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# Assessing the Viability and Adaptability of Oregon Communities

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## **Abstract**

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This work responds to the need to assess progress toward sustainable forest management as established by the Montréal Process Criteria and Indicators. The focus is on a single indicator (commonly referred to as Indicator 46) that addresses the “viability and adaptability to changing economic conditions, of forest-dependent communities, including indigenous communities.” Communities in Oregon were assessed in terms of their connectivity to service centers, socioeconomic well-being, and proximity to public lands. Fifty-four communities rated relatively low in these combined characteristics and were considered less adaptable to changing socioeconomic conditions.

**Keywords:** Community resiliency, criteria and indicators, forest dependency, Montréal Process, socioeconomic well-being, sustainable forest management.

## Introduction

This paper describes an effort to assess community viability and adaptability. The work responds to the need to assess progress toward sustainable forest management as established by the Montréal Process criteria and indicators (Montréal Process Working Group 1998). The focus is on one criterion that deals with the maintenance and enhancement of long-term multiple socioeconomic benefits to society.

The broader context for this work is set in the evolving discussions of sustainable forest management where forests are increasingly being viewed as key to a healthy environment and healthy communities. When managed sustainably, forests can supply society with goods and services, conserve biodiversity, and stabilize the environment for future generations. In a process begun at the 1992 Rio Earth Summit, several national and international initiatives have been started to develop criteria and indicators for assessing trends in forest conditions and management and progress toward sustainable forest management. The United States is a signatory to the Montréal Process, which is built around a comprehensive set of seven national-level criteria<sup>1</sup> and 67 indicators to guide policy development.

The sixth criterion of the Montréal Process focuses on the maintenance and enhancement of long-term, multiple socioeconomic benefits and contains 19 indicators. In this paper, we focus on a single indicator of Criterion 6, commonly referred to as Indicator 46. Indicator 46 addresses the “viability and adaptability to changing economic conditions, of forest-dependent communities, including indigenous communities” (Montréal Process Working Group 1998).

We acknowledge that there are severe data limitations for measuring certain elements of community viability and adaptability. First, viability and adaptability are not defined in the Montréal Process. Second, few measures and proxies have been developed for measuring characteristics of adaptable and viable communities. Last, primary data collection may be necessary to assess viability and adaptability but often requires substantial resources and institutional commitment. Given the data limitations, we synthesize prior and ongoing work at the USDA Forest Service Pacific Northwest Research Station on assessing community socioeconomic well-being and adaptability to change. Using existing data sources, we identify a set of communities in Oregon that may be considered as having less viability and adaptability to changing economic conditions than some other communities in Oregon. We focus on this set, rather than on communities that are moderately or highly viable and adaptable, to facilitate discussions and debates on resource management decisionmaking, mitigation efforts, and rural development. This work was done as part of an effort to develop a report on progress toward sustainable forest management for the state of Oregon.

## Communities and Forestry Within the Montréal Process

The seven criteria and 67 indicators of the Montréal Process address critical functions and attributes of forests, such as soil and water protection, biodiversity, productivity, and carbon cycle; socioeconomic benefits, such as timber, recreation and cultural values; and the laws and regulations that constitute the forest policy framework. The criteria represent an explicit recognition by the 12 member countries that forests

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<sup>1</sup> The Montréal Process criteria are conservation of biological diversity; maintenance of productive capacity of forest ecosystems; maintenance of forest ecosystem health and vitality; conservation and maintenance of soil and water resources; maintenance of forest contributions to global carbon cycles; maintenance and enhancement of long-term multiple socioeconomic benefits; and legal, institutional, and economic framework for forest conservation and sustainable management.

provide a diverse, complex, and dynamic array of environmental and socioeconomic benefits and services (Montréal Process Working Group 1998). A criterion is a category of conditions or processes by which sustainable forest management may be assessed. Each criterion is characterized by a set of 9 to 20 indicators. An indicator is a qualitative or quantitative measure of an aspect of the criterion that can be observed periodically (Montréal Process Working Group 1998). In discussions about the Montréal Process, indicators are frequently numbered cumulatively. Thus, although the indicator that is the focus of this paper is the 18<sup>th</sup> out of 19 indicators associated with Criterion 6, it is more commonly referred to as Indicator 46.

