- National Parks- managed for scientific, educational, and recreational use, and sometimes for their beauty or unique landforms.
- Managed Resource Protected Areas- managed for the sustained use of biological, mineral, and recreational resources.
- Habitat/Species Management Areas- actively managed to maintain biological communities.
- Strict Nature Reserves and Wilderness Areas- established to protect species and ecosystems.
- Protected Landscapes and Seascapes- nondestructive use of natural resources while allowing for tourism and recreation.
- National Monuments- set aside to protect unique sites of special natural or cultural interests.

International Public Lands

Africa – Kruger National Park

Karelia - Russia

International Public Lands

Chang Tang Reserve

Batanes Protected Landscape/Seascape

International Public Lands

Arc de Triomphe

Great Wall

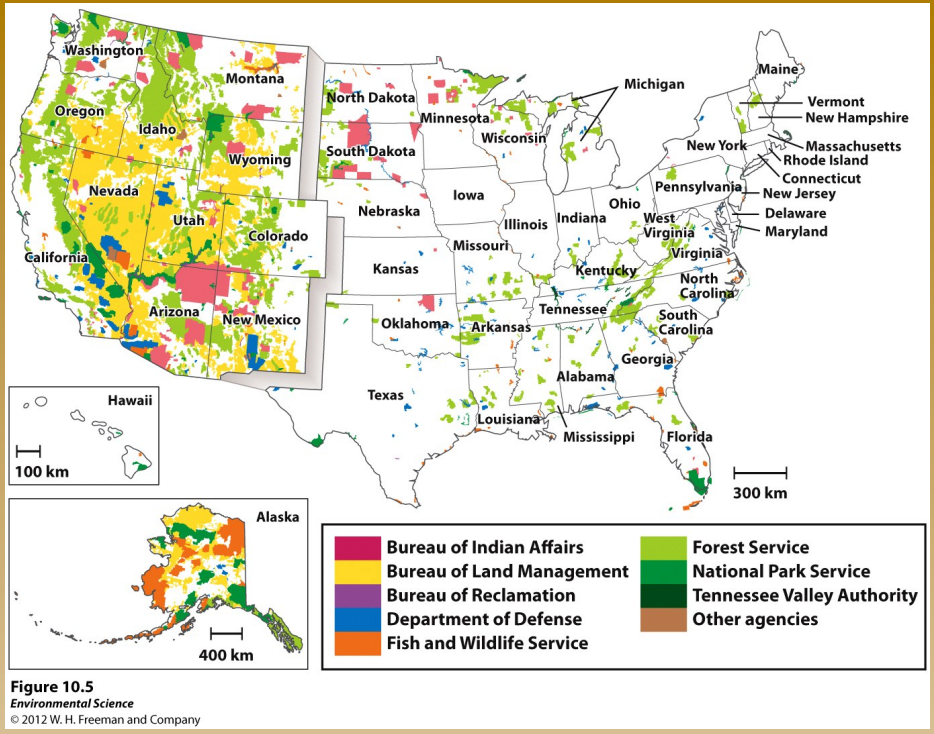


Figure 10.5
Environmental Science

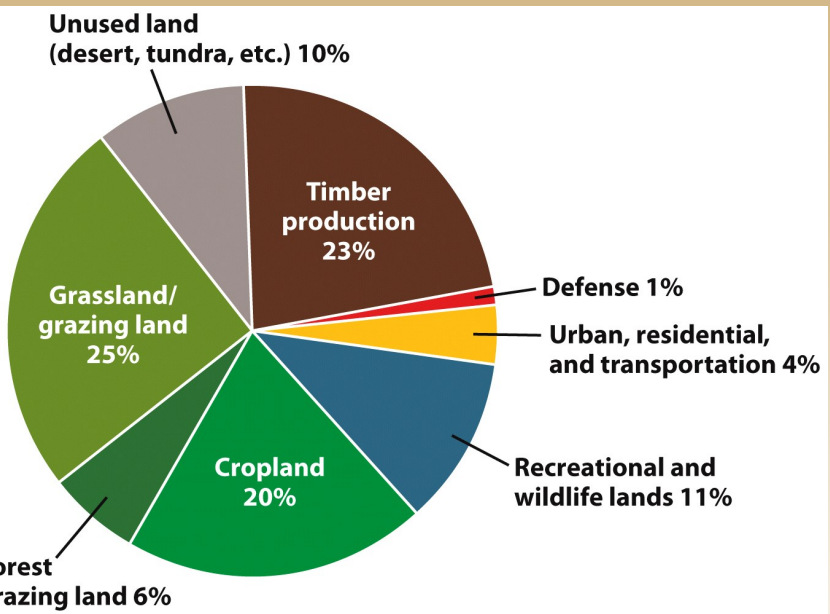


Figure 10.6
Environmental Science

National Parks (NPS)

Grand Canyon

Yosemite

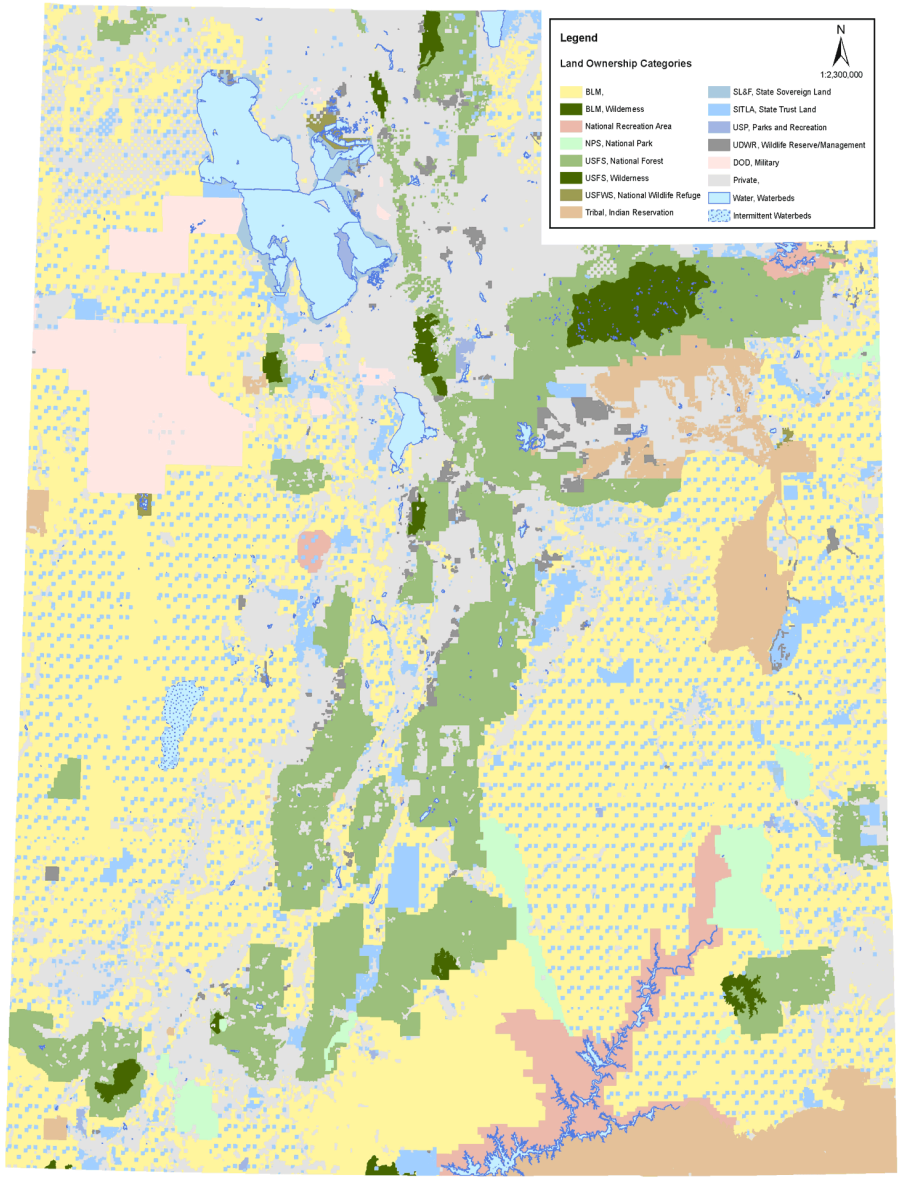
Fish & Wildlife Service (FWS)

