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Forest and Watershed Restoration in Linn County, Oregon:
Economic Impacts, Trends, and Recommendations

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Executive summary

Across Oregon, there is increasing interest in the economic activity that forest and watershed restoration can generate. The extent to which communities realize benefits from restoration depends on availability of work opportunities, capacity of local businesses to capture these opportunities, and how and where the work takes place. Assessments of these factors have helped build stronger understanding of restoration industries in many communities across the Northwest. We performed an "ecosystem workforce assessment" for the Sweet Home All-Lands Collaborative (SHALC). SHALC is a diverse group of local leaders in western Oregon that formed in summer 2012. Its purpose is to collaboratively coordinate land and watershed management in the Sweet Home area, and support economic activity from restoration. We examined selected trends in restoration and its economic impacts in Linn County, Oregon from 2004 to 2012, and developed a series of recommendations to increase impacts.

Trends in restoration in Linn County

From 2004-2012, restoration investments in Linn County totaled at least $41.2 million. This includes selected federal agency contracts, grants, agreements, and direct payments for conservation; and Oregon Watershed Enhancement Board grants. Federal agencies were responsible for $31.3 million or 76 percent of this total; and the US Forest Service was responsible for about half of all federal spending. Spending has been uneven over time; over $8.5 million was spent in 2009 and 2010 and may be due to increased activity under the American Recovery and Reinvestment Act (ARRA).

Federal agencies invested most of their money—67 percent—through contracts. Contracts allow agencies to use business capacity to accomplish their objectives. Nearly half of all spending on contracted activities was in the broad category of natural resource management conservation, which includes fire suppression and rehabilitation, seed collection and production, tree thinning, and wildlife and fisheries management. Thirty-six percent of all contracted federal spending was for tree thinning in particular.

From 2004-2012, OWEB directly invested at least $9.9 million in restoration in Linn County. OWEB provides some support to watershed councils, who implement the work through in-house crews or contractors. Three area watershed councils captured 73 percent of this investment. Fish passage improvements and channel/bank alteration received

the most funding in the study period—over $4 million or 40 percent of the total. There has been no sustained trend in work types over time for OWEB grant, and much investment in each work type occurred through grants with multiple components.

Of the $21.1 million invested through federal contracts for work performed in Linn County, local contractors captured $5.2 million or approximately one quarter. When local businesses "capture" federal contracts, they generate economic activity from restoration in their own county. Businesses based in Sweet Home captured 18 percent of the total $21.1 million contracted in our study, and are responsible for 73 percent of the locally captured work in Linn County. However, this capacity is not diverse; 94 percent of the work by Sweet Home-based contractors was due to a single logging and forestry business.

There were 13 businesses located in Linn County that performed a total of $76.2 million in federal restoration contracts (regardless of place of performance). Almost 95 percent of this work occurred in Oregon, suggesting that many Linn contractors work primarily within the state and it is where their economic impacts likely accrue. Through interviews with area businesses, we learned that road and infrastructure contractors do not rely solely on natural resources work as it is not reliably available, and typically perform a blend of activities including public septic and water systems, non-rural roadwork like paving and bridge construction, and residential/private work. However, all contractors reported that they greatly enjoyed restoration and would like more opportunities to perform it.

Federal contracts and grants and OWEB grants supported about 26 full- and part-time jobs per year; 11 of which on average were supported by Linn County contractors; and resulted in $82.9 million in economic output between 2004–12. This total includes the $36.3 million spent through these three investment types plus $46.6 million in additional indirect and induced economic activity. Contracts awarded to Linn County contractors generated a total of about $10.6 million during the study period.

Suggestions for applying the assessment

Many dynamics that affect business capacity and potential for economic activity are beyond the scope of local actors, and regulations guide federal and other contracting to obtain best value for the public. However, actions that may contribute to increased local economic activity include:

- Building and maintaining partnerships among land managers to cost-effectively accomplish common goals, leverage funds, and supply time and resources for collaboration.
- Communicating with businesses to obtain ideas and feedback in project development and to ensure smooth implementation.
- Planning management activities and structuring contracts to fit business needs using outcome-based project designs, different sizes and scales of contracts, and stewardship contracting and best value criteria.
- Learning from peer experience with collaboration and stewardship on surrounding national forests and with nonprofit organizations.
- Seeking diverse and sustainable funding streams through creative storytelling, joint fundraising, and additional value streams from restoration work such as biomass and special forest products.
- Monitoring and learning from the socioeconomic effects of restoration work by articulating clear priority outcomes during planning, developing appropriate metrics, and organizing a structured process for sharing results and encouraging learning.

Forest and watershed restoration help support functioning ecosystems and can generate economic activity. However, the economic impacts of restoration are difficult to track and analyze because they do not consistently fall into any one defined economic sector. Restoration includes diverse activities such as wildfire risk reduction, wildlife habitat enhancement, and stream improvements. The extent to which communities realize benefits from restoration depends on availability of work opportunities, capacity of local businesses to capture these opportunities, and how and where the work takes place.

It can be useful to conceive of three dimensions of the restoration industry: appropriations and grant making, contracting operations, and labor hiring. Through appropriations and grants, restoration funds from state, federal, and tribal agency budgets as well as philanthropic and other private entities are typically awarded to government land management agencies, watershed councils, soil and water conservation districts, other local organizations and governments, and landowners. Those entities then buy supplies and hire contractors and staff members to implement projects. These contractors and suppliers hire employees to perform work through local and regional labor pools. This work includes a variety of tasks from project planning and coordination to technical surveys to on-the-ground work, and can range in equipment and labor intensity.

Ecosystem workforce assessments and similar processes have helped collaborative groups elsewhere in the West to build shared understanding of these dimensions and their region's restoration industry.[1] From this understanding, they are able to identify strengths and areas for improvement that can allow land managers to more deliberately link their activities to local business and worker capacity.

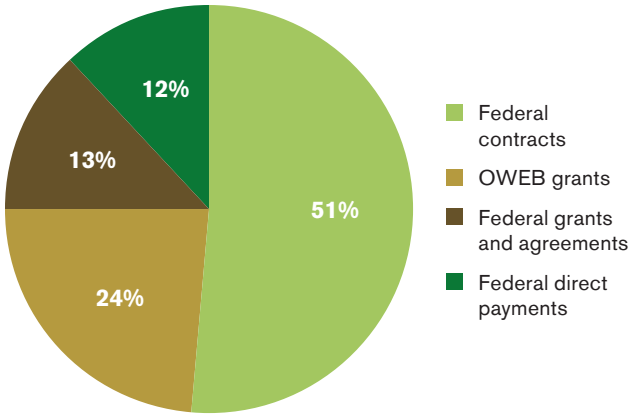
We performed an assessment to provide the Sweet Home All-Lands Collaborative (SHALC) with detailed information about its local restoration industry. SHALC is a diverse group of local leaders that formed in summer 2012. Its purpose is to coordinate land and watershed management in the Sweet Home area for a variety of outcomes including local economic development, forest and riparian

health, clean air, a high quality of life, vibrant recreation, and cultural resource protection. Job retention and creation are among the stated primary goals of SHALC's stakeholders.

This assessment is intended to support SHALC and local land managers in achieving these socioeconomic goals. It examines trends in restoration and its economic impacts in Linn County, Oregon from 2004 to 2012, describing the investments that selected federal and state agencies have made in restoration through the contracts, grants, and appropriations. To understand Linn County restoration business capacity, we also look at the amount and types of work that contractors based in the county perform, regardless of location. We then offer a series of recommendations to increase economic activity from restoration in the county. Our data collection and analysis methods are described in Appendix A (see page 21).[2]

This research complements an assessment of timber and biomass utilization performed by the Forest Service Pacific Northwest Research Station in 2012.[3] Taken together, these documents describe local and regional capacity for performing restoration and processing forest products.

