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A Survey of Innovative Contracting for Quality Jobs and Ecosystem Management

Cassandra Moseley



Author

Cassandra Moseley is Director of Research and Policy, Ecosystem Workforce Program, Institute for a Sustainable Environment, 5247 University of Oregon, Eugene, OR 97403-5247. This work was partially supported by Pacific Northwest Research Station.

Abstract

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This survey identifies and defines innovative contracting mechanisms developed in the Forest Service Pacific Northwest Region and northern California. A survey of nine case studies reveals that several new mechanisms have facilitated ecosystem management, quality jobs, and administrative efficiencies, but at times innovation was hampered by Forest Service institutional structures and downsizing.

Keywords: Contracting, stewardship, innovation, workforce development, economic development, ecosystem management, Pacific Northwest, rural communities.

Executive Summary

Introduction

The simultaneous downsizing of federal land management agencies, the shift toward ecosystem-based management, and renewed attention to rural community well-being have spurred reform of service and timber sale contracting in the Forest Service. Contracting mechanisms were created with an industrial forestry model in mind and need adaptation to implement new management objectives.

The Forest Service in conjunction with nongovernmental organizations and rural communities has begun to experiment with new ways to shape contracts that meet the goals of ecological and community well-being. Innovations began in the mid-1990s in ranger districts and national forests. Specifically, innovators began to think about contracting new types of work, bundling tasks, trading goods for services, creating end-results contracts, and inserting new skills and knowledge requirements.

Purpose of This Report

This study:

- Identifies and defines innovative contract mechanisms and components that have been tried over the past several years in Oregon, Washington, and northern California.
- Offers project profiles to illustrate how these mechanisms have been developed and used in practice.
- Considers how these mechanisms affect ecosystem management (especially ecological restoration and quality jobs) and administrative efficiency.

Method and Approach

This study considers contracting efforts that sought to increase the ability of the Forest Service to implement the multiple goals of ecosystem management, especially ecological restoration and fostering quality jobs in rural forest communities. The study describes nine contracting innovations based on 32 telephone interviews and review of contracts and other documents about contracting innovation. It presents definitions of key contract components and approaches such as bundling, best value, requests for proposal, and HUB zone set-asides. In addition, it distinguishes between timber sales and service contracts and discusses contracts that combine procurement of services and disposal of timber. The study profiles the contracting innovations of nine examples:

1. Antelope Pilot Project (Winema National Forest)
2. Starkey Fuel Reduction (Wallowa-Whitman National Forest)
3. Forks Demo Fuel Reduction Project (Malheur National Forest)
4. Grassy Flats Stewardship Project (Shasta-Trinity National Forest)

5. Black Pine Lake Campground Vegetation Management (Okanogan National Forest)
6. Littlehorn Wild Sheep Habitat Restoration (Colville National Forest)
7. Willamette Province Workforce Partnership (Willamette and Siuslaw National Forests with Eugene and Salem Districts, BLM)
8. Baker City Watershed Rehabilitation (Wallowa-Whitman National Forest)
9. Prescribed Burning and Thinning (Wallowa-Whitman National Forest)

Four of the nine examples were designated as National Stewardship Pilot Projects by the Forest Service, which offered them special authorities such as exchanging goods for services and designation by description, whereas the remaining projects used existing authorities.

Summary of Key Findings

The study reveals several common characteristics of innovative contracting efforts in the region:

- Nearly all contracting efforts faced institutional barriers that hampered innovation.
- Several mechanisms expand the capacity of the Forest Service to undertake ecological restoration, especially service contract with an embedded timber sale, goods for services, and best-value criteria.
- Nearly all projects identified mechanisms that could reduce administrative costs.
- Only a few projects considered economic benefit directly, but contractors generally benefited from new contract structures, especially those that combined several tasks to take place on the same plot of ground.

Barriers and Opportunities

The projects faced considerable institutional barriers, but when Forest Service staff and their community partners worked through these barriers, they reported that many of the innovations improved ecosystem management, administrative efficiency, and quality jobs, and many planned to use the mechanisms again.

Institutional barriers—Whether projects were designated as national pilots or used existing authorities, the innovative efforts faced many of the same institutional barriers:

- Lack of interdepartmental communication, especially between planning, timber, and procurement staffs, sometimes led to confusion and conflict.
- Innovators at the district or forest level frequently experienced resistance from superiors at the forest, regional, or Washington Office levels. High-level administrators were slow to provide clear support and authority to innovate and use particular mechanisms.
- Staffing in the Forest Service decreased faster than the agency's workload, which appeared to lower morale and burn out staff. Staff said that they did not have time to complete their work, much less innovate.
- Constant and repeated personnel turnover combined with slow replacement procedures increased the workload of would-be innovators and led to institutional memory loss. Several projects lost all but one or two staff members in less than a year.
- Projects depended on a few committed staff who knew their jobs well, were creative thinkers, and were committed to making improvements.

- Ecosystem management and quality jobs innovations suffered from lack of adequate funding for project implementation and staffing, thus creating incentives to develop innovations that decreased administrative costs, sometimes at the expense of creating quality jobs.
- Many projects did not include biological and socioeconomic monitoring, and those that did rarely included information that could be used to directly measure the economic impacts created by the projects.

Opportunities for ecosystem management—Four mechanisms—service contract with an embedded timber sale, bundling, best-value evaluation criteria, and end-results contracts—appear to have had a direct impact on the Forest Service’s ability to implement ecosystem management.

- The service contract with an embedded timber sale makes thinning for fuel reduction viable in a wider variety of circumstances and appears to reduce the environmental impacts of thinning activities.
- When bundling tasks on the same ground and at the same time, environmental and aesthetic impacts could be reduced by minimizing the people and equipment moving in and out of a worksite.
- Best-value contracting may facilitate high-quality ecosystem management by eliminating firms that have performed poor work in the past and creating incentives to perform high-quality work.
- End-results contracts that require the contractor to create a particular biological condition rather than work from a narrow prescription provide the contractor with the flexibility to tailor the work to the ecological needs of the site.

The remainder of the contracting mechanisms reviewed here, such as commercial items, HUB zone set-asides, etc., appear to be neutral with respect to ecosystem management.

Financial efficiencies—In addition to ecological improvements, several mechanisms appear to lower administrative costs compared to more traditional contracts. Contract innovations, such as indefinite delivery-indefinite quantity (IDIQ), bundling, and timber sales embedded in a service contract, that combine several tasks into one contract appear to reduce contract development and administration costs by decreasing the number of contracts the procurement staff must advertise and administer.

- Bundling, the service contract with an embedded timber sale, and the goods-for-services contract also may reduce the costs associated with mobilizing equipment and completing the prescribed activities.
- Goods for services appears to offer a second savings because the timber revenue is applied directly to the cost of the service work.
- Designation by description also promises savings in timber sale contract preparation.
- Some cost savings have the potential to negatively affect ecosystem management and quality jobs if taken to an extreme.

Quality Jobs—The Ecosystem Workforce Program at the University of Oregon defines quality jobs to include (1) high wages and benefits, (2) healthy and safe workplaces, (3) long duration, and (4) skill standards. In addition, rural community advocates argue that communities located near national forests should benefit economically from federal land restoration.

1. Wages and benefits—Although the evidence is inconclusive, goods for services may have increased wage rates owing to the contract structure, because including road work and logging in a service contract makes them subject to federal minimum wages.
2. Safety and health—No information was available about worker safety and health.
3. Contract duration—In general, the duration of contracts in this study was longer than is current Forest Service practice. Contractors, especially those who specialize in labor-intensive work, said that these contracts were much longer than normal and that contractors preferred them because they provided flexibility and stability.
4. Skill standards—Although generally without formal skill standards, the solicitations in the study considered contractor skills through best-value evaluation criteria. However, the consideration of skill and past performance relative to price varied considerably. Some contractors preferred the best-value contracts because they performed high-quality work, had good reputations, and wanted to be rewarded, but some contractors worried that “good ol’ boy” systems might develop.
5. Local benefit—In this study, local capture of contracts was fairly high compared to standard contracting—about 75 percent. Forest Service outreach and prebid meetings may have been factors in attracting local bidders. The HUB zone set-asides also may increase capture by disadvantaged rural communities.