Arctic National

Wildlife Refuge

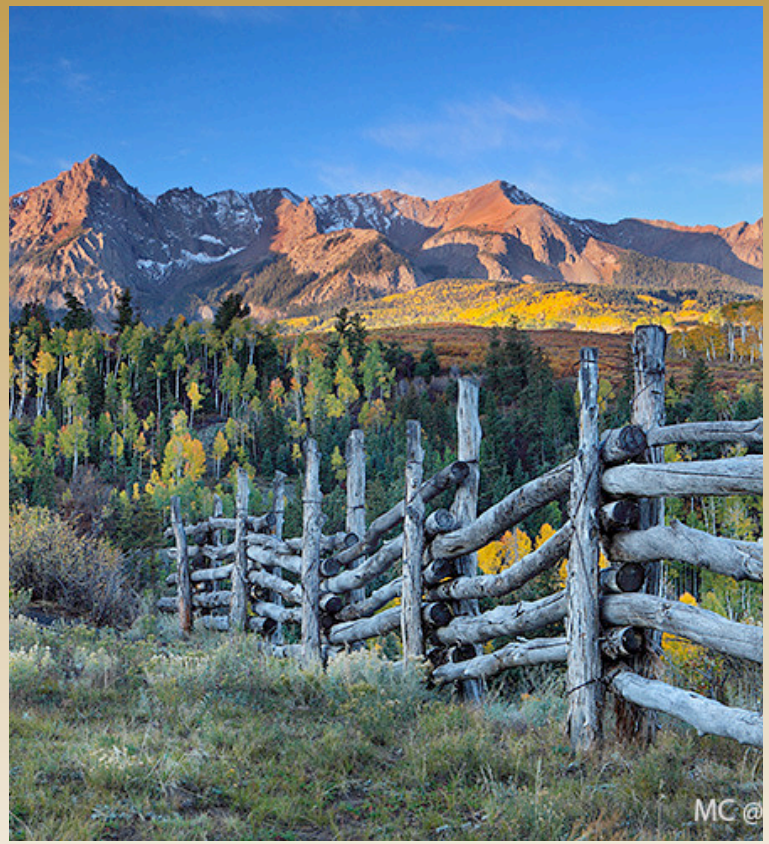
Wilderness Area

BLM Lands



Ariz. Gold Mine Claim

US Forest Service



Forests

- National Parks- established to preserve scenic views and unusual landforms.
- National wildlife refuges- managed for the purpose of protecting wildlife
- National wilderness areas- set aside to preserve large tracts of intact ecosystems or landscapes.

Rangelands…"Oh Give Me a Home, Where the Buffalo Roam…"

- Dry, open grasslands that are primarily used for cattle grazing.

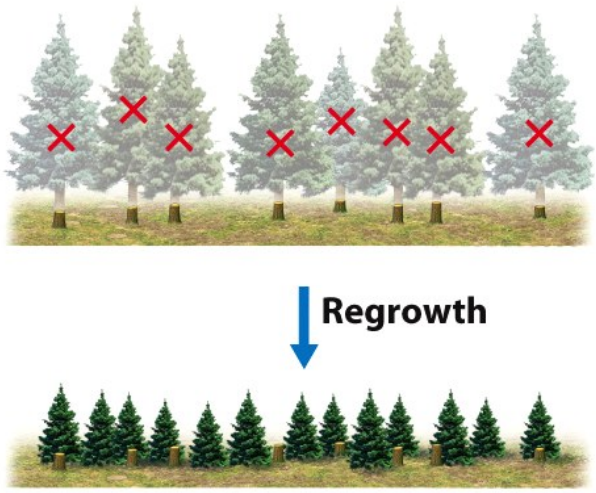
Forests

- Areas dominated by trees and other woody vegetation.

