



United States Department of the Interior

NATIONAL PARK SERVICE
INTERIOR REGIONS 6, 7 & 8
1 Denver Federal Center, Building 50
Denver, CO 80225



August 26, 2025

Memorandum

To: Kevin Wright, Forest Supervisor, Dixie National Forest

From: Brian Carlstrom, Acting Regional Director, Interior Regions 6, 7 & 8

Subject: National Park Service (NPS) Comments on the Proposed Brian Head Ski Resort Expansion Environmental Impact Statement Notice of Intent to Prepare

**BRIAN
CARLSTROM**

Digitally signed by
BRIAN CARLSTROM
Date: 2025.08.29
10:10:10 -0600

The NPS would like to thank you for the opportunity to participate in the Brian Head Resort (BHR) Environmental Impact Statement (EIS) public open house meetings on the proposed expansion of the resort that was held in July 2025.

As a cooperating agency during this NEPA process, the NPS water resources team prepared some questions and comments addressing hydrology and dark sky impacts (see Attachment 1) for the proposed action. The proposed **action would expand Brian Head Resort's Special Use Permit boundary on the Dixie National Forest by 1,651 acres, increasing the total Special Use Permit boundary to 2,538 acres.** The expansion would include the construction of up to 382 acres of new ski trails, 14 new lifts, and four new on-mountain restaurants, along with supporting road, utility, and snowmaking infrastructure.

As Cedar Breaks National Monument's northern boundary is less than two miles away from Brian Head Town, the NPS is interested in additional details concerning water withdrawals and night sky impacts. Please review the attached comments and send a response and copies of the requested documents to:

Cedar Breaks National Monument
Attn: Superintendent Gonder
2460 West Highway 56, Suite 6
Cedar City, UT 84720

The NPS would like to commend the Dixie National Forest for its commitment to ensuring that any proposed expansion will align with the multiple-use mission to protect natural and cultural resources, as well as considering the needs of local communities. Please direct any comments or questions to Kathleen Gonder, Superintendent, Cedar Breaks National Monument, Kathleen_Gonder@nps.gov or Jeff Bradybaugh, Superintendent, Zion National Park at Jeff_Bradybaugh@nps.gov.

cc:

T. Fisk, Chief, NPS Water Rights Branch

N. O'Shea, Hydrologist, NPS Water Resources Division

S. Rice, Hydrologist, NPS Water Resources Division

D. Lentz, Regional Environmental Coordinator, NPS Intermountain Region 6, 7 & 8

J. Bradybaugh, Superintendent, NPS Zion National Park

K. Gonder, Superintendent, NPS Cedar Breaks National Monument

Attachment 1: NPS Scoping Comments on the Proposed Brian Head Expansion Project

Water Rights and Hydrology

The boundary of Cedar Breaks National Monument is less than two miles away from the location of proposed development and listed points of diversion in the documents transmitted to the NPS to date. The April 24, 2000, Cedar Breaks National Monument Water Rights Settlement Agreement with the State of Utah acknowledges Cedar Breaks National Monument has federal reserved water rights "...to all water underlying, originating within or flowing through Cedar Breaks National Monument, including perennial, intermittent and ephemeral streams, springs, seeps, lakes, ponds, groundwater and other natural sources of water." The NPS manages the protection of these water sources and water rights for the benefit of this and future generations.

The NPS is interested in understanding the details concerning any increases in water withdrawals (particularly additional groundwater pumping) or diversions necessary to sustain this expansion project. Some information was provided for the Aspen Meadows Water Provision Intention for Brian Head Proposed Action letter (dated December 9th, 2024) and LRE Demonstration of Water Sufficiency for Brian Head Resort letter (dated August 26th, 2024). However, it was acknowledged in the Brian Head Master Development Plan February 2023, *"An expansion of Brian Head's existing water rights will be required as well. Additional private land wells may be developed. Additional water could be obtained via an approved water right application between the Forest Service and the Utah Division of Water Resources."* We also understand it was noted in the same document, *"Sources for the water will be fully analyzed through the Forest Service NEPA review process."*

1. To support an appropriate analysis of the pertinent available data, please provide a tabulation of water right numbers, priority dates, locations and elevations of points of diversion, volume of water to be withdrawn from each source to support this proposed project, and any well and/or spring performance data, well logs, water levels, and post-2020 water use. Further, please clarify water right depletion rates for snowmaking activities as approved by the State Engineer for each right related to snowmaking. Please clarify whether the sources for the water that will be fully analyzed in the NEPA review include sources for snowmaking on private lands as well as public lands.
2. The NPS has funded a multi-year study with the US Geological Survey (USGS) Utah Water Science Center to investigate the provenance of groundwater resources (springs) within Cedar Breaks National Monument on the north side of the monument, in response to the proposed action at Brian Head. This study will characterize groundwater age and other chemical constituents as it relates to strategic management of groundwater that discharges as springs within the monument. Samples from spring sources within the monument were collected for a suite of elemental, isotopic, and molecular analyses. The focus was on a wide range of groundwater age tracers capable of constraining the

pathway and transit time of groundwater from its recharge point until the point of sampling, and the dominant season of recharge events. The goal is to understand mean groundwater age across the range from less than 10 to more than 10,000 years. This information is key to assessing the vulnerability of these water supply sources during intervals of decreased groundwater recharge as well as nearby groundwater development. Geochemical tracers may also constrain recharge elevations and characterize key aquifer units such that understanding of groundwater source(s) and flow paths may also be improved. The NPS expects this study to be completed by the end of the calendar year 2025. The NPS will transmit this final report to the US Forest Service (USFS) when it becomes available.