Criterion 6 and its 19 associated indicators reflect one of the enduring goals of land management: that forest management sustains a flow of timber and other benefits to promote the well-being<sup>2</sup> of forest industries and communities. This criterion takes a broad view of how sustainable forest management influences social well-being that includes the expected concerns about determinants of economic well-being (often measured by jobs) as well as concerns about community well-being. The criterion reflects a notable evolution in thinking on the part of decisionmakers, researchers, resource managers, and the public about the relation between communities and forests, as well as what constitutes sustainable forest management.

## **Toward Viability and Adaptability**

The past two decades have seen an evolution in terms used to depict communities that have distinct connections to forest resources: community stability, forest dependence, forest based, community capacity, community resiliency, and now with the Montréal Process, community viability and adaptability. Some terms, such as stability, were borne out of a culture of forest policy and management that prevailed for much of the 20<sup>th</sup> century. Other terms, such as forest dependency, forest based, community capacity, and community resiliency are, for the most part, academic in origin and continue to be debated and defined. Viability and adaptability, the terms associated with Indicator 46, although not explicitly defined in the Montréal Process, have the connotation of more recent terms, such as resiliency.

A review of the evolution of terms reveals that over time, researchers and practitioners have placed increasing emphasis on the complex, dynamic, and interrelated aspects of rural communities and the natural resources that surround them. Nonetheless, some traditional terms continue to appear in contemporary debates. For instance, for much of the past 60 years, the issue of sustainable forest management frequently has been gauged in terms of its impact on employment as a determinant of community stability. Recent environmental debates are often couched in terms of the environment vs. the economy where much is still made of the tradeoffs between jobs (as a proxy for economic well-being in local communities) and gains in ecological conditions (see, for example, Lomborg 2001).

By the late 1980s, the notion of community stability as reflective of sustained-yield timber management was being questioned (Lee 1990, Schallau 1989). Although the use of the term stability continued to endure in policy debates, researchers began recognizing that the term lacked clear definition and measures (Fortmann and others 1989, Lee 1989, Machlis and Force 1988; see Richardson 1996). Seeking alternative

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<sup>2</sup>We use the term well-being as it is used in recent social science research, whereby well-being addresses quality of life, welfare, and social and economic health of a community. We recognize that in contemporary discussions, however, the term well-being continues to be used to reflect jobs and community stability.

terms, some began looking beyond employment indicators to other aspects of community life in order to assess community well-being (Doak and Kusel 1996, Kusel and Fortmann 1991). In addition to economic measures, indicators for poverty, education, crime, and other demographic measures have been used to assess conditions within communities.

Concurrent with discussions about stability and well-being were discussions about the term forest dependence, including several appeals to redefine it (Richardson and Christensen 1997). Forest and timber dependence initially were defined in terms of commodity production. Various research studies suggest that communities are more complex than traditional measurements of timber dependency imply (see Haynes and others 1996). Most communities have mixed economies, and their well-being is often linked to factors other than commodity production, such as civic infrastructure and civic leadership (McCool and others 1997). Many communities thought of as timber dependent have been confronted with economically significant challenges, such as mill closures, and have displayed resilient behavior as they have dealt with change. Arguments for redefining the term forest dependence emphasized that the economic ties that some communities have to forests are not solely wood product based, but reside in recreation and other amenities (Kusel 1996). Another concern is that the term forest dependence does not adequately reflect the choices people make to remain in a community and thus perpetuate a lifestyle tradition or sense of place (Kusel 1996). This broader interpretation of the term forest dependence is often what is implied by the term forest-based communities.

The terms community capacity and community resiliency denote the ability of a community to take advantage of opportunities and deal with change (Doak and Kusel 1996, Harris and others 2000). Resiliency and, arguably to a lesser extent, capacity differ from terms such as forest dependence because they represent a projected condition or ability of a community over some period. Levels of resiliency are dynamic, just like external factors that might induce change within a community. The Forest Service is shifting its focus from dependency to concepts like resiliency (see Horne and Haynes 1999, McCool and others 1997). Based on the work by Harris and others (2000), factors useful in assessing community resiliency are:

- Population size—Resiliency ratings vary directly with population size.
  - Small (and often lower resiliency) less than 1,500 people.
  - Large (often associated with higher resiliency) greater than 5,000 people.
- Economic diversity—Resiliency ratings vary directly with population size.
- Civic infrastructure—Higher resiliency associated with strong civic leadership, positive attitudes toward changes, strong social cohesion.
- Amenities—Combines both civic amenities as well as natural amenities.
- Location—Locations on major trade routes; near service centers; shopping, service or resort destinations are associated with higher resiliency. Spatial isolation is often a characteristic of lower resiliency.