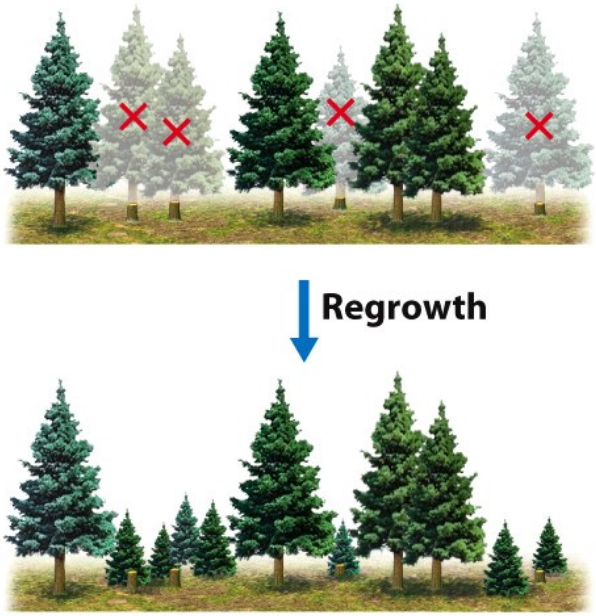
Figure 10.10
Environmental Science

Timber Harvest Practices

- Clear-cutting- removing all, or almost all the trees in an area.
- Selective cutting- removing single trees or relatively small numbers of trees from a forest.



(a) Clear-cutting



(b) Selective cutting

Figure 10.8
Environmental Science

Harvesting Timber

Clear-cutting

Selective Cutting

Fire Management

- prescribed burns- a fire is deliberately set under controlled conditions.

Figure 10.11a
Environmental Science

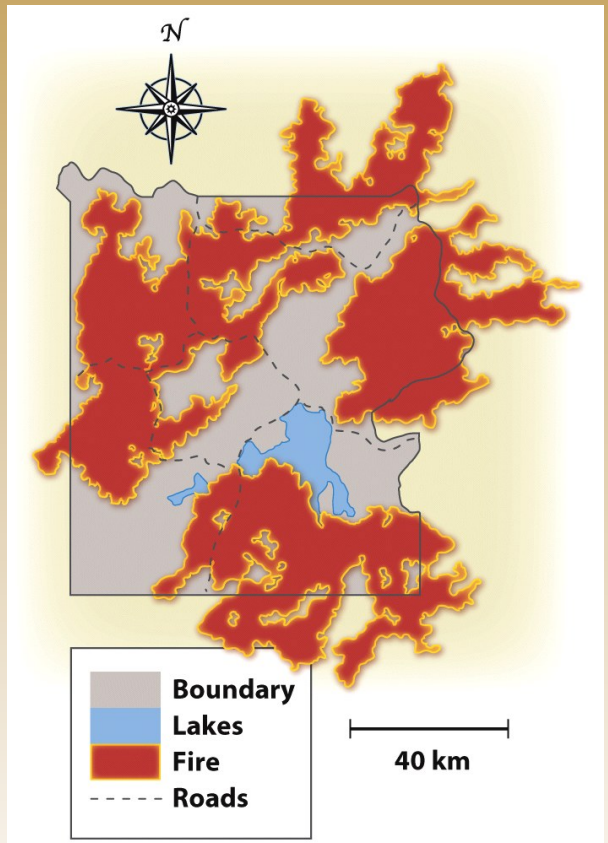
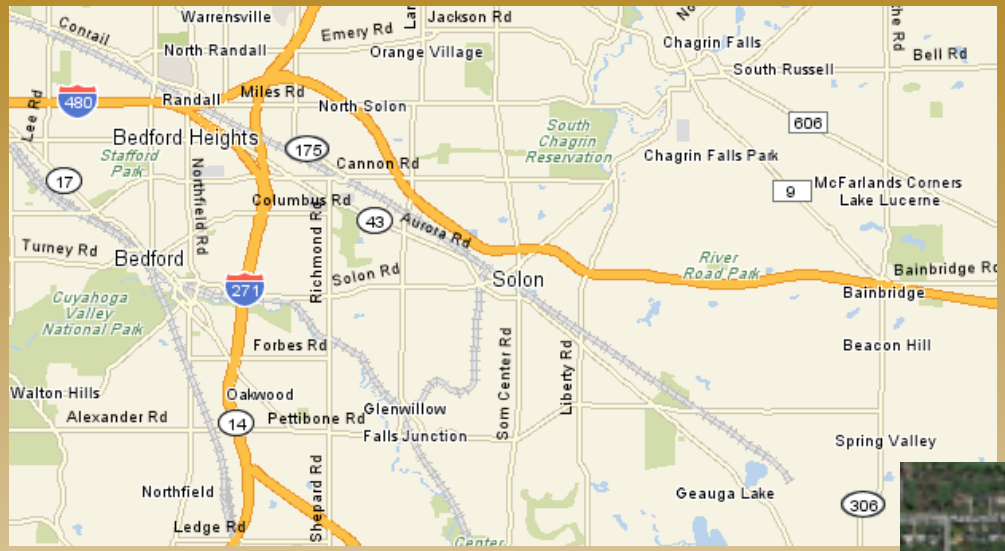


