

# Protecting Montana's Economy, Communities and Environment from Global Warming

Global warming is already affecting Montana, and will continue to do so for decades to come. A successful comprehensive climate and energy bill will invest significant new revenue in protecting communities and local economies across America by creating jobs that protect wildlife and landscapes from the effects of global warming. The American Clean Energy and Security Act passed by the House of Representatives took a critical first step; however, given the scale and duration of the threat more funding will be needed.

## Critical Issues for Montana:

- Decreasing water availability
- Damage to the local economy
- Increasing temperatures
- Changes in wildfire patterns

## Is Global Warming Affecting Natural Resources in Montana?

Yes. Montana is warming. Since mid-century, temperatures across the state have **risen approximately 3°F**, with higher altitudes across the state warming faster than the U.S. average.<sup>1</sup> In the next fifty years, the entire state is expected to warm **by an additional 6°F**, while eastern Montana may see a **rise of up to 7.5°F**.<sup>2</sup> These changes are significant, and the impacts are already being felt.

Across the U.S., more than 80% of plant and animal species studied are shifting their ranges in reaction to less than 1°F of average nationwide warming in the last century.<sup>3</sup> The Intergovernmental Panel on Climate Change predicts additional warming could result in **up to 30% of known species becoming extinct**, and the disappearance of more than 20% of the world's ecosystems.<sup>4</sup>

From 1950 to 2000, western Montana experienced an increase in winter rain-to-snow ratios, coupled with notable snowpack decreases of up to 60%.<sup>5</sup> Additionally, warmer spring temperatures have caused snowmelt runoff peaks to occur up to 30 days earlier, challenging reservoir storage capacities in the spring and leaving dangerously low flows in the summer months.<sup>6</sup> In 2007, for example, the Blackfoot River's June runoff levels decreased by approximately 40%.<sup>7</sup>

## Natural Resources Adaptation Funding Will:

- Create and protect jobs
- Preserve treasured landscapes
- Revive the rural economy
- Provide clean air and water for future generations



Removing old unwanted roads from our forests improves water quality and the health of natural systems and dependent species while creating much-needed jobs in rural communities.

## What is at Stake?

Changes brought on by global warming are disrupting the balance of natural resources and having significant impacts on communities and businesses across the state.

- **Water Availability and Agriculture:** Higher temperatures and decreased snowpack are increasing the demand for water across the state. As Montana's largest industry, agriculture generates more than \$2.4 billion annually, employs more than 31,000 people, and uses more than 95% of the state's water supply.<sup>8</sup> Predicted water shortages alone may cause annual crop losses for wheat, barley, potatoes, and hay of up to \$79 million by 2050 throughout western Montana and the rest of the Pacific Northwest.<sup>9</sup>
- **Tourism and Local Businesses:** Businesses that support outdoor recreation, hunting, and fishing are threatened by the effects of global warming, in turn threatening the stability of Montana's \$2.5 billion outdoor recreation economy, which supports more than 34,000 jobs in the state.<sup>10</sup> Glacier National Park, for example, generated more than \$101 million in local spending for Western Montana and supported over 2,100 local jobs in 2007 alone.<sup>11</sup>
- **Forest Fires:** Decreased snowmelt, reduced water supplies, and favorable conditions for native insects are complicating the region's ability to anticipate and manage forest fires. Forest insects like the mountain pine beetle thrive in warmer, drier conditions and have propagated significantly in recent years, increasing the risk for wildfires.<sup>12</sup> For the past five years, Montana's wildfire suppression costs have averaged \$17.7 million annually; 2008 saw fire suppression costs reach \$50 million, and the state is prepared for costs to rise to \$40 million by the end of 2009.<sup>13</sup>
- **Quality of Life:** Many of Montana's precious natural areas and wildlands have already undergone alterations due to climate change and may be lost permanently if steps are not taken to protect them for future generations. Out of the original 150 glaciers thought to have been in the Glacier National Park in 1850, only 27 glaciers remain.<sup>14</sup> Montana coldwater trout and salmon are projected to lose up to 34% of their suitable habitat by 2060 due to rising stream temperatures.<sup>15</sup> These changes will continue to affect some of Montana's major recreational activities such as fishing and hunting, significantly changing the quality of life Montanans have come to enjoy and expect.

