

State spreads silver iodide in wilderness

Despite law protecting Wind River Range, state engineer launches cloud seeding in federal reserve.

*By Cory Hatch, Jackson Hole, Wyo.
April 9, 2008*

A private contractor hired by the state to conduct cloud seeding experiments over wilderness areas in the Wind River Range has completed its first year of seeding flights.

During the course of 24 flights from November 2007 to March 2008, the company Weather Modification, Inc. dropped a total of 23.5 pounds of silver iodide, a chemical that helps clouds form ice crystals at higher temperatures, over the west slope of the Wind River Range. The amount of chemical disbursed by ground-based generators was not immediately available.

The five-year project, conducted in conjunction with the National Center for Atmospheric Research, is funded with a roughly \$9 million appropriation from the Wyoming State Legislature. In addition to flights, researchers have placed nine ground-based generators on private and state land at the base of the range and are conducting similar experiments in Wyoming's Sierra Madre and Medicine Bow mountains. Researchers just finished their third winter of the study, their first using aircraft for cloud seeding.

The cloud seeding could cause 10 to 15 percent more snowfall each year of the project.

Following federal law

Conservation groups have balked at the experiment, which they say violates the Wilderness Act by affecting the Bridger Wilderness, the Fitzpatrick Wilderness and the Popo Agie Wilderness.

Indeed the Forest Service manual on managing wilderness states, "Do not permit long-term weather modification programs that produce, during any part of successive years, a repeated or prolonged change in weather directly affecting wilderness areas."

The manual does provide exceptions if the project will not cause "permanent, substantial changes in natural conditions," "visibly alter or otherwise impact the wilderness environment," and "includes no feature that is likely to reduce the value of wilderness for recreation, scenic, scientific, educational, conservation, or historic use."

Bridger-Teton National Forest officials have said they have no purview over the cloud seeding effort and that the Wyoming State Engineer's Office is responsible for issuing permits on aerial weather modification. Normally, even a helicopter rescue in the Bridger Wilderness would require permission from Bridger-Teton forest supervisor Kniffy Hamilton.

A rescue helicopter would, in theory, land in the forest while the cloud seeding plane would not.

Bridger-Teton officials have expressed a number of concerns about the project, including whether the cloud seeding might precipitate pollutants such as nitrogenous compounds from the atmosphere along with the snow. Weather Modification, Inc. has not placed any ground-based generators on the forest.

Environmental concerns

Jonathan Ratner, director of the Wyoming office of the Western Watersheds Project, said conservation groups are concerned about the experiment, but have not rallied to sue the Forest Service over any possible violations of the National Environmental Policy Act.

"Just because [the planes] don't happen to be touching the ground does not mean they are not affecting Forest Service lands or federally designated Wilderness Areas," said Ratner. "Both from the Forest Service regulations and the Wilderness Act itself, it is very clear that cloud seeding is inappropriate."

Bruce Boe, director of meteorology at Weather Modification, Inc., said the amount of silver iodide needed to precipitate snow is typically found in parts per trillion on the snowpack after a seeding event. "That is far below any level where there is any environmental concern," he said. "There's just not going to be an impact."

The chemical is spread from the aircraft by burning flares, Boe said.

"It's not a whole lot of seeding agent that is released," he said. "It's a very fine aerosol meant to induce crystal formation."

It's still too early to tell if seeding has affected precipitation said Dan Breed, a project scientist with the National Center for Atmospheric Research in Colorado.

Long-term observations

"In the Winds that's going to be difficult anyway," he said. "We're going to have to rely more on some of the numerical model results that will be verified with observations."

Breed agreed that the silver iodide itself is likely not an environmental concern.

"It doesn't really break down very easily at all," he said. "It's really a non-issue. Once it goes into the stream or into the ground, it's completely undetectable. You'd never be able to see it."

According to the PAN Pesticides Database, silver iodide is considered not harmful by a number of governmental regulatory bodies. The database did cite some studies of the effects of silver iodide on rainbow trout, showing developmental problems and increased mortality in rainbow trout eggs and recently hatched fry over various lengths of time and concentrations.