

Climate Change Adaptation in Rural, Natural Resource-Dependent Communities

Rural communities and landscapes in the United States need resources and assistance to increase their resilience to climate change. There is a lack of funding and capacity to plan, implement and monitor strategies that will help natural landscapes, human communities, and local economies adapt to the consequences of climate change.

U.S. climate change policy must include resources and strategies for rural, natural resource dependent communities to adapt to changes in ecosystem health, threats to public health, and impacts to economic systems. U.S. policy must also capitalize on opportunities to restore forest and rangeland health and to stimulate 'green' job growth resulting from a restoration economy. This paper emphasizes an all-lands approach to climate change adaptation for rural, natural resource dependent communities. It makes specific recommendations for measures that state and federal land management agencies can take to help facilitate adaptation planning, implementation and monitoring in and around rural communities.

To read RVCC's position on climate change issues, go to www.sustainablenorthwest.org/resources/rvcc-issue-papers.

CONTEXT

Adaptation focuses on helping natural and human systems adjust, or change, to accommodate altered conditions due to climate changes. Mitigation measures are those that decrease future climate change threats by reducing atmospheric concentrations of carbon dioxide (CO₂) and other greenhouse gases (GHGs). Climate change will have significant impacts on natural ecosystems and rural communities in the U. S. over the next several decades. Although mitigation is essential to decreasing the effects of climate change, adaptation is the only response available for the impacts that will occur before mitigation can have any measurable effect. It is critical that climate change policies provide technical and financial resources to help rural communities and federal and state land management agencies adapt to climate change, particularly to safeguard the ecosystem services provided by these rural landscapes. Adaptation also has the opportunity in most cases to provide local benefits that may be realized in the near future.

KEY RECOMMENDATIONS

Legislative recommendations:

1. Give the United States Department of Agriculture (USDA) a key role in climate change policy and program implementation.
2. Ensure that climate change adaptation policy provides rural communities with financial and technical assistance.
3. Require and fund federal land management agencies to collaboratively develop, implement and monitor climate change plans and integrate them within resource management and forest management plans.
4. Support a collaborative approach for public agencies in climate change planning efforts.
5. Develop planning and management goals, outcomes and performance measures that land management agencies can use to monitor success in achieving specific outcomes.

Administrative Recommendations:

1. Support collaborative development, implementation and monitoring of climate change adaptation plans at a landscape level and integrate them within agency management plans.
2. Support efforts of rural communities to engage in climate change adaptation planning, implementation and monitoring.
3. Support a comprehensive approach to climate change adaptation planning.
4. Invest in research that examines the social and economic impacts of climate change on rural, natural resource-dependent communities.

Rural, natural resource-dependent communities are particularly vulnerable to the effects of climate change. They are often those most closely linked to natural ecosystems for their economic, social and environmental well-being. These communities should be actively involved in the adaptive management of these lands, especially given their proximity to forests, rangelands and other natural resources, and intimate reliance on associated ecosystem services that will be impacted by climate change.



WHO WE ARE

The Rural Voices for Conservation Coalition is comprised of western rural and local, regional, and national organizations that have joined together to promote balanced conservation-based approaches to the ecological and economic problems facing the West. We are committed to finding and promoting solutions through collaborative, place-based work that recognizes the inextricable link between the long-term health of the land and well being of rural communities. We come from Alaska, Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon and Washington.

LANDSCAPES AND ADAPTATION¹

Resilient natural resources are central to the Earth's ability to mitigate for and adapt to climate change. National climate change policy must address the needs of our public and private forestlands and rangelands and the communities that live in and around these landscapes. U.S. climate change policy and action should:

- Recognize climate change as a primary driver of change in ecosystem function and distribution;
- Manage forests and rangelands on a landscape scale to reduce threats to ecosystem health, including those not caused by climate change, such as land use changes, fragmentation and degradation of habitat;
- Encourage large-scale adaptive decision making in land management planning for the management of forests and rangelands and biodiversity resources;
- Monitor the impact of adaptation measures to better understand how climate change affects landscapes and builds public support for action; and
- Support and strengthen broad participation, cooperation and collaboration among public and private sector organizations, businesses and industry through capacity building and funding.

LEGISLATIVE PRIORITIES FOR CLIMATE CHANGE ADAPTATION

In 2009, over 25 organizations participating in RVCC wrote and signed-on to letters to the House of Representatives (regarding the American Clean Energy and Security Act – H.R. 2454) and the Senate (regarding The Clean Energy Jobs and American Power Act – S. 1733)². These letters emphasized a commitment to the inclusion and improvement of natural resource adaptation funding and planning strategies for affected communities, our nation's forest ecosystems and related agencies. These letters also emphasized RVCC priorities for mitigation strategies and development and implementation of carbon markets. Current RVCC legislative priorities related to adaptation as outlined in these letters include:

1. The United States Department of Agriculture (USDA) should have a key role in climate change policy and program implementation. The USDA should be directly involved in all aspects of climate change related to agriculture, rangeland, and forestry, including the establishment of offset and supplemental landowner incentive programs, domestic adaptation and mitigation planning, and monitoring to assess the effectiveness of these programs. Monetary funds or allowances resulting from a national greenhouse gas regulatory system should provide

¹ Adapted from: Locatelli, B., Kanninen, M., Brockhaus, M., Colfer, C.J.P., Murdiyarsa, D. and Santoso, H., Facing an uncertain future: How forests and people can adapt to climate change, CIFOR, 2008.

