



KNOW SOIL KNOW LIFE



DESERTIFICATION

What is Desertification?

Desertification is the extreme degradation of formerly productive land in arid and semiarid regions. Some 10 to 20% of the world's dry lands are already degraded, and land area in more than 100 countries is at risk of desertification. Affected regions are found throughout the world, including the western United States, Australia, sub-Saharan Africa, parts of the Middle East, China, and Central and South America.

Desertification is a natural process that is associated with global climate change. With time, as the climate changes, even forests may become deserts. The Petrified Forest National Park, for example, now sits in the middle of the Arizona desert. Its huge fossilized logs are the remains of a prehistoric forest.

Desertification can also be brought on by improper management practices. Grasslands adjacent to deserts, such as the Sahara in Africa or the Gobi in Asia, are usually characterized by low precipitation amounts that vary greatly from year to year. Although they have low productivity and carrying capacity, such grasslands are typically used as rangeland for grazing cattle, sheep, goats, or other livestock. Putting more animals on an area than it can support results in overgrazing: too much of the grass is harvested, and the perennial grasses decrease in vigor. Continued overgrazing will cause the death of these grasses, resulting in degraded rangeland conditions. The lack of soil cover increases the potential for wind and water erosion of both soil particles and grass seeds. Without sufficient precipitation, the perennial grasses do not recover or reseed themselves, and shrubs and annual grasses more characteristic of desert vegetation encroach. The land becomes less productive, and overgrazing often continues, exacerbating the conversion. China and Africa face the most severe challenges, as 30% of the lands in each are subject to desertification.

Controlling Desertification

Proper range management and stocking rates can decrease soil degradation and slow the advance of desertification. Range management best management practices include:

- controlling the stocking rate and grazing intensity,
- keeping livestock out of sensitive areas,
- providing livestock with alternative locations for water, and in some regions, shade,
- maintaining adequate vegetative cover to prevent accelerated erosion by wind and rain.
- controlled grazing to address the timing and duration in which animals have access to a pasture,
- dividing larger pastures into paddocks, and rotating animals so that they can graze in one paddock while grass in another has time to regrow.

Some techniques to reverse the effects of range degradation include controlled burns, spraying, or removing invasive species such as prickly pear and mesquite trees to return the land to the climax vegetation of native grasses.

Best management practices (BMPs) are any of a group of practices that help conserve soil and water resources. BMPs are proven to reduce erosion and pollution and improve water and environmental quality.

Resource: *Know Soil, Know Life*, David L. Lindbo, Deb A. Kozlowski, & Clay Robinson, Editors
Soil Science Society of America, 2012
www.soils4teachers.org

