Developing socioeconomic performance measures for the Watershed Condition Framework

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A cross multiple presidential administrations, forest and watershed restoration has become an increasingly important focus of the USDA Forest Service. Secretary of Agriculture Tom Vilsack, for example, has made restoring watershed and forest health the primary objective of the Forest Service.¹ In FY 2012, Congress initiated an integrated resource restoration (IRR) pilot project to align the Forest Service budget with integrated restoration priorities on a trial basis.

To foster watershed restoration, in 2010 the Forest Service introduced the Watershed Condition Framework (WCF) program, a comprehensive approach to planning and implementing integrated projects in priority watersheds. This framework promises to help national forests assess watershed health, prioritize restoration and maintenance activities, and measure their progress towards restoration. Using the WCF, the Forest Service should be able to increase the effectiveness of restoration by being more strategic about where and how it works. The WCF's focus on outcomes should also help demonstrate the costs and benefits of investments in restoration.

Forest and watershed restoration does not have only ecological goals. The Forest Service also expects restoration to support jobs and economic development. In 2010, for example, Forest Service Chief Tom Tidwell stated that "building a forest restoration economy will create new jobs in rural communities and help diversify the forest products industry to support the sustainability of local communities and the forest contractor infrastructure needed to perform restoration work." However, there are has not yet been a parallel development of socioeconomic performance measures for restoration. Developing socioeconomic measures will allow the Forest Service to better assess effectiveness and share the story of the social and economic benefits of watershed management.

The purpose of this report is to propose principles and strategies for creating socioeconomic performance measures, as well as identify potential measures that could be integrated into the WCF and other restoration frameworks in the short term. It also recommends a longer-term strategy to develop a social condition assessment and performance accountability system that could be paired with the WCF and terrestrial condition framework currently being developed. Finally, this report identifies potential barriers and challenges to adopting new performance measures, and potential approaches to overcome them.

Approach to this report

To develop this report, we reviewed monitoring guides and policy issue papers that recommend indicators and measures of the socioeconomic dimensions of natural resource management (see Resources for list of reports). From these reports, we compiled a comprehensive list of indicators and measures. We then convened a conference call focus group with seventeen Forest Service stakeholders and agency personnel to obtain input into the principles, selection criteria, performance measures, and barriers, as well as identify additional reference materials and resources (again, see Resources). We integrated suggestions from the conference call, additional documents, outreach efforts with additional Forest Service personnel and stakeholders, and our professional judgment to develop a set of performance measures and the text of this report. Volunteers from this focus group and other interested Forest Service personnel and stakeholders reviewed the draft report. We made additional changes based on that feedback.

Use of this report

We organized this report around the WCF to help integrate social and economic objectives into its priority setting, implementation, and performance measurement. However, the Forest Service has a number of different efforts under way that are also designed to foster integrated restoration, including the integrated resource restoration (IRR) budgeting process and the Collaborative Forest Landscape Restoration Program (CFLRP). We structured this report so that many of the approaches and ideas proposed here could be adapted for these efforts.

Background: Watershed Condition Framework

In 2006, the White House Office of Management and Budget (OMB) noted that the Forest Service's watershed program did not take a consistent approach to prioritizing watersheds for restoration, tracking improvements in watershed condition, or showing Forest Service efficacy at using appropriated dollars to create meaningful ecological and socioeconomic outcomes over time.² In response, the Forest Service created the WCF in 2011. The WCF defines watershed condition as "the state of the physical and biological characteristics and processes within a watershed that affect the soil and hydrologic functions supporting aquatic ecosystems."³ The WCF emphasizes entire watersheds, strategic actions, and long-term outcomes.

Past restoration work on national forests and grasslands tended to focus on the most degraded watersheds, and specifically on stream segments or sites with the worst conditions. The Forest Service typically distributed treatments across larger landscapes and addressed site-specific problems through a number of projects, often without integration at the watershed scale. The WCF encourages national forests and grasslands to focus on improving the conditions not only in degraded systems but also in healthy watersheds that have threats and stressors which are putting them at risk. It encourages units to plan and implement a series of treatments that will cumulatively improve the condition of a given watershed, rather than scattering efforts across multiple watersheds. The WCF has six major steps:

- A. National Forest System administrative units conduct an assessment of watershed condition for each of the sixth-field watersheds using twelve nationally defined indicators.
- B. Administrative units prioritize watersheds for restoration according to the watershed condition assessment, local knowledge, input from stakeholders, and professional judgment about ecological, social, and economic conditions. Line officers identify priority watersheds within the broad framework of national direction, regional emphasis, land management plan direction, resource value, costs, local issues, needs, potential for partnerships, and collaboration with external partners.
- C. Administrative units develop watershed restoration action plans for the priority watersheds, again in collaboration with key partners. Ultimately, restoration activities in priority watersheds will concentrate on maintaining or improving the watershed condition class.
- D. Administrative units implement integrated restoration projects.
- E. Administrative units track their restoration accomplishments. The key performance measures are the number of watersheds in each condition class as well as the number of watersheds that have changed condition classes. Currently, a unit receives credit for improving the condition class of a watershed when the unit completes the priority restoration projects in that watershed.
- F. Administrative units reevaluate whether watersheds are classified correctly as well as monitor whether restoration activities are, in fact, improving watershed condition on the ground.

This report seeks to provide strategies for integrating socioeconomic performance measures into steps E and F. Currently, the Forest Service is developing a terrestrial condition assessment that will be integrated with the WCF. Over time, integrating parallel watershed, terrestrial, and socioeconomic assessments into a single framework for prioritization, implementation, and monitoring will become increasingly important as the Forest Service implements national IRR pilots. IRR is a budget structure that allows national forests and grasslands to focus on restoration activities that have multiple resource objectives.

Why adopt socioeconomic performance measures?

The Forest Service's motto has long been "Caring for the land and serving people." However, the Forest Service's performance management system has focused more on the land than people. Socioeconomic measures are needed because existing measures are output-oriented and not related to watershed restoration. Socioeconomic measures could help the Forest Service better tell the story of its impacts. Further, Forest Service law and policy have socioeconomic objectives, and Forest Service success depends on external relationships.

