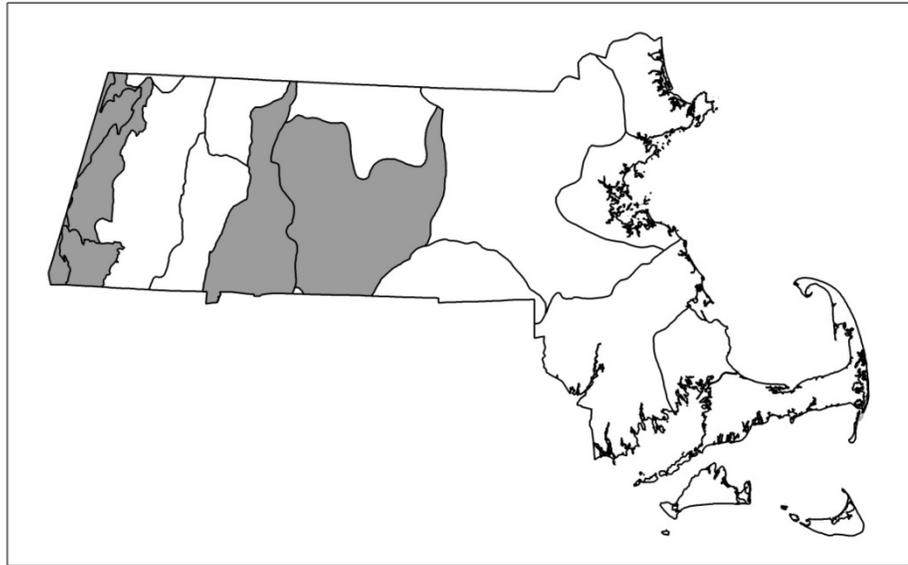




Calcareous Rock Cliff Community

Community Code: CT2A2C0000

State Rank: S3



Concept: Extremely sparse vegetation, in cracks and small ledges of nearly vertical cliff faces and any open talus at the base of the cliff. A more diverse community than found on acidic cliffs.

Environmental Setting: Rock cliff communities all occur on more or less vertical bedrock cliff faces. They have extremely sparse scattered vascular plants on ledges and in crevices. Lichens may be dense on the rock face. Calcareous Rock Cliff Communities occur on exposures of resistant limestone, dolomite, or other calcareous bedrock; cliffs often include ledges and open talus slopes below. There is minimal soil development. Surroundings tend to be northern hardwood forest, or sometimes Rich, Mesic Forests. Calcareous Rocky Summit/Rock Outcrop Communities may occur above calcareous cliffs, although much calcareous rock in Massachusetts is overlain by more resistant acidic rock. Rock cliffs less than about 5000 sq. ft. should be considered inclusions in the surrounding forest, or combined with larger talus or rock outcrops as appropriate.

Vegetation Description: The sparse vegetation of Calcareous Rock Cliff Communities is distinct and specific to the habitat. Purple cliff-brake (*Pellaea atropurpurea*), bulblet fern (*Cystopteris bulbifera*), maidenhair spleenwort (*Asplenium trichomanes*), blunt-lobed cliff-fern (*Woodsia obtusa*), walking fern (*Asplenium rhizophyllum*), and columbine (*Aquilegia canadensis*) are characteristic species of vascular plants. Harebell (*Campanula rotundifolia*) grow in drier open sites, and moister, shaded sites have early saxifrage (*Micranthes virginiensis*), rock-pellitory (*Parietaria pensylvanica*), small enchanter's nightshade (*Circaea alpina*), and several rock-cresses (hairy rock-cress, *Arabis pycnocarpa*; lyre-leaved rock-cress, *Arabidopsis lyrata*; and smooth rock-cress,



Boechera laevigata). Lichen and moss grow on the rock face and in small cracks. Surrounding forest often includes sugar maple (*Acer saccharum*), white ash (*Fraxinus americana*), basswood (*Tilia americana*), butternut (*Juglans cinerea*), and black and yellow birches (*Betula lenta* and *B. alleghaniensis*). Trees from the surrounding forest may shade the cliff face; shaded cliffs have less vegetation than sunny occurrences.

