Resource Issues:
Floods, Prairie Dogs, Fire, Exotic Invaders

Devils Tower National Monument was established through presidential proclamation to preserve and protect the geologic formation known as Devils Tower, including the surrounding forests and meadows. This small 1347 acre monument does not protect a complete, intact ecosystem. Many outside influences affect the plants, animals, and landscape at Devils Tower. Some native animal species are no longer found here, and "invader" plant species are crowding out native vegetation. The Resource Management staff are involved in many projects to inventory, monitor, and protect the natural systems that occur within the monument in order to maximize the park's health and diversity.

RIPARIAN CORRIDOR

Many old, dead cottonwoods line the Belle Fourche River near the entrance to Devils Tower National Monument. Young cottonwoods and willows are not replacing older trees. Other native vegetation along the river corridor (called the riparian zone) is being replaced by non-native species (exotic invaders).

Prior to the construction of the Keyhole Dam in 1952, the Belle Fourche River flooded in the spring, inundating riverbanks with water and allowing regeneration of cottonwood seeds. Today, the river no longer floods in the spring, and the cottonwoods cannot regenerate. Because the Belle Fourche River often washed out the bridge, in 1937, the Park Service changed the course of the river. Concrete tetrahedrons (which can still be seen from the bridge) were placed along the bank, forcing the river out of its original meandering streambed and into a straight course. Today, without seasonal floodwater, it is difficult for cottonwoods to produce new seedlings, and the older trees are dying off.

Resource Management personnel have embarked on a long-term restoration program, which includes planting native cottonwoods and willows along the riparian corridor.

PRAIRIE DOGS

Black-tailed prairie dogs were once conspicuous animals in the short and mixed grass prairies. It is estimated that approximately 5 billion prairie dogs inhabited North America in the early 1900's. Today their population has dramatically declined.

In 1998, the U.S. Fish and Wildlife Service was petitioned to place the black-tailed prairie dog on the Endangered Species list as a threatened species. The Service determined that the "Black-Tailed Prairie Dog warranted listing as a threatened species, but was precluded from listing on the basis of limited resources and on the overabundance of other species that are higher priority candidates for listing."

The black-tailed prairie dog population at Devils Tower National Monument is on the rise, from approximately 600 in the late 1980's to an estimated 1200 today. As their numbers have increased, so has the territory they occupy. The colony has expanded into an area near the picnic shelter and into a portion of the campground.

OUT OF THE ASHES

Fire is an important natural component of the Black Hills ecosystem. Long before people began manipulating the environment for their own needs, fires occurred every 15 to 30 years in the Ponderosa pine forests. These fires removed dead needles, branches, and downed trees from the forest floor, thinned competing trees, and helped to maintain a diverse ecosystem.

Settlers, entrepreneurs, ranchers, and, until recently, the Park Service saw fire as "bad," something which destroyed a beautiful and useful forest. All fires were suppressed. Instead of promoting a rich, diverse ecosystem, fire suppression decreased species diversity, resulting in one basic species - Ponderosa pine. Plants requiring sunlight and open space are seldom seen. If fires were to occur naturally, the over story canopy would remain open, allowing plants that require sunlight to thrive.

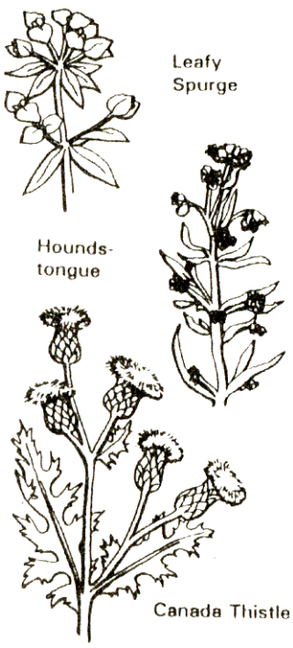
Fire suppression has also allowed a tremendous build-up of pine needles, branches, and fallen trees on the forest floor. Such fuel loading could prove disastrous in the event of an accidental fire.

Resource managers now realize the importance of fire as a natural tool for maintaining a healthy and diverse ecosystem. *Prescribed fires* are set intentionally when weather and natural fuel conditions meet strict standards. Prescribed fires help eliminate dangerous fuel loading and open the forest canopy to sunlight, thus encouraging the cycle of regeneration. Resource managers will eventually be burning on the 15 to 30 year cycle that occurs naturally in this ecosystem.

Here in the monument, burned trees are not logged. The dead standing trees provide habitat for birds, insects and other life forms. As the burned trees decompose, nutrients are added to the soil.

The prescribed fire areas that are visible at Devils Tower today were burned in 1993, 1998, and 1999.

EXOTIC INVADERS



Many exotic invaders (non-native plant species) can be found at Devils Tower National Monument, competing with native plants, and, in many cases, out-competing them. Biologists have identified at least 56 non-native plant species in Devils Tower.

Non-native plants pose a concern for the monument because of the effect they can have on native species. Non-native plants use up nutrients and water that would otherwise be used by native plants. They also compete for sunlight and growing space. Many non-native plants are poor in nutrition, and unpalatable for animals. As a result, they tend to reproduce and spread quickly.

Resource managers are implementing control measures on several exotic plant species at Devils Tower. These plants include leafy spurge, houndstongue and four types of thistles.

Leafy Spurge is primarily controlled by using herbicides and biological means. Spurge Beetles have been introduced from Eurasia. These beetles live on and eat the plant. Beetles lay their eggs on the roots, and when the beetle larvae hatch, they eat the roots. This opens the roots to fungal invasion. It is actually the fungus that kills the Leafy Spurge. Although not a native species, Spurge Beetles eat only Leafy Spurge and do not affect other plants.

Hound’s tongue is a biennial and requires two years to complete its growth and produce seeds. During the plants' second year of growth, the seed heads are manually removed, preventing regeneration.

Three species of Thistles (Scotch, Musk and Bull) are controlled with herbicides. Biological controls are used on Canada Thistles. Two kinds of insects are released in the park each year. The Stem-mining Weevil attacks the Canada thistle, eating a hole in the stem and killing the plant. Gall Flies create galls on the thistle, preventing the plant from producing seeds.

ADDITIONAL INFORMATION

Devils Tower website: www.nps.gov/deto