Existing socioeconomic performance measures are largely output-oriented and unrelated to watershed restoration

Currently, the Forest Service tracks about 300 items in the Performance Accountability System (PAS). The Forest Service reports most, but not all, of the performance measures tracked in the system in its annual budget justification. The PAS integrates information from many subject-matter specific reporting systems, such as the Wildlife, Fish, and Rare Plant Management System (WFRP-MS) and the Watershed Information Technical System (WITS).

Performance measures originate in a number of different sources such as congressional requirements, Forest Service and USDA strategic plans, reporting obligations of OMB, and past lawsuits. In addition to these national performance measures, deputy areas, regions, and National Forest System units track additional measures for internal management purposes. Performance measures evolve over time as policies and management priorities change. For some performance measures, administrative units are assigned targets. Targets are levels of accomplishments that units are obligated to achieve in any given year. For example, a national forest may need to improve so many miles of road. With other measures, units are not assigned targets and performance is calculated from reported data.

Most of the national performance measures track outputs related to land management activities; however, a small percentage of measures focus on social and economic outputs. For example, in FY 2011, there were about seven "diversity" measures that were calculated from approximately twenty-three feeder measures. These performance measures track benefits to historically underserved populations and small businesses. For example, the Forest Service reports on the ethnic, racial, and gender diversity of its workforce, contracts awarded to minorityand tribal-owned businesses, and research funds awarded to historically black colleges and tribal colleges. There are also a number of recreation-related measures that track public recreation access, especially for minority populations and tribes. In addition to these diversity measures, the National Forest System reports a number of economic output measures related to timber and grazing.

Although some of these measures are longstanding and of great interest to a number of the Forest Service's stakeholders, few of them provide insight into the socioeconomic dimensions of ecological restoration. New measures are needed that relate restoration activities to social and economic outcomes.

Socioeconomic measures could help the Forest Service better tell the story of its impact to Congress and the public

With the current economic conditions and sustained pressure to further shrink the federal government, federal agencies need to be able to make persuasive arguments about the value of investments in their work. Through land management, the Forest Service contributes significantly to the socioeconomic fabric of the United States, particularly in rural areas. This is a central priority for the USDA. For many communities located on or near public lands, restoration projects on national forests and grasslands could be important drivers of economic activity. When the Forest Service employs people directly or contracts out forest or watershed work to local businesses, it helps provide local jobs, support business vitality, and increase the amount of money flowing in the local economy.⁴ The clean water, natural beauty, and healthy fisheries that national forests provide contribute significantly to the economies of urban centers and rural communities. Conflict over land management has also driven home the importance of building social agreement around public lands management. By collaborating with community leaders, the Forest Service can implement projects that have social support and meet community needs.

However, the lack of socioeconomic performance measures make it difficult for the Forest Service to tell the whole story of their impacts and build support for sustained investments in the National Forest System. The impact of Forest Service investments in job creation, collaborative and business capacity, and partnerships are largely undocumented in the Forest Service's performance accountability system.

Forest Service land management law and policy have social and economic objectives

From its founding, the Forest Service had social and economic goals for land and watershed management. The Organic Administration Act of 1897 called for the protection of forests and watersheds to provide water, timber, and other natural resources to society over the long term. These objectives have evolved over time in response to changing socioeconomic and political environments. The Sustained-Yield Forest Management Act of 1944, the Multiple-Use Sustained-Yield Act of 1960, the National Forest Management Act of 1976, and several other laws also include economic and social objectives. The National Forest Management Act, for example, requires consideration of economic impacts as part of the forest planning process. In addition, the agency has legal obligations to ensure that it has a diverse workforce, and provides contracting opportunities and access to recreation opportunities to diverse populations.

More recently, other laws and policies, such as stewardship contracting authorities, the Secure Rural Schools and Community Self-Determination Act of 2000, appropriations language during the 2000s, and other legislation have also asked the Forest Service to consider local community benefit when conducting forest and watershed restoration activities. These calls for the creation of rural community benefits with forest and watershed activities are increasingly mirrored in agency and departmental strategic plans, memoranda and directives, and key speeches.

Forest Service success depends on external relationships, resources, and partners along with internal capacity

The Forest Service's land management success depends not only on internal capacity, but also on relationships and networks with external entities, such as other government agencies, tribes, contractors, nongovernmental organizations, or private citizens. The Forest Service has to solve management problems that cross boundaries and jurisdictions, and to leverage available financial and human resources to solve complex problems. Further, although the Forest Service does not control the health of all organizations and businesses with which it interacts, in places where National Forest System lands predominate, the agency's actions (and inactions) greatly affect business health and community resources. This is particularly true in places with high poverty, other social vulnerabilities, or limited community capacity. Tracking progress in the health of relationships, organizations, and businesses that the Forest Service engages with can help the agency contribute to underserved communities and improve the efficacy of its management over time.

Socioeconomic dimensions of restoration

A number of monitoring guidebooks suggest measures to track the socioeconomic impacts of federal forest and watershed restoration (see Resources for a list). Taken together, they recommend more than one hundred possible measures. For the purpose of this report, we have grouped them into four major categories: adaptive capacity, economic impacts, social equity, and provision of ecosystem services. Collectively, these categories can help document the Forest Service's diverse roles in fostering socioeconomic resilience through land management.

Adaptive capacity

The Forest Service depends on collaborative groups, community-based organizations, other agency partners, and businesses to accomplish restoration activities. In the context of climate change, ecological and economic uncertainty, and declining federal resources, it is vital that the Forest Service supports the health and durability of these partners as well as the collaborative processes that help foster adaptability. The Forest Service helps build adaptive capacity when it invests in activities that improve local human and natural capital. The monitoring guidebooks that we reviewed suggest a range of measures of community and business capacity to reflect these investments. In addition, the guides recommend that performance measures track National Forest System units' efforts to interact with and support these entities through partnership and collaborative processes.