Conclusion

Despite the difficulty that innovators faced when creating these contracts, several of the mechanisms seem to improve ecosystem management, provide local economic benefit, and increase administrative efficiencies. For example, well-structured bundled and IDIQ contracts can increase flexibility and stability for both the Forest Service and contractors. Goods-for-service contracts and timber sales embedded in service contracts allow fire hazard reduction in new areas and provide diversification for logging firms. Best-value contracting using evaluation criteria that reward high-quality work and a skilled workforce can help the Forest Service meet multiple objectives including quality jobs and improved ecological conditions.

Along with these revealing opportunities, this study offers some cautions. First, the quest for administrative efficiency sometimes obscured the goals of ecosystem management and quality jobs. Second, limited data collection and monitoring will make determining the long-term biological and economic effects of these and other contract innovations difficult. Finally, although many of these contracts worked just as innovators had hoped, institutional structures inside the agency appear to be inhibiting innovation and slowing progress.

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Introduction

Origins of Contracting Innovation

The simultaneous downsizing of federal land management agencies, the shift toward ecosystem-based management, and renewed attention to rural community well-being have spurred reform of service and timber sale contracting in the USDA Forest Service. The rise of ecosystem-based management has shifted the type of work that the Forest Service seeks to accomplish. But, because of downsizing, the Forest Service has often not had the in-house personnel to perform such tasks. For rural communities, downsizing has greatly decreased the number of seasonal and permanent Forest Service jobs available to residents. Reduced federal timber harvests and increased harvest and milling mechanization also have reduced the number of jobs available in the private forestry sector, especially in isolated rural communities.

Traditional service and timber sale contracts have often not met the needs of rural communities or federal land management agencies. Traditional service contracts were frequently inaccessible to small businesses and sole proprietors living in rural communities. In at least some isolated rural communities, locals were awarded a low percentage of the contracts. For example, between 1994 and 1999, Lake County, Oregon, firms captured 20 percent of the contract value awarded by the Fremont National Forest and less than 1 percent of the contract value from the Lakeview District of the USDI Bureau of Land Management (BLM) (Kauffman 2001). Similarly, in Trinity County, California, local contractors obtained only 3 percent of the value of reforestation contracts and 7 percent of the value of timber sales from 1991 through 1996 from the Shasta-Trinity National Forest (Danks and Jungwirth 1999).

In addition, traditional contracting mechanisms have sometimes provided limited flexibility for meeting ecological objectives. Contracting mechanisms were created with an industrial forestry model in mind and need adaptation to implement new management objectives. Traditional service contracts, for example, frequently included only a single task even when multiple tasks were to occur on the same site. Similarly, work that involved the removal of commercially-valued timber was separated from postsale tasks, thus requiring multiple entries to the site. Moreover, in the past, much of the work involving removal of trees was done for economic reasons. Currently, federal land managers are directed to manage for ecological objectives (e.g., USDA Forest Service 2001, USDA and USDI 1994), which frequently requires funding beyond what will be returned from selling timber.

Facing these economic and managerial dilemmas, the Forest Service in conjunction with nongovernmental organizations and rural communities has begun to experiment with new ways to shape contracts that simultaneously meet the dual goals of ecological and community well-being. Innovations began in the mid-1990s in ranger districts and national forests. Innovators began to think about contracting new types of work, bundling tasks, trading goods for services, creating end-results contracts, inserting new skills and knowledge requirements, and using commercial items contracts. Personnel from the district level to the Washington Office are now experimenting with these and other forms of contracting.

Purpose of This Report

This study seeks to:

- Identify and define the innovative contract mechanisms and components that have been tried over the past several years in Oregon, Washington, and northern California.
- Offer detailed project profiles to illustrate how these mechanisms have been developed and used in practice, and the challenges and opportunities that innovators faced.

- Consider how these mechanisms affect ecosystem management (especially ecological benefit and quality jobs) and administrative efficiency.

Definitions

Ecosystem management—Ecosystem management is defined in many ways (Grumbine 1997, 1994). However, the mission of the Forest Service since 1992 has been to implement “ecosystem management” (Natural Resources Law Center 1998, Thomas 1997). Ecosystem management moves away from the industrial forestry model that had dominated the federal land management from World War II until the beginning of the Clinton Administration (see also Hirt 1994). Ecosystem management involves the integration of ecological, social, and economic systems. Ecologically, this implies attention to landscape-level process in planning stages and to restoration in implementation. Although driven by ecological objectives, ecosystem management also attends to economic and social needs. For the Forest Service, this has included developing partnerships and considering how management can positively affect the rural communities located near national forests.

Quality jobs—As suggested above, ecosystem management for the Forest Service includes providing benefit to rural communities and creating quality jobs. For example, the USDA Forest Service, Pacific Northwest Region (2001: 21) argues that the outcomes of ecosystem management should include:

Promotion of strong partnerships; . . . quality jobs [that] are created and measured by duration, pay, and benefits; local skills and abilities [that] are utilized to the extent available and practical; economic benefits [that] are retained in the community (to the extent possible) . . .

Requirements and authority to pursue these outcomes lie in a number of different laws, regulations, and directives. Specific language in the national fire plan and county payments legislation, and various congressional appropriations provide different authorities to the Forest Service to consider community benefits and quality jobs during management, as do various regional memorandums of understanding and interagency letters. For example, a joint letter from the Oregon Governor, the State Director of the BLM, and the Regional Forester directs staffs to:

. . . work with your partners in your local jurisdiction or agency to promote the creation of high quality natural resource jobs for local workers. . . We request that all line officers in procurement and management actions will support the goal that by the year 2002 all procurement and management actions will incorporate local social and economic needs. . . (Kitzhaber et al. 1998 as quoted in USDA Forest Service 2001: 14).

A quality job includes high wages, benefits, health and safety, and job durability. In addition, a quality job allows someone to work near home (Ecosystem Workforce Program 2001, Gray et al. 2001, Kauffman 2001, Mitsos 1996).

Innovative contracting—For the purposes of this paper, an innovative contract is any procurement contract, timber sale, or combined contract that uses traditional contracting mechanisms in a new way or creates new mechanisms for implementing ecosystem management, including providing quality jobs or rural community benefit.

Methods

This study considers contracts that sought to improve the ability to implement ecosystem management, including fostering quality jobs in rural forest communities. Because there is no central list from which to choose innovative contracts, cases to profile were identified by asking people inside and outside the Forest Service who they knew of that was doing innovative work. When interviewed, people were asked to identify others to

talk to about their project and other innovations around the region. Based on these suggestions, this document profiles nine projects that involved contracts by the Forest Service or the Forest Service and BLM combined that were awarded or advertised prior to October 1, 2000. The study includes projects from Oregon, Washington, and northern California.

To gather information about particular contracts, 32 telephone interviews were conducted with Forest Service staff (primarily planning and procurement), community activists, and contractors. In addition, contract solicitations were examined along with briefing papers and other documents written by Forest Service or nongovernmental organization staffs on particular projects and the process of stewardship contracting more generally.

Limits of the Focus on Contracting

Because this study examines contracting, it has the potential to neglect other factors that influence success or failure of ecosystem management and quality job planning and implementation. This is particularly true for ecologically-driven management, where goal setting and planning at the landscape scale are particularly important. Similarly, fostering economic development requires attention to more than how work is structured. Some might well argue that contracting is the last step and that procurement officers can only put up projects that are as good as the project planners can create. This is true and an important limit of the focus on contracting. It is also true, however, that because traditional procurement and timber sale mechanisms were created with industrial production goals in mind, they merit attention as the Forest Service shifts to ecosystem management.