Figure 1 Total estimated Linn County restoration funding by source, 2004–12



Trends in restoration in Linn County

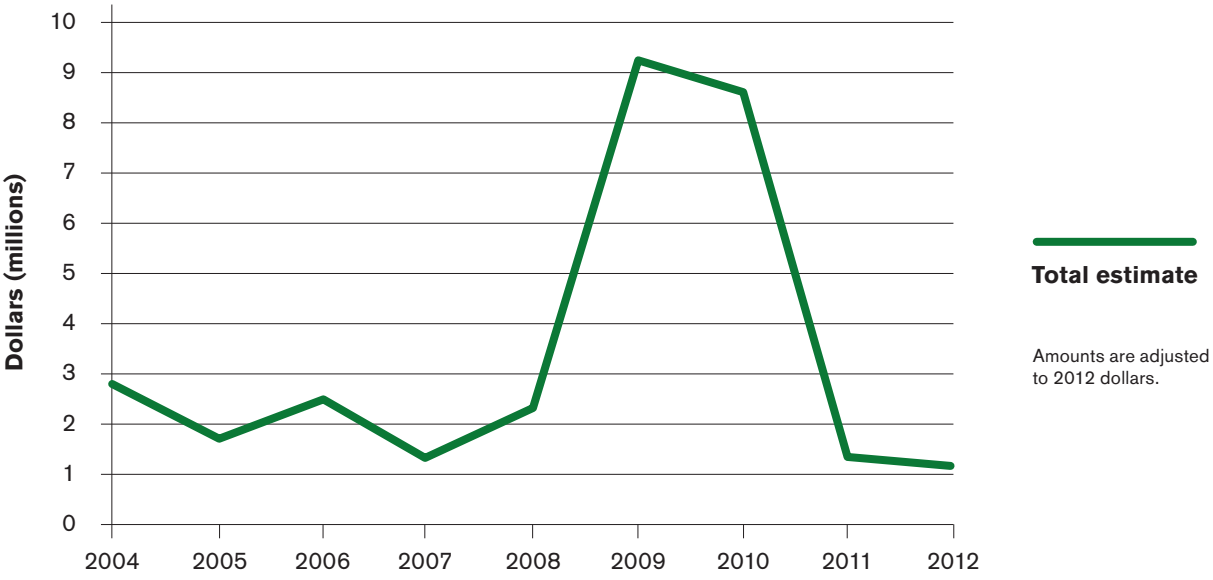
From 2004 to 2012, restoration investments in Linn County totaled at least $41.2 million. This includes federal land management agency contracts, grants, agreements, and direct payments for conservation; and Oregon Watershed Enhancement Board grants. (see Figure 1, left). However, it only reflects money that federal land management agencies and some state agencies put out for restoration work. It does not include spending such as salaries paid to staff of funding agencies, or in-house staff members who implement restoration projects. These data are for service contracts, and do not include timber sales or integrated resource contracts.

Information on in-kind and matching resources is not consistently available, so we have not included it as part of the $41.2 million total. However, we identified approximately $45 million in non-federal match to federal agreements, as well as in-kind and cash contributions from partners on Oregon Watershed Enhancement Board projects. Thirty-three million dollars of this additional investment was non-federal funds for one Environmental Protection Agency grant to the City of Albany for surveying to support water treatment and public health projects. Although this kind of work is not forest or watershed restoration, it is important to note, as many contractors perform residential/public system work such as drainage, sewer systems, or paving in addition to forest and watershed restoration.

Federal restoration investments

Eight federal agencies invested $31.3 million or 76 percent of the total spent on restoration work in Linn County. The USDA Forest Service was responsible for approximately $15.5 million or 50 percent of this total federal spending, while the US Army Corps of Engineers was responsible for 23 percent. These agencies are significant to Linn County as the Forest Service manages almost one-third of the land area (largely the Willamette National Forest and a portion of the Deschutes National Forest), while the Army Corps manages two hydroelectric dams. Spending has been uneven over time; over

Figure 2 Estimated total federal restoration investment in Linn County, 2004–12



$8.5 million was spent in 2009 and 2010 and may be due to increased activity under the American Recovery and Reinvestment Act (ARRA), while in all other years, spending was at or below $3 million (see Figure 2, above). The increased spending due to ARRA was primarily for steel work on a dam tainter gate for the US Army Corps of Engineers.

Federal direct payments

We examined federal investments through Farm Bill conservation programs, wherein the Farm Service Agency or Natural Resources Conservation Service pays private agricultural landowners to incorporate conservation and restoration activities into their operations. These programs are often administered through partnerships with local soil and water conservation districts. Federal agencies invested a total of $4.9 million in Linn County through five conservation programs (see Figure 3, page 6). This constituted 16 percent of all federal spending. The majority of this spending (61 percent or $3.0 million) was for the Conservation Reserve Program (CRP). CRP pays farmers through long-term contracts to remove land from production for water quality, wildlife habitat, and prevention of soil loss. The remaining programs used in the county were the Conservation Stewardship Program, Environmental Quality Incentives Program, Wetlands Reserve Program, and Wildlife Habitat Incentive Program. Direct payments varied greatly during the study period from a low of approximately $59,000 in 2006 to a high of $2.3 million in 2010. Factors that affect use of direct payments include passage of new Farm Bills, which authorize these programs, landowner preferences, and activity and capacity of local agency offices and intermediaries to engage landowners.

Federal agreements

We examined federal investments through agreements, which allow agencies to partner with nonprofit groups or other government entities for activities that have "mutual benefit." They also involve mutual contribution of resources. These partners sometimes perform this work with in-house crews or may subcontract with businesses to perform on-the-ground work. By awarding grant funds or agreements to watershed councils and other partners, federal agencies can use the capacity of these local groups to accomplish their objectives.

Figure 3 Direct payments from federal conservation programs in Linn County, 2004–12

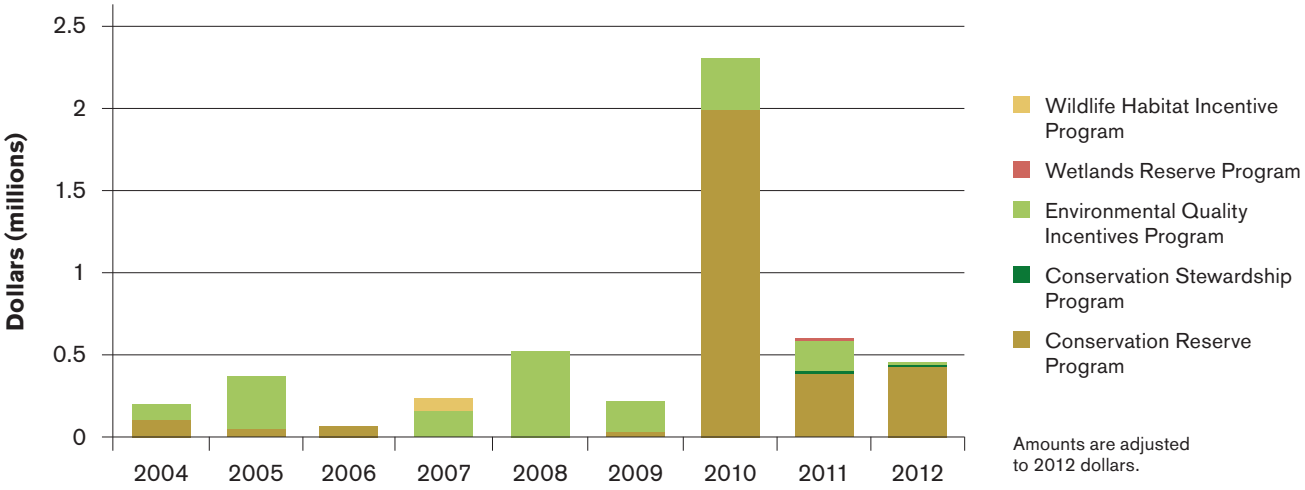
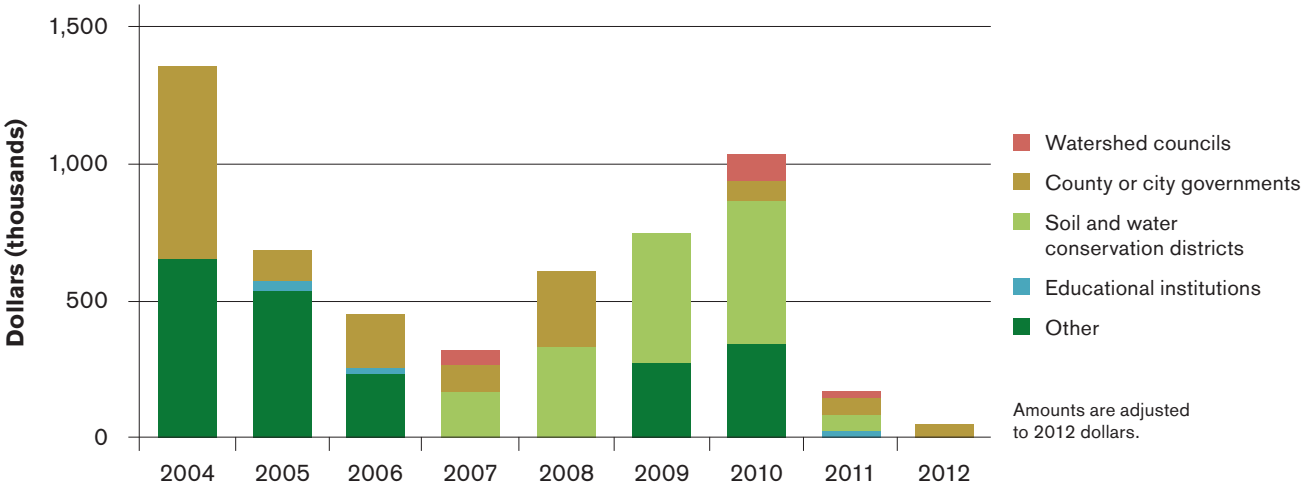