² <http://www.sustainablenorthwest.org/resources/Testimony/testimony#sign-on-letters>.

adequate funding to USDA for their role in domestic adaptation and mitigation, including means to effectively manage natural resources for long-term resiliency and sustainability.

2. Climate change adaptation policy should provide rural communities with financial and technical assistance to assess the potential impacts of climate change and develop adaptation strategies and plans. Particular focus should emphasize the impacts on and needs of low-income and underserved populations, including rural, resource-based communities, Native American tribes, and other vulnerable populations affected by climate change. We can achieve these objectives by establishing and strengthening state and federal policies and programs for climate change adaptation planning.
3. Require and fund federal land management agencies to collaboratively develop, implement and monitor climate change plans and integrate them within resource management and forest management plans. Climate change programs should fund training for government officials and the general public to prepare for the potential impacts of climate change and engage in planning efforts.
4. Public agencies should be required to utilize collaborative approaches to climate change planning and decision-making that include a broad array of stakeholders. This will ensure that a full range of social, economic, and ecological adaptation assessments and strategies are considered.
5. Develop planning and management goals, outcomes and performance measures that land management agencies can use to monitor success in achieving specific outcomes.

RECOMMENDATIONS TO THE LAND MANAGEMENT AGENCIES

1. **Support collaborative development, implementation and monitoring of climate change adaptation plans at a landscape level and integrate them within resource management and forest management plans.**

Efforts to reduce greenhouse gas emissions by using forest and rangeland ecosystem management will be inextricably linked to increasing the resilience of those communities and landscapes. The Government Accountability Office recently highlighted the need for more consideration of climate change adaptation and noted the lack of coordination amongst agencies to incorporate adaptation objectives with broader agency plans.³ Land management agencies should collaboratively develop programs that ensure that climate change adaptation, as well as mitigation strategies are integrated within agency management plans.

Furthermore, we recommend that an all-lands approach to adaptation planning be used to ensure that ecosystem

³ Observations on Federal Efforts to Adapt to a Changing Climate, Stephenson, J. Government Accountability Office, 2009.



function, restoration needs and economic opportunities on public and private forests and rangelands are considered in planning, implementing and monitoring climate change adaptation measures.

Although the extent of climate change impacts on landscapes will only be fully realized in the coming decades, there are initial indications that such impacts will include changes in natural and human-induced disturbance regimes (e.g. wildfire, drought, pests, and pathogens), changes in forest productivity, shifts in the historic range and distribution of tree species and wildlife habitats and migration patterns.

Adaptation measures must be developed for landscapes that result in collaborative restoration and stewardship of healthy, functioning ecosystems and the continued provisioning of associated ecosystem services. These collaborative restoration approaches are crucial, as the accumulated knowledge, experience, resources and cooperation of a diverse set of stakeholders is necessary to initiate broad landscape-scale restoration to create natural systems resilient to climate change. Incorporating adaptive management – which is premised on robust monitoring – is a critical element of planning processes given the uncertainty of how climate change will impact different landscapes.

There are immediate opportunities to create mandates and policy for adaptation planning within federal land management agencies. The Department of Interior (including the US Fish and Wildlife Service and Bureau of Land Management) have developed an integrated climate change initiative to include climate change concerns within their planning efforts. The Forest Planning Rule should also adopt requirements for collaborative planning, implementation and monitoring for climate change.

2. Support efforts of rural communities to engage in climate change adaptation planning, implementation and monitoring.

Comprehensive adaptation policy for rural, resource-based communities requires adequate financial and technical resources to help rural communities plan and manage their surrounding ecological, social, and economic systems for adaptation. Adaptation planning must examine the anticipated impacts of climate change on vulnerable populations, community infrastructure, natural systems, and ecosystem services. Specifically, we recommend that the USDA Forest Service and Bureau of Land Management provide technical assistance and resources for assessing climate change vulnerability and developing climate change adaptation plans for rural, communities.