The history behind the evolution of terms combined with the results of recent and current work suggest that connectivity to broad regional economies, community cohesiveness, place attachment, and civic leadership are greater factors in determining community viability and adaptability than employment-based factors.

## **Keeping with Tradition**

In spite of the shift away from timber commodity and employment-focused terms, such as stability and forest dependence, to more dynamic and inclusive terms, such as capacity and resiliency, there are agencies and stakeholders (such as community groups) who find lists of dependent communities useful in considering the consequences of forest policies and other developments. Two such lists are in contemporary use. One is a list of forest-dependent communities that the Forest Service is required by law to compile. Another is a list of distressed cities and other areas compiled by the state of Oregon.

The Forest Service list of dependent communities was last compiled in 1987 and is based on 10 percent of a community's employment in the forest products industry (fig. 1). It is a straightforward approach. The Oregon Economic and Community Development Department (OECDD) uses a broader approach that combines eight socioeconomic indices to gauge the economic distress of Oregon's counties and incorporated cities (OECDD 2002) (fig. 2). Both approaches focus primarily on economic measures and not the broader concept of social well-being.

These more traditional approaches for judging community dependency and distress, while producing useful lists given the assumptions determining their selection, fail to meet the full intent of Indicator 46. Indicator 46 focuses on the viability and adaptability of communities to changing economic conditions. It challenges us to consider how sustainable forest management influences social well-being where well-being includes concerns about determinants of economic well-being as well as concerns about community well-being.

## **Viability and Adaptability of Oregon Communities**

Communities in Oregon, as elsewhere, face constant social and economic transformations. Many of these transformations are in stark contrast to the traditional images of forest-dependent communities or communities in the American West. Our objective is to identify communities that should be considered as having less viability and adaptability to changes in land management that impact their social and economic conditions. The intent is to identify for resource managers and other decisionmakers those communities that might require some sort of mitigation, development assistance, or further understanding of the impacts of decisions. We call them communities of concern. We begin this section with a brief discussion about delimiting communities and then describe how we developed the list of communities of concern.

## **Identifying Communities**

The first step in identifying communities is to recognize the dual definition of community. First there is the community of interest, which is a group (or groups) of like-minded people who gain strength from their relationships and associations. Often in the forestry debate, we hear how some of these groups are victims of capricious policy changes. In this paper, we use community in terms of geographic locality or a spatially defined place, such as a town. In recent broad-scale assessments, the public has repeatedly expressed concern that the conditions and functions of communities be identified along with how they relate to natural resource management.

Given the focus on communities of place, the next challenge is to delimit communities for which there exist available socioeconomic data. Most social assessments use designations of communities provided by the U.S. Census Bureau. The most commonly used designations are census places. These include incorporated places and census-designated places, which are unincorporated communities that meet certain criteria. In Oregon, there are 284 census places, 237 of which we consider nonmetropolitan (fig. 3).



