CARSEY INSTITUTE

ISSUE BRIEF NO. 47

SPRING 2012

Forest Views

Northeast Oregon Survey Looks at Community and Environment

LAWRENCE C. HAMILTON, JOEL HARTTER, FORREST STEVENS, RUSSELL G. CONGALTON, MARK DUCEY, MICHAEL CAMPBELL, DANIEL MAYNARD, AND MICHAEL STAUNTON

Introduction

This brief reports on a survey conducted in fall 2011 as one component of the ongoing Communities and Forests in Oregon (CAFOR) project.[1] The CAFOR project focuses on the people and landscapes of three counties in northeast Oregon (Baker, Union, and Wallowa), where landscapes and communities are changing in interconnected ways. The survey involved telephone interviews lasting 10 to 15 minutes each with a representative sample of more than 1,500 residents in the three-county area. Questions covered natural resources, forest management, and other local issues. The accompanying figures compare responses from northeast Oregon residents across counties, between forest landowners and others, and with metropolitan and nonmetropolitan residents nationwide.

The forests of northeast Oregon are changing. Over a century and a half of forestry has altered forest structure, fire regimes, and species assemblages. In recent decades, the region has experienced growing risks from endemic tree disease, tree mortality, and wildfire.[2] Forest management and economics have changed dramatically as well. Local people, many with longstanding social and economic ties to nearby forests, have altered their environment through timber harvesting or land conversion. Their lives, in turn, have been affected by changes in the forests and the forest products industry.

Variable markets for forest products, reduced timber harvests, and shifting ownership patterns have driven change in the surrounding communities.[3] Population in the three counties declined or grew slightly during the past decade (declining 3.6 percent to rising 5 percent), in contrast to the more rapid growth of Oregon as a whole

Key Findings

A fall 2011 survey asked 1,585 residents of three northeast Oregon counties about natural resources, the environment, and the future of their communities.

- Given a choice of whether natural resources should be used now to create jobs, conserved for future generations, or both equally, more than one-half of the respondents answered "use now."
- Northeast Oregon residents are more likely than Americans nationwide to prioritize exploration and drilling for oil ahead of renewable energy development. They are also more likely to say that environmental rules have been bad for the region, and to say that individuals or businesses should be free to do what they want with their land.
- As an issue of local importance, about one-third favor eliminating wolves from the region. A larger group (41 percent) favors limited hunting instead.
- About one-half report that forests in their area are less healthy than they were twenty years ago.
- Large majorities perceive wildfire, insects, and the loss of forestry jobs and income as serious threats to their communities.
- Scientists and local news media are considered more trustworthy as sources of information on environmental issues than are television networks or the government.
- The pattern of survey responses reflects a region transitioning from historical resource dependency to a more diversified future based to a greater degree on natural amenities.

UNIVERSITY of NEW HAMPSHIRE

(up 12 percent), as seen in Table 1. The region's population tends to be somewhat older and, in terms of ethnicity, whiter than Oregon or the United States. Reflecting hard economic times, the percent aged 65 and over increased by 2 to 3 points (compared with 1 point for Oregon, or 0.6 nationwide) from 2000 to 2010. College graduates make up a smaller fraction of the adult population than they do in Oregon or the United States.

Table 1. Statistical comparison of CAFOR study area with Oregon and the United States (2010 data unless otherwise noted)[1]

	Baker County	Union County	Wallowa County	Oregon	United States
Population, 2010	16,134	25,748	7,008	3.8 million	309 million
Population change 2000–2010	–3.6%	+5.0%	–3.0%	+12.0%	+9.7%
Population 65+ years, 2010	22.0%	16.7%	23.2%	13.9%	13.0%
Population 65+ years, 2000	19.0%	14.7%	18.9%	12.8%	12.4%
Population white	94.6%	93.1%	96.0%	83.6%	72.4%
Median housing (1,000s)	$142.4	$151.1	$183.8	$252.6	$188.4
Median family income (1,000s)	$39.7	$42.2	$41.1	$49.3	$51.9
Federal spending/person (1,000s)	$10.6	$8.3	$10.4	$8.8	$10.3
College grads/population 25+	20.5%	20.3%	21.1%	28.6%	27.9%
People per square mile	5.3	12.6	2.2	39.9	87.4
Unemployment rate	10.2%	10.4%	12.0%	10.8%	9.6%

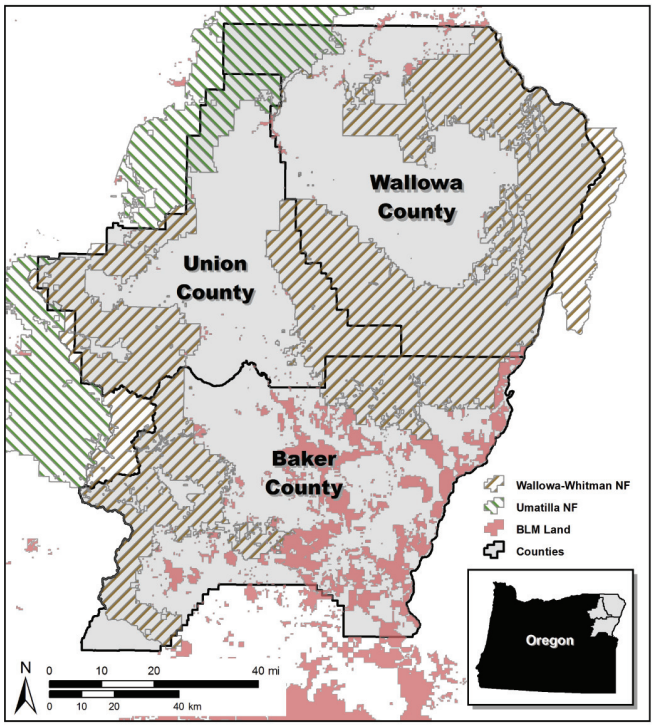
Through most of the twentieth century, northeast Oregon forest management objectives emphasized commodity timber production. However, policy changes and shifts in management objectives on federal lands (which comprise over half the state's land area and over 70 percent of the forested land) in the 1990s de-emphasized wood fiber production. Objectives shifted toward diversifying forest structure, habitat, and biodiversity, with the intention of restoring ecosystem functionality.[5] Although timber removal was necessary to meet these objectives, overall harvest volumes on federal lands (which make up about 70 percent of the forest land base) decreased dramatically in the 1990s and 2000s. More recent changes in private commercial forestlands, including increased harvesting in some cases, are the result of a complex interaction of factors, including globalization of the forest products market, decline in supply from federal lands, milling technology efficiencies, and loss of milling infrastructure. Large, vertically integrated forest products companies have divested many acres of forest to timberland investment organizations.