Figure 10.11b
Environmental Science

Federal Regulations

- National Environmental Policy Act (NEPA)- mandates an environmental assessment of all projects involving federal money or permits.
- Environmental impact statement (EIS)- outlines the scope and purpose of the project.
- Environmental mitigation plan- outlines how the developer will address concerns raised by the projects impact on the environment.

Urban Sprawl



Cycle of Urban Blight… Positive Feedback Loop

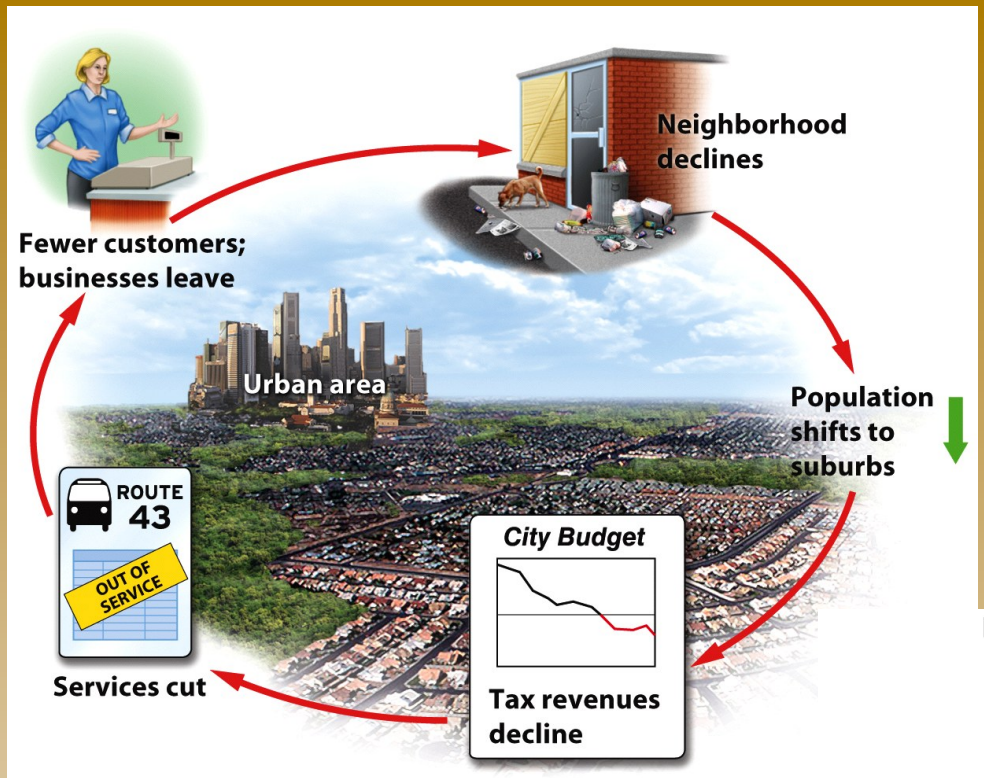


Figure 10.14
Environmental Science

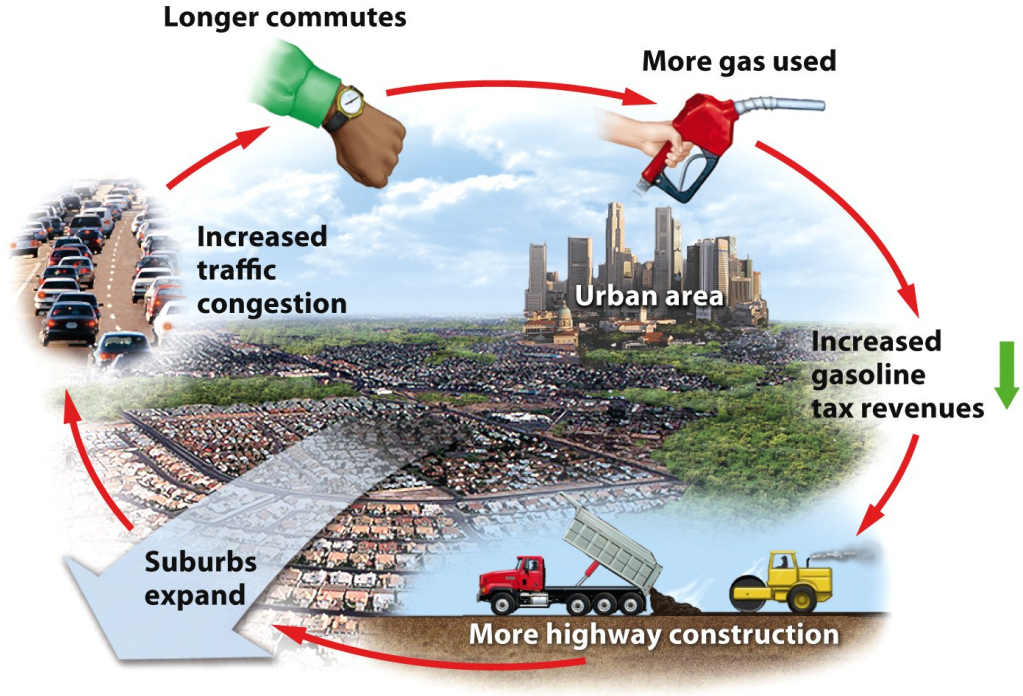


Figure 10.15
Environmental Science

Urban Sprawl

- Urban sprawl- spread of urban population and economic base into outlying areas
- The four main causes of urban sprawl in the U.S. are:
  - automobiles and highway construction
  - living costs (people can get more land and a larger house in the suburbs for the same amount of money)
  - urban blight (city revenue shrinks…more crime, fewer services) as people move to the suburbs)
  - government policies

Government Policies

- Highway Trust Fund- a federal gasoline tax to pay for construction and maintenance of roads and highways.
- Zoning- a planning tool to create quieter and safer communities. For example, prohibiting the development of a factory or strip mall in a residential area.
- Multi-use zoning- allows retail and high-density residential development to coexist in the same area.
- Subsidized mortgages- low interest rates offered to people to purchase a home that would otherwise not be able to do so.

