



Tags

Edited Jan 7, 2022 5:15 AM by admin...

Land Use: Modules 29–30**Resources:****Withgott 6** chapter 13: Urban environment withgott 6.13 urban environment_1.pdf **Frog book: Chapter 10:** land use, urbanization, sustainable cities**5 steps to a 5 review:**[e2: Portland sense of place](#)[e2: The green apple](#)**Three main points: Living together, thinking of forever...**

1. Tragedy of the Commons
2. Conservation movement
3. Urban Sprawl

email: GPS ranching–why is this closer to pre–contact buffalo herds?

Tragedy of the commons (old idea, new article) 1968 Garret Harding KNOW THIS...

An old 1833 concept from farming villages, article updated in 1968 this to include rivers, streams, ocean, air...

https://en.wikipedia.org/wiki/Tragedy_of_the_commons

Econ students may know this one:

Externalized costs, externality: shedding financial responsibility for your impact the the wholee.g. Minamata: https://en.wikipedia.org/wiki/Minamata_disease**Conservation movement: Important peeps****Ralph Waldo Emerson**–"Nature" "behind nature, throughout nature, spirit is present" 1837https://en.wikipedia.org/wiki/Ralph_Waldo_Emerson**Henry David Thoreau**–Walden "truth in nature and wilderness over the deceits of urban civilization". 1845https://en.wikipedia.org/wiki/Henry_David_Thoreau**Ansel Adams:** Photographer championed the National Parks: 1920–1980http://physics.hpa.edu/physics/apenvsci/videos/ansel_adams.mp4

0:00–8:00

"More than any other artist of the century, he would help transform the meaning of "wilderness" in America and change what people thought and felt about their own land"

"it's a place that you step into, and you don't know what's going to happen, a place that can surprise you, it's a place where you are small, where being small is not a bad thing, where being small is actually a wonderful thing"

–Carl Pope, Sierra Club

"...the world is beautiful, that humanity is part of this larger world, that the concerns of the moment are part but not separate from a larger system of forces that that connect us to all of creation"

Jonathan Spaulding, Biographer

Question: How did his photographs change the awareness of the public? People usually care about what they know...

Land use:

MSY: maximum sustainable yield: max renewable output without compromising future

See: native peoples: "seventh son of seventh son"

Also: "Sustainability = thinking about forever"

