Lesson 3

Conserving Biodiversity

Focus Question

What methods are used to conserve biodiversity?

New Vocabulary

renewable resource

nonrenewable resource

sustainable use

endemic

bioremediation

Review Vocabulary

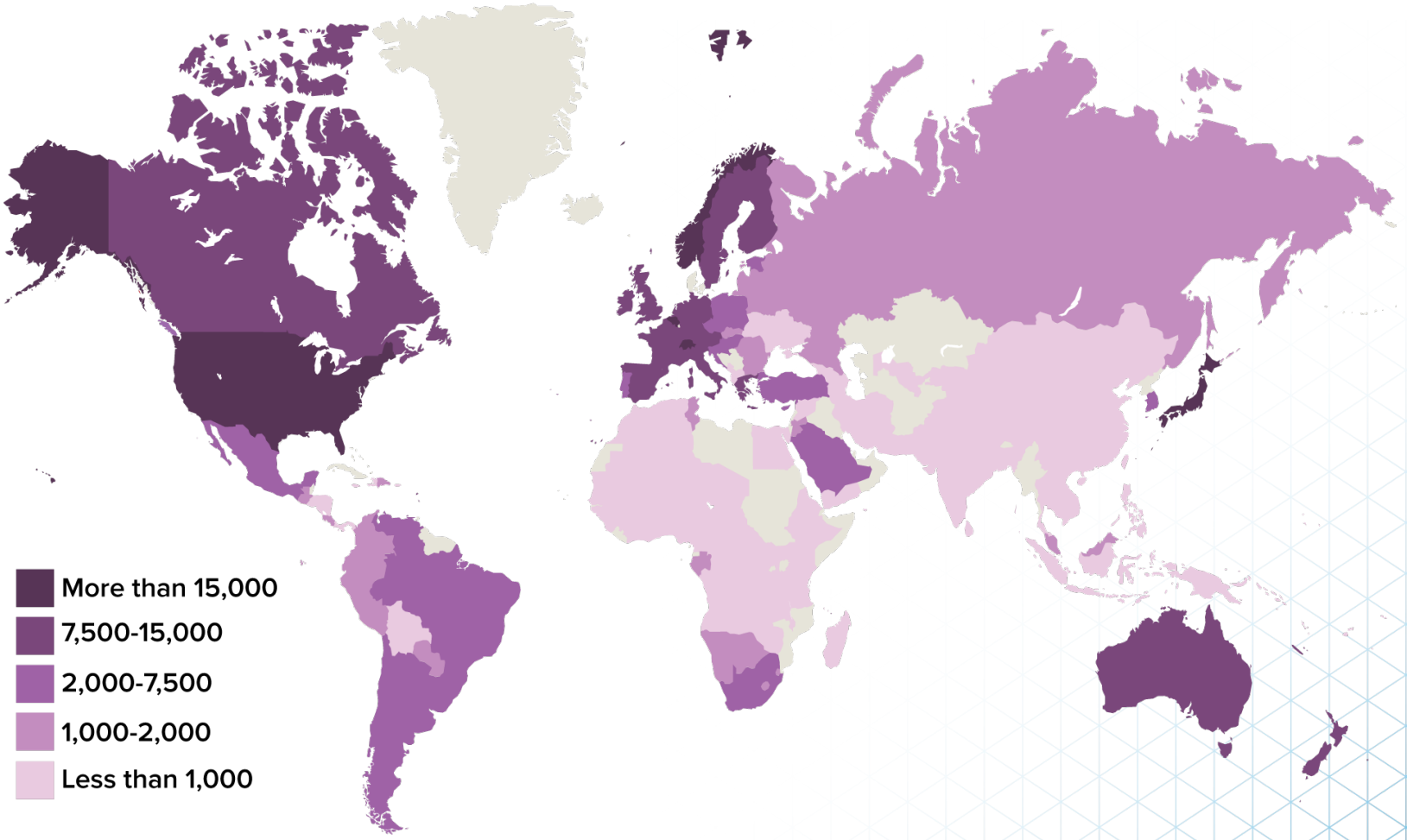
natural resources: materials and organisms found in the biosphere

Natural Resources

- The biosphere currently supplies the basic needs for more than seven billion humans in the form of natural resources.
- The human population continues to grow, and the growth is not evenly distributed.
- An increase in human population growth increases the need for natural resources to supply the basic needs of the population.

Natural Resources

Global Consumption of Natural Resources per Capita (expressed in US dollars)



Natural Resources

Renewable Resources

- Those resources that are replaced by natural processes faster than they are consumed are called **renewable resources.**

Nonrenewable Resources

- Resources that are found on Earth in limited amounts or that are replaced by natural processes over extremely long periods of time are called **nonrenewable resources.**

Natural Resources

Renewable Versus Nonrenewable Resources

- The classification of a resource as renewable or nonrenewable depends on the context in which the resource is being discussed.

Sustainable Use

- **Sustainable use** means using resources at a rate at which they can be replaced or recycled while preserving the long-term environmental health of the biosphere.

Protecting Biodiversity

- Many efforts are underway worldwide to slow the loss of biodiversity and to work toward sustainable use of natural resources.

Protected Areas in the United States

- The United States established its first national park in 1872 and many more have been established since.