Organization of This Report

This document defines the various mechanisms with which innovators have been experimenting and presents nine project profiles that provide detailed description of selected innovative efforts. It examines how particular mechanisms have improved the Forest Service's ability to implement ecosystem management, quality jobs, and administrative efficiencies. A companion piece entitled "Innovative Contracting: Tips for Rural Communities and Local Agency Partners" is available from the Ecosystem Workforce Program, University of Oregon.

Innovative Mechanisms

This section provides definitions of selected components of service procurement and forest products disposal processes with attention to those areas where innovation has been focused. These definitions are drawn from interviews and written interpretation and not from laws, court cases, or the Code of Federal Regulations (CFR), etc. unless cited. The details of many of these terms are contested in important ways and continue to evolve. In particular, government personnel disagree about how much flexibility is afforded to them by existing laws and regulations. Some innovators reviewed laws such as the National Forest Management Act (NFMA), court decisions, and CFR to determine where the lines between law, regulation, and discretion lie. Useful sources in this regard include Blue Mountains Demonstration Area (2001), Contracting Task Force (2001), Monismith (2000), Ringgold (1998), and USDA Forest Service (2001). Readers concerned with the legal specifics should consult federal code, public laws, the Office of General Council, case law, and the Forest Service Manual.

Congress has passed laws prescribing the ways that federal agencies procure services and dispose of federal property. Historically, the processes of selling timber and purchasing goods and services have been entirely separate. The laws governing them are completely different as are the staff that perform these tasks. The laws governing the sale of timber are located primarily in Title 36 of the CFR along with most of the regulations governing the Forest Service. The regulations governing the purchase of goods

and services—including, for example, tree planting, thinning, culvert replacement—are governed by separate titles that apply to the entire federal government. Although these regulations are also part of the CFR, they are more commonly known as the Federal Acquisition Regulations (FAR).

For our purposes, the FAR offer three main mechanisms for soliciting bids for goods and services. These are invitation for bid, request for quote, and the request for proposal. In addition, the CFR offers several mechanisms for disposing of federal property (timber)—primarily administrative use and the timber sale.

Procurement Methods

Invitation for bid (IFB)—When the Forest Service uses an IFB, the agency solicits price offers for services or supplies, and the firms provide the agency with sealed bids. The Forest Service picks the lowest priced bid from among the qualified bidders. Traditionally, the Forest Service has used the IFB (sealed bid) as their primary means of soliciting contractors. For the agencies and bidders, this system was simple and required a minimum of preparation. It tended to provide the agencies with the lowest short-term cost for work. However, it provided little flexibility to agency personnel to refuse a bid from a contractor who did minimally acceptable work, and it provided no mechanism to reward high-quality work.

Prior to the mid-1990s, the Forest Service was required to use the IFB for all contracts over \$25,000 when not using the request for proposal. However, acquisition reforms of the 1990s encouraged agencies to use other methods to procure work, including the request for proposal and request for quote.

Request for proposal (RFP) and request for quote (RFQ)—As they are commonly used by the Forest Service, the RFP and the RFQ are similar tools. The RFQ is generally used for small, relatively simple projects, whereas the RFP is generally used for larger and more complex projects. The Forest Service may use the RFQ for procurement with an estimated value less than \$100,000, or less than \$5 million if the good or service is considered a commercial item (see below). An RFP is used for projects estimated to cost more than \$100,000 unless a sealed bid or commercial items contract is used. The formats of the RFP and RFQ differ, with the RFQ being much simpler. In addition, the advertising requirements for an RFQ are less stringent than for an RFP. Under some circumstances, a contracting officer may solicit offers orally for an RFQ by telephone, whereas an RFP requires a more formal proposal.

Commercial items—Commercial items are goods and services that can be purchased on the open market. When a service is available on the open market, a contracting officer may use a commercial item contract—essentially an RFQ—for contracts with estimated values up to \$1 million.

Best value to the government—One of the key features of both the RFP and the RPQ is that the federal government may consider factors other than price when awarding the contract. Whereas a sealed bid considers only price, with RFP or RFQ, the contracting officer considers the “best value to the government” when making an award. When national forests offer an RFP or RFQ, they can evaluate responses based on criteria that are identified in advance and reflect management goals and objectives. For example, in addition to price, the contractor’s technical proposal, use of removed material, past performance, and contractor experience are frequently included as evaluation criteria in the projects examined in this study. When submitting an offer, a contractor provides not only a price but also a written proposal that responds to the request for information in the contract solicitation.

To evaluate proposals, but generally not quotes, the Forest Service creates a team that rates each proposal based on the criteria laid out in the solicitation. The team is usually made up of people who planned the project and a contracting officer. The team evaluates the proposals and makes recommendations to the contracting officer. During this process, they may consider information that they know about the contractors' past performance. If proposals need clarification, the contracting officer may contact the bidders to get more information. The contracting officer also has the authority to negotiate with the bidders on particular parts of the project. Proposals and prices may change in the course of the negotiation. The original proposal and the components that changed through the negotiation process become part of the final contract. Once the contracting officer and team are satisfied, the contracting officer decides which offer to accept.

The opportunity to award based on best value to the government applies only to procurement and not to timber sales, which must be awarded based on price when being sold competitively. However, the Stewardship Demonstration Pilot Program grants authority to a small number of specific pilot projects to consider best value to the government when selling timber.

Disposal of Timber

As suggested above, different laws govern the disposal of timber (for sale or free) and the purchase of goods and services. Although we think primarily of the timber sale, the Forest Service may give away timber or sell at a low cost under certain circumstances. Trees for firewood is perhaps the best-known example of this. For our purposes, administrative use and the timber sale are defined below.

Administrative use—One of the instances in which the Forest Service may dispose of timber at little or no charge is for “administrative use.” As stated in 36 CFR 223.2, “Trees, portions of trees, or other forest products **in any amount** on National Forest System lands may be disposed of for administrative use, by sale or **without charge**, as may be most advantageous to the United States. . . .” (emphasis added). The regulation goes on to limit the administrative use to five circumstances, including “For disposal when removal is desirable to protect or enhance multiple-use values in a particular area” (36 CFR 223.2). Although infrequently used, these clauses allow the Forest Service to give away timber when the objectives are related to “multiple use” rather than timber extraction.

Timber sale—The primary federal property that the Forest Service sells is timber. The NFMA governs the details of selling timber from national forest lands. The Forest Service sells timber primarily through the bid or a fixed-price contract. Whenever the Forest Service has a project with an appraised value over \$10,000, the Forest Service must advertise the timber sale and then offer it through a sealed or open bid. However, national forests “may sell without further advertisement, at not less than appraised value, any timber previously advertised for competitive bid but not sold because of lack of bids. . . .” (36 CFR 223.85). When a timber sale has an appraised value less than \$10,000 or did not attract bidders, the Forest Service can offer the sale at a fixed price. The price is the greater of the appraised value or what is known as a “base rate.” Base rates are rates below which a national forest may not sell timber. The base rate differs by national forest and tree species. These fixed-price sales are known as premeasured or 2400-3T sales. The 2400-3T timber sale contracts have been an important innovative tool in recent years. Some national forests have linked the 2400-3T timber sale to a service contract to undertake the work that involves the removal of timber but does not contain enough value to attract purchasers.

Linked and Hybrid Service Contracts and Timber Sales

In recent years, there has been much debate and reexamination of what types of activities can be included in a timber sale because the purpose of the timber sale has shifted from being primarily an end goal to being one of many tools for achieving ecological goals. As this change has occurred, Forest Service personnel have disagreed about the amount and kinds of trees that can be included in a timber sale. Some personnel argue that,

Through the discretion granted by the NFMA, Forest Service managers may determine the appropriate mix of economically viable and non-viable forest products in a timber sale contract in order to accomplish land management objectives identified in the environmental analysis (Monismith 2000).

