CEDAR BREAKS NATIONAL PARK (CEBR)

Size 2,491 hectares (6,155 acres)

Park History and Purpose Cedar Breaks National Monument was established by President Franklin D. Roosevelt by Proclamation No. 2054 on August 22, 1933, under authority of the Act of Congress approved June 8, 1906 (34 Stat. 225), known as an Act for the Preservation of American Antiquities, and the Act of June 4, 1897 (30 Stat. 34). The Proclamation states that "it appears desirable, in the public interest to...include said lands within a National Monument for the preservation of spectacular cliffs, canyons, and features of scenic, scientific, and educational interest contained therein..." Cedar Breaks National Monument is administered by Zion National Park, which is located approximately 64 kilometers (40 miles) to the south.

The proclamation establishing the monument and the Organic Act of 1916 establishing the National Park Service direct the basic principles and objectives for the management of park resources. The proclamation describes Cedar Breaks as "spectacular" and mandates the preservation of its "features of scenic, scientific, and educational interest..." The Organic Act (39 Stat. 535) states that, "the fundamental purpose of the said parks, monuments and reservations...is to conserve the scenery and natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations."

Cedar Breaks National Monument Strategic Plan for FY2001 – FY2005 summarizes the legislative intent contained within the proclamation establishing the Monument as mandating the National Park Service to

- Preserve the geologic spectacle of the Cedar Breaks amphitheater and preserve the scenic vistas as seen from various points along the rim of the amphitheater.
- Preserve all other park resources that are of scientific interest, including geologic, floral, faunal, and cultural resources contained within the boundaries of the monument.
- Interpret the value of and promote public appreciation and enjoyment of Cedar Breaks National Monument.

Therefore, the purpose of Cedar Breaks National Monument is

- To preserve the geology, vistas, natural and ecological processes, and other features of scenic, scientific, and education interest of Cedar Breaks National Monument.
- To provide opportunities for research, public enjoyment, inspiration, and appreciation of the resources of Cedar Breaks National Monument through interpretation and other educational endeavors.

Location CEBR is located in southwestern Utah in Iron County, 29 kilometers (18 miles) east of Cedar City, Utah, on the western edge of the Markagunt Plateau. Its location is also on the western edge of the Colorado Plateau physiographic province, with spectacular views westward into the Basin and Range province.

Elevation Elevation varies from 3,250 meters (10,662 feet) in the northeastern section above the amphitheater rim, to 2,469 meters (8,100 feet) on Ashdown Creek on the western boundary.

General Description CEBR contains an outstanding scenic multi-colored geologic amphitheater, 762 meters (2,500 feet deep) and 5 kilometers (3 miles) wide, eroded from the Claron Formation, and located on the western edge of the 3,353 meters (11,000-foot) Markagunt Plateau.

The Claron Formation, the primary geologic unit, was a limy ooze deposited in shallow Eocene lakes near sea level about 55 million years ago. A general uplift and development of fault blocks occurred during the Miocene, dated about 14 million years before present. The Cedar Breaks amphitheater is an escarpment facing westward with rims on the north, east, and south. The cliffs and canyons of Cedar Breaks have been carved into the western edge of the Markagunt Plateau by the headwaters of Ashdown Creek and its tributaries. Iron and manganese minerals in the rock produce a wide range of red, yellow, orange and purple hues across the cliffs. While this is the same geological formation preserved at Bryce Canyon National Park, variations in the rock layers and differences in the action of the geological processes have produced more colorful scenic vistas at Cedar Breaks but with fewer spires, pinnacles and arches
found at Bryce Canyon.

The rim features a mixture of spruce/fir forest and subalpine meadows. Throughout summer meadows abound in a dazzling profusion of wildflowers peaking midsummer with a magnificent display across the meadows and into the forests. At the very edges of the cliffs, ancient Bristlecone pine trees thrive in the harsh exposed environment to which they are so well adapted. The oldest Bristlecone known in the monument is about 1,700 years old.