International Protected Areas

- About ten to fifteen percent of the world's land is set aside for some type of reserve.

Protecting Biodiversity

Biodiversity Hot Spots

- Conservation biologists have identified locations that are characterized by exceptional levels of **endemic** species—species that are found only in that specific geographic area—and critical levels of habitat loss.
- These areas are called biodiversity hot spots.
- Approximately half of all plant and animal species are found in hot spots.
- Hot spots originally covered 17 percent of Earth's surface. Only about a tenth of that habitat remains.

Protecting Biodiversity

Corridors Between Habitat Fragments

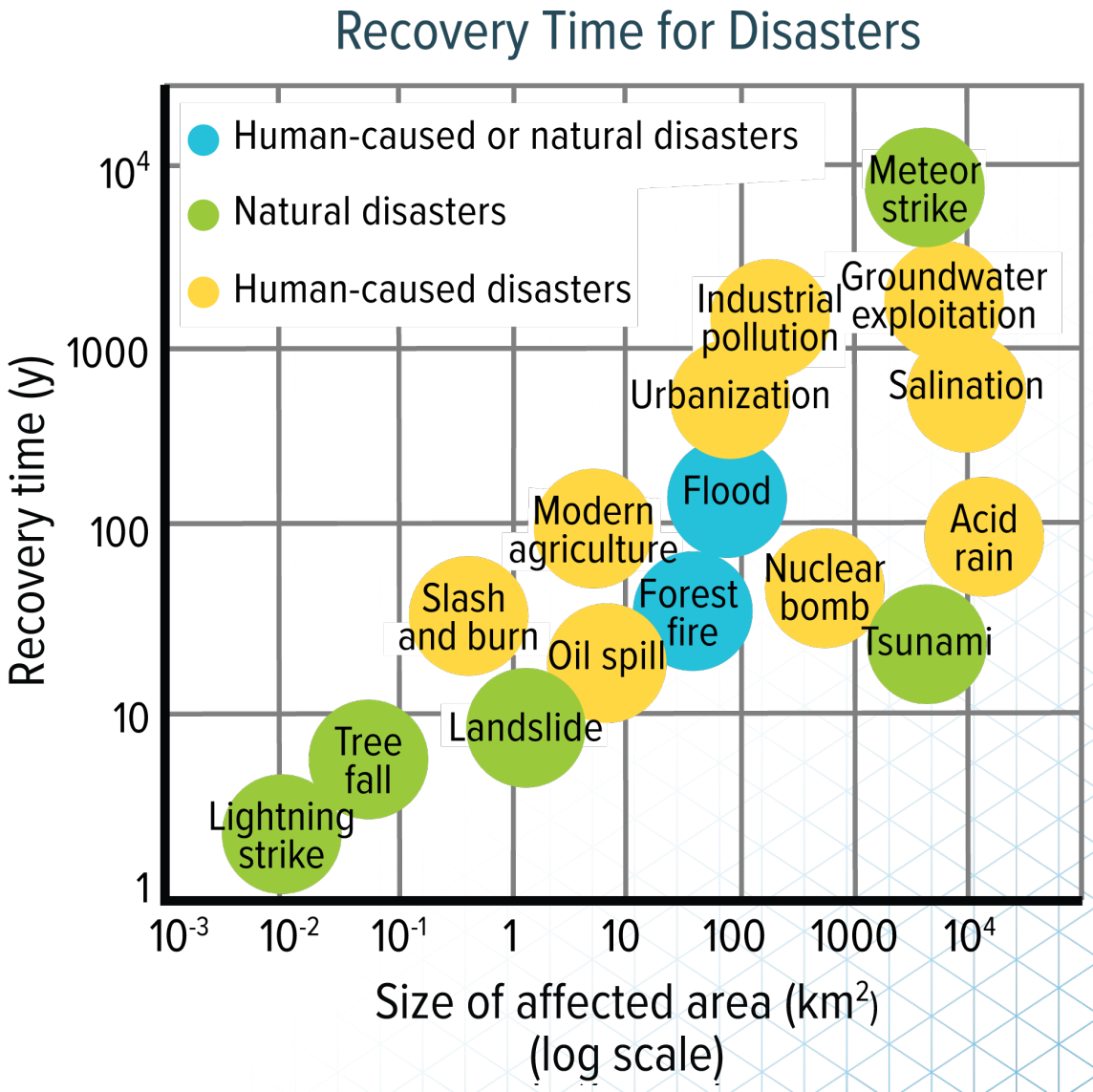
- Ecologists are maintaining and improving biodiversity by providing corridors that allow organisms to move between habitat fragments.
- Corridors don't completely solve the problem.

Legislative Actions

- The Endangered Species Act was enacted in 1973 in the U.S. to legally protect at-risk species.
- Other laws and treaties have since been enacted to help preserve biodiversity.

Restoring Ecosystems

- Biological communities can recover, given time. The larger the affected area, the longer it takes.



Restoring Ecosystems

Bioremediation

- The use of living organisms—such as prokaryotes, fungi, or plants—to detoxify a polluted area is called **bioremediation.**

Biological Control of Invasive Species

- Invasive species can have a profound effect on an ecosystem's biodiversity.
- Introducing other organisms to an ecosystem (for example, predators) can help control invasive species.