The Contracting Task Force (2001) drew a similar conclusion.

Although the Forest Service may include a variety of material in a timber sale to meet management objectives when selling timber via bid, the Forest Service is required to choose the highest bidder, except under a narrow set of circumstances, such as purchaser debarment. Unlike procurement using the RFP or RFQ, the Forest Service may not consider the best overall value to the government (factors such as logging skills or attention to environmental damage), only the price offered by potential purchasers.

Service contract with an embedded timber sale—As vegetation management has shifted from timber production to ecosystem management, projects that generate economic value for the government have become increasingly rare. Often, silvicultural restoration projects contain some timber that could be sold to a mill once it was removed from the woods, but this income would not pay the full cost of the project.

With a service contract with an embedded timber sale, the successful bidder of the service contract is required to execute the timber sale. More simply, the successful bidder completes a service contract and pays for the removed material at base rates. Generally, an RFP is used to select the contractor by using best-value evaluation. The contract is structured primarily as a procurement instrument, not a timber sale. To use the tool, the timber that is to be removed must have an appraised value less than \$10,000 or have failed to sell through the open bid process (Contracting Task Force 2001).

Goods for services—Generally, the federal government is prohibited from trading goods for services. Exchanging something of commercial value for services that augment appropriated funds is not permitted. A good is “an asset of the federal government that has economic value, i.e., something that the public is willing to pay for” (USDA Forest Service 2001: 55). However, the Forest Service Pacific Northwest Region interprets that,

If a commercial product does not have economic value, i.e., cannot be reasonably sold since the cost of operation exceeds the economic value (a negative appraisal and clearly no market value based on market experience and conditions), the agency can provide removal rights to any successful bidder [of a service contract]. Often if not most times, providing removal rights will reduce the costs of the bid on the service portion of the contract since while the commercial product has a negative appraisal, it does have some form of commercial value to the contractor. The fact that it reduces the costs does not constitute augmentation of appropriations since it is not trading “goods” for services (USDA Forest Service 2001: 57).

Contracting Structures and Components

If the project or a subset of it could be packaged as a viable timber sale, then combining it with service work would constitute a trade of goods for services and would not be permitted under normal circumstances.

In 1999, Congress gave the Forest Service the opportunity to designate 28 national stewardship pilot projects to test new contracting authorities, and in 2000, Congress authorized 28 more. Several of these pilot projects were granted the authority to exchange goods for services. In these instances, the contracts included commercially valued timber and work that the Forest Service would normally have to pay for. In the contract, the Forest Service exchanged goods (timber) for services (other restoration work).

The Forest Service can structure contracts and the work they contain in various ways. Many of the innovative contracts in this study include two or more of the components defined here.

Bundled contracts—Bundled contracts combine into a single contract several work tasks that have been traditionally issued separately. The Small Business Reauthorization Act of 1997 directs agencies to “avoid unnecessary and unjustified bundling of contract requirements that precludes small business participation in procurement as prime contractors” (15 USC 631). However, the Forest Service may design and package work to meet management objectives. This might include combining different types of work that occur in a single area when the purpose is to reduce impact of multiple entries. It might also involve work across larger areas to create longer duration contracts for small businesses and workers or to create administrative efficiencies.

Indefinite delivery-indefinite quantity (IDIQ)—Traditionally, Forest Service contracts were written for a specified amount of work to be accomplished in a specified amount of time for a specified amount of money. In an IDIQ contract, the agency offers a contract that contains a minimum and maximum amount of work that the contractor will be asked to perform. The contractor submits a per-unit (often per-acre) bid based on sample units (acres) that the Forest Service wants to treat. When signing a contract, the government and the contractor commit to a minimum amount of work and a contract start and end date. The government then issues task orders to request work during that time period.

Multiple-award IDIQ solicitations—The multiple-award IDIQ is similar to a normal IDIQ except that it awards the work to several different contractors based on a single solicitation; i.e., each awardee will get a minimum amount of work at their proposed prices. Services are purchased by using a task order rather than new contract.

Performance-based, end results—Performance-based, end-results contracts focus on the desired outcome rather than the way the contractor is required to achieve those results. The contract financially rewards the contractor based on the extent to which the firm achieved the end result, not whether the firm used a particular method or prescription to get to that result.

Designation by description—In service contracts, the Forest Service commonly designates a work to be performed by description rather than marking every action to be taken. For example, in a precommercial thinning project, the Forest Service may describe the types of trees to be cut. For example, a contract may specify: cut all trees less than 6 inches diameter at breast height (d.b.h.), leave trees between 6 and 12 inches at 18-foot spacings, and leave all trees more than 12 inches. However, the NFMA says that the Forest Service, not the purchaser, shall designate the timber that it sells. Consequently, the Forest Service cannot give a timber sale purchaser discretion about

which merchantable trees to harvest. With the increasing emphasis on harvesting small-diameter trees, tree marking has become expensive both in labor and paint. Some management units have sought ways to designate commercial timber for harvest by description rather than marking so that the purchaser does have discretion about which trees to cut.

Set-Asides

In general, rules governing procurement are designed to provide fair access to government contracts and the lowest price to the government by maximizing competition. There are several exceptions to the principle of free and open competition, however, that are designed to provide economic benefits to certain types of firms. The largest of these is the small-business set-aside program. Additional set-asides are permitted for qualified small firms owned by people from disadvantaged groups and firms located in economically distressed areas. The Small Business Administration coordinates all of these set-aside programs as well as several others not discussed here. Although not a set-aside program, appropriations legislation passed by Congress for Fiscal Year 2001 permitted the Forest Service to target certain funds to small and micro firms and not-for-profit organizations that hire and train local workers.

Small business set-asides—With a few exceptions, the federal government is required to set aside for small businesses nearly all contracts that a small business could perform, and the Forest Service sets aside most of its contracts for small businesses. Generally, small forestry services businesses are defined as having less than \$5 million dollars in annual revenue. In heavy construction work such as road building, small businesses are defined as having less than \$27.5 million in annual revenue (USDC Bureau of the Census 2001). Generally, in the Pacific Northwest, forest contracting firms are well below these minimums.

Disadvantaged business [8(a)] set-asides—In addition to general small business set-asides, the Forest Service may restrict the bidding pool to qualified disadvantaged firms, so-called 8(a) firms. To qualify for this program, the business owner must be from a traditionally disadvantaged group such as African Americans, Native Americans, Hispanics, or some Asian Americans; own the company; have limited net worth; and be growing the company (Small Business Administration 2001b).

Historically underutilized business (HUB) zones—In 1997, Congress directed the Small Business Administration to identify HUB zones. These zones are Indian reservations, impoverished rural counties, and qualified urban census tracts. Rural counties qualify as HUB zones when they have a median household income less than 80 percent of the statewide average or have an unemployment rate greater than 140 percent of the statewide average. To qualify as a HUB zone firm, a business must have its primary office in a HUB zone, and 35 percent of its employees must live in a HUB zone. Once signed up for the program, firms are eligible for federal contracts that are set aside for HUB zone firms.

Federal agencies, including the Forest Service can offer three types of HUB zone set-aside contracts. A contracting officer must restrict competition to HUB zone firms if the contract has an estimated value of over \$100,000 and the contracting officer expects that he or she will get at least two qualified HUB zone bids and that the contract can be awarded at a fair market price. A contracting officer may award a sole-source HUB zone contract if he or she does not believe that two or more qualified bidders will submit offers and believes that a contract can be awarded at a fair market price. Finally, a contract can be awarded with a price evaluation preference. That is, a contracting officer can hold a full and open competition, and the HUB zone or small business offer

will be considered lower than a non-HUB zone/nonsmall-business offer as long as it is not more than 10 percent higher (Small Business Administration 2001a).