Economic impacts

A number of longstanding and new laws and policies obligate the Forest Service to create positive economic outcomes from land management. This remains true as integrated restoration has become an increasing focus of National Forest System management. In many public lands communities, there has been longstanding high poverty and unemployment. Virtually all of the monitoring guides we reviewed focus attention on job creation and retention through hazardous-fuels reduction and other forest restoration activities. These measures easily apply to watershed restoration activities such as road decommissioning and maintenance, riparian restoration, noxious weed abatement, habitat improvements, and more. A second area of emphasis across the guides is job quality. High-quality jobs support the well-being of workers as well as families and communities. High-quality jobs in forest and watershed restoration are typically defined to include fair wages and benefits; a safe work environment; durable employment; opportunities for training and advancement; and work that is close to home.⁵ The Forest Service can encourage contractors to offer



such jobs through best-value and other selection criteria, and can collaborate with labor agencies to ensure labor and safety law enforcement.

Social equity

The equitable distribution of benefits from forest and watershed restoration is another focus common to the monitoring guides we reviewed. In particular, these guides focus on the benefits to communities and businesses located near national forests and grasslands from creation and retention of local restoration jobs. The most common measures we found track opportunities for local contractors and workers to participate in restoration activities. There was also some focus on workforce and contractor training to build community and business capacity. Another theme in several monitoring guides is the distribution of benefits to socially vulnerable communities, such as those with low socioeconomic status, or with traditionally underserved minority or tribal populations.

Provision of ecosystem services

Although measures of ecosystem services were not included in the monitoring guides we reviewed, scholars and a growing number of practitioners are conceptualizing land management activities for the services they provide to society, and attempting to document their financial values. Research has shown that a lack of accounting for the "nonmarket" benefits of restoration can limit understanding of accomplishments. Ecosystem services measures could help provide financial metrics for the social impacts of the Forest Service's restoration efforts. Given the early state of this field, other Forest Service efforts under way to develop ecosystem service metrics, and the lack of readily available data at the Forest Service to measure ecosystem services, we do not propose any specific ecosystem services measures in this report. However, we believe that ecosystem services should be part of this effort.

Strategies for measurement

As with watershed conditions, improving socioeconomic conditions requires taking a number of strategic actions over time. Consequently, performance accountability systems need to take both short-term activities and long-term changes in conditions into account. Given the Forest Service's major shifts towards resilience, integrated restoration, and ecosystem-based management, the agency will continue to evolve its performance measures and accountability systems over the next several years. The Forest Service is beginning to develop techniques that increasingly focus on measuring continual progress as well as integrated and complex outcomes. Since the Forest Service has few social and economic performance measures, it makes sense to create a phased strategy that includes adopting relatively straightforward socioeconomic measures in the short term, and developing more sophisticated socioeconomic measures in parallel with future improvements of ecological performance measures.

Phase I: Adopt 6-12 straightforward measures now

To begin this transition, this report offers a small set of socioeconomic performance measures that are analogous to existing biophysical performance measures. These performance measures can be incorporated into Step E of the WCF (track restoration accomplishments). In the short term, these measures should strive to do the following:

- Relate to high priority goals and objectives
- Be relatively easy to adopt
 - Use existing data, or data that is easy to gather
 - Involve data that the Forest Service already has authority to collect
 - Require little new reporting requirements at the unit level
 - Minimize changes to performance account ability infrastructure
- Use high-quality data
 - Have clear "business rules" for collection and data entry
 - Describe performance for which a manager can be held accountable
- Incentivize desired behavior
 - Be able to be targeted, if desired
- Protect the privacy of the businesses and citizens
- Report information that staff members, stakeholders, administrators, and Congress members want to know and that resonates through the agency from field staff to strategic planning and budget staffs and senior executives

We describe the details of the measures we are proposing in the section below.

Phase II: Develop social condition framework

Adopting socioeconomic performance measures in the short term is a key first step toward integrating socioeconomic dimensions into the accountability process (Step E) of the WCF. However, in the long term, an assessment of socioeconomic dimensions of ecosystem management analogous to the ecological assessment in Step A of the WCF would provide baseline information for tracking socioeconomic conditions over time. This would augment the ecological criteria for watershed prioritization. Although the purpose of this report was not to develop a socioeconomic condition framework, it is worth outlining a direction for such a framework.

First, the Forest Service could develop a number of indicators to measure the socioeconomic health of particular watersheds using data that the federal government already collects. These could include, for example, poverty, income, educational attainment, or economic diversity. There are significant scholarly and gray literatures that could be reviewed to develop these sorts of indicators.

Second and more importantly, the Forest Service could adopt a series of measures of human adaptive capacity related to natural resources that cannot be readily downloaded from existing federal datasets, but that can be gathered locally via interactions with local stakeholders and self-assessment by National Forest System unit staff members. These indicators might focus on collaboration, community organizational capacity, and business capacity associated with natural resource management. The Appendix provides examples of indicators and attributes. These indicators and attributes are meant to be a starting point for developing both self-assessment tools and performance measures.

Phase III: Use framework and innovation to develop more integrated, complex performance measures

With the development of a socioeconomic condition framework, the Forest Service would be in a position to develop performance measures that reflect integrated outcomes. This effort will need to occur in parallel to the evolution of watershed and terrestrial performance measures that would become increasingly outcome-oriented and integrated over time.

Potential performance measures

To address the challenge of identifying performance measures that can be adopted in the short term, we focused on identifying measures that met most of the criteria described above. In addition to substantive relevance, we focused particularly on creating measures that use data that already exists or is relatively easy to collect. Realistically, however, all new performance measures will require some changes to the performance management system. Commonly, this will involve connecting datasets that are currently separate.

We organize these performance measures by the socioeconomic dimensions described above: adaptive capacity, economic impacts, and social equity. Table 1 describes each proposed performance measure and its associated data-collection strategy, strengths, and challenges. Many of the measures use data that the Forest Service already collects in existing systems of records for other performance measures. For gathering data on collaboration, community capacity, and business capacity, we recommend developing new scorecards that are somewhat similar to the climate change scorecard that the National Forest System recently adopted.