People have also been moving in to the Western forest, where natural attractions and low population density draw people from more urban environments, altering the demographic profile of the area. In recent years, some private commercial forest lands have been sold to individuals (higher and better use), and many private noncommercial (family-owned) forests have transferred from families who depended financially on timber harvests to retirees, amenity-seekers, and others who value the forest and real estate more for its amenity value than as a source of income. Related both to changing ecosystems and management, forests of northeast Oregon may be increasingly at risk for insect outbreaks and catastrophic wildfire.[6] Epidemic insect infestations and wildfires are causing widespread forest mortality throughout the West, which has a profound effect on forest structure and adversely affects visual quality, wildlife habitat, and timber values. Changing climate may be a factor as well, with drought and temperature-related impacts on wildfire, insects, and forest mortality.[7] The mixture of demographic, ecological, land ownership, and management changes has transformed the ways local forests are perceived, valued, and managed.

The Study Area

Bordering Washington and Idaho, Baker (pop. 16,134 in 2010), Union (pop. 25,748), and Wallowa (pop. 7,008) counties are some of the least populated and most rugged places in Oregon (Figure 1). The federal government manages much of the land (2.8 million acres, about 53 percent of total land area) in these three counties. This includes the Wallowa-Whitman National Forest (1.8 million acres), Hells Canyon National Recreation Area (131,000 acres), Eagle Cap Wilderness Area (355,000 acres), lands operated by the Bureau of Land Management (383,000 acres), and various other areas (94,000 acres). Another 5 percent (259,000 acres) is owned by Forest Capital, a timber investment management organization (TIMO). Individuals, families, and small businesses own most of the remaining land (41 percent).

Figure 1. Map of northeast Oregon showing the three counties surveyed, and the Wallowa-Whitman National Forest



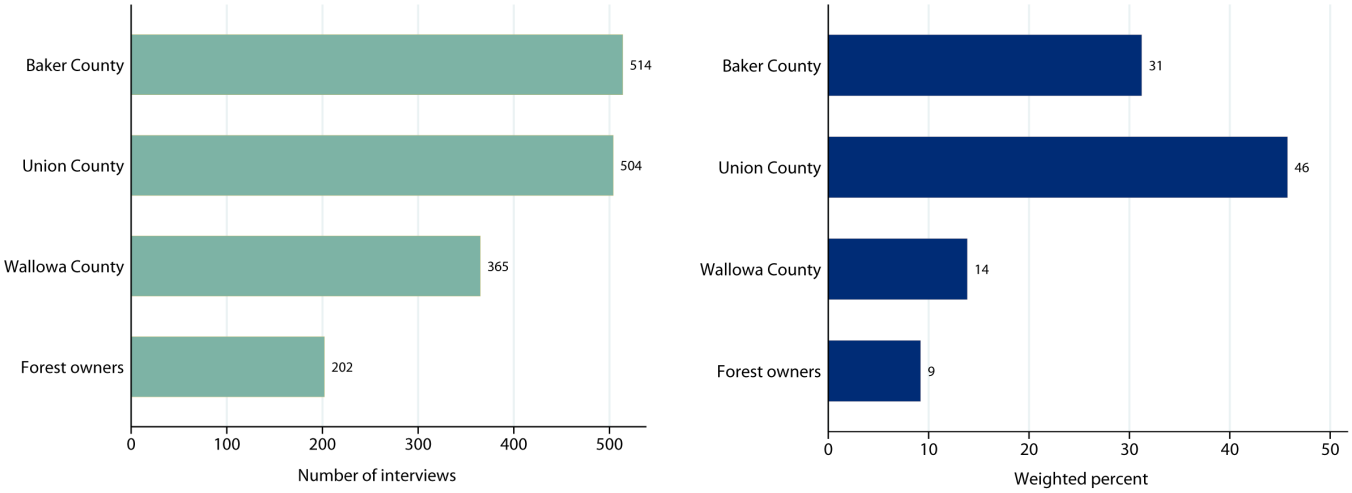
Timber production from both small and large operations fell drastically during the prior fifteen years, led by a decline of more than 90 percent in federal-land harvests.[8] Harvesting on some private lands increased, but it could not sustainably offset the federal change. Overall harvest decline, coupled with rising global competition, caused mill closures within the last twenty years (four of four industrial-scale in Wallowa, three of five in Union, and three of five in Baker Counties). Only two in Union remain open, which are owned by the same company. In addition, rising costs for ranchers have caused a severe economic shock to these counties, and the communities have struggled to keep up. Furthermore, northeast Oregon exemplifies the national trend of the disintegration of large timber companies separating their manufacturing and lands. Retirees have increasingly purchased private lands, as have the independently wealthy and those with careers that allow them to work remotely. Amenity-based property buyers have purchased small to medium tracts of land as seasonal or second homes, or have moved to these areas permanently. These new owners tend to manage their land less intensively, which has decreased the historic demand on agricultural and forestry-related commodities. These ownership trends are consistent with a larger national urban-to-rural migration trend, with newcomers largely from urbanized areas of western Oregon and Washington. Despite the rise in tourism, most of the jobs in service and accommodation are seasonal. Rising real estate prices and lack of family living-wage jobs have left many young residents unable to afford land and forced many to move away and long-time residents to sell or lease land.

