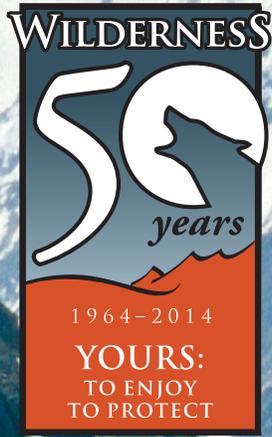


Wilderness

Climate Change



As defined in the Wilderness Act, a wilderness "may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value." In 1964, when the Act was written, climate change was not yet on the national or global radar screen. It was not addressed by name, and referred to only by inference—as above, under "ecological", "scientific", "educational"—language of the Wilderness Act.

But times have changed. Today, climate change is regarded by many, especially scientists, as the fundamental threat facing our species' continued life on earth. It is definitely a global topic of concern. But what is the connection to wilderness and what is its importance to climate change?

Wilderness areas, because they offer the least disturbed habitats, naturally mitigate known factors that affect the climate. The undisturbed habitat which wilderness offers also provides a way for wildlife in these ecosystems to adapt to changes in climate.

Why Wilderness is Important to Climate Change

Human-caused climate change threatens the values for which wilderness areas were designated, such as clean air and water, and wildlife. It can also expand non-climate-related threats to wilderness, such as invasive species and habitat fragmentation. Wilderness does have a natural defense: its mere existence. Wilderness, just by being wild and natural, provides a critical means for animals and plants to adapt to climate change by allowing them to move freely and by reducing the adverse effects of change on ecosystem services and values.

In the climate change lexicon, carbon dioxide is a "greenhouse" gas and a leading cause of global warming. Wilderness areas suppress naturally the release of carbon dioxide gas. The trees within forested wilderness areas, aside from providing shade and cool, absorb

and lock away carbon dioxide in the wood, roots and leaves. In total, a forest is a carbon storage area, or "sink," that stores carbon, keeping it from becoming available as a "greenhouse" gas.

Because water is the most limiting resource in arid ecosystems, changes in global and regional precipitation patterns in desert wilderness areas can result in substantial effects, such as increased soil erosion, shrinking vegetative cover, diminished productivity, invasion of exotics plants and the loss of native species.

In further research to help anticipate the advancing effects of climate change, scientists can look to the past. Much of our knowledge about past climates has come from old trees, wood, and pollen cores that increasingly can be found only in undisturbed wilderness lands.

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Wilderness also protects and connects unfragmented natural areas, allowing wildlife to "adapt" to climate change. As climate change advances, some species of wildlife will migrate to more suitable environments. Species that are unsuccessful at finding suitable environments will suffer increasing extinction rates, resulting in an overall loss of biodiversity.

For example, recent research has shown the wolverine to be particularly vulnerable to climate change. Sensitive to the timing and duration of snow cover, the research indicates that wolverine populations will likely become smaller and more fragmented in the second half of the 21st century due to contiguous areas of spring snow cover becoming smaller and more isolated.