Wildlife Conservation Land Program
Priority Habitat Management Guidelines

Rock Outcrops

Protected species associated with rock outcrops in the Southern Blue Ridge eco-region include peregrine falcon, Southern rock vole, Alleghany woodrat, green salamander, Southern rock shrew, timber rattlesnake, Eastern woodrat, Eastern small-footed bat, crevice salamander and Southern zigzag salamander. Occurrence may be elevation dependent with some species.

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Habitat Description

Rock outcrop habitats are comprised of numerous distinct ecological community types described in the North Carolina Wildlife Action Plan (NCWAP). These community types include boulderfields, rocky summits, granitic domes, acidic cliffs, mafic cliffs, granitic flatrocks, and talus slopes. High-elevation rock outcrops occur only in the highest mountain ranges within the Southern Blue Ridge eco-region. Low-elevation rock outcrops are found in the Southern Blue Ridge, but also in some areas of the piedmont eco-region.

In general, rock outcrops are often characterized as open canopy communities with patchy vegetation due to variability in soil depth and moisture content; however, specific rock outcrop habitats can occur within a forested setting (e.g., boulderfields within northern hardwood forests or small rock outcrops within any forest habitat).

Lichens and mosses occur on bare rock and other vegetation may develop in deep moss mats or crevices (oatgrass species, sedges and mountain dandelion). Woody plants or trees such as mountain laurel, Catawba rhododendron, table mountain pine, red spruce, various oaks and yellow birch may occur in the deepest soil mats, rock crevices and at the edge of these habitats.

Water seepage through rock crevices may provide moisture for amphibians, mosses, lichens and wetland vegetation. Regardless of ecological classification, rock dominates the surface of the land.

Many wildlife species utilize rock outcrop habitat without regard to elevation (e.g., peregrine falcon), whereas others will utilize only high-elevation rock outcrop habitats (e.g., rock voles and rock shrews). However, many species of wildlife and plant species are associated with both high- and low-elevation rock outcrop communities. The elevation limits for each species are quite variable.

The conditions present at individual rock outcrops are unique, depending on geology, geography, elevation, moisture and landscape position. They may contain discreet communities, or they may be dispersed among a variety of other community types that are connected through local geology and landscape conditions.

As such, the extent of habitat that each rock outcrop provides is dependent upon the entire set of conditions in and surrounding the surface rock. Those conditions influence its use by plants and animals dependent upon the surface rock and may include significant amounts of the adjacent ecological community.

Management Strategies – Wildlife Conservation Land Program (WCLP)

High-elevation rock outcrops are extremely rare, have a very restricted range, and are subject to extreme environmental conditions. Each site can have a somewhat unique set of problems particular to it, ranging from almost no impact to a high degree of impact. Common threats across the range of high-elevation rock outcrops include recreation, development, and forest succession.

The two major impacts often associated with low-elevation rock outcrops are development and recreation. However, low-elevation rock outcrops are typically more susceptible to damage during forestry harvest operations and conversion of adjacent vegetation to monoculture forests than high elevation rock outcrops due to land ownership patterns, proximity to markets, accessibility, and other factors.

While this habitat type appears simple, many factors intermingle to shape this ecosystem. The complexity of this habitat type cannot be easily recreated. To conserve these unique areas, and the animal species which require them, it is vital to accurately identify them and work with private landowners to protect and buffer these natural features.

Under the WCLP, landowners with both high- and low-elevation rock outcrops must be willing to institute appropriate restrictions upon use of the areas to minimize the direct impact upon the habitat and associated wildlife. This entails closure of sensitive areas at certain times or permanently to stop direct (trampling, loss of habitat to recreation developments - trails, vistas, etc.) and indirect human impacts (disturbance).

Maintenance of biologically significant areas, including peregrine falcon nesting areas, reptile den sites and significant salamander occurrences may require active management of outcrops to reduce intrusion by alder, rhododendron and other woody species, which contributes to the disappearance of some vertebrates. Use of hand tools to manually cut down encroaching woody vegetation is the preferred method to sustain vegetation diversity. Very targeted herbicide applications can be used on persistent woody and non-native plant species. Herbicides, surfactants and treatment methodology used for habitat management should be of low toxicity to wildlife, be as selective for target species as practical and must be applied according to the instructions on the product label.

A buffer of sufficient width will be needed to minimize negative impacts to the site and the wildlife that require this unique habitat type. Barring special circumstances, the maximum buffer for any rock outcropping will be 600 feet. A resource professional can assist with delineating the appropriate buffer.

Conservation easements are strongly encouraged to help permanently protect these sites.

Information concerning this and other priority habitat types can be found in the North Carolina Wildlife Action Plan (NCWAP).