The CAFOR Survey

Trained interviewers at the University of New Hampshire Survey Center conducted 1,585 telephone interviews, lasting about 10 to 15 minutes each, in September and early October of 2011. Phone numbers were selected at random within each of the three counties to obtain a representative cross-section of the public. In addition, the survey oversampled forest landowners to get a clearer picture of their views. Researchers interviewed more than 500 residents in Baker and Union Counties each, and 365 in Wallowa County (Figure 2). Not surprisingly, the 202 forest landowners interviewed differed from others in their perspective on forest management issues.

We intentionally overrepresented the population of forest landowners, defined here as those owning ten or more acres of forest land. We also oversampled residents of numerically smaller Wallowa County. Deliberate oversampling helps to obtain a sharper statistical picture (narrower confidence intervals) regarding population subgroups. Oversampling can introduce bias, however, requiring adjustments through the use of sampling weights.[9] Appropriate weights have been applied in calculating all the percentages reported in this brief. The right panel in Figure 2 shows how weighting affects percentages calculated from the raw numbers in the left panel. According to the 2010 U.S. Census, about 34 percent of the three-county adult population lives in Baker County (12,818), 51 percent in Union County (19,344), and 15 percent in Wallowa County (5,559). The weighted percentages come much closer to these proportions and to a realistic proportion of forest landowners.

Figure 2. The October 2011 CAFOR survey involved telephone interviews with 1,585 northeast Oregon residents, including 202 who owned 10 or more acres of forest land (left). Weighting adjusts the raw numbers to percentages that better represent the population (right).



Local and National Perspectives

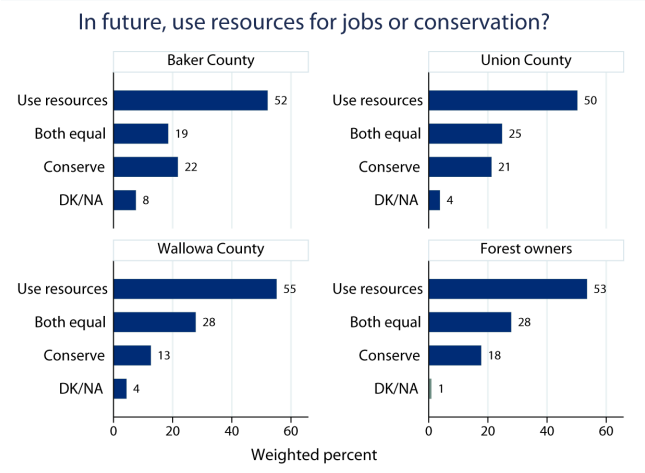
We compared the views of Oregon residents with those of other people across the United States, based on a nationally representative, fifty-state survey called NCERA.[10] The NCERA study also focused on environmental topics, so NCERA and CAFOR have several questions in common.

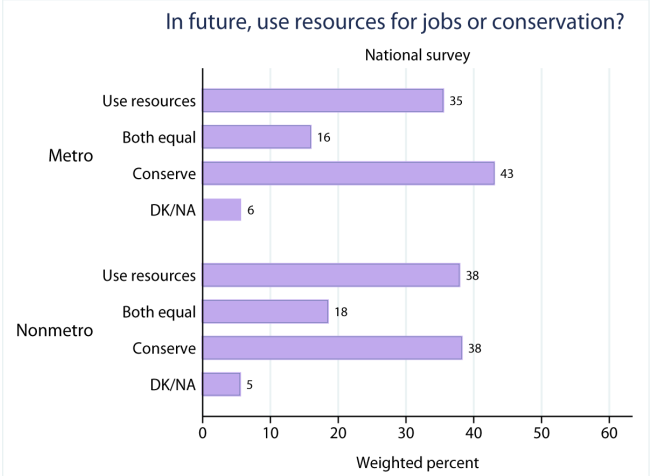
Figure 3 compares results on a question about resource use: whether people think it is more important to use natural resources to create jobs, or to conserve resources for the future. Responses from the three Oregon counties and forest landowners appear in left panel of Figure 3. The NCERA responses are in the right panel, divided by metropolitan and nonmetropolitan counties.[11]

This conservation question poses a stark, simplified choice between present jobs and future resources, or for a middle ground giving both equal importance. People tend to answer this question with reference to the history and context of their own region, rather than some abstract national standard. Recent job losses following the decline in timber production frame the responses from northeast Oregon. The local economy remains closely tied to those resources, more so than in some other rural areas with more diversified or amenity-based development. Forests in northeast Oregon are a hot topic, and there is widespread concern and frustration regarding forest health and the challenge of ensuring sustainable forest management or good stewardship on both public and private lands. If people interpret the "conservation" answer to mean "leave forests alone" instead of more active management for sustainable use, then "conservation" alone may not seem adequate to ensure forest health tomorrow.

In each of the three Oregon counties, about one-half of respondents chose "use natural resources to create jobs," whereas only one in five answered "conserve natural resources for the future." Wallowa County residents are particularly unlikely (13 percent) to favor "conserve." Nationally, on the other hand, conservation is the most popular choice in metropolitan counties and by a thin margin in nonmetropolitan counties as well. Conservation also proves a relatively popular response in other rural regions surveyed under the Community and Environment in Rural America (CERA) initiative.[12]

Figure 3. For the future of your community, do you think it is more important to use natural resources to create jobs, or to conserve natural resources for the future? Results from NE Oregon (left) and national (right) surveys.





Contrasts between northeast Oregon and national responses occur on other questions as well. Figure 4 shows results for whether to prioritize increased exploration and drilling for oil or increased use of renewable energy sources such as wind and solar. Despite general protests against plans to erect wind towers on Craig Mountain in Union County, more than one-half of the respondents favor renewable energy sources. Their level of support is notably lower than national results, however, where such "backyard" impacts might be less apparent. About three-quarters of those surveyed nationwide favor renewable energy. Although increased exploration and drilling for oil is less popular than renewable energy among northeast Oregon respondents, they are about twice as likely as national respondents to prioritize oil development.