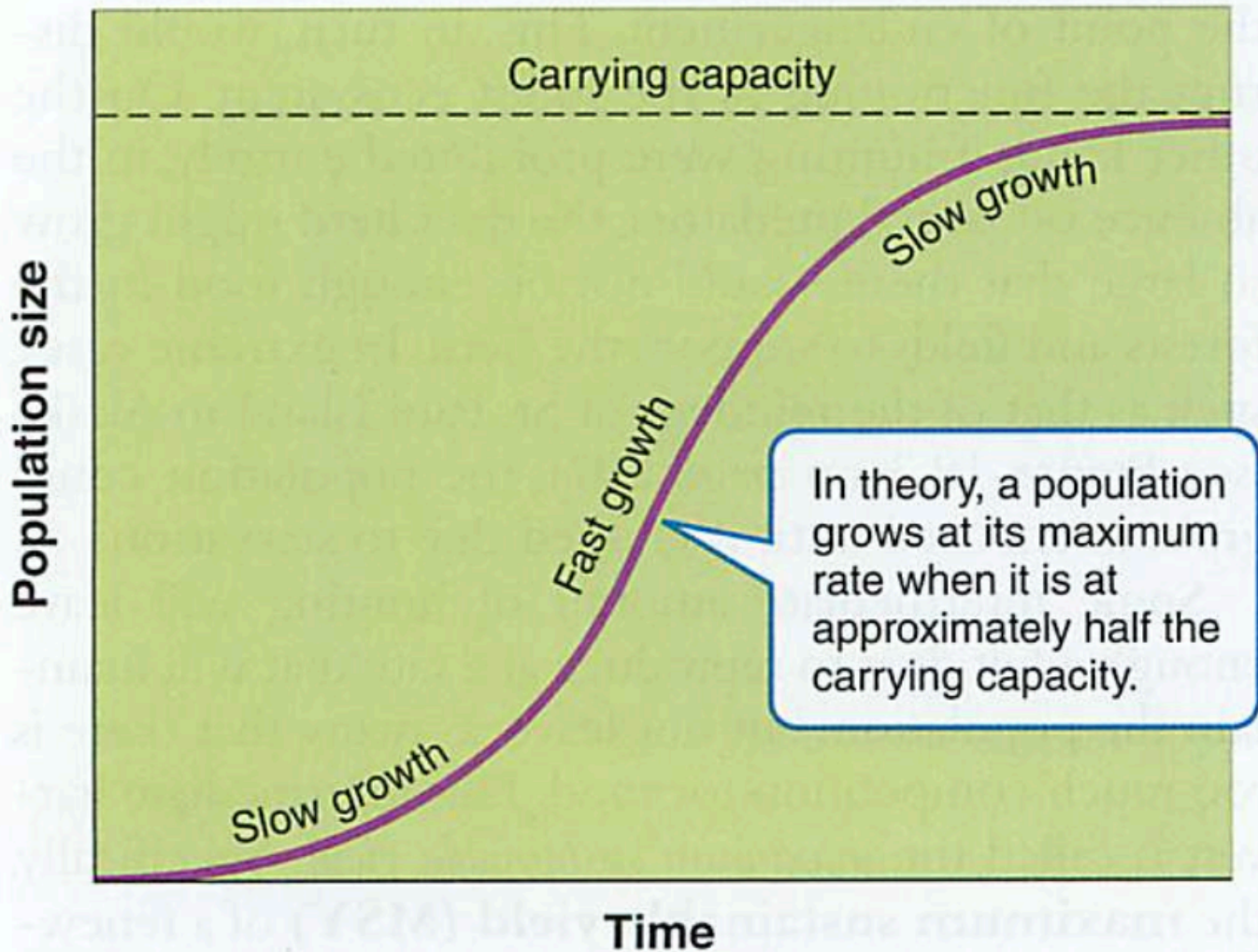
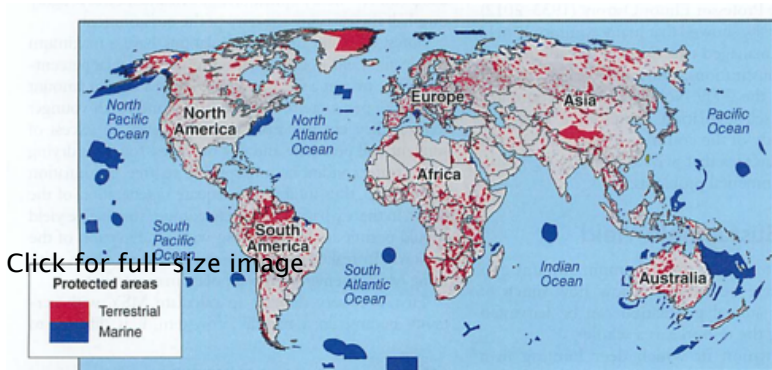


FIGURE 29.4 Maximum sustainable yield. Every population has a point at which a maximum number of individuals can be harvested sustainably. That point, the maximum sustainable yield, is often reached when the population size is about one-half the carrying capacity.

Protected lands:



Public lands: often victim of economic predation (e.g. Burma illegal logging)

Other side: NRDC and others, purchase lands to protect them from predatory practices (e.g. Amazon basin)

In the US: National Parks are one example of a national recognition of several things:

1. Spiritual/psychological benefit to nature
2. Preservation of resources for future generations
3. Recreation
4. Habitat preservation for species (can be land, ocean, islands, etc.)

