

Low Elevation Cliffs/ Rock Outcrops

Southern Blue Ridge Mountains

This habitat category includes areas that are characterized by exposed rock, sometimes supporting forest canopy, but often these areas are too steep or rocky to support a closed canopy. These habitats can be found in the Southern Blue Ridge, but also in some areas of the Piedmont. Often these areas contain patchy vegetation, reflecting the variability in soil depth and moisture content. Seepage may provide some moisture for mosses, lichens, and wetland vegetation. This habitat type contains many different types of communities defined by Schafale and Weakley (1990) including low elevation granitic domes and rocky summits, acidic cliffs, mafic cliffs, and some boulderfields. In addition, many of the wildlife species associated with low elevation cliffs and rock outcrops occur in association with rock outcrops dispersed throughout other forest or habitat types in patches too small to be considered discreet communities of their own.

Many wildlife species utilize rock outcrop habitat without regard to arbitrary elevational distinction (e.g., peregrine falcon), and others will utilize only high elevation rock outcrop habitats (at least according to what we currently know, e.g., rock voles and rock shrews). However, many wildlife species and even more plant species (Schafale and Weakley 1990) are either associated with high elevation rock communities or low elevation rock communities. The elevation limits for each species, however, are quite variable. Many low elevation rock outcrop species of plants and animals are restricted to ranges outside high elevation areas (e.g., crevice salamanders are only found in and around the relatively low elevation Hickorynut Gorge). Still other wildlife may occur in both high and low elevation rock communities, but for various reasons may reach higher densities or have wider distribution in low elevation rock outcrops (e.g. timber rattlesnakes).

Some wildlife species may occupy/use low elevation rock outcrop communities, but may not necessarily be restricted to them (e.g., eastern woodrat). Finally, several species are often associated with low elevation rock outcrops, however we may not know the full extent of their range and distribution, nor specific factors that result in their selection of low elevation rock outcrops. The result is a wide array of animal species associated with low elevation rock outcrop communities, with varying degrees of exclusive use. Nonetheless, there are several wildlife species often associated with our generalized low elevation rock outcrop habitat as shown in Table 1.

Table 1. Priority species associated with low elevation cliffs/ rock outcrops.

Group	Scientific name	Common name	State status* (Federal status)
Birds	<i>Falco peregrinus</i>	Peregrine Falcon	E
Mammals	<i>Myotis leibii</i>	Small-footed Bat	SC
	<i>Myotis septentrionalis</i>	Northern Long-eared Bat	SC
	<i>Neotoma floridana haematoreaia</i>	Eastern Woodrat	SC
	<i>Spilogale putorius</i>	Eastern Spotted Skunk	

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Group	Scientific name	Common name	State status* (Federal status)
Amphibians	<i>Aneides aeneus</i>	Green Salamander	E
	<i>Plethodon longicrus</i>	Crevice Salamander	SC
	<i>Plethodon ventralis</i>	Southern Zigzag Salamander	SC
Reptiles	<i>Crotalus horridus</i>	Timber Rattlesnake	SC
	<i>Eumeces anthracinus</i>	Coal Skink	
*Abbreviations E Endangered SC Special Concern			

Location And Condition Of Habitat

As with high elevation rock outcrop habitats, there is not currently a standardized definition of this habitat, nor capability to map and assess condition at each of these relatively small and dispersed habitats throughout western North Carolina. This habitat type is spread throughout the mountains and upper piedmont region of the state (piedmont examples include Sauratown Mountains inclusive of Pilot Mountain, the Crowders, the Uwharries, and South Mountains). Some specific sites have been characterized and studied, but many more have not, owing to their not being restricted to specific elevation or mountain ranges. They can and do occur just about anywhere in western North Carolina.

Conditions also vary considerably within this habitat type, with a significant number having been impacted and/or lost due to numerous factors, while others remain functional “natural sites” and others yet specifically managed to minimize human impacts. A map of this habitat is not provided, due to scale and sensitivity issues.