The tropical Gulf, tropical Pacific, and polar Pacific air masses influence the climate. Their influence, combined with elevation, produces annual precipitation significantly higher than much of the surrounding terrain. In the winter, storms move in from the west, southwest, and northwest; most moisture falls as snow, closing roads from November to mid-May. A dry southwest flow prevails in summer, with occasional thundershowers that move in from the Gulf of Mexico or rotate around high pressure systems.

Climate data is recorded at the Blowhard Mountain radar site, located about one mile south at an elevation of 3,262 meters (10,700 feet). Mean annual precipitation is 29.73", from a low of 16.90" (1989) to a high of 47.24" (1966). Mean annual maximum temperature is 42.3 F, ranging from a January low of 27.4 to a July high of 62.5, while mean annual minimum temperature is 27.2 F, ranging from 12.4 in January to 47.4 in July. Mean monthly minimums are above 32 F only in June, July, August, and September. The result is long, cold winters, and short, cool summers. Annual cumulative snowfalls can exceed 9 meters (30 feet).

Flora Plant communities are those associated with the pinyon-juniper forests of the lower Transition Zone, to ponderosa pine, blue spruce, and Douglas fir overstory with Rocky

Mountain maple, greenleaf manzanita, and/or Oregon grape understory of the Canadian Zone, up to the Englemann spruce-subalpine fir overstory with monkshood, Oregon grape, and/or gooseberry understory and subalpine meadows of grasses, sedges, and forbs of the Hudsonian Zone. A wide variety of plant life exists due to the wide range in elevation and micro-habitats found within each.

Of the 269 plant species identified in 1989 (Roberts and Jean), twelve are introduced from other continents and are exotics to the native flora. The most widespread is the dandelion (*Taraxacum officinale*) and smooth brome grass (*Bromus inermis*).

Fauna As with vegetation, the topographic diversity supports a large variety of animal life. Thirty-seven mammal and 86 bird species have been identified, although a complete, intensive survey has not been done. Elk, mule deer, mountain lion, and black bear are the dominant large animals found throughout the various elevation ranges, although sightings of mountain lions and bears are rare. The higher elevations provide habitat for the pika, marmot, badger, and porcupine. Middle elevations support gray fox and coyote. A large number of rodents and birds are also present, including the Colorado chipmunk, golden-mantled ground squirrel, pocket gopher, golden eagle, Clark's nutcracker, common raven, violet-green swallow, and white-crowned sparrow. Peregrine falcons have been seen nesting just outside the park to the north and some have been observed in the park. There is little information on reptiles or amphibians.

Aquatic Resources The only fish species known is the brook trout (*Silvelinus fontinalis*), an introduced species. Alpine Pond contains a population of these exotic trout that remain from several decades of artificial stocking. Prior to stocking, no naturally occurring fish species were present. There is no other information available on the aquatic life of Cedar Breaks.

Unique Features and Species of Special Concern

Vegetation Communities A large portion of the of the park has been affected by the spruce bark beetle epidemic that has killed thousands of acres Englemann spruce stands on the Markagunt Plateau. It is estimated that 80 to 90% mortality has occurred in the northern half. The park has been working closely with the U.S. Forest Service since the epidemic began in 1993 with monitoring activities and in determining appropriate steps to mitigate the impact of the epidemic within the park. According to the USFS survey, the outbreak hit a new high in 1997, with a general expansion into the remaining live host occurring. Mortality had expanded in all directions from the Sidney Valley area, just northeast of the park, and continues to push into the park. It is predicted that mortality totals will increase until most of the live host trees in the affected areas are killed. This appears to be the stand replacing event that studies have shown occurs every 300 to 500 years in the process of forest succession. Subalpine fir, aspen, limber pine and bristlecone pine are unaffected by this insect, but dramatic changes in the composition and structure of the high elevation forest within the park are occurring.