Figure 4 Federal agreement funding for restoration in Linn County by recipient type, 2004–12



We found that $5.3 million or 17 percent of total federal spending in Linn County took place through agreements. Accompanying these agreements was $35.5 million in non-federal match. These agreements were with a range of partners including watershed councils, county and city governments, soil and water conservation districts (SWCDs), resource conservation and development entities (RC&Ds), and educational institutions (see Figure 4, page 6). Agreements with the Cascade Pacific RC&D made up 28 percent of this spending, while watershed councils received three percent. The most frequent use of agreements with the RC&D was for invasive/noxious weed control; however, the largest agreement (over half of all money to the RC&D in the study period) was for forest stewardship with the Forest Service. Since the RC&D has served as a passthrough and fiscal agent for multiple watershed councils and stewardship groups in western Oregon, it is not clear if all of this agreement money was spent in Linn County.

Federal contracting

We examined contracts from five selected categories of activity or "product service codes" related to restoration. Contracts were the primary method through which federal agencies invested in restoration work in Linn County at $21.1 million or 67 percent of total federal spending. Contracting rose significantly in 2009–10 during ARRA; over half of all contracted dollars in the study period were invested at this time (see Figure 5, below).

Nearly half of all spending on contracted activities was in the broad category of natural resource management conservation, which includes fire suppression and rehabilitation, seed collection and production, tree thinning, and wildlife and fisheries management (see Figure 6, page 8). Thirty-six percent of all contracted federal spending was for tree thinning in particular, which the Forest Service uses to improve forest health and stand productivity, and reduce wildfire risk. This was followed by 24

Figure 5 Estimated federal restoration investment in Linn County through contracts, 2004–12

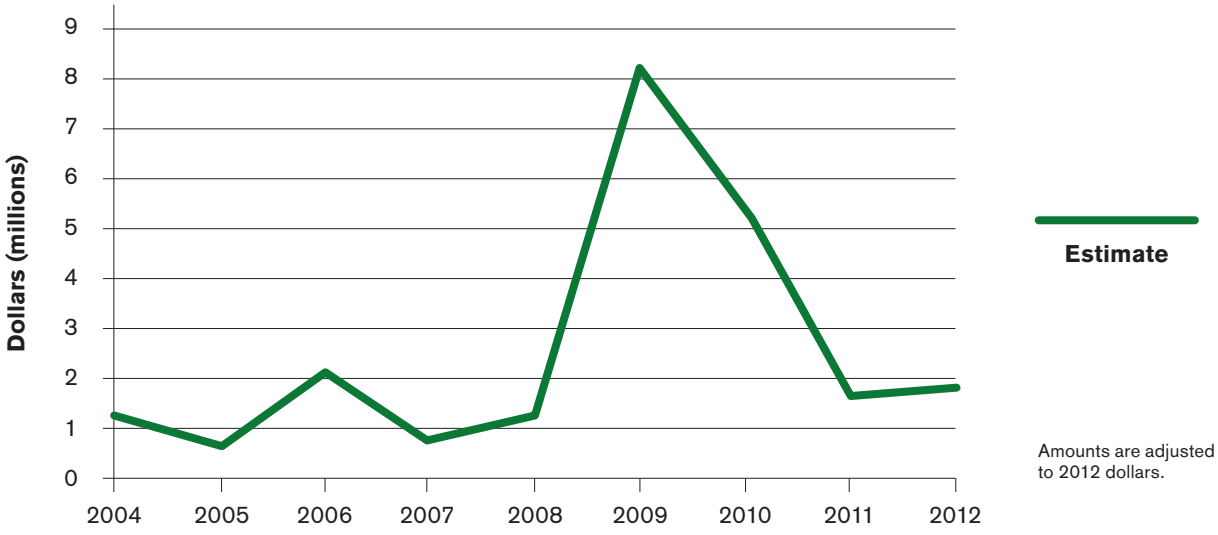
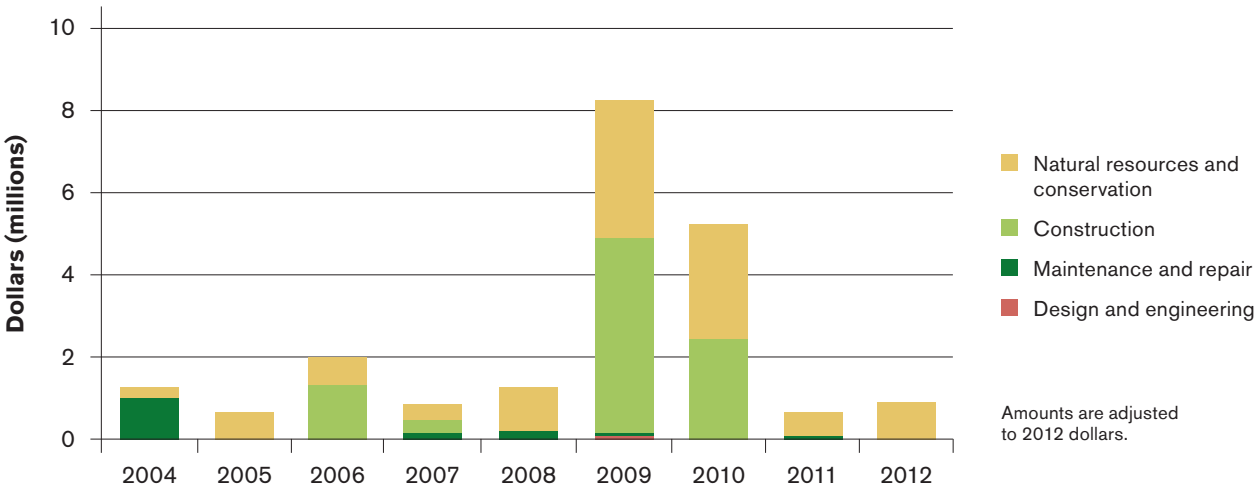


Figure 6 Estimated federal contract dollars spent in Linn County by work type, 2004–12



percent for construction and conservation activities, which may include culvert replacement and other road system improvements for watershed restoration. The least (approximately $56,000 or less than one percent of total contracted money) was spent on technical survey and study activities. This suggests that there has been a need for businesses that can perform activities such as tree thinning and roadwork. However, demand for tree thinning work was inconsistent over time in the study period; over $2.5 million was spent on this activity in 2009 and 2010 respectively, but it was far less substantial in other years. This demand was also likely at least partially due to activities on the Deschutes National Forest, which has a portion of land in eastern Linn County and has significant hazardous fuels reduction goals that they meet through tree thinning projects. In 2009–10, the Deschutes received ARRA resources to accomplish additional fuels reduction work.

OWEB restoration investments

The Oregon Watershed Enhancement Board (OWEB) coordinates and administers a restoration grant program funded by Oregon lottery and license plate funds. From 2004 to 2012, OWEB directly invested at least $9.9 million in restoration in Linn County. These projects typically involve extensive in-kind and cash contributions as well; however, these are voluntarily and inconsistently reported. We found that there has likely been at least an additional $9.5 million in match to these OWEB projects. Federal and state governments each contributed at least 30 percent or $2.8 million of this match, while private industry contributed at least 26 percent. Match is an important indicator of local capacity and support for restoration, but given the paucity and lack of clarity of the matching data, the remainder of analysis in this section only considers the $9.9 million in direct OWEB investment.