Figure 5 shows another stark contrast between northeast Oregon and national views, this time on whether conservation or environmental rules that restrict development have generally been a good or a bad thing for one's community. More than three-quarters of Americans nationwide say either that environmental rules have been good or that they have had no effect in their community. Less than one in five nationally (and similarly low proportions on the CERA rural surveys)[13] say that such rules have been a bad thing. In contrast, the majority in northeast Oregon chose "a bad thing." Relatively few Oregon respondents say that environmental rules have been good for their communities.

Figure 4. Which do you think should be a higher priority for the future of this country, increased exploration and drilling for oil, or increased use of renewable energy sources such as wind and solar?

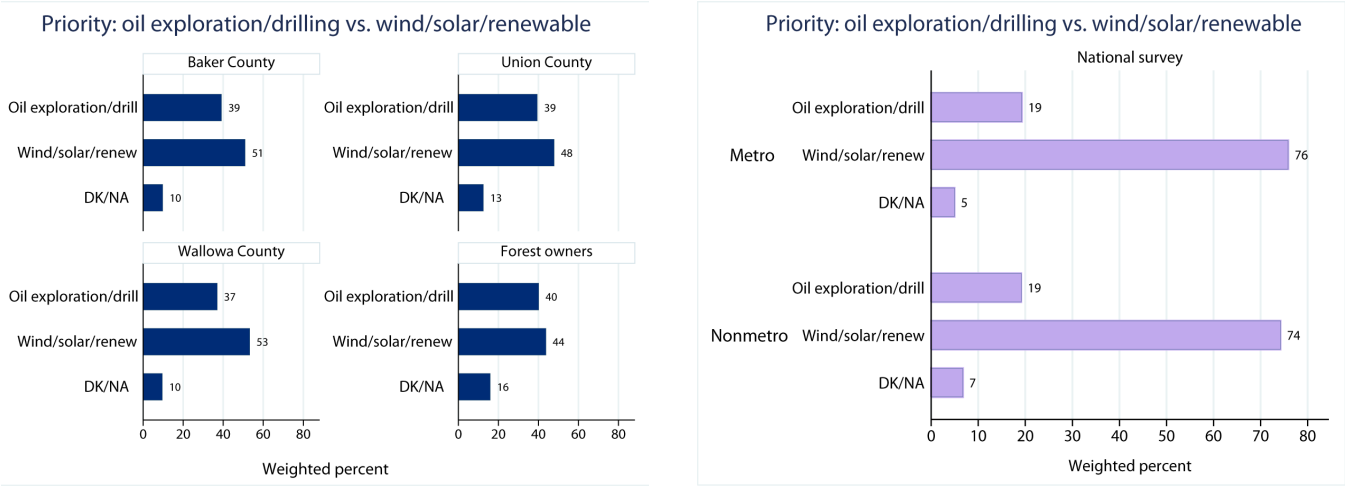
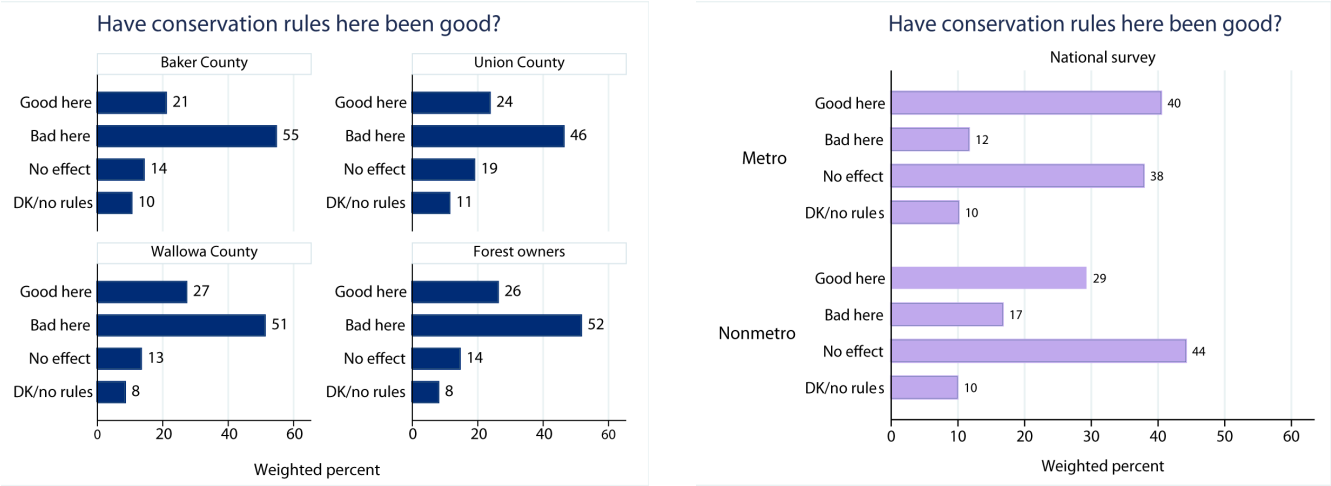
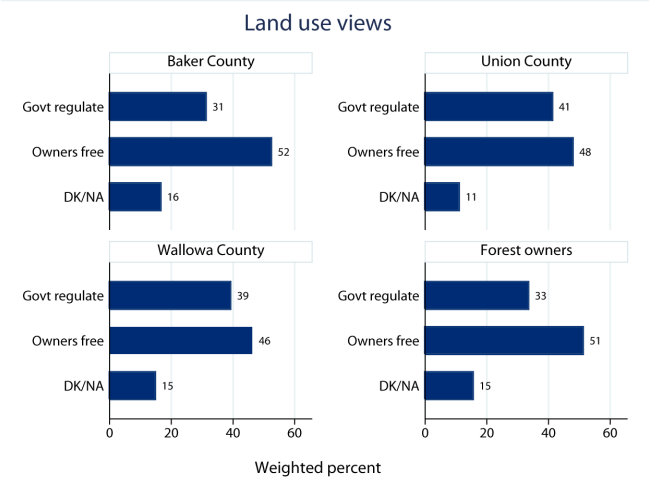