### Economy at Risk:

**\$2.5 Billion**

**34,000 jobs**

*Annual contribution of outdoor recreation to Montana's economy*



*Dedicated funding for natural resource adaptation will help landscapes like Montana's Glacier National Park cope with the effects of global warming.*

## Protecting Natural Resources, Creating Jobs

Restoring ecosystem health helps ensure species have the best possible chance to adapt to the effects of global warming. Ecosystem adaptation projects, such as establishing wildlife corridors for animals migrating in search of needed habitat, are critical to the survival of many species and will create long-term American jobs. **Investing now in natural resources is the most cost-effective way to protect our treasured landscapes and the clean water, clean air and jobs they provide.**

**Of the total allowance value generated from an energy and climate bill, at least 5% should be invested in protecting communities and local economies across America by protecting natural resources from the effects of**

**global warming.** This funding will allow Montana's wildlife and land management agencies, as well as the Land and Water Conservation Fund and the Forest Legacy Program, to ramp up important conservation projects.

This dedicated funding will allow scientists, engineers, construction crews, and others to be employed across Montana:

- Repairing damaged watersheds to ensure clean water for communities by removing impediments and deteriorating structures, restoring eroding river banks, and repairing in-stream habitat.
- Acquiring land and establishing migration corridors to increase species' survival as climates change.
- Monitoring wildlife, habitats, and local climate, and developing appropriate adaptation responses.
- Restoring native landscapes to increase resiliency in a warming world by removing unnecessary roads and barriers, constructing buffer strips along river corridors, and removing invasive species.

This work will protect and create American jobs—providing new skills and income to workers and their families across the state and revitalizing rural economies.



*Restoring river habitats protects ecosystems, jobs, and drinking water*

## **Investing in Solutions for Families, Businesses and the Planet**

The risks to Montana and the nation from global warming are significant—and require an extensive and sustained commitment to reducing heat-trapping pollution, and to protecting our natural resources and the communities that rely on them. A cap-and-invest system that reduces pollution and auctions emission allowances will provide billions of dollars for combating the climate crisis.

Revenues from a cap-and-invest system must be directed to three primary solutions:

- **Invest at least 5% of the total allowance value generated in annual dedicated funding for natural resource protection** in order to create jobs while increasing resiliency across landscapes, protecting important natural services and safeguarding communities.
- **Offset increased energy costs for at-risk consumers** by allocating a percentage of allowance auction revenues to consumers through existing mechanisms.<sup>16</sup>
- **Invest in areas such as clean energy choices, job training, and business assistance**, which will aid businesses and communities in transitioning to a clean energy economy, while creating jobs and reducing heat-trapping pollution.

Montana and the nation need your support for reducing carbon pollution and protecting communities by safeguarding our natural resources.

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Photo Credits: Thanks to the National Park Service for the picture of the Glacier National Park, USGS for the picture of the lodgepole pine forests, and the State of Massachusetts for the picture of river restoration.

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<sup>1</sup> NOAA National Climatic Data Center. 2009. "U.S. Climate at a Glance – Statewide." Available from: <http://www.ncdc.noaa.gov/oa/climate/research/cag3/state.html> Date of access: July 2009; U.S. Global Change Research Program (U.S. GCRP), *Climate Change Impacts on the United States: The Potential Consequences of Climate Variability and Change*, "Chapter 8: Potential Consequences of Climate Variability and Change for the Western United States," Eds. Joel B. Smith, Richard Richels, and Barbara Miller (Washington, D.C.: U.S. GCRP, 2000), [www.usgcrp.gov/usgcrp/Library/nationalassessment/08West.pdf](http://www.usgcrp.gov/usgcrp/Library/nationalassessment/08West.pdf). Date of access: July 2009.

<sup>2</sup>The University of Washington and The Nature Conservancy. 2009. Climate Wizard. Available from: <http://www.climatewizard.org/index.html>. Date of access: July 2009.

<sup>3</sup> Sagarin, Raphael. 2002. "Historical Studies of Species' Responses to Climate Change." In: *Wildlife Responses to Climate Change: North American Case Studies*. Ed: Terry L. Root and Stephen H. Schneider. Island Press. Washington, DC.

<sup>4</sup> Intergovernmental Panel on Climate Change. 2007. "Summary for Policy Makers." In: *Climate Change 2007: Impacts, Adaptation and Vulnerability: Working Group II Contribution to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*. Pg 792.