National fire plan funding—In 2000, Congress passed legislation that, among other things, provided the Forest Service the authority to offer preference to local firms when awarding contracts funded with emergency fuel hazard reduction dollars. Although not a traditional set-aside, this law gave the Forest Service the authority to direct work to local private and nonprofit and cooperative entities, small businesses or micro-businesses, or “other entities that will hire or train a significant percentage of local people to complete such contracts” (U.S. House of Representatives 2000: 89).

Project Profiles

Nine examples of innovative contracts from across the Pacific Northwest Region and northern California describe various mechanisms and suggest how they can be used in practice. In addition, the project profiles reveal some of the barriers to innovation. Tables 1 and 2 provide an overview of the project profiles and the mechanisms they used.

Antelope Pilot Project

Innovative mechanisms—Goods for services, designation by description, best value, sale by acre rather than volume of removed trees.

Project development—The 1,664-acre Antelope Pilot Project is located within a 2,700-acre block of old-growth ponderosa pine near the eastern boundary of Crater Lake National Park in south-central Oregon on the Chemult Ranger District, Winema National Forest. The ecological purpose of the project was to reduce fire hazard, enhance old-growth communities, and improve big game forage while maintaining soil productivity in an old-growth ponderosa pine stand. The project planners decided to accomplish these objectives through a single-entry, small-diameter thinning. The project also sought to identify local opportunities for marketing and utilization of small-diameter material and develop a contract to make the removal of small-diameter material possible.

Project planners applied for Stewardship Pilot Project status and obtained it for a two-phase project. In the first phase, the Winema National Forest hired a consulting firm—Mason, Bruce, and Girard, Inc.¹—to act as a conduit to the public, and explore opportunities for marketing and processing of small-diameter ponderosa pine. The consultant led an integrated team of private and public personnel that examined market trends and researched products and processes, contract types, and procedures. In the second phase, the Chemult Ranger District created and implemented a contract to allow the thinning and removal of small-diameter ponderosa and lodgepole pine (maximum of 12-inch diameter at breast height within the dripline of ponderosa pine greater than 15 inches in diameter and a maximum of 9 inches in open-grown areas) down to 2 feet in height. The intent was to reduce the existing ladder fuels in an old-growth ponderosa pine stand and reduce the potential of stand-replacement fires and also to protect the adjacent Crater Lake National Park lands.

Contract development—The Antelope Pilot Project harvest contract had several innovative components. First, to minimize thinning costs, project planners created a goods-for-services contract in which the Forest Service traded commercial timber for thinning services. The project’s stewardship pilot status made the goods-for-services provision possible. Second, to lower project preparation costs, project planners designated

¹ The use of trade or firm names in this publication is for reader information only and does not imply endorsement by the U.S. Department of Agriculture of any product or service.

Table 1—Location, solicitation mechanism, duration, and contract value of case studies

Project name	National forest	Ranger district	Service contract value	Stewardship pilot	Solicitation mechanism	Duration	Status ^a
Antelope Pilot Project	Winema	Chemult	42,282	Yes	RFP	28	Underway ^b
Baker City Watershed Rehabilitation	Wallowa-Whitman	Baker	1,453,125	Yes	RFP	26	Completed
Black Pine Lake Campground	Okanogan	Methow Valley	25,000		RFQ	6	Completed
Forks Demo Fuel Reduction Project	Malheur	Prairie City	37,000		RFQ	13	Underway
Grassy Flats Stewardship Project	Shasta-Trinity	Hayfork	NA	Yes	RFP	Unknown	Not let
Littlehorn Wild Sheep Habitat Restoration	Colville	Republic	309,615	Yes	RFP	50	Underway
Prescribed Burning and Thinning	Wallowa-Whitman	Forest-wide	IDIQ ^c		RFP	36	Underway
Starkey Fuel Reduction	Wallowa-Whitman	La Grande	600,534		RFP	39	Underway
Willamette Province Workforce Partnership	Willamette ^d	Multiple	10,253-125,846		RFQ	1-36	Ongoing

^a NA = Not applicable.

IDIQ = Indefinite delivery-indefinite quantity.

RFQ = Request for quotation.

RFP = Request for proposal.

^a As of July 1, 2001.

^b Contract implementation underway.

^c Minimum = \$167,000 and maximum = \$1,163,000.

^d Contracts also included work from the Siuslaw National Forest, and the Salem and Eugene Districts of the Bureau of Land Management.

Table 2—Innovative contracting mechanisms

Project Name	Service contract			Designation by description	Bundling	Multiyear contracting	Performance based	End result	IDIQ	Commercial goods	Non-traditional tasks
	Goods for services	with an embedded timber sale	with removal rights								
Antelope Pilot Project	X			X		X					
Baker City Watershed Rehabilitation	X				X	X					
Black Pine Lake Campground			X		X						
Forks Demo Fuel Reduction Project		X									
Grassy Flats Stewardship Project	X				X						
Littlehorn Wild Sheep Habitat Restoration	X			X	X	X	X	X		X	
Prescribed Burning and Thinning					X	X			X		
Starkey Fuel Reduction		X				X					
Willamette Province Workforce Partnership					X	X			X		X

IDIQ = Indefinite delivery-indefinite quantity.

the timber to be harvested by description. Third, project planners gave the bidders flexibility in harvesting methods but required that they describe their harvest plan in detail. Finally, the contract required that the successful bidder report cost and income information to the Forest Service to help evaluate the economic impacts of the contract. To reduce thinning costs and create a contract that could meet all management objectives with a single entry, project planners combined contract language from timber sale and service contracts, an opportunity afforded to them by the national pilot project designation.

Project planners reduced sale preparation costs by designating the trees by description rather than individually marking each tree to be harvested. This reduced cost in both time and paint. Because the Forest Service is required to designate which trees a purchaser may cut, the challenge was to create a mechanism that did not give the purchaser discretion and ensured that the prescription had been followed in the absence of the traditional paint mark at the base of the tree. To enable harvest to be evaluated, a project planner created the “cut stump diameter.” The contract solicitation defines a cut stump diameter (CSD) as the diameter of a tree or stump 2 inches above the ground on the uphill side. The planners correlated CSD with the more traditional d.b.h. for ponderosa pine, the dominant species in the stands. Writing the prescription using cut stump diameters enabled the Forest Service to measure stumps to ensure that only the prescribed trees had been cut. With these terms and measurements in place, project planners wrote the harvest prescription based on the CSD instead of the d.b.h. The prescription was straightforward, required the removal of certain trees, and did not provide the contractor with much room for interpretation.

Another process used to reduce sale preparation costs was to sell the contract by the acre rather than by a standard volume of product such as board or cubic foot. This allowed the Forest Service to provide a rough estimate of volume and place the responsibility to calculate volume on the potential purchasers. This eliminated the need for the standard method of volume calculations by cruising the material on a stand-by-stand basis.

The project sought to remove small-diameter material economically. A required report was to include information about logging costs broken down by equipment, labor and labor overhead, haul, general and administrative overhead, and road maintenance. In addition, the contractor was required to report the income received from the removed material broken down by payment unit and three diameter classes. Finally, the contractor had to calculate per-acre production rates listed by diameter class and payment unit. Some potential bidders were concerned about revealing information about their logging operations and profitability. Ultimately, the Forest Service argued that it needed this information to evaluate the viability of the contracting experiment.

Solicitation and award—The Winema National Forest sent out a request for proposals to solicit bids and planned to award the contract based on the best value to the government. The RFP asked that bidders describe how they would harvest the material, identify their work schedule, and describe how they would report economic information about the project. In addition, the solicitations also requested information about the bidder’s experience so that the Forest Service could evaluate their past performance.

After releasing the solicitation, the project planners held a presale meeting and field trip but did not offer training about how to respond to a request for proposal. In retrospect, some staff thought that they should have offered training because the bidders were logging firms who were largely unfamiliar with requests for proposals.