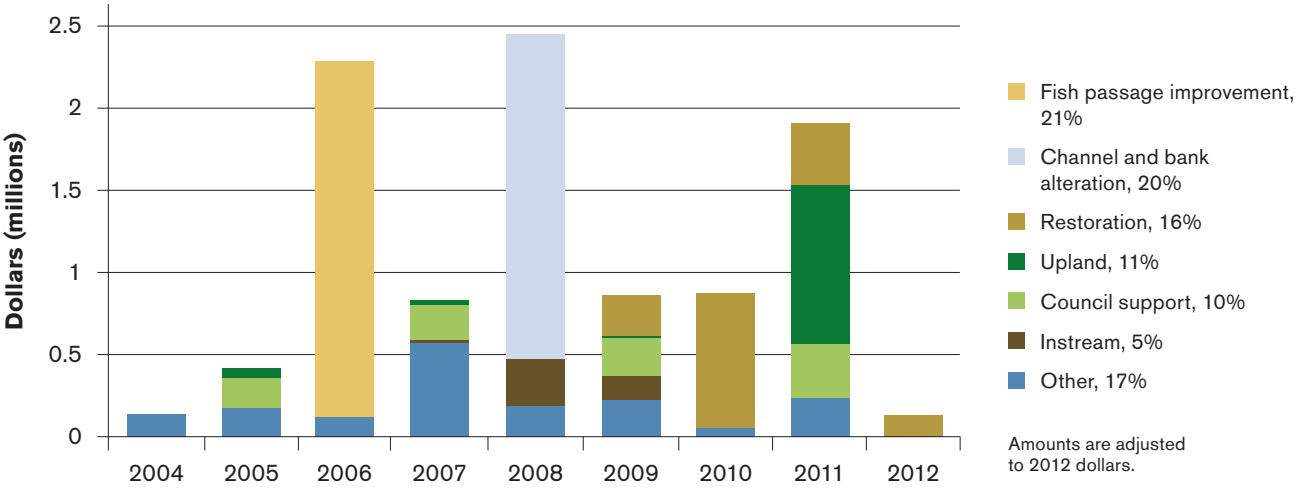
OWEB provides some support to watershed councils, who implement the work through in-house crews or contractors. Three watershed councils perform some or all of their work in Linn County: South Santiam, Luckiamute, and Calapooia. Together, these councils captured 73 percent of OWEB's $9.9 million investment (see Table 1, page 9). Corporations and partnerships were the second-highest recipient of OWEB funds with 20 percent of the remaining investments. However, as these recipients likely contracted out much of this money to perform the restoration projects, we cannot know exactly how it was spent or how much local businesses captured. Consistent with OWEB's statewide mission to improve fish habitat, fish passage improvements

Table 1 OWEB funding in Linn County by recipient type, 2004–12

Recipient type	Total cash	% Total
Watershed council	$ 7,216,146	73%
Corporation or partnership	$ 1,905,343	19%
Soil and water conservation district	$ 283,474	3%
Special district	$ 226,910	2%
County	$ 181,756	2%
University or school district	$ 77,188	1%
State agency	$ 13,338	0%
Unknown	$ 1,266	0%
All types	**$9,905,422**	**100%**

Amounts are adjusted to 2012 dollars.

Figure 7 OWEB investments in Linn County by work type and year, 2004–12

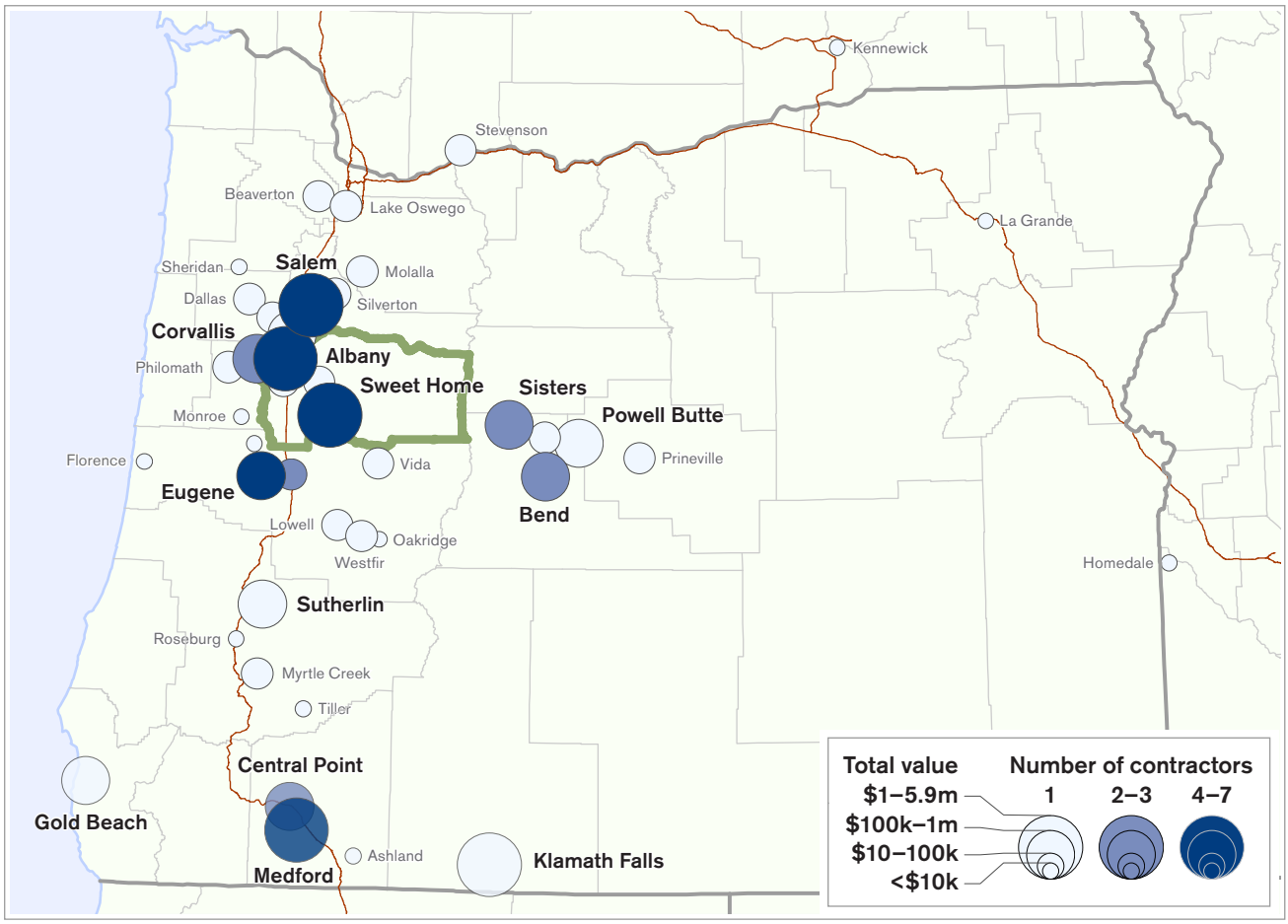


and channel/bank alteration received the most funding in the study period—over $4 million or 40 percent of the total. Another $1.6 million was spent on undefined activities categorized as "restoration." Eleven percent of OWEB funding went to upland restoration, or projects in forested areas in east Linn County. Instream work only constituted five percent, in contrast with a similar study of restoration on Oregon's South Coast wherein it was OWEB's most-funded activity[4]; this suggests that priorities and needs may be very regionally specific.

There has been no sustained trend in work types over time for OWEB grants (see Figure 7, above), and much investment in each work type occurred through grants with multiple components. For example, all of the channel and bank alteration investment in this study was awarded in 2008 through nine different

grants for activities including multiple easement acquisitions, invasive weed control in riparian areas, and habitat improvements. Most of the fish passage investment occurred in 2006 for a single dam removal and stream channel construction project near Brownsville. Again, it is not known the extent to which grant recipients may have divided up tasks and offered numerous contracts for this work versus hiring one contractor to perform the majority of it as in some of the federal contracts; or the duration of time over which recipients may have scheduled and achieved the work.

Figure 8 Local and regional capture of restoration contracts performed in Linn County, 2004–12



Linn County contractor capacity

Local and regional capture of federal contracts in Linn County

When local businesses "capture" federal contracts, they generate economic activity from restoration in their own county. Local capture helps illustrate the existing levels of local capacity for restoration in a given area. Of the $21.1 million invested through federal contracts for work performed in Linn County, local contractors captured $5.2 million or approximately one quarter (see Figure 8, page 10). Another 19 percent of the work was performed by regional contractors from counties surrounding Linn (Marion, Benton, Lane, Deschutes, and Jefferson). This means that slightly more than half of the restoration work in Linn County is conducted by contractors who are not local or regional.