Species of Special Concern In their 1989 final report entitled "Plant Community and Rare and Exotic Species Distribution and Dynamics at Cedar Breaks National Monument," Roberts and Jean list seven plant species described as "rare." The report further states that plant rarity does not necessarily imply endangerment or possible extinction, but may imply a restricted geographic range or distribution due to physical, biological or man-induced factors. These plant species at Cedar Breaks are associated with the unique geologic Claron limestone formation, which provides habitat. The nature of endemism with its narrowly restricted plant populations led the U.S. Fish and Wildlife Service to consider many of the endemic plants of CEBR for listing as threatened or endangered. These are plants that were formerly listed as "Category 3" or "candidate" species, but are now referred to as "Special Concern" species. They include Navajo Lake milkvetch (*Astragalus limnocharis*), Least spring parsley (*Cymopterus minimus*), Red Canyon catchfly (*Silene petersonii),* Reveal's paintbrush (*Castilleja parvula* var. *revealii),* Cedar Breaks goldenbush (*Haplopappus zionis),* cliff jamesia (*Jamesia americana* var. *zionis)*; and cliff daisy (*Erigeron proselyticus).*

Since that report, another special concern species has been documented in CEBR. The U.S. Fish and Wildlife Service proposed Arizona willow (*Salix arizonica*), for listing as an endangered species with critical habitat in 1992. At that time, it was known to occur only in an area of east central Arizona; no one was aware that the species occurred in Utah. A collection dating to 1913 from what is now the Dixie National Forest prompted fieldwork in 1994 to determine the extent of this species in Utah, prior to the final determination for listing the species as endangered. The 1994 fieldwork resulted in the discovery of populations in Utah that far exceed the number of total plants from Arizona and significantly expanded the known range of Arizona willow. One of the largest known contiguous stands of Arizona willow shares a common boundary between the Dixie National Forest and CEBR. The U.S. Fish and Wildlife Service and the U.S. Forest Service developed a conservation plan for the species that would provide for implementation of short- and long-term protective measures to reduce threats to the species and its habitat (USDA Forest Service et al. 1995). CEBR is a signatory to this agreement.

Resource Management Concerns

Recreation Use Visitor use has been steadily increasing over the last decade. Annual visitation has grown from just over 400,000 in 1992 to over 650,000 in 1999. Because of the inaccessibility of the geologic amphitheater to hikers, virtually all visitor use occurs on the rim along the scenic drive and at rim overlooks. Parking areas and the campground fill to capacity frequently, increasing the occurrence of off-trail hiking, off-road parking/driving, and out-of-bounds camping, with resultant damage to vegetation and soils.

Hazard Tree Management The large number of dead trees from the spruce bark beetle epidemic (see above), and the properties of aging subalpine fir and aspen that make them prone to structural failure, has increased the occurrence of falling trees in and around developed recreation areas, in the vicinity of historic structures, and along the road corridors. Hazard trees are being evaluated in accordance with the park's Hazard Tree

Management Plan, and each year numerous trees are removed from high-risk areas. The scale of this problem has grown considerably in the years following the beetle outbreak, with the potential for serious threats to visitor safety and the preservation of important cultural resources.

Adjacent Land Uses/Impacts on Vistas CEBR is surrounded on all sides by the Dixie National Forest, with about one mile of frontage along the eastern boundary that is in private ownership. The Brian Head Ski Resort is less than three miles to the north. The development of private lands with summer homes, commercial logging on both private and Forest Service lands, and grazing and hunting activities occur right up to park boundary fences. Trespass grazing and illegal hunting within the park are fairly common. The extent to which these adjacent land uses are impacting park plant and animal resources is largely unknown.

In addition, the expansion of the Brian Head Ski Resort, special use permits on the Dixie National Forest that have resulted in the installation of a large FAA radar dome and a NOAA Nexrad radar dome, both on Blowhard Mountain, and the growth of Cedar City to the west have all resulted in visual impacts to vistas that are a significant and valuable park resource. The gradual expansion of housing developments and light industry to the west of Cedar City, and visible from park overlooks, has also contributed to light pollution that will eventually affect the night skies visible from the park.