Investment in and support for these community adaptation plans will promote community resilience, landscape restoration and economic benefits and opportunities for rural communities. Stewardship of public and private

KEY FRAMEWORKS AND RESOURCES FOR ADAPTATION PLANNING THAT COULD BE ADOPTED FOR NATURAL RESOURCE MANAGEMENT INCLUDE:

- **United Nations Development Programme Adaptation Policy Frameworks for Climate Change**
(<http://www.undp.org/climatechange/adapt/apf.html>)
- **US Department of Transportation's Clearinghouse on Climate Change and Transportation – Adaptation Planning**
(<http://climate.dot.gov/impacts-adaptations/planning.html>)
- **US Environmental Protection Agency's General Resources for Adaptation Planning**
(<http://www.epa.gov/cre/adaptationresources.html>)
- **Western Governors Association Climate Change Initiative**
(http://www.westgov.org/index.php?option=com_content&view=article&id=128&Itemid=62)
- **Swinomish Climate Change Initiative**
(http://www.swinomish-nsn.gov/departments/planning/climate_change/climate_main.html)

lands can create 'green' jobs for local communities based on environmental sustainability, rather than boom-and-bust cycles of harvest and extraction. The by-products of forest restoration treatments can provide renewable energy resources for rural communities, decreasing expenditures on outside sources of energy, while also achieving measurable mitigation objectives⁴. Adaptation strategies can help to accomplish landscape restoration goals aimed at ensuring the provision of ecosystem services in local communities.

3. Support a comprehensive approach to climate change adaptation planning.

Federal land management agencies should work collaboratively with communities and institutions that have demonstrated successful approaches to adaptation planning in order to highlight and replicate effective adaptation strategies.

One such aspect of community climate change action plans is the vulnerability assessment: a useful tool in identifying populations and landscapes that will be at greatest risk for climate change, along with strategies for addressing these risks. As seen in the development of Community Wildfire Protection Plans, state and federal land management agencies often have the resources and expertise to help communities develop vulnerability assessments and initiate planning processes. For Western rural communities, these assessments might emphasize reliance on nearby ecosystem

⁴ For further information please see the 2008 RVCC Woody Biomass Issue Paper and the 2009 RVCC Thermal Energy uses of Woody Biomass Issue Paper.



services and how variations in the provisioning of these services will affect socio-economic systems such as water supplies and recreation-driven economic opportunities. They will also need to include discussions of how climate change may impact community infrastructure, including schools, roads and other public buildings.

Along with vulnerability assessments, land management agencies should recognize local and traditional knowledge in developing adaptation strategies, including Native American experience and traditional ecological knowledge.

We also would like to see public land management agencies support the development of a framework for climate change adaptation that reflects the principles described above and results in collaborative assessments, planning and implementation of adaptation strategies on public and private lands. There are numerous adaptation planning resources that could be utilized in developing such a framework. Organizations within RVCC look forward to working closely with the Forest Service and BLM to develop local and regional approaches.

4. **Invest in research that examines the social and economic impacts of climate change on rural, natural resource-dependent communities.**

Current research initiatives focus on monitoring and assessing the impacts of climate change on natural ecosystems. These initiatives are critical to recognizing and planning for the changes that altered climates will bring to natural systems. We recommend that land management agencies also support research related to the social and economic impacts of climate change on rural, resource-based communities that rely on forests and rangelands for their livelihoods.

We would like research on climate change adaptation to include analyses of the physical impacts of climate change on social and economic factors. This could include broad-scale research initiatives or socio-economic impact assessments conducted for local-level climate change plans. An assessment of the socio-economic impacts of climate change should consider public health impacts including greater exposures to heat-related illness, changes in disease vectors and smoke exposure associated with more wildfire. These assessments will also need to identify the impacts of climate change on forests and rangelands. The resource-dependent nature of these rural communities means that they are inextricably tied to the natural ecosystems around them. Federal land management agencies should support the development of applied research tools and supply technical assistance to rural communities to conduct research.

INTERAGENCY COLLABORATION

The nature and scope of the threats from climate change, and the associated actions that are required by federal agencies to safeguard our communities and natural landscapes, will require an unprecedented level of interagency coordination.

Here are some examples of interagency collaboration:

- a. Cross-boundary ecosystem impacts and adaptation strategies:
(USDA, DOI)
- b. Link between natural systems and public health issues in communities:
(USDA, DOI)
- c. Wildfire and other natural disasters:
(USDA, DOI, FEMA)
- d. Relationships between adaptation and economic systems:
(USDA, DOI, SBA)



COALITION PARTNERS

Alaska

Sitka Conservation Society

Arizona

Forest Energy Corporation

California

Alliance of Forest Workers and Harvesters
Calaveras Healthy Impact Products Solutions
California Center for Rural Policy
Fourth Sector Strategies
Humboldt Area Foundation
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Trinity County Supervisor, District 3
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Salmon Valley Stewardship
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Silver Valley Economic Development Corporation
Woody Biomass Utilization Partnership

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Maryland

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Montana

Flathead Economic Policy Center
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Native American Public Telecommunications, Inc.

New Mexico

Center for the Education and Study of Diverse Populations
Forest Guild
Gila Woodnet
Restoration Technologies
Santa Clara Woodworks
SBS Wood Shavings

Oregon

Applegate Partnership and Watershed Council
Ecosystem Workforce Program
Hells Canyon Preservation Council
Institute for Culture and Ecology
Lake County Resources Initiative

Oregon Rural Action
Renewable Energy Solutions
Siskiyou Project
Siuslaw Institute
Southern Oregon Small Diameter Collaborative
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