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Title:

Comments: I attended the community meeting. After listening to disturbing reports from local farmers and ranchers, changes to their water tables, quality of their water and researching Environmental impacts created by Ski Resorts, It is undeniable that further expansion would significantly increase NEGATIVE IMPACTS to the ENTIRE ECOSYSTEM nor should it be permitted or allowed by the USFS. Please review the following:

Ski Resorts, Impacts on the Environment:

<https://alltracksacademy.com/blog/is-skiing-bad-for-the-environment/>

<https://www.choosefinch.com/blog/the-chilling-impact-of-skiing>

<https://www.acs.org/education/resources/highschool/chemmatters/past-issues/2018-2019/december-2018/artificial-snow-a-slippery-slope.html>

https://www.usu.edu/gnar/news/ski_impact_assessment.pdf

SKI RESORTS AND THEIR IMPACT ON THE ENVIRONMENT - By Frederic Beaudry

Updated November 3, 2019

Alpine skiing and snowboarding are great ways to spend time in the mountains during the most unforgiving season of the year. In order to be able to offer this, ski resorts rely on complex and energy-demanding infrastructure, with scores of employees and heavy use of water. The environmental costs associated with resort skiing come in multiple dimensions, and so do the solutions.

DISTURBANCE TO WILDLIFE

Alpine habitats above the tree line are already threatened by global climate change, and interference from skiers is just another stressor. These disturbances can scare wildlife and even harm their habitat by damaging vegetation and compacting soils. For example, ptarmigan (a type of grouse adapted to snowy habitats) in Scottish ski areas declined over several decades because of collisions with lift cables and other wires, as well as from losing nests to crows, which had become common at the resorts.

DEFORESTATION

In North American ski resorts, most of the skiable terrain is located in forested areas, requiring a large amount of clear-cutting to create ski trails. The resulting fragmented landscape negatively impacts habitat quality for many bird and mammal species. One study revealed that in the forest remnants left between slopes, bird diversity is reduced due to a negative edge effect; wind, light, and disturbance levels increase near the open slopes, reducing habitat quality.

A recent expansion of a ski resort in Breckenridge, Colorado prompted concerns that it would damage Canada lynx habitats. A deal with a local conservation group was achieved when the developer invested in lynx habitat protection elsewhere in the region.

WATER USE

As a result of global climate change, most ski areas experience shorter winters with more frequent thawing periods. To maintain services to their clients, ski areas must make artificial snow to have good coverage both on the slopes and around the lift bases and lodges.

Artificial snow is made by mixing large volumes of water and high-pressure air, meaning the demand skyrockets for water from surrounding lakes, rivers, or purpose-built artificial ponds. Modern snowmaking equipment can easily require 100 gallons of water per minute for each snow gun, and resorts can have dozens or even hundreds in operation. For example, at Wachusett Mountain Ski Area, a modest-size resort in Massachusetts, snowmaking can pull as much as 4,200 gallons of water per minute.

FOSSIL FUEL ENERGY

Resort skiing is an energy-intensive operation, relying on fossil fuels, producing greenhouse gases, and contributing to global warming. Ski lifts usually run on electricity, and operating a single ski lift for a month requires about the same energy needed to power 3.8 households for a year.

To maintain the surface of the snow on the ski runs, a resort also deploys a nightly fleet of trail groomers each operating on about 5 gallons of diesel per hour and producing carbon dioxide, nitrogen oxides, and particulate emissions.

These numbers are even incomplete, as a truly comprehensive estimate of the greenhouse gases emitted in association with resort skiing would also include those produced by skiers driving or flying to the mountains.

Solutions and Alternatives

Many ski resorts have made substantial efforts to minimize their environmental impact. Solar panels, wind turbines, and small hydro turbines have been deployed to supply renewable energy. Improved waste management and composting programs have been implemented, and green building technologies have been employed. Forest management efforts have been planned to improve wildlife habitat.