Certain communities and regions had concentrations of contractors that captured local work. For example, businesses based in Sweet Home captured 18 percent of the total $21.1 million contracted in our study, and are responsible for 73 percent of the locally-captured work in Linn County. However, this capacity is not diverse; 94 percent of the work by Sweet Home-based contractors was due to a single logging and forestry business that has successfully specialized in stewardship and restoration. Without this single Sweet Home contractor, there would have been far less local capture. The remainder of Linn County's local capture was nearly all by contractors from Albany (25 percent).

Outside of Linn County, contractors from Klamath Falls, Oregon; Medford, Oregon; Corvallis, Oregon; and Deer Park, Washington; captured the most Linn-based work. Businesses from the Eugene-Springfield, Oregon, region, an urban center relatively close to Linn, only captured less than two percent. Medford and Klamath Falls's local capture was largely for forestry work. Medford has concentrations of forestry support businesses that are competitive in federal contracting across the West. A single contractor from Deer Park captured 30 percent of all federally-contracted work in Linn County in the study period. They conducted an engineering and heavy equipment project for the Army Corps of Engineers on Foster Dam.

Looking at the types of work that local businesses do and do not capture can help inform strategies for increasing local economic activity from restoration. We found that local businesses captured 100 percent of restoration investment in Linn in several activities: land treatment, seed collection/production/transplanting, construction of parking and recreation facilities, and dam repair and maintenance (see Table 2, page 12). Less than a million dollars was spent per each of these activities, and this local capture was due to one forestry contractor and one roads/infrastructure contactor. The largest amount of local capture in dollars was $3.7 million for tree thinning; local contractors captured 49 percent of the total $7.5 million spent on this activity. There was no local capture in the study period for several types of work across all five studied product service codes. This may mean that there were no local businesses present with this capacity or interest, or that businesses with this capacity were not successful at capturing this work. All of the money in most of these work types went to a single project performed by a single contractor, so there was limited opportunity to capture this work.

Local contractor characteristics

To further understand Linn County's business capacity, we: 1) examined federal contracting data for work performed by businesses with an address in the county, regardless of place of performance; 2) interviewed a small sample of local contractors; and 3) participated in a field tour with contractors on the Sweet Home Ranger District.

Federal contracting trends for Linn County contractors

We found that there were thirteen businesses located in Linn County that performed federal restoration contracts in the study period (regardless of place of performance). These businesses performed a total of $76.2 million in contracts. Almost 95 percent of this work occurred in Oregon, suggesting that many

Table 2 Local capture and work type of contracts performed in Linn County, 2004–12

Product or service	Total number of contractors	Contractors based in Linn County	Total contract value	Value of contracts performed by Linn contractors	Local capture
Study/environmental assessments	1		$13,167		0%
Animal and fisheries studies	1	1	21,091	$21,091	100%
Soil studies	1		9,092		0%
Wildlife studies	1		12,635		0%
Highway, roads, streets, bridges	1		104,032		0%
Architect and engineering-general: landscaping, interior layout, and designing	3		83,211		0%
Aerial fertilization-spraying	1		262,080		0%
Forest-range fire suppression	3		149,911		0%
Forest-range fire rehabilitation	16	2	173,508	46,154	27%
Forest tree planting services	4		606,962		0%
Land treatment practices	1	1	86,995	86,995	100%
Recreation site maintenance/non-construction	2	1	37,037	4,715	13%
Seed collection/production services	1	1	14,320	14,320	100%
Seedling production-transplanting	1	1	26,827	26,827	100%
Tree thinning services	14	1	7,494,651	3,638,074	49%
Other range-forest improvement/non-construction	17	1	744,100	1,000	0%
Other wildlife management services	4		85,552		0%
Fisheries resource management	1		4,692		0%
Site preparation	1		52,913		0%
Other natural resource management and conservation	20	2	894,622	24,466	3%
Construction of dams	3		2,305,788		0%
Construct/other conservation	1		4,879,245		0%
Construct/highways-roads-streets-bridges	3	1	462,665		0%
Construct/parking facilities	1	1	921,249	921,249	100%
Construct/recreation non-building structures	1	1	205,072	205,072	100%
Maintain-repair-alter/dams	1	1	5,172	5,172	100%
Maintain-repair-alter/highways-roads-streets-bridges	4	1	1,342,173	262,169	20%
Maintain-repair-alter/recreation nonbuilding structures	1		72,697		0%
Total			**$21,071,459**	**$5,258,305**	**25%**

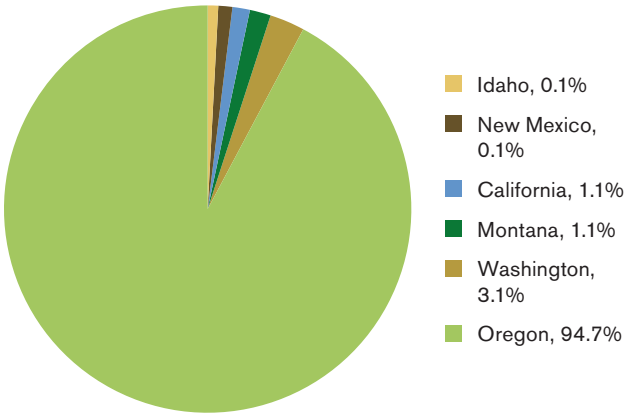
Amounts are adjusted to 2012 dollars.

Linn contractors work primarily within the state and it is where their economic impacts likely accrue (see Figure 9, right).[5] Linn contractors have also performed small percentages of work in Montana, California, Idaho, and Washington, respectively.

Thirty-nine percent of work that Linn County contractors performed in the study period was natural resources management and conservation (see Figure 10, page 14). Construction and maintenance work each composed 30 percent of the other work that Linn-based contractors performed. Less than one percent of the work of Linn contractors was in studies, analysis, design, or engineering.

Finally, we also looked at the types and amounts of work that contractors in east (east of the Interstate-5 corridor) Linn versus west Linn performed, as communities of the east side of the county are more remote, rural, and dependent on natural resources than the larger, more economically diverse communities in the west. We found that 78 percent of the $76.2 million total was performed by businesses from the western portion of the county. Further, west Linn contractors performed 73 percent of the natural resources management and conservation work. This shows that contractors in west Linn tend to capture more work outside of the county, while one forestry contractor from east Linn (Sweet Home) was responsible for approximately three-quarters of the locally-captured restoration work in Linn. In addition, Linn-based contractors performed $76.2 million in federal contracts anywhere during the study period, compared to the $41.2 million of federal contract work performed in Linn County. This all suggests that there is more contractor capacity within Linn County than there is available local work.

Figure 9 Locations of Linn County federal contractors' work by state of performance, 2004–12

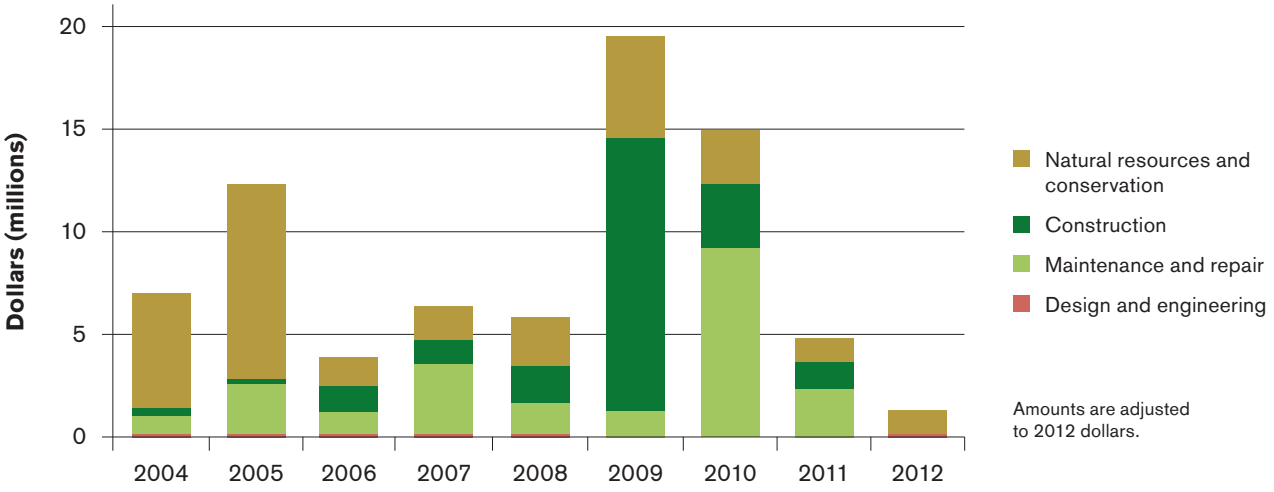


Local contractor perspectives

We also examined Linn County business capacity through interviews with six contractors, and participant observation on a Forest Service field tour with contractors in June 2013. Our goal was to understand the restoration work they performed, their business models, challenges and opportunities in working with federal agencies and nonprofit entities, and their interests and needs regarding restoration work. Five of these contractors were based in Linn County, and one was from adjacent Benton County and had performed significant amounts of work in Linn.

