



## SYSTEM DIMENSIONS

Extent  
Pattern

## CHEMICAL AND PHYSICAL

Nutrients, Carbon, Oxygen  
Contaminants  
**Physical**

## BIOLOGICAL COMPONENTS

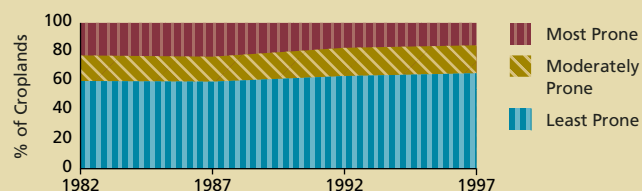
Plants and Animals  
Communities  
Ecological Productivity

## HUMAN USES

Food, Fiber, and Water  
Recreation and Other Services

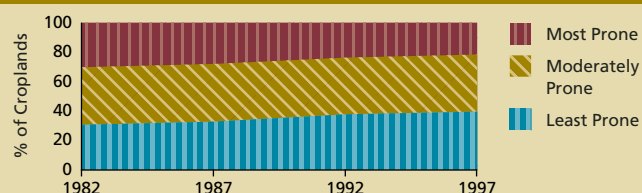
### ● Soil Erosion

#### Wind Erosion Potential



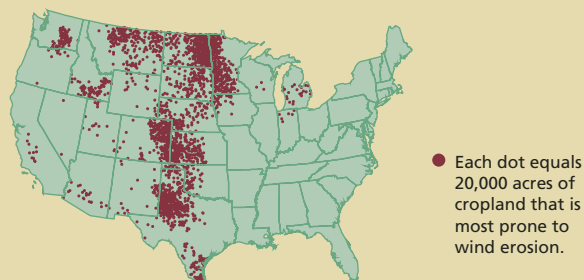
Data Source: USDA Natural Resources Conservation Service. Coverage: lower 48 states; data cover cropland and Conservation Reserve Program lands, but not pasture.

#### Water Erosion Potential



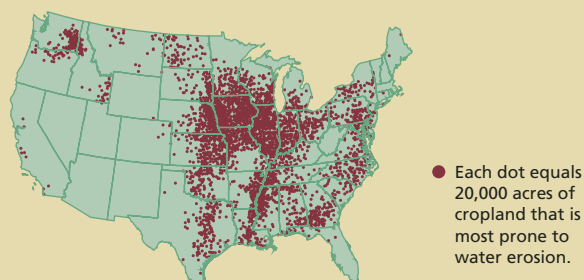
Data Source: USDA Natural Resources Conservation Service. Coverage: lower 48 states; data cover cropland and Conservation Reserve Program lands, but not pasture.

#### Croplands Most Prone to Wind Erosion, 1997



Data Source: USDA Natural Resources Conservation Service. Coverage: lower 48 states; data cover cropland and Conservation Reserve Program lands, but not pasture.

#### Croplands Most Prone to Water Erosion, 1997



Data Source: USDA Natural Resources Conservation Service. Coverage: lower 48 states; data cover cropland and Conservation Reserve Program lands, but not pasture.

#### What Is This Indicator, and Why Is It Important?

This indicator reports the percentage of U.S. farmlands according to their potential for erosion by wind or water. These data are based on an index that combines information on soil characteristics, topography, and management activities such as tillage practices and whether crop residue is left on the field or not. This indicator covers croplands (excluding pastures) and Conservation Reserve Program (CRP) lands. In addition, those croplands most prone to wind and water erosion are mapped for 1997.

Agricultural soil erosion reduces soil quality and degrades water quality. Even relatively small movements—for example, from the top of a slope to the bottom—cause changes in soil structure that can reduce fertility and make normal cropping practices difficult. When soil moves further, eventually ending up in streams and lakes, it causes water quality problems, in part because eroded sediments often carry both fertilizers and pesticides. Even without such pollution, sedimentation alone imposes significant costs on reservoirs and water treatment facilities, navigation, and other water and waterway users. Erosion, organic matter content (p. 99), soil salinity (p. 101), and soil biological condition (p. 102) are key indicators of soil quality; changes to crop and soil management practices affect soil quality.

**What Do the Data Show?** From 1982 to 1997, the acreage of U.S. farmland with the greatest potential for wind erosion decreased by nearly one-third, to about 63 million acres, or about 15% of U.S. croplands. The area with the greatest potential for water erosion also decreased by nearly one-third, to 89 million acres, or about 22% of U.S. croplands.

Although both water and wind erosion occur throughout the United States, high levels of water erosion are more common in the eastern half of the nation, and wind erosion is more likely in the West.

**Discussion** Reductions in erosion can result from changes in management practices; common practices used to reduce soil erosion are no-till or minimum tillage,

installation of terraces and field wind breaks, and contour farming. In addition, removal of highly erosion-prone lands from cultivation, (for example, enrollment in the Conservation Reserve Program) typically lowers its erosion potential.

The technical note for this indicator is on page 235.