Differentiating Occurrences: Three types of very sparsely vegetated plant communities have been identified on rock cliff faces, depending on the chemistry of the rock: Acidic, Circumneutral, and Calcareous (alkaline, named for calcium availability). Circumneutral and Calcareous Rock Cliff Communities have species that don't occur on Acidic Rock Cliff Communities, which vegetationally are less distinctive. In distribution, Circumneutral Rock Cliff Communities overlap with and are more widespread than Calcareous Rock Cliff Communities, which are restricted to the Marble Valleys and Connecticut Valley ecoregions. Circumneutral Rock Cliff Communities would be expected to have some of the following characteristic species: columbine, pink corydalis, marginal wood-fern, ebony spleenwort, herb Robert, and/or green rock-cress. Red cedar is more likely to be present in the vicinity of Circumneutral or Calcareous Rock Cliff Communities and associated outcrops than on Acidic Rock Cliff Communities and their associated rock outcrops. Calcareous Rock Cliff communities include species requiring high nutrient levels (nutrient richness) or high pH such as rock pellitory, smooth rock-cress, lyre-leaved rock-cress, fragile rock-brake, purple cliff brake, and bulblet-fern, that are not usually found in Circumneutral Rock Cliff Communities. Rocky summits, rock outcrops, and Open Talus/Coarse Boulder Communities also have bare rock and could be confused with Circumneutral Rock Cliff Communities. The differentiation between cliffs and rock outcrops/summits is arbitrary: cliffs are defined as vertical to near vertical (~60% slope). Open Talus/Coarse Boulder communities have broken rock rather than continuous, near-vertical rock faces. Ridgetop Pitch Pine - Scrub Oak and Ridgetop Heathland Communities occur on rock ridges but are more densely vegetated than Circumneutral Cliff Communities, and are not near vertical overall.

Associated Fauna: All types of cliffs provide nesting habitat for Ravens (*Corvus corax*). In the past, Peregrine Falcons (*Falco peregrinus*) nested on cliffs before being extirpated from Massachusetts in 1955, and the offspring of Peregrine Falcons released in urban areas since 1984 have begun to return to the natural habitat to breed in the state. Cliffs were probably the native habitat of the Eastern Phoebe (*Sayornis phoebe*). No mammals, reptiles, or amphibians would be expected on the steep cliff faces.

Public Access: Calcareous cliffs are easily damaged by visitation. Most landowners do not want their sites publicized.

Threats: Rock climbing can break plants off of the cliff face, remove small pockets of soil, and wear lichens off of the rocks. Distinct trails appear on heavily used cliffs. Natural nest sites that Peregrine Falcons used in the past are being re-colonized as Peregrine numbers increase. However, at some cliff sites it is likely that rock-climbers disturb prospecting pairs of falcons sufficiently to keep the birds from



nesting, either just for that season or as a possible nest site at all. Ridgetops and tops of rock cliffs often have recreational trails along them that are eroded, lead to trampling of vegetation, or generally create disturbances that alter habitat for animals as well as plants. Calcareous Rock Cliffs are quarried for limestone and marble in the Berkshires. Quarrying removes existing vegetation along with underlying rocks, changing habitat characteristics, hydrology, and future vegetation. When quarries are abandoned, what is left is often bare of all but planted grass and invasive weeds.

Management Needs:

USNVC/NatureServe:

Includes: *Cystopteris bulbifera* sparsely vegetated alliance - *Cystopteris bulbifera* sparse vegetation [provisional] [CECL004394]; includes some of:
Laurentian-Acadian-Great Lakes Alkaline Cliff Alliance A4006 - *Pellaea atropurpurea* cliff sparse vegetation (CEGL006527).