Adaptive capacity Collaboration and process

The National Forest System increasingly conducts its work collaboratively. However, defining and measuring "collaboration" can be difficult. The Forest Service could measure the number of plans, projects, and monitoring processes that it implemented collaboratively. With difficulty, it could also track the amount of its budget dedicated to participation in collaborative activities. Collaboration could also be measured by tracking the number and consistency of participants in collaborative meetings and activities. But these measures do not get at the quality and depth of collaboration. Nor do these measures reveal the inherently qualitative and multijurisdictional nature of collaboration. Consequently, we propose a measure based on a scorecard (see Appendix, Table 3, pages 16–17). At the unit level, as with the climate change scorecard, the scorecard could help guide strategy. The performance measure at the unit level could be based on the overall rankings of collaboration as well as progress toward increasing collaboration at the unit, district, or staff levels. The national measures could involve the number of National Forest System units with "high" levels of collaboration and the percent of units with increased collaboration.

Specific methods for completing the scorecard would have to be developed as part of the business rules associated with the measure. However, it would probably be most effectively completed as part of an annual review involving both the unit staff and stakeholders. Units with less well-developed collaborative efforts may initially only involve staff members in completing the scorecard. We also propose this same measurement methodology for several of the performance measures that follow.

Community capacity

The Forest Service can help build community capacity by making investments that improve local human and natural capital. Agreements with local partners can help build local organizational capacity to facilitate collaboration, undertake assessment and planning, and perform work on the ground. Some dimensions of capacity can be more readily measured than others; therefore, we propose one quantitative measure and one scorecard-based measure.

First, the extent to which the Forest Service builds this capacity can be measured by the diversity of partners with which a National Forest System unit engages. We propose tracking the number of formal financial partnership agreements involving local organizations that a unit enters into as measure of local organizational capacity (see below for strategies for defining "local"). We recommend using a three-year rolling total because this measure is intended to track underlying organizational capacity, not annual partnership activity. Second, as with collaboration, community capacity-building is qualitative and multifaceted. Consequently, we also recommend the use of a scorecard to encourage the development of specific capacitybuilding strategies and track progress over time. We propose attributes that focus attention on having capacity-building strategies, investing in capacitybuilding, aligning agency efforts with community capacity, and fostering collaborative leadership (see Appendix, Table 4, page 18).

Local business capacity

As with community capacity measures, we propose one quantitative measure and one scorecard-based measure. We propose tracking the number of local businesses that are participating in restoration activities. (Again, see below for strategies for defining "local.") We recommend a using a three-year rolling total because this measure is designed to track underlying business capacity, not annual contracting activity. As with collaboration and community capacity, building and maintaining restoration business capacity is multifaceted and requires strategic action. Consequently, we also recommend a scorecard that measures agency efforts to support local business diversity, local benefit from contracting, consistent program of work, and a collaborative capacity-building strategy (see Appendix, Table 5, page 19).

Economic benefits

Jobs created or retained

The Forest Service can help create or retain jobs when it employs people directly, procures restoration goods and services from the private sector, and enters into partnerships with nonprofit organizations, tribes, or other government agencies. These jobs can be direct jobs in federal employment and in the contracting workforce, and indirect jobs associated with purchasing of supplies. We recommend a quantitative measure focused on the number of jobs that restoration activities directly create, including direct federal employment, Job Corps, and contracting. We have some reservations in making this recommendation. A central challenge is that directly collecting job information would be difficult and expensive, and would involving OMB clearance. The jobs numbers can be modeled, but high-quality models grounded in empirical information about the restoration industry do not yet exist across the nation. The Treatment for Restoration Economic Analysis Tool (TREAT) represents an important first step, but augmenting it with information from surveys of businesses engaged in restoration would allow for modeling that better reflects the restoration industry.

Job quality

The quality of jobs is also an important socioeconomic impact because it can show how Forest Service restoration activities contribute to worker livelihoods and well-being. Measuring job quality can be difficult as it can involve eliciting potentially sensitive information from contractors or workers. However, the Forest Service can track its own engagement with labor law compliance related to migrant, seasonal, and guest workers involved in restoration projects, and areas where job quality is most problematic. We propose a measure that mirrors existing Forest Service commitments to collaborate with the Department of Labor's Wage and Hour Division and the Occupational Safety and Health Administration to improve the working conditions of these contract workers. Specifically, we propose that units measure the percentage of their restoration contracts involving migrant, seasonal, or temporary nonagricultural workers where contracting officers or their representatives inspected contract work sites for safety and labor law compliance, and spoke to workers about working conditions.

Social equity

Local business opportunities

The Forest Service provides business and employment opportunities in public lands communities when it contracts local businesses to perform restoration activities. We propose tracking the percent of dollar value of restoration-related service, timber, and stewardship contracts awarded to local contractors as a measure of local economic benefit.

Tribal engagement

By monitoring its relationships with federally recognized Indian tribes, the Forest Service can show the extent of and outcomes from its consultation efforts, and its understanding of treaty and reserved rights and cultural resources. We suggest that the Forest Service include tribal representatives in the development of a strategy to measure the frequency of consultation with tribes; in drafting memoranda of understanding that may enable more meaningful consultation and determine the extent to which collaborative projects result from consultation; and in discussing other factors important to both the Forest Service and tribes. Priority indicators and attributes could be converted into a scorecard, as proposed in Table 1, or into other measurement strategies that are developed collaboratively with tribes.

Investments in socially vulnerable watersheds

The Forest Service can ensure watersheds with high social vulnerability receive adequate investments. The agency can create a social vulnerability index using attributes from the census such as poverty, income, ethnicity, or educational attainment (see Resources for research on existing vulnerability indices). A number of other federal agencies use similar measures, which could be adapted for Forest Service use.

Defining "local" for performance measures

Several performance measures proposed in this report involve tracking capacity of or benefits to local communities. For these measures to succeed, there needs to be a strategy for defining "local." The definition needs to be inclusive enough to include communities that a national forest or grassland's management affects, but not so broad that it includes distant communities whose social connection to the national forest is tenuous or nonexistent. Keeping the definition of local narrow is particularly important to ensure that restoration impacts on nearby rural communities are well tracked, and are not lost due to the influence of distant urban communities in the data. Consequently, we propose defining local at the individual unit level to include counties where the unit is located, as well as the counties included in a 10–30 mile buffer around the unit as appropriate to local context. The buffer would include communities that are immediately adjacent to a national forest but happen to fall into an adjacent county. A spatial analysis would need to be conducted before developing exact buffer size.