The forest received five diverse proposals with widely ranging prices. Some staff felt that the proposals did not provide enough information about what the contractors planned to do. Although at least one person wanted to accept proposals immediately, the project planner insisted that they ask the contractors to clarify their proposals, especially to provide more information about the costs and income associated with implementing the project. Forest staff provided the bidders with more guidance about how to write a proposal, and bidders provided more information. Using these revised proposals, the evaluation team chose a logging firm from Winchester, Oregon, about 100 miles from the project site. Bidders had the option to propose that the government pay the contractor or that the contractor pay the government. The winning bidder proposed that the government pay him about \$24 per acre or about \$42,300.

Although the project team eventually agreed to focus on obtaining the best value and soliciting proposals that met land management objectives, timber sale staff, project planners, and contracting officers sometimes disagreed during contracting development and solicitation in part because staff were unsure about the procedures of other departments.

Implementation—According to one project planner, “on the ground, the project went better than envisioned. We accomplished all that we wanted to and more.” The successful bidder purchased a cut-to-length harvester to cut the larger trees and a forwarder. The harvester felled trees, delimbed them, cut them to length, and left the trees on the ground for the forwarder to pick up. The contractor also leased a forwarder with an Eco-Track system on the rear wheels to minimize soil compaction while increasing traction. Very small stems were felled by hand because it was more cost effective. In addition, trees close to the diameter limit were marked by hand to ensure that the equipment operator did not make mistakes. Although the harvester could have made this calculation, hand marking was more efficient, provided for a more expeditious cut-to-length processing, and ensured less damage to the residual stand.

Monitoring—The Forest Service has developed a multiparty monitoring team that is monitoring costs associated with logging and removal of material including labor, equipment, and overhead costs, and income. The contract requires that the contractor report this information to the Forest Service.

Starkey Fuel Reduction

Innovative mechanisms—Service contract with an embedded timber sale.

Project origins and development—During the 1980s, the La Grande Ranger District of the Wallowa-Whitman National Forest suffered a spruce budworm infestation, and in some stands close to 95 percent of the white fir died. The district harvested some of the die-off before it decayed. However, after 3 to 5 years, most of the timber had decayed to the point where a timber sale was no longer economically viable. This was the case in the Starkey Experimental Forest and Range. The experimental forest had not been harvested because the scientists did not want to upset their controlled research, which was primarily about interactions among elk, deer, and cattle. However, over time, the tree mortality and downed material became so dense that the scientists worried that a stand-replacement wildfire might destroy their research entirely. In the late 1990s, the ranger district and the Pacific Northwest Research Station began a project to remove dead and down woody material from 1,782 acres in the experimental forest. The goals of the project were to reduce the risk of wildfire that would damage natural resources and research facilities, allow for the reintroduction of fire, not disrupt research, and monitor fuels reduction.

The scientists and district employees planned a treatment together. In addition, scientists created a set of studies to examine the reaction of deer, elk, and bats to the treatments. Project planning largely occurred in-house, although the Governor's Citizen Panel of the Blue Mountains Demonstration Area visited the site and reviewed the project.

Contract development—Initially, the district staff proposed one large timber sale. However, it was appraised at a value of negative \$700,000 and therefore was unlikely to sell. Using a traditional procurement approach, planners estimated that it would require \$1,500 per acre or \$3 million to complete, not calculating any possible income from the sale of timber. Three million dollars was well beyond the funding available at the forest level.

A contracting officer from another forest suggested that they separate the work into a service contract and an associated timber sale. This contracting officer had learned about this approach at a meeting on contracting innovations hosted by the Collaborative Learning Circle (Ashland, OR) and the Watershed Research and Training Center (Hayfork, CA). Starkey Project participants turned to the draft Contracting Task Force Report (Contracting Task Force 2001) for assistance on how to create a service contract with an embedded timber sale. However, the contracting officers and timber sale planners were not comfortable with the task force report, especially because the Chief of the Forest Service had not yet signed it.

Rather than following the task force report completely, the contracting officers and timber sale planners examined original legislation—especially NFMA—and case law to determine what could be included in a timber sale and what belonged in a service contract. Reviewing laws and legal precedents in combination with discussions with the USDA Office of General Council proved to be useful for settling issues such as, “Does the Forest Service have the authority to include forest products in a timber sale contract when those products are not commercially viable?” Project planners needed to understand how much nonsawtimber they could include and still have a timber sale. This was particularly important because the Starkey project had only 3 million board feet of sawtimber but 11 to 12 million board feet of nonsawtimber. They found that the case law allowed for considerable flexibility about the silvicultural work that could be included in a timber sale. One of the timber sale planners documented their research and logic (Monismith 2000).

As a result of these investigations, the contracting officers and project planners separated areas into timber sales that could be sold, and created a timber sale that included all the remaining sawtimber and as much of the nonsawtimber as possible without creating a wildly negative sale. In the end, the timber sale was appraised at negative \$30,000, well below the positive \$10,000 limit allowed for a noncompetitive timber sale. The remaining nonsaw logs were placed in a service contract along with other tasks such as slash disposal. The successful bidder on the service contract was required to purchase the timber sale at base rates and execute the sale. Because the Forest Service requires that timber be sold at an artificial minimum, the timber was sold to the successful service contract bidder at approximately \$59,000 despite the negative \$30,000 appraisal.

The Contracting Task Force (2001) recommended that the service contract contain most of the provisions and that the timber sale be skeletal. However, because of regional-level concerns that a four-page timber sale contract would not provide the federal government with adequate legal recourse, project planners agreed to repeat many of the requirements of the service contract in the timber sale.

When the Wallowa-Whitman National Forest originally let the contract, it contained bid items for thinning and roadwork. The staff subsequently worked with the Department of Labor and determined that the road work was not subject to Davis-Bacon wages but rather was “incidental to the service contract work and therefore can be included in the service contract wage rates” (USDA Forest Service 2000). The forest deleted the separate bid items and included that work in the total acreage price.

Solicitation and award—The contracting officers used a request for proposal with best-value provisions to obtain bids. To obtain the quality of proposals they wanted, planners “spent a lot of time refining the process early, before we put the contract out to bid.” They wanted to keep the solicitation simple. As one person put it,

We asked contractors to tell us about systems but we don’t want them to have to hire a professional forester to lay out a stand. We asked contractors to provide a general statement of equipment that they are going to use and a sequence of operations and then [we could] weigh it against all others. We tried to take the complexity out. That way we were able to look at past performance, experience, operations plan, and scheduling.

The team evaluating the proposal included a contracting officer, two timber sale planners, and two fire staff members. Except for the contracting officer, the team had little experience with service contracts. According to the people I interviewed, they experienced difficulties moving between the timber sale and the service contract. They agreed, however, that their combined experience improved the evaluation.

The contracting officer knew that the firms who were likely to bid on the project would be traditional timber sale purchasers, not service contractors. To ensure they received high-quality responses to their request for proposal, the contracting officer held a prebid meeting, which several contractors attended. The contracting officer explained the contract in detail and talked about how to write a proposal. In addition, the contracting officer and potential bidders took a field trip to the project site. By all accounts, this approach led to good proposals, although the bidders’ prices differed considerably. The contracting officer’s experience and ability to communicate matter-of-factly created confidence among the potential bidders and led to good proposals.

The contracting officer had the team members rank the proposals based on past performance, technical proposal, material, and utilization before letting them see the price. He believed that seeing the price would affect how the team evaluated the other criteria. The team reviewed the technical proposal, past performance, and price and then selected a contractor from Baker City for a price of \$600,534.

