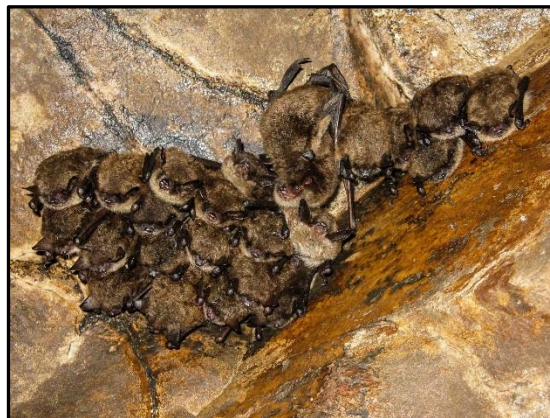


## Underground Habitats

Caves are a unique habitat with a consistent environment of temperature, relative humidity, and air flow. Abandoned mines can provide many of the same habitat qualities of natural caves.

### *Ecological Functions*

There are six species of bats known to hibernate in Vermont caves and mines. Recent surveys indicate that caves may hold as few as 10 individual bats to over 70,000. Bats use these sites for hibernation, but also spend a disproportionate amount of the year in the area surrounding the cave (e.g., fall swarming). Interest and understanding in the invertebrate communities associated with caves is just beginning, and even less is known about native fungi and other life forms. The condition and biology of the subterranean aquatic habitats is poorly understood. At the national and global scale, it is well-documented that caves provide habitat for specialized invertebrates (Peck 1998). Caves are expected to function as a coarse filter for these species which are poorly understood. Although abandoned mines are not of natural origin, they augment the natural habitats available and are an additional coarse filter for bat species.



### *Highest Priority Features and Guidelines for Maintaining Ecological Function*

Vermont Conservation Design identifies a set of 22 caves and 19 abandoned mines that are highest priority for maintaining ecological function. Ideally, this set of caves would represent the full range of bedrock type and cave formations found in the state, but currently there is insufficient information to fully assess this. Additional study may ultimately refine these targets.

Changes in structure and hydrology could greatly affect the habitat provided by subterranean areas. Subterranean areas should remain intact, with limited human alteration or influence from above-ground pollutants. Maintain natural processes in caves, including temperature regime, airflow, humidity, and hydrology; natural vegetation conditions above the cave footprint and a 50-meter buffer to moderate air and temperature conditions; and natural groundwater sources. For abandoned mines, maintain the conditions that support hibernating bats or other known obligate species. Recreational exploration of caves and mines can pose a threat to physical conditions and species. Within a 0.25-mile zone around the cave or mine entrance, maintain natural forest vegetation with a diversity of age classes, and abundant live or dead known or potential roost trees with cavities, cracks, crevices, and/or peeling bark.

For more information on underground habitats, see the following sections in the Part 2 Vermont Conservation Design Technical Report:

- Caves
- Abandoned Mines

*Caves and abandoned mines are not listed or mapped in this report in order to protect sensitive species and sites.*