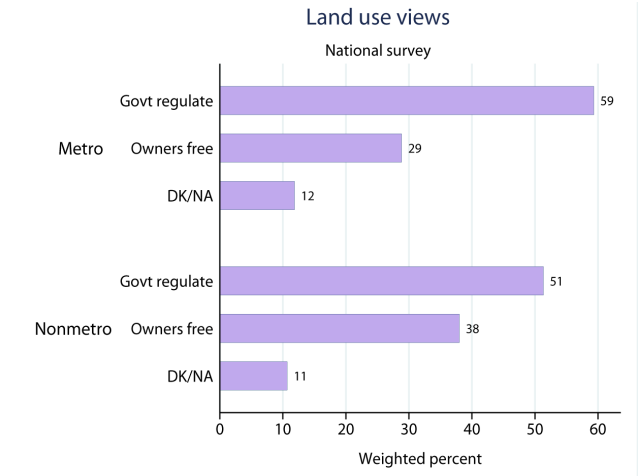
Figure 5. Have conservation or environmental rules that restrict development generally been a good thing for your community, a bad thing, or have they had no effect here?



Views about land ownership and management resonate in northeast Oregon. Figure 6 shows that although land-use regulation for the common good is a clear preference nationally (59 percent in metro areas and 51 percent in nonmetro areas), only 31 to 41 percent of our sample chose this response. About one-half of the study-area respondents, including about half of the forest landowners, instead say that owners should be able to do what they want with their land.

Figure 6. Which of the following statements comes closer to your own views… "Individuals or businesses should be free to do whatever they want with land that they own," or "Government should have the ability to regulate land use and development for the common good."





Northeast Oregon Environment

The survey also explored topics of more local interest, such as opinions about the wolf population and forest health. The question on wolves (Figure 7) exposes a divide between respondents. Almost one-third of respondents in Union and Baker counties want to eliminate the wolf, while about 42 percent want to limit hunting. Forest landowners and Wallowa County respondents, on the other hand, more often favor outright elimination of wolves. The region's three recognized wolf packs (Imnaha, Wenaha, and Snake River), totaling at least fifteen individual wolves in 2011,[14] reside in Wallowa County where they have done the most damage. Chronic livestock predation has affected county residents, particularly near the towns of Joseph and Imnaha.[15] Recent kills of calves, yearlings, and adult cows have led to local outrage and calls for state compensation and lethal intervention, making state wolf recovery efforts a contentious issue.

Baker and Union County residents more often say that limited hunting should be allowed. Only about one in five respondents from each county, and one in eight forest owners, choose the wolf-friendly response of no hunting but with compensation for losses.

There are no significant differences between the Oregon groups, however, on the question in Figure 8. Large majorities of respondents in all four groups think that meeting local needs instead of broader American needs should be a priority in managing public lands. In part, this reflects perceptions that management decisions made elsewhere may not be optimal for sustaining jobs or forest health.

Not surprisingly, forest landowners more often (39 percent) report that they understand a great deal about forest health and management (Figure 9). Only 20 percent of Union County non-forest landowners express such confidence, and 24 percent say they understand little or nothing.

Wallowa County residents who do not own forest land are the most pessimistic about forest health: 63 percent think forests in their area are less healthy than they were twenty years ago (Figure 10). This gloomy assessment was widespread in the other groups as well, ranging from 46 to 52 percent. Their perception reflects the visible impacts and risks to forests posed by disease, fire, and insects.[16]

In the next section, we examine how residents rank those threats compared with others.

Figure 7. Which of the following four statements about wolves in eastern Oregon comes closest to you personal beliefs? "Wolves should be eliminated from eastern Oregon," "Limited hunting of wolves should be allowed," "Wolves should not be hunted, but landowners should be compensated for losses," or "Wolves should not be hunted, and no landowner compensation is needed."

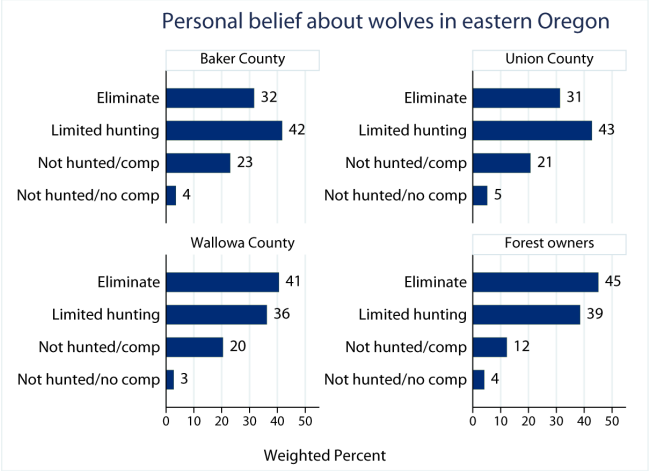


Figure 8. When managing public lands, do you think we should give higher priority to meeting the needs of the local community, or broader needs and interests of America?

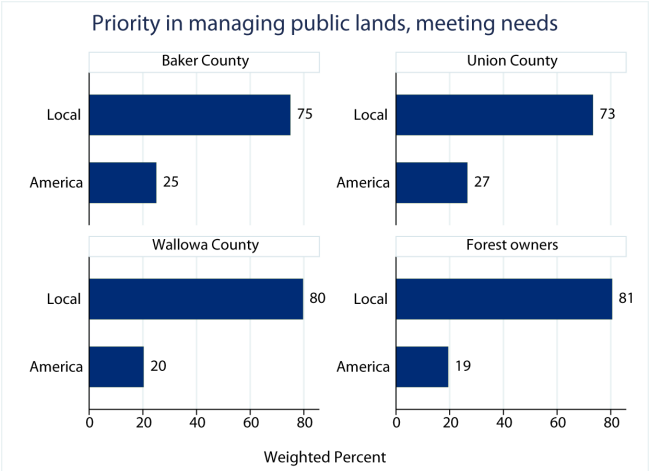


Figure 9. Regarding forest health and management, how much do you feel you understand about this issue-would you say a great deal, a moderate amount, only a little, or nothing at all?