It is now possible for skiers to gather information about a resort's sustainability efforts and make informed consumer decisions, and the National Ski Area Association even gives out yearly awards to the resorts with outstanding environmental performances.

As an alternative, an increasing number of outdoor enthusiasts seek snowy slopes by practicing lower-impact forms of skiing. These backcountry skiers and snowboarders use specialized equipment that allows them to make their way up the mountain on their own power, and then to ski down natural terrain that has not been logged or groomed. These skiers have to be self-sufficient and able to mitigate a multitude of mountain-related safety risks. The learning curve is steep, but backcountry skiing has a lighter environmental impact than resort skiing.

Still, alpine areas are incredibly sensitive, and no activity there is impact-free: A study in the Alps found that black grouse showed elevated stress levels when frequently disturbed by backcountry skiers and snowboarders, inciting consequences on reproduction and survival.

Sources

Aletaz et al. 2007. Spreading Free-riding Snow Sports Represent a Novel Serious Threat for Wildlife.

Laiolo and Rolando. 2005. Forest Bird Diversity and Ski Runs: A Case of Negative Edge Effect.

Wipf et al. 2005. Effects of Ski Piste Preparation on Alpine Vegetation.

Does artificial snow production affect soil and vegetation of ski pistes? A review

C. Rixen, Veronik A. Stoeckli, W. Ammann

Published 2003

Environmental Science

Perspectives in Plant Ecology Evolution and Systematics

The production of artificial snow and the use of snow additives in ski resorts have increased considerably during the last 20 years. Their ecological consequences are the subject of environmental concerns. This review compiles studies about the ecological implications of ski pistes preparation in general and of artificial snow production. The main direct impacts of ski piste preparation on the vegetation are related to the compaction of the snow cover, namely the induction of soil frost, the formation of ice layers, mechanical damage and a delay in plant development. The vegetation reacts with changes in species composition and a decrease in biodiversity.

Artificial snowing modifies some of these impacts: The soil frost is mitigated due to an increased insulation of the snowpack, whereas the formation of ice layers is not considerably changed. The mechanical impacts of snow-grooming vehicles are mitigated due to the deeper snow cover. The delay of the vegetation development is enhanced by a considerably postponed snowmelt. Furthermore, artificial snowing induces new impacts to the alpine environment. Snowing increases the input of water and ions to ski pistes, which can have a fertilising effect and hence change the plant species composition. Increasingly, snow additives, made of potentially phytopathogenic bacteria, are used for snow production. They enhance ice crystal formation due to their ice nucleation activity. Although sterilised, additives affected the growth of some alpine plant species in laboratory experiments. Salts are applied not only but preferably on snowed pistes to improve the snow quality for ski races. The environmental impacts of most salts have not yet been investigated, but a commonly used nitrate salt has

intense fertilising properties. Although snowing mitigates some of the negative impacts of ski piste preparation in general, new impacts induced by snowing could be non-beneficial to the vegetation, which, however, has yet to be clarified

How does nitrate affect water quality?

Nitrates are essential plant nutrients, but in excess amounts they can cause significant water quality problems.

Together with phosphorus, nitrates in excess amounts can accelerate eutrophication, causing dramatic increases in aquatic plant growth and changes in the types of plants and animals that live in the stream.

What are the bad things about sodium nitrate?

Importance of sodium nitrate in the food industry - New Food ...

The dangers of excessive nitrate consumption

Excessive addition of sodium nitrate as a preservative in cured meats can lead to acute health issues, being associated with an increased risk of cancer, Parkinson's disease, Alzheimer's disease, high blood pressure, and others. Mar 22, 2022

ALL THE ENVIRONMENTAL WASTE FROM TSV's operations END UP IN OUR WATER SYSTEM.

Further, the TSV has the opportunity to improve on what they currently have to make it a more desirable resort: Remodeling/renovating the Phoenix and Whistle Stop (adding a wrap around deck) restaurants, adding greatly needed restroom facilities with water stations in the parking lot at the top of lift seven, road improvements with bike and walking lanes, etc...

Helen Prater