Table 1 Potential socioeconomic performance measures

Indicators	Measure	Measurement strategy	Strengths	Challenges
Adaptive cap	acity			
Collaboration	Number of administrative units who rank "high" on the collaboration scorecard*	Develop self-assessment scorecard, which unit staff would use annually (with partners) to rate the collaboration	Would address inherent qualitative nature of collaboration; could be similar to climate change scorecard	Would require development of new tool and new reporting at the unit-level
	Percent of units whose collaboration rank increased over last year	Same as above	Same as above	Same as above
Community capacity	Number of local organizations awarded restoration-related grants and agreements over last three years	Use data from Grants and Agreements and Natural Resources Management, which includes information on partner location and grant-agreement value	Could be measured using existing data with no new unit reporting requirements; would encourage investments in key local organizations	Does not measure strength of organization; could obfuscate situations e.g., where there are a few very strong local organizations or many weak ones
	Number of units who rank "high" on the community capacity scorecard**	Develop self-assessment scorecard, which unit staff members would use annually (with partners) to rate the capacity building efforts	Would address inherent qualitative nature of capacity; could be similar to climate change scorecard	Would require development of new tool and new reporting at the unit level
Local business capacity	Number of local contractors awarded restoration- related contracts, timber, or stewardship contracts over last three years	Use data from FPDS, TIMS, and watershed restoration databases, such as WFRP or WITS	Is a reasonable approximation of local restoration-related business capacity; could be measured using existing data; all business information is already publicly available	Would require new programming and integration procurement in contrast to Bureau of Labor Statistics or project-specific information; could be done now based on general types of work contracted
	Number of units who rank "high" on the business capacity scorecard***	Develop self-assessment scorecard, which unit staff would use annually (with partners) to rate the business capacity building efforts	Would address inherent qualitative nature of capacity; could be similar to climate change scorecard	Would require development of new tool and new reporting at the unit-level
Economic im	pacts			
Jobs	Number of direct jobs created or retained through restoration-related federal seasonal employment, Job Corps, service contracts, timber sales, grants, and stewardship contracts and agreements	Use human resource records for federal employment and Job Corps reporting; and IMPLAN modeling for remainder	No new unit-level reporting	The data for modeling contractor-purchase jobs is relatively limited; over time, business surveys would be necessary to improve and downscale IMPLAN models for restoration, involving OMB clearance
Job quality	Percent of restoration contracts involving migrant-seasonal workers of H2B workers where contracting officers or their representatives inspected contract sites for safety and labor law compliance and spoke to workers about working conditions	Contracting officer reporting	Mirrors existing acquisition management commitments to inspect contracts involving migrant and seasonal workers for labor and safety law compliance	Would require strengthening and systemizing of existing MSPA and H2B inspection reporting

* See Appendix, Table 3, pages 16–17, for sample collaboration scorecard. ** See Appendix, Table 4, page 18, for sample community capacity scorecard. *** See Appendix, Table 5, page 19, for sample business capacity scorecard.

Indicators	Measure	Measurement strategy	Strengths	Challenges
Social equity				
Local business opportunities	Percent of restoration- related service, stewardship, and timber sale contract value awarded locally	Contract value and unit, and contractor location information in FPDS and TIMS; information about restoration projects from natural resource-related systems of record, such as WFPF or WITS	All data already available	Procurement data systems not currently not well integrated into PAS; can be difficult to sort restoration from nonrestoration activities in procurement data
	Percent change over last year in local benefit awards	Same as above	Same as above	Same as above
Tribal engagement	Percent of units with "high" score on tribal engagement scorecard	Develop scorecard in consultation with tribes; annually, units and tribes coconduct assessment of relationship with each tribe	Would provide method to evaluate and enhance tribal consultation efforts	Would require new reporting at unit level and time to develop scorecard with tribes
Investments in socially vulnerable watersheds	Percent of money from restoration-related BLIs invested in watersheds with medium to high social vulnerability	Develop "social vulnerability index" and use to measure spending	Would not require new unit reporting; index could be drawn from other agencies' existing indices or from academic literature on social vulnerability	Would require developing index and making spending spatially explicit



Challenges to creating socioeconomic performance measures

Potential barriers to adopting new socioeconomic performance measures stem from 1) the inherent challenges of developing, adapting, and using new measures in the Forest Service, and 2) the nature of measuring socioeconomic outcomes. Table 2 lists these potential barriers and possible solutions.

Challenges associated with adopting new measures

All nationally reported measures need to have consistent business rules, definitions, systems of record, and data collection and calculation systems in place. Depending on the particulars of the measure, this requires some level of new investment in data collection and reporting. The Forest Service already has a large number of performance measures. Many senior agency staff are hesitant to create additional reporting requirements for its field staff, whose primary responsibility is accomplishing work on the ground. There may be concern that new reporting requirements could detract from the agency's primary objectives of land management planning and implementation. In addition, after many years of investment in work planning and performance reporting infrastructure, there are limited resources available for major upgrades.

Challenges associated with the nature of socioeconomic measures

In addition to the usual barriers to developing performance measures, socioeconomic performance measures offer additional challenges for the Forest Service. Relative to land management, the National Forest System has limited (but growing) expertise in the social and economic dimensions of watershed restoration.

Some socioeconomic measures and measurement strategies most commonly recommended in the monitoring guidebooks we reviewed would require significant investment in new data collection and reporting systems if converted into agency performance measures. Some kinds of data collection processes suggested in these guidebooks (e.g., contractor reporting requirements, participant surveys) would have to be approved through the OMB's Paperwork Reduction Act process if they were used in a federal performance accountability context. The agency could also face challenges in protecting the privacy of businesses and citizens.