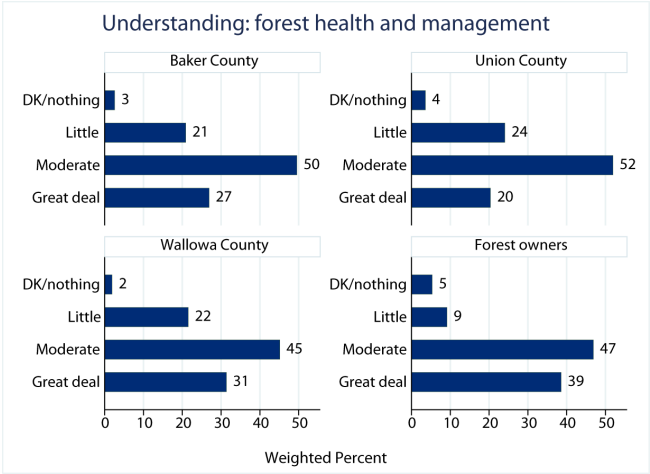
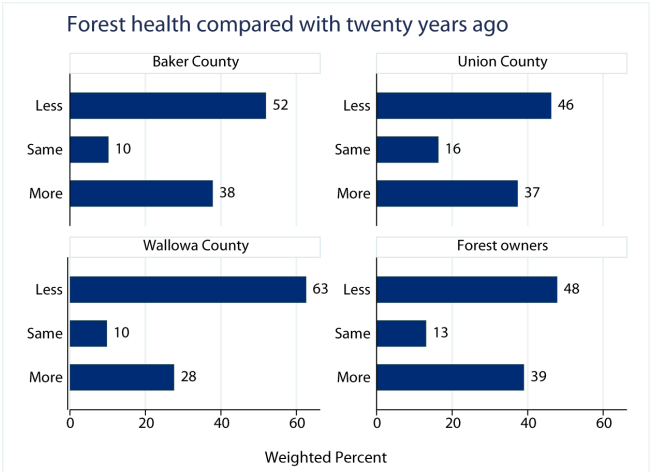


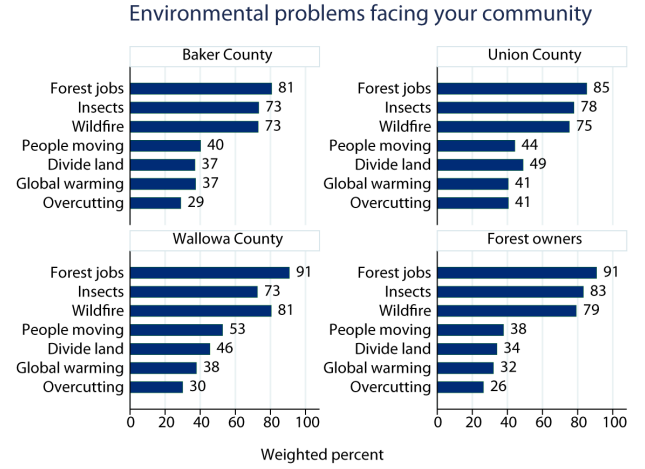
Figure 10. Do you think that the forests in your area are less healthy than they were 20 years ago, more healthy than 20 years ago, or is forest health about the same?



Environmental Problems

The survey asked about a range of environmental concerns, from wildfire to global warming, and the threat they posed to one's community. A solid majority in all counties (81-91 percent) sees the loss of forestry jobs or income as a threat (Figure 11). Risks of insects (76 percent overall) and wildfire (75 percent) are right behind, with no significant differences between groups. The shared concern over forest jobs and the threat of wildfire and insects reflect the strong connection between communities and forests in northeast Oregon.

FIGURE 11. FOR EACH OF THE FOLLOWING, DO YOU THINK THAT THESE PROBLEMS POSE A SERIOUS THREAT TO YOU OR YOUR COMMUNITY? "LOSS OF FORESTRY JOBS OR INCOME," "OVERHARVESTING OR HEAVY CUTTING OF TIMBER," "GLOBAL WARMING OR CLIMATE CHANGE," "WILDFIRE," "INSECTS," "DIVIDING AND SELLING PORTIONS OF LARGE FOREST PROPERTIES," AND "COMMUNITY CHANGING AS TOO MANY PEOPLE MOVE IN OR LEAVE."



Other problems worry less than half the respondents overall, but vary somewhat between counties, or between forest landowners and other respondents. Dividing and selling portions of large forest properties most concern Wallowa and Union county residents. Wallowa residents are also the most concerned about their communities changing as too many people move or leave. Overall population change in Wallowa has been similar to the other counties (Table 1), so these perceptions might reflect the characteristics of amenity-driven development there. Forest owners, in contrast, do not see either dividing and selling portions of forest land or people moving in as problematic.

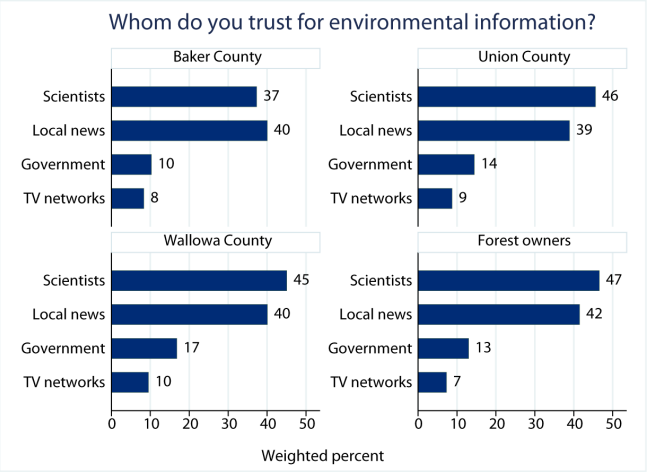
Timber harvesting on federal lands in the study region declined steeply over the past fifteen years, while harvesting on some private lands increased. Forest owners express relatively low concern about the threat of overharvesting, which is not surprising, especially given the relatively small amount of harvesting on federal lands. For example, timber harvests in Wallowa County alone have averaged less than 2,000 acres per year on an area that includes 700,000 acres of forest (only 200,000 of which is zoned for commercial harvest). Union County residents register the highest concern on this item, but most people in all groups do not see overharvesting as a threat. Low concern about overharvesting mirrors the correspondingly high concern about loss of forestry jobs or income.