See also Amboseli in Kenya, Serengeti in Tanzania (Tanganyika+Zanzibar), Kruger park in S. Africa (Afrikaans)

Public Lands

In the US, we classify public lands as

Rangelands—open range, enables some ranching with leases

National forests—old growth and new growth, limited forestry

National parks—national treasures, limits on visitors, infrastructure (e.g. Denali)

National wildlife refuges—usually associated with an endangered species or transit/migration path (e.g. wolves)

Wilderness areas—no development, often noise abatement as well (think of helicopters in Waipio or Haleakala)

We have several of these here in Hawaii:

Kilauea Volcano (Madame Pele)

Haleakala ("House of the sun")

Honokohau ("City of Refuge")

Pearl Harbor

Pu'u Kohola (Whale Heiau)

Papa hanau moku a kea—Northwest Hawai'ian Islands NWHI

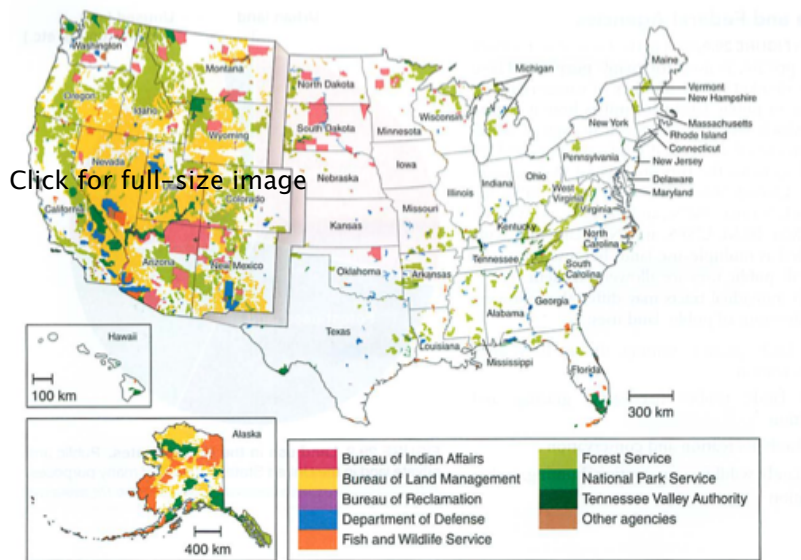


FIGURE 29.8 Federal lands in the United States. Approximately 42 percent of the land in the United States is publicly owned, with 25 percent of the nation's land owned by the federal government. (Data from <http://nationalatlas.gov>)

