



Shale Barren Rockcress (*Arabis serotina*)

Common Name

Shale Barren Rockcress

Scientific Name

Arabis serotina

Status

Shale barren rockcress is listed by the United States Fish and Wildlife Service as federally **Endangered** and is being protected from destruction on federal lands.

West Virginia Status

Shale Barren rockcress is known to grow in West Virginia and in approximately 35 sites in Virginia. Many of these areas contain less than 10 plants. The number of these plants growing at a site may change greatly from year to year due to unknown factors, so it is difficult to know how many total plants actually exist.

Description

The plant is called a cress because it is part of a group of wild plants, the "mustards," whose leaves are tangy and some species can be eaten by humans. The leaves are more often eaten by insects and other herbivores. The first two words of the name refer to the plant's habitat: shaley, steep, usually dry hillsides known as shale barrens. It is the rarest of the plants which grow on shale barrens, and restricted almost exclusively to them. Shale barren rockcress is usually considered to be a biennial plant, in that after a seed sprouts, leaves grow in a small circular cluster next to the ground during the first year. This group of leaves is called a rosette, and they remain alive through their first winter and into the second year when the plant may produce flowers near the end of summer. Field observations of the species have lead us to suspect that a given rosette may not produce a bolt of flowers for as much as 5 years, or whenever conditions are favorable. To produce flowers, a stem grows upward from the rosette to a height of about 60 centimeters (about 2 feet) and may have many branches. Small flowers and a few small leaves grow from these branches. New rosettes usually sprout

from seeds although they may occasionally sprout from other rosettes.

Habitat

The shale barrens, where this rockcress grows, have soil which contains many hard, small shale fragments. The hillsides typically face the south or the east, so they get very hot during summer days. Shale barrens occur on Devonian-aged shale exclusively in the Valley and Ridge Geographic Province of the Allegheny Mountains. Only a few types of plants can survive on shale barrens. These plants include pines, oaks, and junipers along with a sparsity of non-woody plant species. This is most likely because the tiny fragments of shale, called channers, tend to cascade down the steep slopes making the substrate unstable for most young plants to get started. Plus, on hot August days, few seedlings can survive temperatures of up to 110 degrees Fahrenheit, six inches above the surface of the shale slope.

Shale barren rockcress does not grow on all the shale barrens in West Virginia and Virginia. It has been found in only three counties in West Virginia (Greenbrier, Pendleton, and Hardy) and in four counties in Virginia (Highland, Bath, Rockbridge, and Augusta). Although there are similar shale barrens in parts of Maryland and Pennsylvania, this plant does not grow there.



Factors

Recently, several new roads have been built directly through places where shale barren rockcress had



been growing. In West Virginia, five shale barrens where the rockcress grows have been partially destroyed by road construction, and a sixth was degraded by a small flood-control dam. Three shale barrens in Virginia that contain the rock cress have been partially destroyed by road construction, two were damaged by railroad construction, and one is crossed by a hiking trail. Hikers may accidentally step on these plants, plus excessive foot travel can damage shale barrens. In addition, deer and insects find shale barren rockcress palatable. Recently, much deer damage to flowering plants of this species has been observed.

Threats and Prospects

More information about how shale barren rockcress grows and reproduces needs to be obtained. Within recent years, more populations have been discovered in Virginia and West Virginia with the aid of aerial

infra-red photography to locate potential sites, followed by on-site exploration. There are still many things about the plant that are uncertain. Because it only grows in a few places, these places need to be studied to find out what shale barren rockcress needs in order to survive. Shale barren rockcress is not currently protected by any state or local laws or regulations. This means that private land owners are not restricted in what they do on their land where the rockcress is growing. Some observations suggests that some shale barrens may not always remain barren and dry. Over time, it is possible for conditions there to change, and more trees may eventually grow on them. If more trees grow there, shale barren rockcress may not be able to survive. Therefore, the question of whether humans should try to keep the shale barrens in an open condition may be considered in the future.