Implementation—The forest awarded the contract just prior to the end of fiscal year 2000 and implementation began in summer 2001. This project raises some of the challenges surrounding the implementation of the service contract with an embedded timber sale. Because the time scheduled for the harvest was important to the researchers, the Forest Service contract limited the flexibility compared to a traditional timber sale and gave more credit to proposals that promised to complete the project in a shorter period. In addition, a service contract with an embedded timber sale does not include price adjustment clauses that are found in traditional timber sales. Consequently, although the Forest Service considered this primarily a service contract, the contractor was still dependent on timber and fiber markets to recoup costs. Yet, the contractor was more vulnerable to price fluctuations than is normally the case in traditional timber

Forks Demo Fuel Reduction Project

sales. In the summer of 2001, the low price for chip material was slowing implementation because the contractor suddenly had to find new markets for chips as well as shift from chipping on site to hauling whole logs to a chipping facility.

Monitoring—The scientists working at the Starkey Experimental Forest are analyzing the effects of the project on deer, elk, and bats.

Innovative mechanism—Service contract with an embedded timber sale.

Project development—The Forks Demo Fuel Reduction Project on the Prairie City Ranger District, Malheur National Forest, incorporated lessons from the Starkey project. Although the timber staff was different, the same service contracting staff participated. Consequently, the project was quite similar but less challenging because several of the people had been through the process before. As with Starkey, the project sought to reduce fire hazard and protect soil in an area where fire hazard reduction would require removal of some merchantable timber but not enough to make a viable timber sale.

Contract development—In developing a service contract with an embedded timber sale, Prairie City staff applied lessons from the Starkey project and the Contracting Task Force Report, which the Washington Office had not yet approved. As with Starkey, the most difficult part was identifying which work belonged in the timber sale and which work belonged in the service contract. Also similar to Starkey, staff had difficulty getting the project approved by the Washington Office, although support from the Regional Office was more forthcoming than it had been for Starkey.

Solicitation and award—The solicitation was a request for quote rather than an RFP as had been used for Starkey. The forest was able to use the simpler RFQ because the project was below the \$100,000 threshold for simplified acquisitions. The contract required that bidders provide information about how they planned to utilize the material, the equipment to be used, and how the equipment would be used. The Forest Service received four bids that were all from local bidders, and the prices were within 25 percent of each other. The government awarded the contract to a firm from Baker City for approximately \$37,000.

Implementation—This project had not been implemented as of this writing. The contractor's bid included a plan to market sawtimber locally except perhaps selling some of the larger material to a log home manufacturer. The contractor planned to sell pole-size material down to 3 inches to one of the pole manufacturing mills in the local area. Chip material would be chipped on site and marketed locally by a subcontractor.

Monitoring—None.

Grassy Flats Stewardship Project

Innovative mechanisms—Goods for services, multidisciplinary bundling, and local benefit.

Project development—Grassy Flats is a 788-acre project on the Hayfork Ranger District, Shasta-Trinity National Forest, in northern California. The process originated in 1993 when local residents began an innovative planning effort to pilot ecosystem management on the Hayfork Ranger District. The closure of the last mill in Hayfork in 1996 gave additional impetus to the effort. In 1997, the Trinity Bioregional Group brought together contractors, the Forest Service, and environmentalists, as well as the leader of a local tribe, key community residents, and a local mill owner to form the Trinity Stewardship Group. In the early stages, the Watershed Research and Training Center, a community forestry organization in Hayfork, California, staffed the effort by organizing

meetings, providing meeting announcements, and writing up minutes. Through months of meetings in winter and spring 1997, the collaboration developed a series of goals for a project. They included retaining contractor capacity, improving community well-being by allowing contractors to work near home, implementing ecosystem management cost effectively, helping the Forest Service and the private sector make the transition to ecosystem management, and learning from the experiment.

The collaborative group wanted to create a project that was long duration (three seasons), multiyear, and multitask. Group members wanted a single contract that would treat all the needs of an area. They wanted the contract to be small and scaled to the community (i.e., could be done by a small crew and basic equipment). Additionally, they wanted the contract to be awarded by competitive bid but not based solely on price. Although they wanted to build in preference to locals, they did not want to exclude others from bidding.

The group chose to work in the Butter Creek Watershed, where the Forest Service had completed a watershed analysis and numerous environmental assessments with considerable public involvement. With the project area identified, the Forest Service and the collaborative group applied for conventional funding for vegetation management. They also applied for national pilot status to test goods-for-services and local-preference authorities. Both the Regional and Washington Offices ranked the project highly, and the project was approved.

Contract development—The collaborative group sought to design a contract that would implement ecosystem management and would be appropriately scaled in size, duration, and tasks for local contractors and contractors who would hire local workers. To do this, the contract included multiple tasks that local contractors had the capacity to do, including commercial logging, creating a shaded fuel break, thinning a plantation, placing deer protection on leave trees, and performing road maintenance and road obliteration.

Although they had the authority to trade goods for services, the Forest Service chose to create a service contract with an embedded timber sale. The timber was to be sold at base rate, and the solicitation gave contractors an opportunity to bid on each item (precommercial thinning, commercial harvest, timber stand improvement, etc.) separately.

Solicitation and award—The contract solicitation was a request for proposal. In addition to requesting complex information about past performance, the solicitation asked bidders to describe their harvest and slash treatment plan, work schedule, and local hiring plan.

The project was designed to test the local preference authorities available under best-value contracting. The Trinity Stewardship Group (especially contractors) did not want to prevent competition or eliminate nonlocals from bidding. Rather, the group wanted to give extra consideration to firms that would hire and train local workers. Consequently, the solicitation asked contractors to describe their plan for hiring and training local workers and to include the resumés of intended workers. However, the forest and the collaborative group could not agree about the meaning of “local.” In the face of disagreement, the contract did not explicitly request that the bidders define “local” but rather referred to a section that also failed to define “local.” That section did, however, appear to prevent the contractor from designating the local workers as “key personnel” and then not use them.

The Forest Service held a workshop and a prebid meeting to familiarize the contractors with the project. In addition, because local contractors—especially logging firms—were not familiar with writing a request for proposal, the Watershed Research and Training Center offered local training sessions and assistance for contractors interested in submitting proposals. Watershed staff spent considerable time assisting contractors with their proposals. But a confusing solicitation made proposal development difficult. People I interviewed complained of problems such as multiple page-numbering systems, and related requirements that were spread throughout the contract and difficult to find. Compared to other contracts in this study, it was wordy, poorly organized, and complex.

The Forest Service received at least two bids, one of them from a person who had worked closely with the Watershed Center. However, the prices were much higher than the forest expected or could afford, and the forest withdrew the solicitation. At about the same time, a federal court ruling required that the Northwest Forest Plan forests conduct surveys for a number of species that may need protection and therefore special management. Consequently, the forest ceased work on the contract to complete the surveys.

Implementation—In summer 2000, the Hayfork Ranger District completed the required surveys, but as of October 2001, the contract solicitation had not been reissued. A new district ranger and Watershed Center staff met in June 2000 to restart the project. However, during the development of the initial contract, the district had been led by three district rangers and several acting rangers, and had four adaptive management area (AMA) coordinators as well as more than one contracting officer. From the outset, the AMA coordinator had been the project lead, but the Shasta-Trinity National Forest did not replace the last AMA coordinator when he left in 1999. In addition, the local people inside and outside the agencies complained about a lack of forest-level support for the project. In summer 2000, the district began the project again with little institutional memory inside the agency. Luckily, community residents and Watershed Research and Training Center acted as a repository of knowledge about the project and were able to provide district staff with a briefing and a copy of the original contract. Using this information, the ranger district began to redesign the project to fit within the available budget.

Monitoring—The ranger district and its community partners developed an initial monitoring plan in 1998 that included monitoring of social, economic, and biological indicators. The monitoring plan will have to be modified and the monitoring reconstituted when the revised Grassy Flats Project area and activities have been determined.

Innovative mechanism—Service contract with removal rights and bundling.

Project origins and development—Black Pine Lake Campground on the Methow Valley Ranger District, Okanogan National Forest, in north-central Washington had a number of mistletoe-infested trees that had become a hazard for fire. Methow Valley Ranger District staff prepared a timber sale to remove the trees, but no one bid on the sale. Staff reconfigured the sale and put it up for bid a second time, again with no bidders.