We first asked contractors about their business models. All interviewees had entered into business based on experience, such as having a father or friend who was a logger or excavator. Four of the contractors had either inherited existing businesses from family or former bosses or developed a business as a spin-off from a family business. Three of these contractors were younger than 40 years old, suggesting that there is interest from their generation in staying in this industry. In all cases, contractors did not work exclusively in Linn County or adjacent counties, but did tend to have a regional area where they performed most of their work, which included

Figure 10 Types of work performed by Linn County federal contractors, 2004–12



the Willamette Valley and foothills. For the road and infrastructure contractors, work was completed in a mix of urban and rural areas.

We found that contractors interviewed had similar approaches to equipment. They owned equipment and only rented infrequently, although one contractor who was newer to the business described renting as a way to build up experience and work towards equipment ownership. Contractors said that they would subcontract if additional equipment were needed to complete a job. However, each contractor expressed that it can be difficult to rely on another business's timeline and model, and they were reluctant to do it without knowing and trusting the subcontractor. Two contractors that we interviewed had extensive experience partnering with each other and had developed a relationship that made sharing work effective for them, but this model is not necessarily common in the restoration industry.

Since their work is seasonal and variable, contractors did not have large, year-round workforces. Four of our interviewees who primarily worked on roads and infrastructure described hiring additional, usually temporary workers as needed on a project basis, but often the contractors themselves were the only workers needed to complete heavy equipment jobs. Although logging and forestry is also seasonal, contractors performing this work seemed to retain workers over time rather than making temporary hires. These workers would take on further work with other companies or collect unemployment when there were gaps. The interviewees described a skilled workforce in Linn County and the Willamette Valley, as many residents have long-term experience with the forest or construction industries; and that while obtaining workers is typically not a challenge, it can be harder to find those with a good work ethic. One contractor also noted that some workers strongly desired this type of employment and were willing to travel relatively far from their homes in locations such as the coast to pursue it. Another contractor who is based in Linn County indicated that they perform much of their tree thinning work on the Sisters Ranger District of the Deschutes National Forest in eastern Linn County and employ workers from both Linn County and and central Oregon.

Finally, as in other research on contractor capacity in Oregon,[6] we found that these road and infrastructure contractors do not rely solely on natural resources work and typically perform a blend of activities focused on public septic and water systems, non-rural roadwork like paving and bridge construction, and residential/private work including septic, water, and projects such as pond building. Forestry contractors perform activities including industrial

logging for private landowners as well as hazardous fuels reduction and restoration on public lands. Contractors interviewed had performed work for all types of entities including state and federal agencies, industrial and nonindustrial private landowners, Tribes, municipalities, and universities. Contractors differed in the share of their work that was completed on federal lands or supported with federal funds. For three of the contractors (the newest businesses) federal contracts formed a relative small component of their business portfolio. Contractors reported that they have diversified business models for stability and that availability of restoration work is unreliable, as agencies and watershed councils typically do not have a consistent program of predictable work from year to year. However, all contractors reported that they greatly enjoyed restoration and would like more opportunities to perform it. Reasons included the satisfaction of being able to see the effects of their work, such as a watershed restoration project that noticeably changed the character and health of a riparian area.

Employment and economic impacts of restoration in Linn County

Restoration investments create direct economic activity as companies employ workers and purchase materials and supplies to implement projects. Direct economic activity also is created as local organizations employ people and make purchases to manage federal- or state-funded projects. Indirect economic activity is instigated as the businesses selling materials and supplies to restoration contractors make additional purchases from their suppliers. Finally, induced economic activity is generated from restoration investments as employees spend their incomes in local communities for household needs. Combined, direct, indirect, and induced economic effects form the total economic effects of investment in restoration.

We used information from previous Ecosystem Workforce Program studies on the economic impacts of restoration[7] to estimate the economic activity from investment in Linn County restoration projects. From that previous research, we can predict the number of jobs supported and total sales generated from restoration projects of differing types completed within Linn County. Federal contracts for restoration work were awarded to contractors based in Linn County, elsewhere within Oregon, and in surrounding states. We separately considered the economic impact of federal contracts awarded to each of those groups of contractors. We assumed federal grants and OWEB investments were not awarded to entities outside Linn County.

In total, federal contracts and grants and OWEB investments in Linn County between 2004 and 2012 totaled about $36.3 million. That restoration investment supported about 26 full and part-time jobs per year for company employees working on restoration projects and employees in organizations managing restoration projects (see Table 3, page 16). Taking into account the entire economy, and indirect, and induced effects, restoration investments in Linn County supported about 64 full and part-time jobs per year between 2004 and 2012. Federal contracts, because of their size and the types of restoration work generated, were associated with nearly two thirds of the full and part-time jobs supported by restoration investment.

Initial investment in restoration through the appropriations and grant market yields more output in the economy as businesses make purchases from one another and employees spend their incomes for household needs. The $36.3 million of initial investments for restoration between 2004 and 2012 generated another $46.6 million in additional business sales during that period. Combined, the initial investment and additional sales lead to total sales across all contractor areas of about $82.9 million between 2004 and 2012. Because of their size, federal contracts yielded the greatest total economic output during the period ($47.7 million).

Federal contracts awarded to contractors in Linn County directly supported about 5.6 full- and part-time jobs per year between 2004 and 2012. Accounting for related economic activity, about 11 full- and part-time jobs were supported by federal contracts awarded to Linn County contractors. The

Table 3 Estimated economic impacts from restoration investment in Linn County, 2004–12

	Initial funding	Linn contractors	Contracts outside Linn within Oregon	Contracts outside Oregon	Total
Federal contracts	$21.1				
Direct jobs per year		5.6	9.4	4.7	19.7
Total jobs per year		10.9	14.5	15.5	40.9
Total output (2012 $millions)		$11.6	$19.6	$16.4	47.7
Federal grants	$5.3				
Direct jobs per year		2.2			2.2
Total jobs per year		8.2			8.2
Total output (2012 $millions)		$12.3			12.3
OWEB	$9.9				
Direct jobs per year		4.0			4.0
Total jobs per year		15.3			15.3
Total output (2012 $millions)		$22.9			22.9
All types	$36.3				
Direct jobs per year		11.8	9.4	4.7	25.9
Total jobs per year		34.4	14.5	15.5	64.4
Total output (2012 $millions)		$46.9	$19.6	$16.4	82.9

Amounts are adjusted to 2012 dollars.

federal contracts awarded to Linn County contractors generated about $11.6 million in total economic activity. Including federal grant and agreement funds and OWEB investments, restoration projects awarded Linn County entities directly supported about 11 full and part time jobs. Accounting for additional economic activity created from those investments, about 34 full and part time jobs were supported by restoration investments directed at Linn County entities. Many federal contracts were awarded to Oregon contractors located outside Linn County and those awards directly supported about 9 full and part time jobs; about 14 jobs were supported by indirect and induced economic activity. Contracts awarded to contractors located outside Oregon supported a total of about 15 full and part time jobs.

Suggestions for applying the assessment

This assessment is intended to assist Linn County land managers and other leaders in engaging local businesses and increasing local economic activity. In other communities, collaborative groups have conducted similar assessments followed by action planning processes. We draw on their experiences and this study to provide some initial considerations for leaders in Linn County. Many dynamics that affect business capacity and potential for economic activity are beyond the scope of local actors (e.g. broad economic trends, national regulations and restrictions), and there are regulations that guide federal and other contracting in order to obtain

best value for the public. A local contractor may not necessarily always be competitive or there may be management objectives for which there is simply no local capacity. However, there are specific process and relationship-building actions that can more closely engage local businesses.