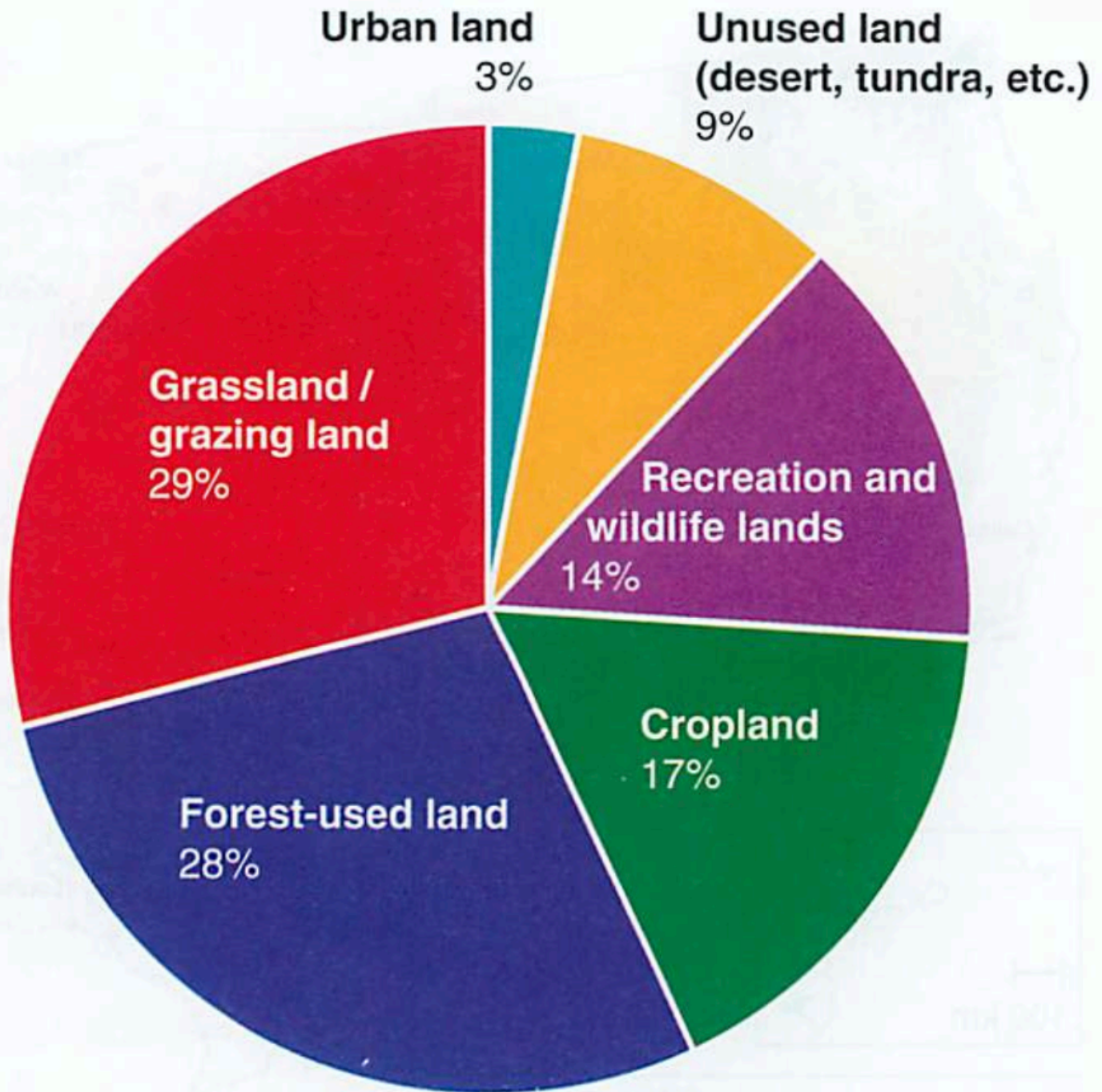


FIGURE 29.9 Land use in the United States. Public and private land in the United States is used for many purposes. (Data from https://www.ers.usda.gov/webdocs/publications/84880/eib-178_summary.pdf)

Two ethics are in competition:

Resource conservation ethic—maximum use based on greatest good for everyone, usually preservation
 Multiple use lands—designated lands for grazing, timber, minerals

Changes:

DO THE MATH Changes in the Amount of Protected Lands Over Time Preparing for the AP[®] Exam

In recent years the United Nations has reported a significant increase in the total area protected worldwide. In 2004 the UN listed total area protected as 18,800,000 square kilometers. Let's convert this value in square kilometers to hectares, express it in scientific notation, and compare that amount to the current 2014 values indicated earlier in the chapter.

$$18,800,000 \text{ km}^2 \times (100 \text{ ha}/1 \text{ km}^2) = 1,880,000,000 \text{ ha}$$

In scientific notation this value = 1.88×10^9 ha protected area in 2004

Protected area in 2014 = 3.2 billion ha = 3.2×10^9 ha

2004 protected area = 1.88×10^9 ha

2014 protected area = 3.20×10^9 ha

$$(3.20 \times 10^9) \text{ ha} - (1.88 \times 10^9) \text{ ha} = 1.32 \times 10^9 \text{ ha} = \text{change in protected area 2004 to 2014}$$

$$\text{Change over original 2004 value} = (1.32 \times 10^9 \text{ ha}) \div (1.88 \times 10^9 \text{ ha}) = 0.70 \times 100\% = 70\%$$

Protected areas increased 70 percent between 2004 and 2014.

