



Endangered Species Fact Sheet

Tennessee Purple Coneflower

Some plants and animals listed by the U.S. Fish and Wildlife Service as endangered or threatened can be harmed by the use of certain pesticides. To help ensure the continued existence of these species, the U.S. Environmental Protection Agency (EPA) will limit the use of certain pesticide products within the habitat of these species. This action will reduce the exposure of endangered or threatened species to potentially harmful pesticides. The Tennessee purple coneflower is an endangered plant for which EPA may set pesticide limitations.

What Is the Tennessee Purple Coneflower?

The Tennessee purple coneflower (scientific name: *Echinacea tennesseensis*) is a wildflower found only in the cedar glades of central Tennessee where limestone bedrock is exposed or covered with a very thin layer of soil. It is a short, woody plant that produces pinkish-purple flowers resembling black-eyed Susans from June through October. These flowers produce a limited number of seeds, but most of these germinate easily if conditions are favorable. The coneflower's roots tend to be long, and are forced to grow horizontally because of the impenetrable bedrock located beneath the plant. The roots are well-adapted for absorbing and storing water that is available in rock crevices. Coneflowers are seldom found in shady areas, perhaps because denser, taller vegetation can compete better than the wildflower for water and light.

In addition to its significance as a beautiful wildflower, the Tennessee purple coneflower may be useful in medicine. Originally valued by Native Americans for its numbing effects, the coneflower's medicinal properties currently are being studied by cancer and AIDS researchers for possible applications in combating these illnesses.

Only five populations of the plant are known, and all are located within 14 miles of one another in the State of Tennessee. A "population" is a group of colonies that can pollinate each other. A "colony" is a group of plants that is separated from other groups of the same species of plant by an ecological or physical barrier, such as soil that is unsuitable for growth. Colonies of cone-flowers contain from one to hundreds of plants and are found on both State and private land.



How Is the Tennessee Purple Coneflower Threatened?

The major threat to this wildflower is the destruction of its habitat. For example, two colonies of the Tennessee purple coneflower were destroyed by construction of housing developments. Several of the populations existing today are similarly threatened by rapidly spreading residential and commercial development. Other activities such as off-road vehicle use, dumping of trash and debris, animal grazing, and field mowing also can harm the coneflower. However, if performed sparingly, animal grazing and field mowing may actually help the coneflower by eliminating its competition. The coneflower appears to be able to survive many types of physical abuse to its habitat except outright destruction of the cedar glades by paving, building, or establishment of lawns.

Herbicide use within the cedar glades, or pesticide use on industrial, residential, fence row, and grazing sites adjacent to coneflower populations can directly threaten the plant's survival. In addition, the coneflower can be indirectly affected if pesticide use modifies its habitat or destroys the bees and butterflies on which it depends for pollination.

In addition to the human activities that threaten its habitat, some of its inherent biological characteristics may threaten the coneflower, particularly in combination with habitat destruction. For example, the plant does not produce many seeds, and these seeds are not dispersed widely by animals or the wind. Dispersion is helpful to plant reproduction because it prevents plants from becoming overcrowded and provides an opportunity for seeds to grow in new, and possibly better, conditions. Even if dispersed to another area, however, the coneflower could have difficulty surviving because the process the plant uses to produce energy to live requires a large volume of water. The Tennessee purple coneflower is a delicate, highly specialized plant that is well-adapted to the cedar-glade environment. If this environment is destroyed, the Tennessee purple coneflower may very well become extinct.

What Is Being Done to Prevent Extinction of the Tennessee Purple Coneflower?

On June 6, 1979, the U.S. Fish and Wildlife Service officially listed the Tennessee purple coneflower as an endangered species. The Fish and Wildlife Service then developed a recovery plan to increase the numbers of this wildflower. The overall goal of the recovery plan is to ensure viability of the five wild populations of the coneflower. This goal will have been met when each population consists of three self-sustaining colonies (a colony is considered self-sustaining when there are two young plants for every flowering plant). The coneflower will be reclassified from "endangered" to "threatened" when each population has two colonies.

To help achieve the recovery goal, the U.S. Fish and Wildlife Service has notified private landowners and the State of Tennessee's Division of Forestry of the existence of a significant rare plant on their properties and has initiated a public information campaign focusing on the importance of preserving the Tennessee purple coneflower. In addition, systematic searches are being conducted to locate new coneflower colonies, and methods are being developed for removing seeds to establish new

experimental colonies without hurting existing colonies. The EPA is developing a program to protect the coneflower from harmful pesticide use. This program will limit the use of certain pesticides in areas where the coneflower grows to ensure that the plant is not inadvertently destroyed.

The State of Tennessee and the general public also are taking steps to protect and enhance the coneflower. For example, private landowners with indigenous Tennessee purple coneflower colonies have agreed not to disturb the plants, and other landowners are obtaining coneflower seeds and successfully growing the plants in their home gardens. The Tennessee Native Plants Society has agreed to dispense coneflower seeds through its seed exchange program. A Tennessee Valley Authority nursery is now growing about 500 to 1,000 plants with seeds taken from wild coneflowers, and the Tennessee Department of Conservation seeded three areas on State-owned land in order to produce new coneflower colonies. In addition, State-owned lands containing existing colonies have been zoned as "restricted," thereby prohibiting timber management practices such as brush removal and logging which could damage Tennessee purple coneflower populations.

Although many steps have been taken to protect the Tennessee purple coneflower, its existence is not secure. For example, even though many plants successfully grow in home gardens, they are dependent on constant care in order to survive. Federal, State, and private efforts must continue to protect the Tennessee purple coneflower from extinction and preserve its natural habitat.

How Can I Obtain Additional Information?

To obtain copies of the recovery plan for the Tennessee purple coneflower, you may contact:

Fish and Wildlife Reference Service
5430 Grosvenor Lane
Suite 110
Bethesda, MD 20814

For additional information on EPA's Endangered Species Protection Program, contact:

The Endangered Species Protection
Program (H7507-C)
U.S. Environmental Protection Agency
401 M Street, S.W.
Washington, DC 20460