To understand the potential connection between the water sources within Cedar Breaks National Monument and the water supply of this project, the NPS would like to collaborate on this hydrologic investigation as it is related to this proposed development. The NPS requests each point of diversion involved with this project be analyzed for (1) **radioactive (tritium; ^3H) and stable isotope composition of water ($\delta^2\text{H}$, $\delta^{18}\text{O}$)**, (2) **dissolved noble gasses (^3He , ^4He , Ne, Ar, Kr, Xe)**, (3) **dissolved reactive gasses (N_2 , O_2 , CH_4 , CO_2)**, (4) **sulfur hexafluoride (SF_6)**, (5) **chlorofluorocarbons (CFC-11, CFC-12, CFC-113)**, (6) **radioactive (^{14}C) and stable ($\delta^{13}\text{C}$) isotopes of dissolved inorganic carbon (mostly CO_2)**, (7) **strontium isotopes ($^{87}\text{Sr}/^{86}\text{Sr}$)**, (7) **major, minor, and trace element concentrations of dissolved species and (8) nutrients (N species, P species)**. These data will help the NPS understand connectivity of water supply sources from this project and water sources within the monument, which will allow for a direct comparison of the data collected for the Cedar Breaks study with the USGS.

3. The NPS requests a groundwater flow model be developed for this area which includes, at a minimum, the area of points of diversion associated with this proposed development and Cedar Breaks National Monument. A groundwater model will allow all parties, including the Forest Service, NPS, project proponents, and other interested parties a comprehensive analysis on the effect of groundwater pumping in the area – both existing pumping and future additional pumping. In addition, in the NPS's experience working with the Utah State Engineer site-specific groundwater models are a preferred method to understand the effects of groundwater withdrawal on local groundwater resources overall and discharge from springs such as those in the Dixie National Forest, in Cedar Breaks National Monument, and on private lands.
4. Please provide an analysis of the long-term sustainability of the water sources to support this proposed development and potential changes to snowmaking water demand because of diminished snowpack due to ongoing and worsening drought conditions. The results of a targeted climate futures study (NPS, 2024) indicate that the Cedar Breaks area will

likely be warmer in the future, which has significant implications on precipitation type and totals, evaporative demand, and recharge. An analysis should be made on the viability and water demands of snowmaking activities in this potential future condition.

Night Skies

The NPS recognizes natural night skies as a critical resource for all park units and works to preserve and protect these resources for visitor enjoyment and ecosystem health. Cedar Breaks National Monument was certified as an **International Dark Sky Park in 2017 preserving natural light and dark cycles** nearly absent of anthropogenic light pollution. The Park is known for its interpretive and outreach programming and is situated in one of the largest regions of remaining natural darkness in the Contiguous United States. The State of Utah has 24 certified dark sky places that include state and national parks, monuments, and communities, encompassing more than any other state in the country.

The night sky is an inseparable element of national park units and wild areas serving as a natural, cultural, educational, and economic resource and value for wildlife, park visitors, and local communities. However, light from anthropogenic sources causes skyglow that brightens the night sky. Skyglow artificially illuminates the landscape and degrades visitor opportunities to view planets, stars, galaxies, and other astronomical objects. As nearly half of Earth's species are nocturnal, their populations are severely impacted by factors that disrupt their nighttime environment. The absence of light, natural or otherwise, is a key element of their habitat. As a designated research area, Cedar Breaks National Monument is committed to maintaining the pristine naturalness of this area and the important role it plays in scientific research and education. The night sky resources at the park and southern Utah are threatened by light pollution from human activity and rapid growth in the area. Recent measurements by the NPS Natural Sounds and Night Skies Division at Brian Head Peak show a 63% increase in overall sky brightness from light pollution, compared to the last measurements made in 2006 with measurable increases from the Utah cities of Cedar City and St. George. As populations continue to grow, outdoor lighting also increases; however, smart choices in light type and use can mitigate the unintended consequences of these lights, helping to preserve the resources of these parks and protected places. The NPS asks:

1. What sources of artificial nighttime light are proposed in this development (i.g. illuminated runs for night skiing, walkway and parking lot lighting, illuminated signage)?
2. Please describe mitigations and management actions to reduce light pollution from this proposed project.

UNITED STATES
DEPARTMENT OF INTERIOR
National Monument
Box 56, Suite 11
JT 84720-4151

BUSINESS
PRIVATE USE, \$300

Kevin Wright
Dixie