YOUR TURN There is approximately 8,750,000 km² of forest in the tropics of Central and South America; 3,500,000 km² is in protected areas.

1. Convert to hectares and express in scientific notation for each.
2. Identify the percent of forest in protected areas.

Click for full-size image

Let's check out these guys again:

English folks might recall Emerson, Thoreau and Whitman

Conservation movement: Important peeps

Ralph Waldo Emerson—"Nature" "behind nature, throughout nature, spirit is present"

https://en.wikipedia.org/wiki/Ralph_Waldo_Emerson

Henry David Thoreau—Walden "Truth in nature and wilderness over the deceits of urban civilization"

https://en.wikipedia.org/wiki/Henry_David_Thoreau

Teddy Roosevelt— ca. 1900, National Parks

https://en.wikipedia.org/wiki/Theodore_Roosevelt

<http://physics.hpa.edu/physics/apenvsci/videos/national%20parks/>

First two minutes, start again at 7:00–10:00

Note influence of railroads in parks as well as all lands in the west (Leland Stanford, for example)

"Americans think 100 years is a long time, and Europeans think 100 miles is a long distance..."

Aldo Leopold—environmental ethics, wildlife management, conservation, Sand County Almanac (Wisconsin)

https://en.wikipedia.org/wiki/Aldo_Leopold

John Muir—started the Sierra Club: "wilderness mirrors divinity, nourishes humanity and vivifies the spirit"

https://en.wikipedia.org/wiki/John_Muir

Rachel Carson—silent spring DDT (persistent pesticide, weakens bird egg shells), 1963:

https://en.wikipedia.org/wiki/Rachel_Carson

<https://en.wikipedia.org/wiki/Dichlorodiphenyltrichloroethane>

Land Management in the US:**BLM: Bureau of land management**

Grazing, ranching, monitors rangeland health, erosion

USFS: Us Forest Service

Manages timber harvesting, where, how, what trees

Old growth vs. new growth, replanting, clear cut?

FSC: Forest stewardship council:

FSC certification: no clear cut, no damage to land, replanting, selective cutting, underbrush considerations

HUGE debate over underbrush, USFS believes in regular forest fires to deplete the amount of underbrush (as in nature)

See also California and Australia wildfires: drought, no regular fires, buildup of underbrush

See Yellowstone fire of 1988–result of overgrowth of underbrush

Forests: clear cut vs. selective cut

FSC wood–how different?

https://en.wikipedia.org/wiki/Forest_Stewardship_Council

Fire management: Yellowstone fire 1988

<https://www.northcountrypublicradio.org/news/npr/94114095/series-overview-yellowstone-s-evolution>

USFS prefers many small fires, removing flammable underbrush

NPS: National park service

Manages parks for recreation, multiple use ethic, preservation of timber, minerals and "natural curiosities"

Also significant native peoples monuments (see above)

FWS: Fish and wildlife service

Manages fishing and hunting on all public lands

Know these:

BLM: Bureau of Land Management

USFS: US Forest Service

NPS: National Park Service

FWS: Fish and Wildlife Service

NEPA: National Environmental Policy Act 1969 (why then?) mandates an EIS for all development

EIS (environmental impact statements) are new standard for any project

ESA endangered species act–often brought in where development could impact ES

Urban sprawl:



UGB (Urban Growth Boundary)—see Portland

Prevents Urban Sprawl (richer folks move to the suburbs, commute, need parking, city dies from the inside, food deserts, etc.)

Portland Example of urban planning:

Tom McCall Governor of Oregon, 1967–1975

Charlie Hales Mayor of Portland 2013–2017

E2 video: Portland: Sense of Place....listen for Brad Pitt:

http://physics.hpa.edu/physics/apenvsci/videos/e2_videos/e2%20transport/5%20Portland-sense%20of%20place.m4v

weblog withgott 6.6

http://physics.hpa.edu/groups/apenvironmentalscience/weblog/19b82/Withgott_66_Sustainable_Development.html