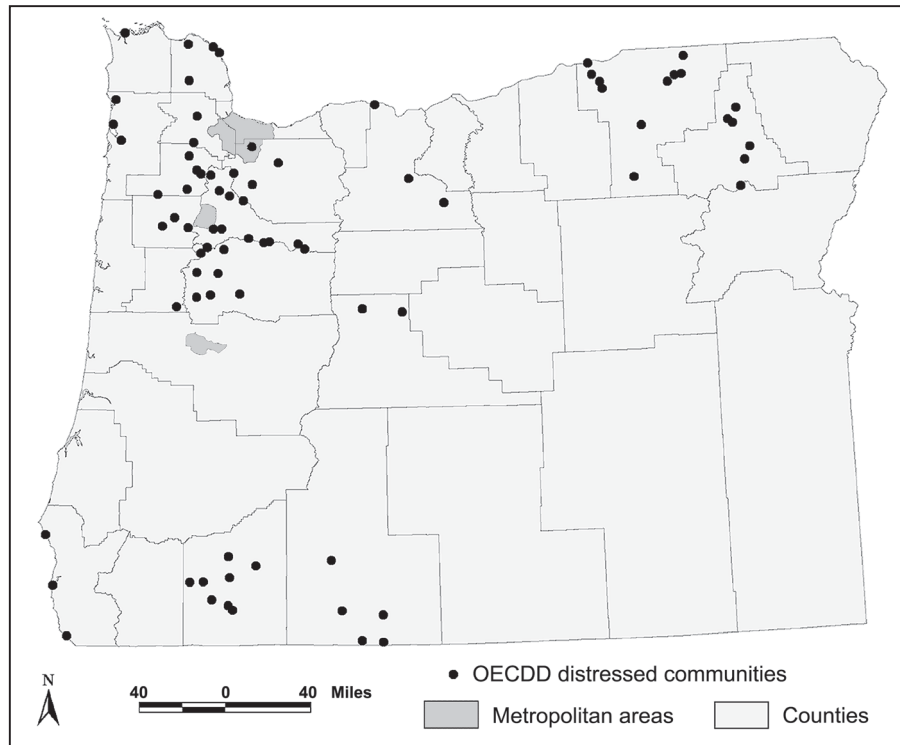


Figure 1—Oregon distressed communities, 2000 (Oregon Economic and Community Development Department 2002).

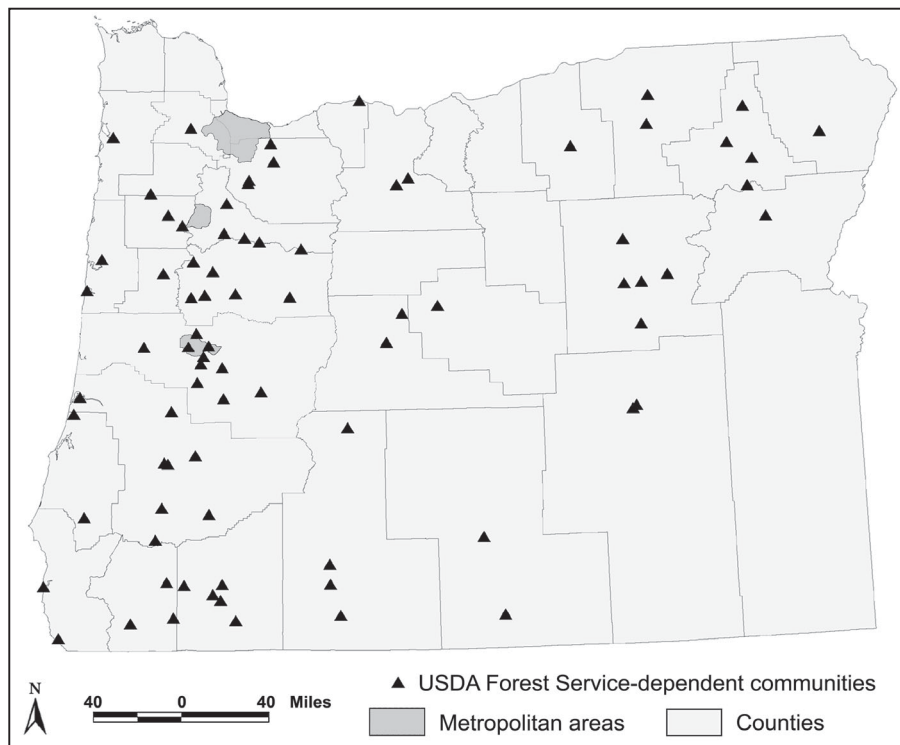


Figure 2—USDA Forest Service-dependent communities, 1987.



## Assessing Communities for Viability and Adaptability

Because census places do not represent the entire population of rural residents, we developed another definition of community for the Pacific Northwest region (western Washington, western Oregon, and northern California). We combined census block groups into block group aggregations (BGAs) based on criteria that include proximity to census places, population size, school districts, roads, and presence of public lands.<sup>3</sup> The resulting BGAs represent almost twice the population of rural residents as compared to a depiction of communities that relies solely on census places. In western Oregon, we identified 484 nonmetropolitan BGAs based on 1990 census data (fig. 4). Block group aggregations were not developed for eastern Oregon; in that area, census places were used to depict communities.