In sum, maintaining healthy forests remains a top priority for landowners, newcomers, and old-timers alike. Changes in ownership and demographics via migration pose real challenges, in part because they too relate to forest health. These ownership or demographic shifts appear less immediately threatening, however, compared with the decline in the forestry sector and forest health. In addition, the Wallowa-Whitman National Forest represents the largest parcel of land managed by a single entity, the U.S. Forest Service. Effects of policy changes, management, or disturbances on Forest Service land potentially have larger-scale effects compared with those of individual private landowners.

Whom Do You Trust?

Many people in northeast Oregon live close to the land and form their own impressions about environment and resource topics such as those discussed in the CAFOR survey. We also asked whether they trusted other sources—television network news, scientists, local newspapers or radio, or the government—for information about environmental issues. None of these sources receive high marks, as seen in Figure 12. In relative terms, scientists (43 percent overall) and local newspapers or radio (39 percent) appear most credible. The government (13 percent) and network television (9 percent) rank much lower.

Figure 12. As a source of information about environmental issues, would you say that you trust, don't trust or are unsure about "TV network news," "scientists," "local newspapers or radio," "the government."



Nationally, trust in scientists runs higher than it does among these northeast Oregon respondents. Fifty-four percent of those answering the nationwide NCERA survey say they trust scientists as a source of information about environmental issues. A series of CERA surveys in rural coastal areas during 2010–2011 found higher numbers as well, ranging from 48 to 65 percent trusting scientists.

Discussion

In northeast Oregon as throughout rural America, livelihoods historically depended on working the land. Most Americans now are physically and socially more distant from the land, although they believe that national lands and resources belong to them, too. Nationwide, conservation is seen in a positive light in part because conservation-related actions have resulted in more green spaces, natural recreation amenities, and protection of culturally important landscapes, habitats, or species. In rural areas such as lake, seacoast, or mountain areas with new economies based on their amenities, conservation can have an even greater, and growing, value. But for other rural communities where resource-based activities still dominate, working landscapes remain essential to livelihoods and sense of place. Restrictions of any kind—whether through policy, natural disturbances, or other reasons, no matter how well-intentioned—affect local people directly. Different livelihoods account for some of the contrast between northeast Oregon and national survey responses to questions about the environment.

The surveys pose very general questions, asking people in different places to interpret those questions more specifically in terms of their local environment and context. Context in northeast Oregon includes not only forestry decline, but also the risks to forest health from wildfire, insects, and disease. For multiple reasons, such risks appear to be increasing, raising pressure for effective management strategies. If survey responses favoring conservation or environmental protection are taken to imply "doing nothing," then from that perspective they point toward a less sustainable future, unlike what conservation might imply somewhere else. In fact, many residents of these working landscapes think that we can use resources now to create jobs, but this must be done in such a way that implements principles of good stewardship so that resources are sustainable.

A full range of individual opinions exists everywhere, although the particular balance of these opinions differs from place to place. The balance in one place can shift over time as well, because livelihoods and the wider context change. The 2008 report *Place Matters*, based on interviews with almost 8,000 residents in seven U.S. rural regions, described four different rural Americas.[17] Some areas such as Appalachia, the Mississippi Delta, and Alabama's Black Belt have experienced chronic poverty, with overuse of resources and underinvestment in economic diversification or human capital that have limited their chances for future development. Declining resource-dependent areas form a second type of rural area, often with a long history of boom and bust but now struggling to cope with resource depletion, global competition, and economic decline. Some Midwestern farming areas that are losing population fit this second type. The future looks quite different in a third type of rural area, typified by parts

of Colorado, where attractive landscapes and recreation opportunities support amenity-based growth in sectors such as recreation, tourism, and homes. A fourth type of rural area, called amenity/decline, is transitioning between a declining but still important resource-based economy and a growing but not yet dominant amenity-based sector. Some parts of the coastal Northwest and New England provide examples of amenity/decline regions.[18] Northeast Oregon, too, shares some of these characteristics. Diverse responses on the CAFOR survey reflect this transitional situation. In other regions where the economy is more amenity-based and resource extraction less central, survey responses tend to show stronger approval of conservation and environmental protection. If northeast Oregon's economy moves further toward amenity-based development, and more sustainable, science-based management efforts can mitigate threats to forest health, then perspectives on resources and environment could be expected to shift as well.

ENDNOTES

1. J. Hartter et al., "Community and Forest: Linked Human-Ecosystem Responses to Natural Disturbances in Oregon" (Washington, DC: National Institute of Food and Agriculture, U.S. Department of Agriculture, 2010).

2. N. Langston, *Forest Dreams, Forest Nightmares* (Seattle: University of Washington Press, 1995).

3. J. C Bliss et al.,"Disintegration of the U.S. industrial forest estate: Dynamics, trajectories, and questions," *Smallscale Forestry* (2009) 9(1), 53-66.

4. Data for Table 1 represent 2010 values (unless otherwise noted) from the U.S. Census Bureau state and county quick facts website, available at http://quickfacts.census.gov/qfd/states/41000.html.

5. Langston, *Forest Dreams*; J. W. Thomas, "Sustainability of the Northwest Forest Plan: Still to be Tested," *Forest Futures: Science, Politics, and Policy for the Next Century*, edited by K. Arabas and J. Bowersox (Boulder, CO: Rowan & Littlefield, 2004), 3-22.

6. E. Toman and B. Shindler, "Hazardous Fuel Reduction in the Blue Mountains: Public Attitudes and Opinions," *USDA Forest Service Proceedings,* RMRS-P-29 (2003): 241-254.