All of these challenges are surmountable by taking a phased approach to performance-measure development that allows for the adoption of a small number of relatively easy, straightforward measures now; and the development of more integrated measures over time while identifying partners and creatively defining measures that limit investments in reporting and development of new reporting infrastructure. In this report, we sought to minimize these challenges by focusing on performance measures and methods involving data that the Forest Service already collects, and scorecards with minimal data-collection requirements. This limits the need for investment in approval processes and data systems. This approach also avoids raising concerns about breaching the privacy of businesses and citizens.

Table 2 Barriers and strategies associated with performance-measure development

Potential barrier or challenge	Potential strategy for overcoming barrier or challenge		
Challenges associated with adopting new resources			
Hard targets may not capture diversity and nuance of socioeconomic impacts; hard targets can be difficult to adopt	 Adopt a mix of soft and hard targets 		
Soft targets may not change field-level behavior because they do not hold line officers accountable; however they may be easier to adopt	 Adopt a mix of soft and hard targets 		
Targets can have unintended consequences and accidentally drive the wrong behavior	 Test measures and targets, and develop adaptive system to revise targets as problems emerge 		
New performance measures may add to the burden of field staff members, who already spend a lot of time on reporting	 Focus on measures that require limited new data collection or where data collection is relatively easy 		
Recently, the Forest Service has been trying to reduce the number of performance measures it has, especially in areas where agency has limited expertise	 Add a small number of new measures 		
Some information that folks want on the ground does not translate well to measures that can be collected across the country	 Pick a few measures with national appeal; encourage regions to innovate with their own measures 		
Lack of business rules can create unclear data and meaning	 Draw lessons from Fire and Aviation Management's recent efforts to improve business rule 		
Measures that do not fit clearly into established authorities, strategic plans, or programs are less likely to be adopted	 Look for synergy between proposed measures and existing authorities, plans, programs 		
Challenges associated with the nature of socioeconomic performance measures			
NFS staff not experienced with socioeconomic measures; kinds of socioeconomic data that the agency collects not well known	 Convene diverse team from R&D, AQM, Civil Rights, Partnership Office, as well as relevant NFS staff to participate in measurement development 		
Internal resistance to adding more performance measures—e.g.: "It is not our job to care about social or economic outcomes" "We do not control socioeconomic conditions near our national forests and grasslands, so why should we be held accountable?"	 Clearly communicate the purpose of new measures and how they will be used Adopt measures that reflect what the agency does control or can influence rather than measures of general condition 		
Some kinds of data collection would require OMB Paperwork Reduction Act clearance	 Identify opportunities to use data already collected Request OMB clearance for a few clear measures Use self-assessment or professional judgment to have management units select status from list of options on a scorecard (e.g., level of collaborative involvement, levels of integration, etc.) 		
Contractors may not want to share information about their business practices	 Develop systems that respect privacy of businesses and citizens 		
Modeling jobs retention and creation from restoration contracts such as TREAT provides one window into job creation potential of restoration, but currently these models have not yet been tested, making their accuracy uncertain	 Develop strategies to gather empirical information about actual jobs Invest in research to downscale IMPLAN models Communicate the limits of model-based approaches 		
Adapting new performance measures will likely require further integration of data across deputy areas, especially between business operations and the NFS	 Continue to increase integration in WORKPLAN and PAC and plan for new business rule development and programming, even for those measures that use existing data 		

Resources

Monitoring guidebooks and policy issue papers

- Derr, T., M. A. Moote, M. Savage, M. Schumann, J. Abrams, L. McCarthy, and K. Lowe. 2005. Handbook Five: Monitoring social and economic effects of forest restoration. USDA Forest Service, Collaborative Restoration Program handbook series. Available at www .fs.usda.gov/Internet/FSE_DOCUMENTS/ fsbdev3_021468.pdf
- Egan, A., and V. Estrada-Bustillo. 2011. Socioeconomic indicators for forest restoration projects: a Delphi study. New Mexico Forest and Watershed Restoration Institute. Available at http://www.nmfwri .org/images/stories/pdfs/projects/socioecon_ indicatorsweb.pdf
- Egan, A. and V. Estrada-Bustillo. In press. Socioeconomic indicators for forest restoration projects. Journal of Forestry.
- Estrada, V., D. McGrath, E. Krasilovsky, and A. Evans. 2009. Assessing the socioeconomic impacts of New Mexico's collaborative forest restoration program: issues, indicators, and recommendations. Available at http://www.nmfwri.org/images/stories/pdfs/ forestry_Restoration_Papers/wp8-socioeco1-26-2009.pdf
- Moote, M. A., and P. Shannon. 2011. Multiparty monitoring and stewardship contracting: a tool for adaptive management. Sustainable Northwest, Stewardship Contracting handbook series. Available at http://www .sustainablenorthwest.org/resources/ publications/Multiparty%20Monitoring%20 Guidebook%202011_finalV2_links.pdf
- Moseley, C. and L. J. Wilson, 2002. A Guidebook for Multiparty Monitoring for Sustainable Natural Resource Management, Ecosystem Workforce Program, University of Oregon, Eugene, OR and the Watershed Research and Training Center, Hayfork, CA. Available at http://ewp.uoregon.edu/resources/ community-guidebook/

- Rural Voices for Conservation Coalition. 2007. Performance Measures Issue Paper. Available at http://www.sustainablenorthwest.org/ resources/rvcc-issue-papers/Performance%20 Measures%202007.pdf
- Sundstrom, S., C. Moseley, M. Nielsen-Pincus, and E. J. Davis. 2011. Quick guide for monitoring economic impacts of ecosystem restoration and stewardship. Ecosystem Workforce Program, Institute for a Sustainable Environment, University of Oregon. http:// ewp.uoregon.edu/sites/ewp.uoregon.edu/files/ downloads/resources/Jobs_Monitoring_Guide .pdf
- USDA Forest Service. 2003. Multiparty monitoring and assessment guidelines for community based forest restoration in Southwestern ponderosa pine forests. Southwestern Region. Available at www.fs.usda.gov/Internet/FSE_ DOCUMENTS/fsbdev3_020910.pdf

Literature on social vulnerability measurement

- Cutter, S. L., Barnes, L, Berry, M., Burton, C., Evans, E., Tate, E., and J. Webb. 2008. A placebased model for understanding community resilience to natural disasters. Global Environmental Change 18(4): 598–606.
- Cutter, S.L., Boruff, B.J., and W. L Shirley. 2003. Social vulnerability to environmental hazards. Social Science Quarterly 84(2): 242–261.
- Evan, A., DeBonis, M., Krasilovsky, E., and M. Melton. 2007. Measuring capacity for protection from wildfire. Forest Guild. Available at http://www.forestguild.org/ publications/research/2007/community_ capacity_wildfire.pdf
- Ford, J. and B. Smit. 2004. A framework for assessing the vulnerability of communities in the Canadian Arctic to risks associated with climate change. Arctic 57: 389–400.