We used two existing data sets to develop a list of communities of concern. Although some overlap does occur, one data set focuses on conditions in western Oregon and the other on eastern Oregon. Each data set is set in the context of a region, eastern and western. Although this is largely an artifact of the existing data sets, there is logic for assessing a community relative to communities within an area sharing common attributes. For instance, communities in eastern Oregon probably have more in common with communities in eastern Washington than with those in western Oregon. Similarly, communities in western Oregon probably have more in common with communities in western Washington than with those in eastern Oregon. For the communities in western Oregon, the region is made up of the 72 counties in western Washington, western Oregon, and northern California, the counties commonly referred to as the Northwest Forest Plan region. The 25 Oregon counties in this region include counties that are just east of the crest of the Cascade Range and all counties to the west. For the communities in eastern Oregon, socioeconomic and spatial measures are relative to other communities that were studied as part of the Interior Columbia Basin Ecosystem Management Project (ICBEMP). The ICBEMP researchers examined those areas that lie east of the crest of the Cascade Range in Oregon and Washington, and in parts of Idaho, Montana, Wyoming, Nevada, and Utah. In Oregon, 18 counties fall into this eastern region. Several counties along the Cascade Range fall into both the eastern and western data sets.

In 25 western counties in Oregon, communities or localities were depicted as aggregations of BGAs. Three measures were combined to identify BGAs that were considered less adaptable to changing socioeconomic conditions: connectivity to service centers, socioeconomic well-being, and proximity to public lands.

Connectivity refers to the relative ability of residents within a community (a BGA) to connect with, or move to, other people, goods, and services. Actual travel distances along roads, rather than the more commonly used “as a crow flies” measure, were calculated from the BGA point to nearest the first-order service center. A first-order service center has a population greater than 10,000 and offers both hospital and college services. Many first-order service centers also have municipal airports.

A scale for socioeconomic well-being at the BGA level was calculated based on 1990 census data by using equally weighted measures for poverty, educational attainment, and occupational diversity. The poverty and education measures are similar to those used by Doak and Kusel (1996) in their assessment of Sierra Nevada communities.

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<sup>3</sup> For information on block group aggregation method, see Donoghue, E. [n.d]. Delineating communities in the Pacific Northwest. Manuscript in preparation. For alternative method for aggregating census block groups, see Doak and Kusel (1996).

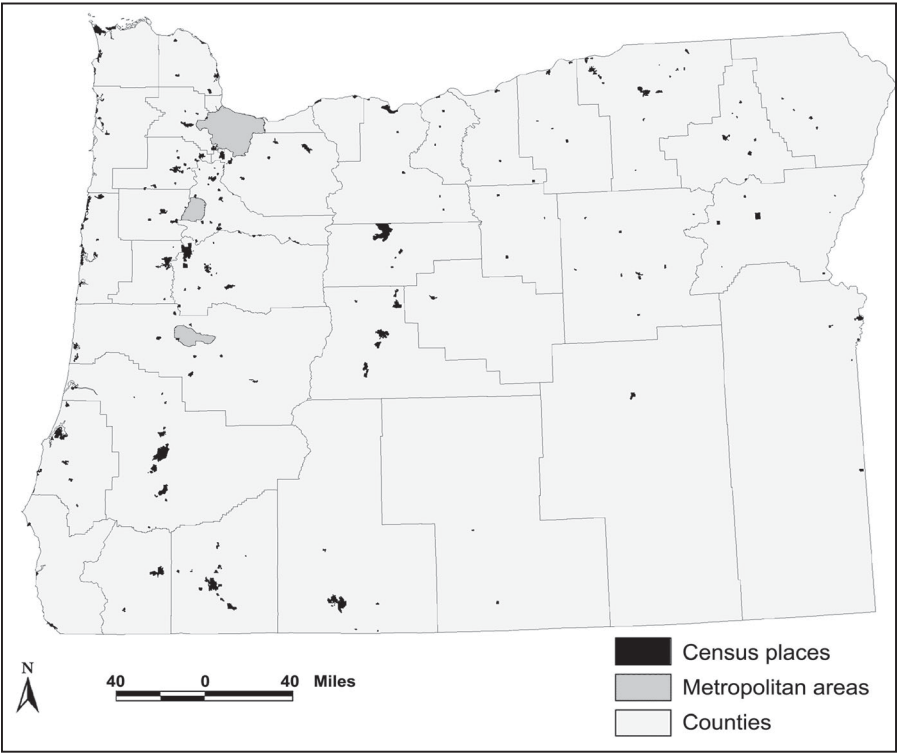


Figure 3—Census places, 1990.