7. P. Clark et al., "Scientific consensus statement on likely impacts of climate change in the Pacific Northwest." Available at http://www.oregon.gov/ENERGY/GBLWRM/docs/Global-AppendixC.pdf?ga=t (2004; accessed 3/24/2012).

8. N. Christofferson, "Wallowa Resources: Gaining Access and Adding Value to Natural Resources on Public Lands," *Natural Resources as Community Assets: Lessons from Two Continents*, edited by M. Lyman and B. Child (Madison, WI: Sand County Foundation, 2005), 149-180. Available at http://www.sandcounty.net/assets/index.htm (accessed 3/24/2012).

9. Weights for this purpose are proportional to the inverse of the probability of selection, so that subgroups with a higher probability of selection ("oversampling") are assigned lower weights in calculating percentages and other statistics. CAFOR weights also make adjustments for design bias due to differences in household size, and for response bias judged by comparison with the age/sex distribution of the area's adult population. Final weights have been scaled so they accurately reproduce the total number of observations involved.

10. NCERA stands for National Community and Environment in Rural America survey. Carsey Institute researchers have conduced a series of surveys in selected rural regions around the country since 2007 under the CERA initiative. Reports describing the CERA work to date can be found online at www.carseyinstitute.unh.edu/CERA/cera-home.html.

In summer 2011, the NCERA interviewed more than 2,000 people nationwide, not just in rural areas, to provide nationally representative benchmarks for comparison with CERA, CAFOR, and other surveys that ask some of the same questions. Figures 3–6 in this brief illustrate such comparisons.

11. Metropolitan U.S. counties contain at least one urbanized area with 50,000 people or more, or are tied to an urbanized center by substantial work commuting. Nonmetropolitan counties lack urbanized centers, or close commuting ties to such centers. The northeast Oregon counties studied here are nonmetropolitan.

12. See Figure 28 in L.C. Hamilton et al., *Place Matters: Challenges and Opportunities in Four Rural Americas* (Durham, NH: Carsey Institute, University of New Hampshire, 2008), available at http://carseyinstitute.unh.edu/publications/Report_PlaceMatters.pdf.

13. Ibid.

14. R. Morgan, *Oregon Wolf Conservation and Management Plan, 2011 Annual Report* (La Grande, OR: Oregon Department of Fish and Wildlife, 2012). Available at http://www.dfw.state.or.us/wolves/docs/oregon_wolf_program/2011_Wolf_Conservation_Management_Plan_Annual_Report.pdf (accessed 3/24/2012).

15. "Livestock loss investigations." Oregon Department of Fish and Wildlife, available at http://www.dfw.state.or.us/Wolves/livestock_loss_investigations.asp.

16. L. Starr et al., "A Framework for Addressing Forest Health and Productivity in Eastern Oregon and Washington," *Northwest Science* 75 (special issue) (2001); K. N. Stauber, "Why Invest in Rural American and How? A Critical Public Policy Question for the 21st Century," *Economic Review* 86(2) (2001): 33–63.

17. Langston, *Forest Dreams*; Thomas, "Sustainability of the Northwest Forest Plan."

18. Another example of amenity and amenity-decline areas along the coast of Maine is described in T. G .Safford and L.C. Hamilton, "Ocean views: Coastal Environmental Problems as Seen by Downeast Maine Residents," New England Policy Brief no. 3 (Durham, NH: Carsey Institute, University of New Hampshire, 2010), available at www.carseyinstitute.unh.edu/publications/PB_Safford_DowneastMaine.pdf.

ACKNOWLEDGEMENTS

This research is part of the Communities and Forests (CAFOR) project in cooperation with the Carsey Institute at the University of New Hampshire. Funding for this research was provided by the Disaster Resilience for Rural Communities Program, which is part of the National Institute of Food and Agriculture program of the U.S. Department of Agriculture (Award #2010-67023-21705). We thank Barbara Ray at Hiredpen for her editorial assistance and Curt Grimm, Laurel Lloyd, Bruce Mallory, and Amy Sterndale at the Carsey Institute for their assistance, comments, and suggestions. We are especially grateful to Nils Christofferson at Wallowa Resources, Ken Gebhardt at the U.S. Forest Service, Paul Oester at Oregon State University Forestry Extension, and John Warness at Forest Capital LLC for their feedback on this research.

ABOUT THE AUTHORS

Lawrence C. Hamilton is a professor of sociology and a senior fellow at the Carsey Institute at the University of New Hampshire (lawrence.hamilton@unh.edu).

Joel Hartter is an assistant professor of geography and a faculty fellow at the Carsey Institute at the University of New Hampshire (joel.hartter@unh.edu).

Forrest Stevens is a PhD candidate and an NSF IGERT fellow in the Department of Geography and the Land Use and Environmental Change Institute (LUECI) at the University of Florida (forrest@ufl.edu).

Russell G. Congalton is a professor of remote sensing and geographic information systems at the University of New Hampshire (russ.congalton.edu).

Mark Ducey is professor of forest biometrics at the University of New Hampshire and a senior fellow at the Carsey Institute (mjducey@cisunix.unh.edu).

Michael Campbell is a graduate student and a research assistant in the Department of Natural Resources and the Environment at the University of New Hampshire (mja226@wildcats.unh.edu).

Daniel Maynard is a graduate student and a research assistant in the Department of Natural Resources and the Environment at the University of New Hampshire (dan.maynard@unh.edu).

Michael Staunton is a graduate student of sociology and a research assistant at the University of New Hampshire (michael.staunton@wildcats.unh.edu).

Building knowledge for families and communities

The Carsey Institute conducts policy research on vulnerable children, youth, and families and on sustainable community development. We give policy makers and practitioners timely, independent resources to effect change in their communities.

This work was supported by the Disaster Resilience for Rural Communities Program, which is part of the National Institute of Food and Agriculture program of the U.S. Department of Agriculture.

Huddleston Hall
73 Main Street
Durham, NH 03824

(603) 862-2821

www.carseyinstitute.unh.edu