- Morrow, B. H. 1999. Identifying and mapping community vulnerability. Disasters 23(1): 1–18.
- Ojerio, R.S., Moseley, C., Lynn, K., and N. Bania. 2011. The limited involvement of socially vulnerable populations in federal programs to mitigate wildfire risk in Arizona. Natural Hazards Review 12(1): 28–36.

Literature on ecosystem services measurement

- Pendleton, L. 2010. Measuring and monitoring the economic effects of habitat restoration: A summary of a NOAA blue ribbon panel. Available at http://fes.forestry.oregonstate. edu/sites/default/files/NOAA_RAE_BRP_ Estuary_Economics.pdf.
- Smith, N., Deal, R., Kline, J., Blahna, D.,
 Patterson, T., Spies, T.A., and K. Bennett.
 2011. Ecosystem services as a framework for forest stewardship: Deschutes National Forest overview. Gen. Tech. Rep. PNW-GTR-852.
 Portland, Oregon: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 46 p.

Literature on performance accountability and governance

- Fredrickson, D. G. and H. G. Frederickson. 2007. Measuring the performance of the hollow state. Washington, D.C.: Georgetown University Press.
- Radin, B. A. 2006. Challenging the performance movement: accountability, complexity and democratic values. Washington, D.C.: Georgetown University Press.
- Steelman, T. 2010. Implementing innovation: fostering enduring change in environmental and natural resource governance. Washington, D.C.: Georgetown University Press.

Endnotes

- 1 USDA Forest Service, FY 2011 President's budget justification: Managing for results, 2010. http://www.fs.fed.us/publications/ budget-2011/fy-2011-usfs-budget-justification.pdf as cited in, USDA Forest Service, Watershed Condition Framework: a framework for assessing and tracking changes to watershed condition. FS-977. Washington, D.C., 2011, p. 1, available at www.fs.fed.us/.../watershed/Watershed_Condition_Framework .pdf.
- 2 USDA Forest Service, Watershed Condition Framework, p. 1
- 3 USDA Forest Service, Watershed Condition Framework, p. 3.
- 4 Nielsen-Pincus, M., and C. Moseley. 2010. The economic and employment impacts of forest and watershed restoration. Ecosystem Workforce Program Working Paper No. 24. University of Oregon, Eugene, Oregon. Available online at http://ewp. uoregon.edu/sites/ewp.uoregon.edu/files/downloads/WP24.pdf.
- 5 Ecosystem Workforce Program, University of Oregon, What is a high-quality ecosystem management job? Available online at http://ewp.uoregon.edu/resources/workforce.

Appendix: Attributes, indicators, and rankings for adaptive capacity

Table 3 Attributes of collaboration

Indicator: Collaboration

Score	Attribute	High (1)	Moderate (2)	Low (5)	None (6)
	Extent of restoration collaboration	A diverse group of stakeholders collaborative in all phases of restoration on the unit. This group represents a wide range of interests, places, and resources. Historically underrepresented groups participate.	One or more partners are working collaboratively in the watershed or unit in some phases of project proposal development and prioritization. Partners and some stakeholders meet regularly while other stakeholders are consulted and involved through other processes. Tribes may be one of the partners.	There is currently no collaborative or multistakeholder group active in the development of programs or projects for this watershed or unit. The unit typically consults with stakeholders on a per project basis. The unit is the primary broker for relationships with individual stakeholders and sets most of the priorities for work in the watershed.	The unit does not use any significant restoration- related partnerships to plan or prioritize project proposals.
	Project planning, implementation, and monitoring	A diverse group of stakeholders consistently participates in project planning and prioritization, as well as project implementation and monitors (implementation and effectiveness) projects in the watershed. There may be a multiparty monitoring or review process established at the programmatic or project level.	The unit conducts planning or prioritization with the stakeholder group, but implementation and monitoring is done separately—or, implementation and some monitoring is collaborative but the prioritization and planning is separate. The unit shares monitoring results with stakeholders but may or may not practice adaptive management.	The unit largely implements and monitors projects with one or a few stakeholders. The unit may share monitoring results inconsistently with a limited range of stakeholders. Monitoring results infrequently lead to adaptive management.	The unit involves few if any stakeholders in implementing work or conducting monitoring. The unit has not shared monitoring results with stakeholders or practiced adaptive management.
	Level of government- to-government consultation	Government-to- government consultation is maintained simultaneously with collaborative stakeholder processes. Tribes are involved through both types of processes.	There is good interagency coordination, cooperation or collaboration across state, federal, local and tribal governments.	Government-to- government consultation occurs on a project-level basis.	Government-to- government consultation occurs sporadically.
	Financial support for collaboration	Funding comes from a variety of sources including but not limited to government, grants, nonprofits, etc. At least 30 percent of the contributions (funds and verified in-kind) for collaborative work is nonfederal.	Projects are funded through both agency and stakeholder contributions, but resources are not often pooled. Funding originating from the stakeholder is rarely spent off of the land that the stakeholder manages.	There is no funding for collaboration although, through limited partnerships, some projects in the watershed are funded through formal or informal agreements. Partners may be working with the agency to apply for grants but the agency is doing the planning, implementation and monitoring.	There is no funding for collaboration or agreements with partners to accomplish projects.