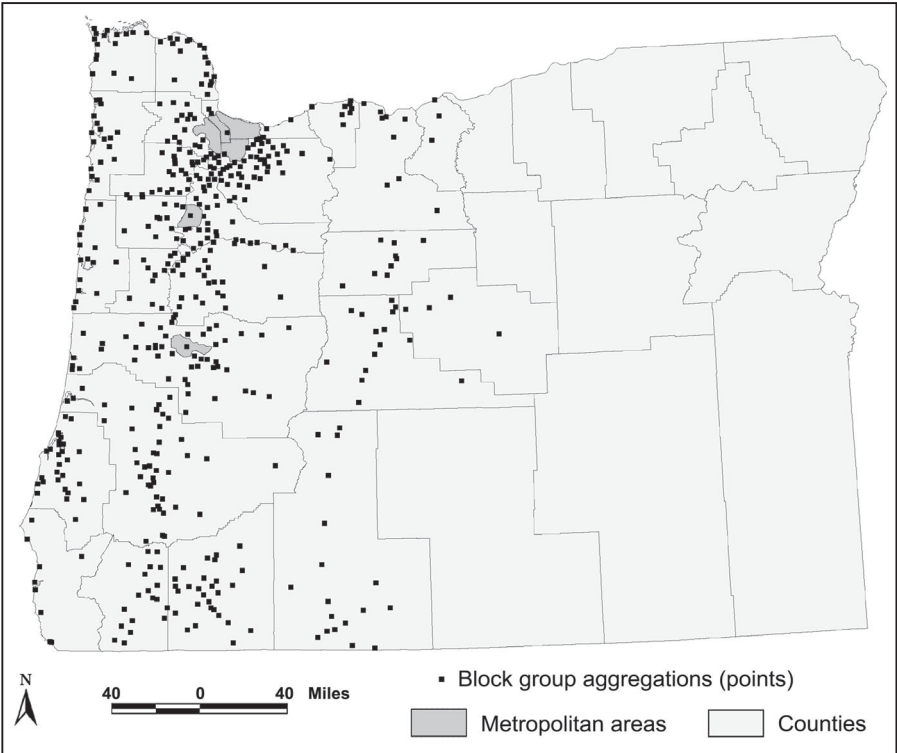


Figure 4—Block group aggregations, 1990.

They also included measures for housing tenure, employment, and children in households with public assistance income. One assumption of scale used in this paper is that lower poverty, higher educational attainment, and a more diverse occupational workforce will contribute to higher levels of socioeconomic well-being.

The third measure that was combined with connectivity and socioeconomic well-being dealt with proximity to public lands. It was measured as the percentage of public lands within a 25-mile radius from the BGA point (a single point that was assigned within each BGA polygon).

Based on the three measures discussed above, 24 communities in western Oregon were identified as those that might be less adaptable to changing socioeconomic conditions. One group of nine BGAs had low or very low socioeconomic well-being and was greater than 50 miles to the nearest first-order service center. Another group of 15 BGAs was relatively close to service centers but had low or very low socioeconomic well-being and had greater than 50 percent public lands within a 25-mile radius of the BGA point. Seven BGAs with this group had greater than 75 percent public lands within a 25-mile radius. This does not suggest causality between socioeconomic well-being and public lands, but it does identify for decisionmakers those communities that have low socioeconomic well-being and are surrounded by high percentages of public lands —communities that might merit further attention or understanding. Further refinement of this list is recommended as census 2000 data become available at the block-group level.<sup>4</sup>

For the east-side communities, the selection attributes emphasized isolation and lack of economic diversity (Reyna 1998). Thirty communities are depicted as isolated. Not all isolated communities, however, have low resiliency (Harris and others 2000, Reyna 1998). Some of these might be considered “isolated trading centers” (Reyna 1998) or “autonomous communities” (Russell and Harris 2001), thereby suggesting that the list can be further refined.

## Results

Table 1 and figure 5 depict a group of communities that should be considered as having less viability and adaptability, relative to other communities in both eastern and western regions, to changes in land management that impact their social and economic conditions. The list provides a place for pursuing further discussions about the implications of resource management decisions in the context of maintaining and enhancing long-term multiple socioeconomic benefits, as per Criterion 6. It provides a place to continue the debate about what constitutes a viable and adaptable community and what can or should be done with and for communities that might be less viable and adaptable. The indicators used to develop this list of communities do not represent a definitive measurement of viability or adaptability. Rather, they reflect a relative condition of rural places within a state and within eastern and western regions in an attempt to address Indicator 46 for the state of Oregon.