Build and maintain effective partnerships and communication strategies

Local and regional leaders have already been meeting for the past year through SHALC and discussing shared desires for increased economic activity and community wellbeing. To build on this momentum, major land and watershed managers such as the Sweet Home Ranger District of the Willamette National Forest, Cascade Timber Consulting Inc., and regional watershed councils could collectively focus on strengthening their partnerships through strategizing about how to cost-effectively accomplish their land management while supporting local businesses and workers. This could involve discussing upcoming projects and needs, potential gaps in work availability e.g. if the Forest Service anticipates a lull due to planning timelines, and sharing information about contractor skills and capacities. In particular, interdisciplinary teams could ensure that they understand the timing of specific projects and planning processes, are thinking about how they all fit together, and are including time and resources for collaboration and communication with businesses and partners in advance. Leadership in the Forest Service and other agencies could support their staff in these efforts by providing encouragement and training for communications. In addition, when hiring, agencies could place more weight on communications skills and interest in partnership as criteria for future staff.

Contractor interviewees for this study also indicated that they enjoyed and preferred work where partners such as the Willamette National Forest and the South Santiam Watershed Council worked closely together to plan and coordinate projects. Keeping in regular communication, frequently visiting job sites together, and sharing resources and materials can allow managers to meet common goals, leverage limited funds, and learn more about each other's work. The Forest Service is anticipating using this approach in the Cool Soda planning area in upcoming years.

Further, agencies and watershed councils could also enhance their communications with contractors and other businesses, such as those that utilize biomass, by holding field tours to share potential future projects and obtain ideas, and calling business owners to provide updates on programs of work. Tours allow for conversation and discussion of opportunities while in the field, although some contractors may have less comfort sharing ideas if multiple businesses are present and it may be best to provide opportunities for individual meetings or tours. Discussions may be most successful if they focus on specific management actions, and include opportunities for genuinely listening to contractors, realistically sharing barriers while considering new possibilities, and obtaining feedback before taking action. Finally, at the conclusion of projects, agencies can provide detailed letters and other testaments to contractor skills, which can greatly contribute to a business's ability to obtain further opportunities with another national forest or watershed councils. Contractor interviewees described reputation and word of mouth as extremely important to the future expansion of their restoration work.

Plan management activities and structure contacts to fit and support business needs

Contractor interviewees and feedback from the field tour in this study suggest that land managers might take more deliberate actions to improve access to and viability of federal contracts for local businesses. Although this has already happened with stewardship contracting on the Sisters Ranger District of the Deschutes National Forest, which is partially in eastern Linn County, the Willamette National Forest has limited experience with such approaches. First, businesses often appreciate the opportunity to exercise creativity and may prefer an outcomes-based project design, such as designation by prescription, wherein the manager sets basic parameters but the business can make some decisions about how to best meet objectives. There may be risks and tradeoffs for different resources that should be weighed with the appropriate agency specialists, and discussed thoroughly with

Suggestions for applying the assessment

- Meet regularly to discuss plans for work and look for shared opportunities
- Build time and resources for collaboration into agency planning processes
- Seek communications and partnership skills in new agency hires
- Communicate with businesses to discuss ideas and obtain feedback on future projects
- Learn from peers with experience in collaboration and stewardship
- Consider outcome-based project designs
- Consider different contract sizes and bundling
- Use flexible tools such as stewardship contracting and develop local benefit criteria
- Monitor socioeconomic impacts
- Seek diversified funding and accomplish work through partnerships

For more suggestions, see *A Quick Guide for Creating High-Quality Jobs through Restoration on National Forests* by the Ecosystem Workforce Program. Available at ewp.uoregon.edu/Publications/quick_guides

the contractor before implementation. If there can be trust and adequate oversight, this approach could create efficiencies, reduce costs, and allow contractors to innovate and learn on the job under the right conditions.

Second, contract size, duration, and bundling are all important considerations for contractor capacity. Breaking a project into smaller pieces tailored to the skills of several local contractors may support a wider range of local businesses, while bundling multiple activities under a single contract may reduce costs for a contractor as costs of mobilizing equipment are high. Since contractors face seasonal restrictions on federal contracts (e.g. for fire or species protection) and fluctuating log prices, it may be difficult for them to profitably accomplish a project when given a short timeframe. Contractors on our study field tour suggested that contracts of approximately three years help them be more strategic as they have more flexibility to complete all of the projects that may be juggling and access more profitable markets.

Third, tools such as stewardship contracting allow federal agencies to be more flexible in accomplishing service work, implementing projects that are of high priority to the community, removing biomass if applicable, and reinvesting receipts in restoration across landownerships in their local area. Stewardship can also be used to develop projects at different scales to involve multiple contractors of various sizes and capacities. Best value criteria, which SHALC could develop, could also be used to select contractors based on local benefit. Under stewardship, an agency might also organize removal of diverse forest products, from firewood to berries and grasses; however, contractors on the study field tour expressed concern with combining multiple product removals under one contract for liability reasons.

Learn from peer experience

The Sweet Home Ranger District is in proximity to other national forests such as the Mt. Hood, Siuslaw, and Deschutes; and nonprofit organizations such as the Cascade-Pacific RC&D and other watershed councils, all of which have extensive experience with stewardship contracting and collaboration. Staff from these Forests and organizations may be able to offer grounded insights and lessons learned from their work. Phone conversations, tours to see work in other areas, and small "working" meetings may be useful for sharing knowledge and asking specific questions. The Sweet Home Ranger District has already used this approach to learn more about special forest products program development from the Gifford Pinchot National Forest by holding a workshop with their staff, and local land managers and harvesters.

Seek diverse and sustainable funding streams

A steady stream of restoration work and reliability for local businesses is dependent on funding. In Linn County, federal budgets and OWEB grants have been the primary funding sources. More diversified funding sources may be accessible through creative partnerships with other agencies and building relationships with private foundations. The South Santiam Watershed Council has taken this approach by focusing restoration in "model watersheds" where

it is able to obtain support from a broader range of foundations. Coordinated outreach and collective storytelling to both local communities and larger audiences may help raise the profile of restoration work and its importance to Linn County. This may include presentations, attractive "fact sheets" or brochures highlighting accomplishments, or displays or posters in local businesses such as banks or community centers that provide education about restoration to the public.

Investing in the utilization of biomass and other non-timber forest products from restoration projects may also help increase funding and profits. There are significant barriers to cost-effectively removing biomass and processing it, but there are currently several success stories across Oregon. Networking with small businesses that successfully remove and/or utilize biomass in other locations, technical assistance providers such as the Oregon Department of Forestry's biomass resource specialists, or universities could be helpful for local leaders in Linn County who are interested in biomass business development. Emphasizing use of existing business capacity and infrastructure as well as proven technologies and markets could make this more feasible.

Establish monitoring and learning processes

Monitoring and learning are crucial for adaptive management as well as telling stories of accomplishments that may help draw in future funding. This is important when there is an effort such as that in the Sweet Home Ranger District's Cool Soda planning area wherein new approaches are proposed or particular outcomes are promised as there will be a need to demonstrate and explain successes. There also has been increased interest nationwide in the economic impacts of restoration through efforts such as the Forest Service's Collaborative Forest Landscape Restoration Program.

Socioeconomic monitoring is less well-developed than biophysical monitoring, but there are several helpful protocols and guides available.[8] These guides generally suggest that managers and their

collaborators: 1) articulate clear priority outcomes during their planning processes, 2) develop metrics for these outcomes, and 3) analyze monitoring data and have a structured process for sharing results and encouraging learning.