Score	Attribute	High (1)	Moderate (2)	Low (5)	None (6)
	All-lands restoration	Where private lands exist in the watershed, all lands are included and landowner groups included in planning efforts. The watershed may be part of a larger multiwatershed or landscape scale collaborative (e.g., CFLRA, Great Lakes Initiative, etc.). Various groups work together at nested scales. Work is performed collaboratively regardless of land ownership. For example, an agency employee may work on private land with benefits to federal land (Wyden amendment) or a local nonprofit may directly help implement a project on federal land.	Where private lands exist in the watershed, unit planning and analysis considers conditions on private lands. There is some engagement with private landowners on a project-by-project basis. Lands are largely managed separately.	Where private lands exist in the watershed, agency analysis includes conditions on private lands. The unit has contemplated or begun outreach to private landowners, but is not sure of how to include their lands.	The unit does not include private lands or landowners in its planning
	Public engagement in WCF assessment, prioritization, and action planning	A diverse collaborative develop WCF ratings, priority sixth fields, and action plans collaboratively. Key stakeholders have a broad understanding of the WCF and agreement about using it.	Unit staff and specific targeted partners develop WCF ratings. Unit staff and a few selected partners develop priority sixth fields and action plans; and share results with all interested stakeholders to obtain understanding and agreement.	The unit largely determines WCF ratings, priorities and action plans and shares with stakeholders.	The unit determines WCF ratings, priorities, and action plans, and does no share with stakeholders. Stakeholders do not understand or are not aware of the WCF process.
	Adaptive management	A diverse collaborative works together to complete these scorecards, discuss their implications, and develop plans for improvements.	A few external stakeholders provide input into scorecard ratings; there is some collaborative discussion of implications and plans for improvements.	A diverse group of unit staff members complete scorecard; there is discussion of implications or plans for improvements limited to the unit staff.	One or two unit staff members completed scorecard; there is no discussion of implications and opportunity for stakeholder improvement.

Total score

Average score (which would be the reported collaboration performance measure in phase I and social condition framework indicator score during phase II, once a social condition assessment has been developed)

Table 4 Attributes associated with community capacity building and maintenance

Indicator: Community capacity building and maintenance

Score	Attribute	High (1)	Moderate (2)	Low (5)	None (6)
	Strategy for building and maintaining rich community capacity	The unit strategically allocates funding and other resources to maintain or build leadership, problem solving, conflict resolution skills in the workforce and community or coalition.	The unit allocates resources to some aspects of capacity building, but may not do so within a strategic framework.	The unit only sporadically invests resources in capacity building and does not have a strategic framework.	The unit has not or is just beginning to think about building capacity collectively across federal and nonfederal entities for a variety of work in the watershed.
	Investing in building capacity	The unit uses grants and agreements to develop communities or coalitions with potential and interest but lower capacity for work in watersheds, while still making resources available to watersheds or groups with relatively high or good capacity.	The unit targets a mix of lower and higher capacity areas for funding or support, but a landscape or multiwatershed approach to strategically developing capacity with other cooperators or stakeholders does not exist.	The unit does not strategically or systematically target areas with low capacity for funding or development.	The unit does not strategically target community capacity for funding or development at all.
	Aligning with existing capacity	The unit heavily considers how existing community capacity of local stakeholders to help plan, implement, and monitor projects aligns with WCF priorities and action plans.	The unit considers how existing community capacity of local stakeholders to help plan, implement, and monitor projects aligns with WCF priorities and action plans, but it may not be one of the most significant decision points.	The unit considers alignment with community capacity only in selection of priority watersheds.	The unit does not consider alignment with existing community capacity when selecting priority watersheds.
	Collaborative leadership	Collaborative leadership and capacity is present within and outside the unit; leadership and capacity is being managed and built internally and externally.	Collaborative leadership and capacity may have developed but is uneven, with more capacity either inside or outside of the agency.	The unit is implementing some partnerships with individual groups to enhance or maintain capacity. There is little sense of collective capacity.	Unit has not thought about or is just beginning to think about collaborative leadership and capacity.



Total score

Average score (which would be the reported community capacity performance measure in phase I and social condition framework indicator score during phase II, once a social condition assessment has been developed):

Table 5 Attributes associated with business capacity and local benefit

Indicator: Business capacity and local benefit

Score	Attribute	High (1)	Moderate (2)	Low (5)	None (6)
	Local business diversity	A diverse group of local businesses are participating in watershed restoration efforts. A diversity of types and scales of work is available.	Several local businesses are participating in watershed restoration efforts. Local contractors may be subcontractors on work where the prime is a nonlocal business or a cooperator.	A few local businesses are involved in watershed restoration efforts as prime or subcontractors. Most work is performed by nonlocal businesses.	Local businesses are not involved in watershed restoration efforts. Nonlocal contractors are performing virtually all restoration activities.
	Local benefit in contracting	When awarding contracts, the unit uses local benefit in the weighting criteria for service or stewardship contracts.	The unit increasingly considers local benefit in the weighing criteria for awarding contracts.	The unit rarely considers local benefit in the weighing criteria for awarding contracts.	The unit does not consider local benefit when awarding contracts.
	Consistent program of work	The unit helps build or maintain business capacity by offering a sustained program of work (e.g., uses a combination of various contract types in balance).	There is a mix of contract types and scales, but work may be intermittent or short in duration.	Most work is of short duration or intermittent.	Work is highly intermittent and of short duration.
	Diversity of scope and scale of work opportunities	The unit helps builds or maintain business capacity by offering contracts that are very diverse in scope and scale.	The unit helps builds or maintain business capacity by offering contracts that are somewhat diverse in scope and scale.	There is little diversity in the types and scales of work available.	Types and scales of work available are not diverse.
	Strategies for developing and sustaining restoration capacity	There is a larger landscape or unit strategy for providing a mix of work, contracts, and partnerships.	There is only limited strategy for providing a mix of work, types of contracts, and partnerships to develop business capacity. Business capacity is mostly a function of agency budgets and contribution. There is no or only beginning to be similar work by other entities.	The unit is only beginning to consider local business opportunities associated with watershed restoration. Work activities that are going to local business are limited in scope or type of work.	There is no consideration or strategy for creating local benefit.

Total score

Average score (which would be the reported business capacity performance measure in phase I and social condition framework indicator score during phase II, once a social condition assessment has been developed):