Given the different ways in which communities are delimited, only a few communities appear in each of figures 1, 2, and 5. This suggests that the emphasis on proximity to service centers or isolation, in combination with some socioeconomic measures, results in a different set of communities than indicators that focus largely on economic

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<sup>4</sup> For the schedule of release dates of census 2000 data and information on geographic changes at the block-group level, see the U.S. Census Bureau Web site at <http://www.census.gov>.

**Table 1—Communities of concern**

<b>Name<sup>a</sup></b>	<b>County</b>	<b>1990 population</b>
West side:		
Roberts–Post–Paulina	Crook	260
Agness–Illahae–Marial	Curry	122
Ophir	Curry	217
Glendale City–Fernvale	Douglas	1,421
Milo–Tiller–Drew	Douglas	739
Peel–Steamboat	Douglas	1,083
Bridgeview–Holland	Josephine	918
Cave Junction	Josephine	2,915
Cave Junction [part]–Dryden	Josephine	1,058
O’Brien	Josephine	610
Selma	Josephine	1,430
Takilma	Josephine	716
Wilderville–Wonder	Josephine	2,052
Wolf Creek–Leland	Josephine	423
Chiloquin	Klamath	2,351
Crescent Lake Junction–Mowich	Klamath	339
Gilchrist–Little River	Klamath	1,179
Malin	Klamath	1,155
Glenada–Westlake	Lane	969
Cascadia–Santiam Junction–Marion Forks [part]	Linn	333
Idanha	Marion	248
Antelope–Shaniko	Wasco	217
Chenoweth–Rowena	Wasco	4,252
Warm Springs–Warm Springs Indian Reservation	Wasco	3,143
East side:		
Greenhorn	Baker	NA
Halfway	Baker	311
Huntington	Baker	NA
Richland	Baker	161
Unity	Baker	87
Arlington	Gilliam	425
Condon	Gilliam	635
Lonerock	Gilliam	11
Canyon City	Grant	648
Dayville	Grant	144
Granite	Grant	8
Long Creek	Grant	249
Monument	Grant	162
Mount Vernon	Grant	538
Seneca	Grant	191
Northfork	Klamath	NA
Paisley	Lake	350
Jordan Valley	Malheur	364
Heppner	Morrow	1,412
lone	Morrow	255

**Table 1—Communities of concern (continued)**

Name <sup>a</sup>	County	1990 population
Lexington	Morrow	286
Ukiah	Umatilla	250
Joseph	Wallowa	1,073
Lostine	Wallowa	231
Wallowa	Wallowa	748
Maupin	Wasco	456
Fossil	Wheeler	399
Kinzua	Wheeler	NA
Mitchell	Wheeler	163
Spray	Wheeler	149

NA = not available.

<sup>a</sup> West-side communities are aggregations of Census block groups. To name each block group aggregation (BGA), we combined the names of the more populated localities within each BGA.