<sup>5</sup> Mote, P. W., M. Clark, and A. F. Hamlet. 2008. "Variability and trends in mountain snowpack in western North America." In: F. Wagner (ed.), *Proceedings of the AAAS Pacific Division Annual Meeting*. Available from: <http://cses.washington.edu/db/pubs/author20.shtml>

<sup>6</sup> Mote, P. W., A. F. Hamlet, M. P. Clark, and D. P. Lettenmaier. 2005. "Declining mountain snowpack in western North America." *American Meteorological Society*. January 2005. Available from: [http://sciencepolicy.colorado.edu/admin/publication\\_files/resource-1699-2005.06.pdf](http://sciencepolicy.colorado.edu/admin/publication_files/resource-1699-2005.06.pdf)

<sup>7</sup> The Clark Fork Coalition. "Low Flows, Hot Trout: Climate Change in the Clark Fork Watershed." Streamflow decrease calculated from graph on page 9. July 2008. Available from: <http://www.clarkfork.org/images/stories/publications/lowflowshottrout.pdf>. Date of access: July 21, 2009.

<sup>8</sup> "Department of Environmental Quality. 2008. "Climate Change and Agriculture." State of Montana. Available from: <http://www.deq.state.mt.us/ClimateChange/Commerce/Agriculture/agriculture.asp>; Department of Agriculture. No date. "Facts about Montana Agriculture." State of Montana. Available from: <http://agr.mt.gov/dept/info.aspl>; and Department of Environmental Quality. 2000. "Estimated Water Use in Montana in 2000." State of Montana. Available from: <http://www.deq.state.mt.us/ClimateChange/NaturalResources/WaterCircles.pdf>;

<sup>9</sup> Center for Integrative Environmental Research. 2007. "The U.S. Economic Impacts of Climate Change and the Costs of Inaction." University of Maryland. Pg. 32. Available from: <http://www.cier.umd.edu/documents/US%20Economic%20Impacts%20of%20Climate%20Change%20and%20the%20Costs%20of%20Inaction.pdf>. Date of access: July 2009.

<sup>10</sup> Outdoor Industry Association. 2007. Available from: <http://www.outdoorindustry.org/pdf/MontanaRecEconomy.pdf>. Date of access: July 2009.

<sup>11</sup> Stynes, Daniel J. 2008. "National Park Visitor Spending and Payroll Impacts 2007." Table A-4. Michigan State University and National Park Service Social Science Program. Available from: <https://www.msu.edu/~stynes/>

<sup>12</sup> Kaufmann, M. et al. 2008. The status of our scientific understanding of lodgepole pine and mountain pine beetles – A focus on forest ecology and fire behavior. The Nature Conservancy, Arlington, VA. GFI Technical Report 2008 – 2.

<sup>13</sup> The Legislative Fiscal Division of Montana. October 2008. "Wildfire Suppression Funding: Fiscal Pocket Guide." Available from: [http://leg.mt.gov/content/publications/fiscal/leg\\_reference/Brochures/Wildfire\\_Suppression.pdf](http://leg.mt.gov/content/publications/fiscal/leg_reference/Brochures/Wildfire_Suppression.pdf). Date of access: July 24, 2009.

<sup>14</sup> National Park Service. U.S. Department of Interior. June 2006. "Global Climate Change and Melting Glaciers." Available from: <http://home.nps.gov/glac/naturescience/upload/climate%20change%20and%20glaciers.pdf>. Date of access: July 2009.

<sup>15</sup> O'Neal, Kirkman. 2002. "Effects of Global Warming on Trout and Salmon in U.S. Streams." Defenders of Wildlife and the Natural Resource Defense Council. Page 21. Available from: [http://www.defenders.org/resources/publications/programs\\_and\\_policy/science\\_and\\_economics/global\\_warming/effects\\_of\\_global\\_warming\\_on\\_trout\\_and\\_salmon.pdf?ht=](http://www.defenders.org/resources/publications/programs_and_policy/science_and_economics/global_warming/effects_of_global_warming_on_trout_and_salmon.pdf?ht=). Date of access: July 24, 2009.

<sup>16</sup> Stone, Chad and Hannah Shaw. 2009. "Extending "Climate Rebates" to Include Middle-Income Consumers." *Center on Budget and Policy Priorities*.