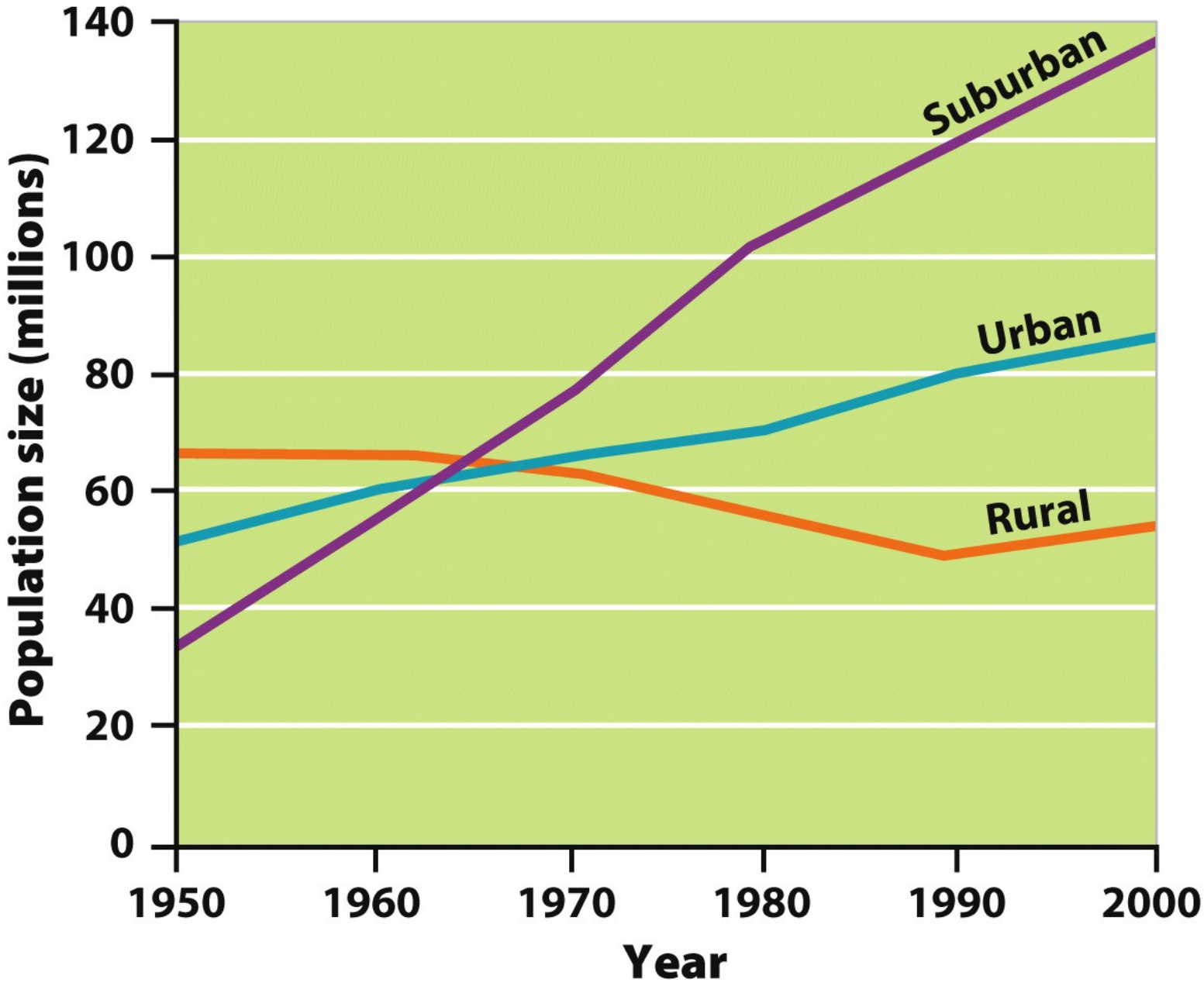


Figure 10.13
Environmental Science

Residential Land

- Suburban- areas surrounding metropolitan centers with low population densities.
- Exurban- similar to suburban areas, but are not connected to any central city or densely populated area.

Smart Growth

- Mixed land uses
- create a range of housing opportunities and choices
- create walkable neighborhoods
- encourage community and stakeholder collaboration in development decisions
- take advantage of compact building design
- Foster distinctive, attractive communities with a strong sense of place
- Preserve open space, farmland, natural beauty and critical environmental areas
- Provide a variety of transportation choices
- Strengthen and direct development toward existing communities
- Make development decisions predictable, fair and cost-effective

French Quarter of New Orleans

Figure 10.16
Environmental Science

Transit Oriented Development…Light Rail

Figure 10.17
Environmental Science

Dudley Street Neighborhood…Boston.
Smart Growth Principles.

Figure 10.18
Environmental Science