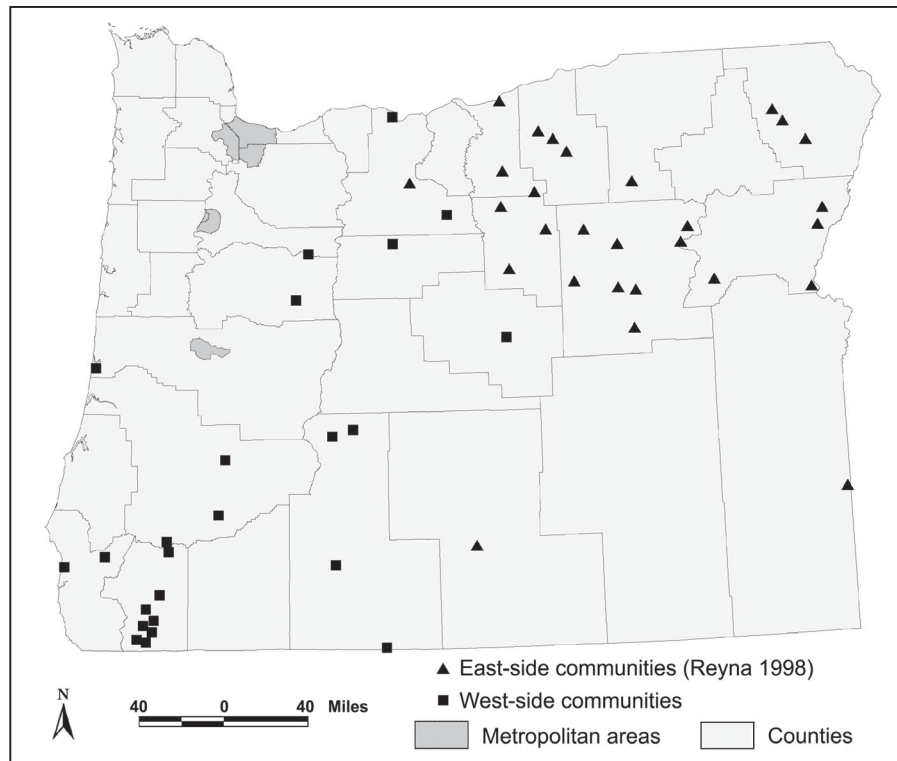


Figure 5—Communities of concern.

measures, such as employment in forest products industry. This broader view of what constitutes an adaptable or viable community is necessary to meet the intent of Indicator 46.

Both the west- and east-side community characterizations resonate well with the recent work by Russell and Harris (2001) who point out that some isolated communities may be highly resilient or adaptable and can provide residents with goods and services given the presence of diverse industries, strong civic leadership, strong sense of community cohesiveness and place attachment, and high community ratings for measures of quality of life and sense of community. Presently, there are few adequate measures and proxies for many of these attributes. This is compounded by methodological issues relating to conducting community assessments, such as identifying and interviewing community stakeholders. Further discussions about how to assess Criterion 6, specifically indicators such as 46, should include talk about the development of proxies, and the adequacy of secondary vs. primary data.

## Conclusion

The lists of communities that result from assessments of Indicator 46 should not be viewed as definitive; instead, we suggest that such lists provide a useful starting point for further inquiry, discussion, and where appropriate, action into the factors that contribute to socioeconomic well-being in rural places. These lists should be thought of as dynamic and should be used to indicate the status of communities. They also reflect societal concerns about how human communities relate to management of forest-land conditions in order to achieve a variety of objectives.

For Oregon, we were able to identify communities that may be less adaptable to changing socioeconomic conditions by using proxies such as connectivity to service centers, population, socioeconomic well-being, and proximity to public lands. The list reflects a range of communities from the very small to those extremely isolated from service centers. Many have a strong sense of place. But the issue from the perspective of sustainable forest management is the extent that these communities can adapt to the changing socioeconomic conditions associated with changes in both the outcomes of and approaches to forest management.

In this sense, this indicator, as well as others in Criterion 6, addresses the need for forest management to meet societal needs and maintain and enhance long-term multiple socioeconomic benefits. This is a broader context than the enduring goal that forest management sustain a flow of timber and other benefits to promote the stability of forest industries and communities. In addition, there are the positive contributions to communities made by the forest management community itself contributing human capital necessary to building community capacity.

The exercise of developing an indicator for community condition is an interesting and necessary challenge. First, there is the intellectual challenge of developing a measure for viability and adaptability. We acknowledge the confusion of multiple terms (adaptability, viability, and resiliency); but what is essential is the need to capture the essence of the dynamics of communities and changes in their functioning. Second, the development of indicators is a pressing managerial problem. The development and implementation of sound environmental policies require quick assessments provided by indicators of both the need for and the effectiveness of various policy actions.

Indicator 46 adds concerns about being able to identify which communities may need assistance in adjusting to changes in land management approaches, outputs, or other changes. This increased emphasis on developing measures will lead to opportunities

for additional work to improve our understanding. First, there is the opportunity to improve our ability to estimate nontimber outputs (both goods and services) and to value them. We need to better describe the benefits of forest management. Second, the relation between forest management and communities is not well understood, and we lack adequate proxies for broad-scale measurement of certain attributes of community adaptability. Third, we need to develop a fuller understanding of community functioning and its dynamics.

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The **Forest Service** of the U.S. Department of Agriculture is dedicated to the principle of multiple use management of the Nation's forest resources for sustained yields of wood, water, forage, wildlife, and recreation. Through forestry research, cooperation with the States and private forest owners, and management of the National Forests and National Grasslands, it strives—as directed by Congress—to provide increasingly greater service to a growing Nation.

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