Problems Affecting Species And Habitats

As with high elevation rock outcrops, two major problems most associated with the low elevation rock outcrops include development and recreational impacts. However, many more low elevation rock outcrops are subjected to short term habitat alterations (e.g. forestry operations) than high elevation rock outcrops due to land ownership patterns, proximity to markets, accessibility, and other factors. The extent and degree of impact associated with such temporary habitat alterations is unclear for most species. Regardless of the impacts or problems associated with short-term habitat modifications, the relative scarcity of low elevation rock outcrop habitat across the landscape of North Carolina, and reliance upon it by numerous wildlife species lends greater significance to the need to identify and manage these habitats appropriately to conserve wildlife.

Individual wildlife species associated with low elevation rock outcrops are subject to specific conditions of their habitats or their life histories and biology, which could be considered problems, depending upon the scale, location, extent, and duration. Many of the problems identified for high elevation rock outcrops and their associated species can impact species inhabiting low elevation rock outcrops (see discussion under “high elevation rock outcrops”).

Species And Habitat Conservation Actions and Priorities For Implementation

Given the relative rarity of low elevation rock outcrops across the state, measures need to be taken to conserve as much of this habitat as possible. This includes preservation measures, as well as conservation/management measures to ensure that species which rely upon these outcrops continue to be afforded the variety of habitat conditions desired into the future. Certainly a high priority should be placed upon acquisition or easement of land tracts which support low elevation rock outcrops due to the fact that they are not abundant, they have numerous rare plant and animal associates, and remaining sites are subject to significant threats associated with both recreational and other development pressures.

In addition, conservation actions that are necessary include assigning appropriate management schemes to rock outcrops upon conservation lands to minimize negative impacts from human activities including recreational use and development. Appropriate restrictions upon use of the areas need to be developed where none currently exist to minimize the direct impact upon the habitat and its occupants. The results of studies on the impact to low elevation rock outcrops from surrounding habitat modification should be incorporated into appropriate management recommendations to minimize impacts upon wildlife species utilizing the rock outcrop. Mapping of these sites in a GIS format would facilitate tracking changes over time in both the habitat, as well as the associated species; and facilitate landscape scale management of this rare habitat. Maintenance of biologically significant areas, including peregrine falcon nesting areas, reptile den sites and significant salamander occurrences, is critical.

Species And Habitat Conservation Actions and Priorities For Implementation

- **Surveys**

- Conduct surveys for the southern zigzag salamander, crevice salamander, green salamander.
- Conduct bat surveys (survey appropriate habitats for hibernacula or summer roosts).
- Intensify efforts to determine eastern spotted skunk range and status.
- Survey/develop baseline status and distribution information for coal skink, timber rattlesnake, peregrine falcon.

- **Monitoring**

- Continue annual monitoring of peregrine falcon nest cliffs to assess population status.
- Establish protocols and regularly monitor green salamander and eastern woodrat.
- Establish protocols and monitoring system for all priority wildlife species associated with low elevation rock outcrops upon completion of baseline inventories/surveys.

- **Research**

- *See green salamander and peregrine falcon research needs under "High elevation rock outcrop" section.*
- Initiate bat use and microhabitat studies.
- Study the impact of various management scenarios on the habitat and associated species.

- Explore ways to identify the distribution and characteristics of this habitat across the landscape.

Supporting References

Bailey, M. A., J. N. Holmes, and K. A. Buhlmann. 2004. Habitat management guidelines for amphibians and reptiles of the southeastern United States (DRAFT). Partners in Amphibian and Reptile Conservation.

N.C. Natural Heritage Program. 2001. Descriptions of the biological themes of North Carolina, 2nd edition. N.C. Department of Environment and Natural Resources, Natural Heritage Program, Raleigh, NC.

Schafale, M. P., and A. S. Weakley. 1990. Classification of the natural communities of North Carolina, third approximation. N.C. Department of Environment and Natural Resources, Natural Heritage Program, Raleigh, NC.