All of these activities should be collaborative and include perspectives of multiple stakeholders, as monitoring and learning can help build trust around areas of uncertainty or disagreement. When developing metrics, it is important to consider measurability, cost, and data availability; as well as what is of most interest to stakeholders, businesses, and the public (see Table 4 for sample measures). The Ecosystem Workforce Program has a quick guide that may help Linn County leaders to select appropriate metrics.[9] Data collection and analysis can be excellent opportunities to engage businesses in providing information if they are comfortable with doing so, and/or ground-truthing results.[10] Finally, to adapt based on monitoring results, there should be a deliberate process for discussion and learning. A sourcebook from the Ecological Restoration Institute provides guidance on effective methods for learning in collaborative contexts that may be useful.[11]

Table 4 Sample monitoring measures for monitoring the economic impacts of restoration

What you want to know (indicators)	Measures to use	Data sources
Contracting and local capture		
Quantity and type of work offered: ▪ By you if you are a project manager, or ▪ By the agency whose work you are monitoring	▪ Total number and dollar value of contracts ▪ Number of contracts offered organized by work type ▪ Dollar value of contracts organized by work type	Contract records and/or federal databases
How contracts and dollars are distributed among contracting firms	▪ Number of firms receiving contracts and total amount for each firm	Contract records and/or federal databases
If local firms are capturing work	▪ Percentage of contract and agreement dollars captured by local firms	Contract records and/or federal databases
Jobs and local capture		
Job creation and retention	▪ Number of jobs supported by restoration work ▪ Total worker hours supported by restoration ▪ Total wages ▪ Average wage per worker	Contractor surveys
How many workers are local	▪ Percentage and number of workers that are local	Contractor surveys
Job quality		
Benefits	▪ Percentage of workers receiving benefits or payments in-lieu of benefits	Contractor surveys
Worker safety	▪ Percentage and number of contracts without job-related injuries or illness that result in lost work time	Contractor surveys
Opportunities for learning and advancement	▪ Percentage of contracts with on-the-job training	Contractor surveys
Subcontracting and purchases		
Contributions to the local subcontracting market	▪ Percentage and number of subcontractors that are local	Contractor surveys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APPENDIX A

Data collection and analysis approach

Federal and state investments

We collected data on restoration investments in Linn County from three databases: USAspending.gov, the Oregon Watershed Enhancement Board Grant Management System (OGMS), and the Oregon Watershed Enhancement Board's (OWEB) Oregon Watershed Restoration Inventory (OWRI). USAspending.gov is a publicly accessible centralized database for federal contracts, grants, agreements, and direct payments. We obtained data from USAspending.gov for investments made by the following agencies:

- Bureau of Land Management
- Bureau of Reclamation
- Environmental Protection Agency
- Farm Services Agency
- National Oceanic and Atmospheric Administration
- Natural Resources Conservation Service
- United States Army Corps of Engineers
- United States Forest Service
- United States Fish and Wildlife Service

We coded individual federal awards so they could be sorted by award type (contract, grant, agreement, direct payment), funding amount, fiscal year (2004–12), funding agency, place of performance, recipient location, government program or product service code, and project description. We included contracts from the following product service codes that we have identified as restoration activities:

B: Special studies and analyses for environmental assessments
C: Design and engineering
F: Natural resources and conservation
Y: Construction of roads and facilities
Z: Maintainance of roads and facilities

We also examined contractor location to analyze local and regional capture of federal contract work. We defined local capture as work performed in Linn County by Linn County contractors, and regional capture as work performed by contractors from adjacent counties to Linn (Marion, Benton, Lane, Jefferson, and Deschutes). Finally, we studied work performed anywhere by contractors based in Linn County, regardless of place of performance.

In addition, we looked at federal spending in six direct payment conservation programs:

CSP	Conservation Stewardship Program
CRP	Conservation Reserve Program
EQIP	Environmental Quality Improvement Program
WRP	Wetlands Reserve Program
WHIP	Wildlife Habitat Improvement Program

For state data, we used OGMS to track and analyze OWEB grants for projects started at any time from 2004 to 2012. OGMS is a state database system that includes data for OWEB-funded projects that are both open and complete. We also used OWRI to obtain information about additional investments that landowners, federal, state, and local groups make with funds from sources other than OWEB (i.e. private industrial forest landowners, watershed councils, counties). OWRI is an inventory of restoration data for the State of Oregon managed by OWEB that contains voluntarily-reported information on completed projects only.

Contractor perspectives

To obtain further information on the impacts of restoration work from local perspectives, we conducted nine interviews with representatives from contracting businesses, a local industrial timberland owner, a watershed council, and the US Forest Service. We took detailed notes during the interviews, which we typed up and reviewed for key findings about business models, restoration needs, and opportunities to increase local business involvement.

Employment and economic impacts of restoration investments

We combined information on spending for restoration investments in Linn County with economic multipliers developed from previous research to estimate jobs supported and total output. We report separately the economic impacts of federal contracts received by entities located within Linn County, located elsewhere within Oregon, and located in neighboring states. The federal grants and agreements and the OWEB investments we consider all were received by Linn County entities. The estimates of jobs supported represent full and part time jobs; they do not represent full-time jobs or full-time equivalents. Output is the value of goods and services purchased from businesses and service providers.

We report both direct and total jobs supported by Linn County restoration investment. Direct jobs are those supported within the companies hired to implement projects and organizations managing projects supported by federal and state funds. Total jobs include direct jobs as well as the indirect jobs supported from purchases amongst businesses supporting restoration projects and induced jobs in all economic sectors supported by the household income spending of restoration and conservation organization workers. Total output represents the direct, indirect, and induced sales that result from Linn County restoration investments. Linn County restoration investments for the 2004 to 2012 period were price adjusted to year 2005 dollars using standard consumer price index deflators and applied to appropriate jobs and output multipliers (see Table A1, below). For federal grants and OWEB investments, we used multipliers estimated for an assumed mix of different types (e.g., in-stream projects, upland projects, fish passage) of restoration projects. Spending for federal contracts was applied to unique sets of project-type multipliers that appeared most appropriate given the restoration project description. In all cases, the multipliers used here are generally consistent with those used for other natural resource management projects.

Table A1 Response coefficients for jobs and total output per $1 million ($2005) of restoration investment spending

	Labor intensive	Federal contracts, equipment intensive (water)	Equipment intensive (land)	Planning and technical	Federal OWEB investments
Direct jobs	13.1	4.8	6.6	8.7	4.3
Total jobs	23.8	15.7	17.2	19.1	16.3
Total output	$2,153,402	$2,380,186	$2,377,995	$2,113,056	$2,311,468

Endotes

1 For examples of these assessments, see: /resources/workforce-qualityjobs/

2 Unless stated otherwise, all monetary figures are in 2012 dollars.

3 Schulman, Candi. 2012. *Assessment of Timber and Biomass Utilization: A Report for the Sweet Home Ranger District*, Willamette National Forest. Please contact the Willamette National Forest for more information.

4 Davis, E.J., Sundstrom, S., and C. Moseley. 2011. *The economic impacts of Oregon's South Coast restoration industry.* Ecosystem Workforce Program Working Paper #24. Available at ewp.uoregon.edu/sites/ewp.uoregon.edu/files/WP_34.pdf

5 We identified an additional $25 million of restoration work performed by contractors based in Linn County, but these records did not contain place of performance. Almost all of this money was due to Indefinite Delivery Contracts with two companies for fire suppression services. Agencies can use this contract type to line up arrangements for contracted resources in advance of any fire events. Although these two businesses may create economic impacts through fulfilling these contracts, it is not possible to attribute these impacts to any place due to the lack of place of performance data.

6 For examples of other assessments in Oregon, see ewp.uoregon.edu/resources/workforce-qualityjobs/

7 Nielsen-Pincus, M., and C. Moseley. 2010. *Economic impacts of forest and watershed restoration in Oregon.* Ecosystem Workforce Program Working Paper #24. Available at ewp.uoregon.edu/sites/ewp.uoregon.edu/files/downloads/WP24.pdf

8 For a sample list of these guides, please see Moseley, C., and E.J. Davis. 2011. *Developing socioeconomic performance measures for the Watershed Condition Framework.* Ecosystem Workforce Program Working Paper #36. Available at ewp.uoregon.edu/sites/ewp.uoregon.edu/files/WP_36.pdf

9 Sundstrom, S., Moseley, C., Nielsen-Pincus, M., and E.J. Davis. 2011. *A quick guide to monitoring the economic impact of ecosystem restoration and stewardship.* Ecosystem Workforce Program, University of Oregon. Available at ewp.uoregon.edu/sites/ewp.uoregon.edu/files/Jobs_Monitoring_Guide.pdf

10 The Deschutes Collaborative Forest Project has utilized this approach to monitoring their Collaborative Forest Landscape Restoration Project. For more information about this effort, please see deschutescollaborativeforest.org/

11 Moote, A. 2013. *Closing the feedback loop: evaluation and adaptation in collaborative resource management.* A sourcebook produced by the Ecological Restoration Institute, Northern Arizona University. Available at library.eri.nau.edu/.

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