Contract development—At this point, project planners created a 30-acre service contract. The contract required the successful bidder to prune some trees and fell and remove others. Using an administrative use permit, the Forest Service transferred the ownership of the trees to the contractor once they were removed from national forest

Black Pine Lake Campground Vegetation Management

lands. Methow Valley Ranger District offered an administrative use permit because, at the time, the appraised value of the timber was below zero and therefore below the minimum value required for a competitive timber sale, and the trees were being cut for “multiple use,” in this case recreation.

Solicitation and award—In soliciting the bids, the district requested quotes for each of four bid items and evaluated bidders based on price and a number of past performance criteria. The district used an RFQ because project planners had specific ways that they wanted the work done and did not want to provide bidders with much flexibility. The district held a site visit to the campground for interested bidders.

People I interviewed said that putting the contract together was fairly straightforward but Regional Office staff initially challenged the contract, concerned that it was outside the district’s authority.

Implementation—Both the Forest Service and the contractor were pleased with the implementation of the project. A horse logger from Tonasket, Washington, won the contract for \$25,000 and subcontracted the pruning to a tree climber from Oregon. The contractor was particularly pleased that the Forest Service bundled all the work required into a single contract. It saved mobilization costs because the contractor did felling, thinning, slash work, and pruning at the same time rather than in sequence as is usually the case. In addition, conducting all the work simultaneously closed the campground only once for 6 weeks instead of several times as would have been the case using traditional mechanisms.

As the project progressed and it became clear that the amount of slash material that the project involved was going to overwhelm the campground, the Forest Service and the contractor agreed to begin chipping the material. The contractor found a landscaping firm to chip the material, and the price was added to the service contract.

The contractor sold the removed material to three different buyers. Because this project involved some large trees that were safety hazards or were heavily infected with mistletoe, the contractor cut a few trees as large as 5 feet in diameter. Because most mills no longer process large-diameter material, the contractor found few buyers for the logs over 28 inches in diameter. Ultimately, he sold the largest logs to a small local mill.

Monitoring—None.

Innovative mechanisms—Goods for services, bundling, multiyear contracting, designation by description, commercial items, end results, and HUB zone.

Project development—Located on the Republic Ranger District of the Colville National Forest in northern Washington, the Littlehorn Wild Sheep project aimed to improve bighorn sheep habitat for a remnant population of California bighorn sheep. Project planners proposed to increase sight distance for bighorn sheep in stands of ponderosa pine by reducing stem density and canopy closure. In addition, they sought to improve forage by seeding and planting food sources and treating noxious weeds with herbicides.

Originally, planners designed the logging portion of the project as a helicopter timber sale. They put it up for bid along with several other helicopter sales, but it received no bids. It was a 358-acre project with about 450,000 board feet of commercial timber. After the timber did not sell, project planners sought and received national pilot status to test a number of authorities.

Littlehorn Wild Sheep Habitat Restoration

Contract development—The contract included many innovations including goods-for-services, bundling of multidisciplinary work, and designation by description. The non-commercial timber was designated by traditional spacing and species descriptions. In addition, project planners designated commercial timber to be harvested by diameter classes. Project planners decided against using a cut-stump-diameter system like the Antelope Pilot Project had used to measure compliance. They believed it would be difficult to clearly correlate d.b.h. and cut-stump diameter. Instead, the project planners created 29 permanent plots before the project started whose locations were unknown to the contractor. The Forest Service inspector will return to plots to measure compliance. To get full payment, the contractor will have to meet the specifications. Although the project required helicopter yarding, creating and remeasuring plots are not likely to be difficult because the logging was concentrated in one 358-acre area located below a road.

Project planners designed an end-results, performance-based contract to increase sight distance for bighorn sheep. However, staff found it difficult to describe the end results because they were used to thinking about implementation in terms of stems per acre or cutting trees below a specific size. As one person I interviewed put it,

If a particular tree is not cut and is ok [because of appropriate sight distance] then the inspector has to write a justification about why it is ok to leave that tree. This opens up possibilities for the contractor, especially one that is flying a helicopter. If it is not worth picking up a single tree, then chances are that the stand was already open enough and you have likely met the objective.

Project planners hoped that this focus on sight distance rather than exact tree spacing would reduce the contractor's costs and achieve the equivalent biological outcome.

In addition to focusing on results, the contract also bundled several types of related restoration work in a single area. This was done primarily to save money. Initial estimates suggested that it would cost about \$10,000 to develop multiple contracts, but the integration of several different activities into a single contract reduced preparation costs by about \$3,000.

Solicitation and award—The contracting officer used a commercial items contract that requested quotes. Although the government estimate was above \$100,000, the contracting officer performed a market analysis and concluded that all the services the Forest Service wanted were available commercially. When this is the case, the contracting officer may use a commercial items contract. These contracts are essentially RFQs, which are simpler and quicker to prepare than RFPs. In addition, the advertisement and award processes are simpler than for RFPs.

Prior to putting out the solicitation, the project planners spent considerable time discussing the project with contractors and preparing them for the unusual requirements, especially subcontracting. In addition, project planners held a field tour, which three or four contractors attended. They also offered to train contractors in how to write proposals, but no contractors took them up on their offer.

The project had an estimated value above \$100,000, which obligated the contracting officer to evaluate whether to set aside for HUB zone-certified firms. The evaluation found that it was realistic to expect two or more bids from HUB zone firms, which led the contracting officer to set the contract aside. This created some conflict because not all contractors who wanted to bid were signed up with the HUB zone program.

Willamette Province Workforce Partnership

The Forest Service received two offers, both from local contractors. The Forest Service awarded the contract for \$309,615 to a firm located in Republic, the town where the ranger district is located. The contractor had experience with thinning, herbicide application, seeding, and planting and planned to subcontract the helicopter logging.

Implementation—The contractor subcontracted the felling and helicopter yarding to a firm from southwestern Oregon. The logging took place over 2 weeks in summer 2001. Subsequently, the contractor's crew completed the first phase of thinning. Burning was scheduled to follow in fall 2001 or spring 2002, depending on conditions. Additional work, including herbicide application and forage planting, would continue through 2004.

Thus far, the contractor has been pleased with this contract because of the interesting work, long timeframe, and flexibility. Because the work was combined into a single contract to be implemented in several phases, the contractor could plan implementation around other jobs. This helped him ensure consistent employment for his crew while achieving the Forest Service's objectives.

Monitoring—Unknown.

Innovative mechanisms—Multidisciplinary bundling, IDIQ, contracting technical work.

Project development—Initially, the Willamette Province Workforce Partnership (WPWP) was a collaboration among the Willamette National Forest, the Salem and Eugene Districts of the BLM, and community and regional nongovernmental partners. It began as an effort to train displaced timber workers. After implementing a 1-year training program, the partnership decided that it could have a greater impact if it focused on creating demand for high-skill, high-wage forest work. The BLM, Forest Service, and nonagency partners spoke with contractors and workers to determine what sort of contracts would lead to more stable, higher wage work. They combined these ideas with the needs of the agencies to create new contract forms and to contract new types of work.

Contract development—Initially working with Jobs in the Woods funds that came from the Northwest Forest Plan, the partnership created contracts that it hoped would increase the wages and amount of employment forest workers received. The partnership did so by creating multidisciplinary contracts and by contracting technical work. The partnership created contracts that lasted longer than traditional ones, and some involved indefinite quantities. In addition, the partnership agreed to pursue best-value contracting. That is, contracts would be awarded via an RFQ in which bidders would describe their past performance and key personnel rather than a sealed bid, something that was still rare in 1996 when the project began.

The multidisciplinary contracts bundled several different tasks into a single contract. For example, a watershed restoration contract from 1998 included stand exams, pasture conversion, trail logout, road decommissioning, mechanical thinning, precommercial thinning, and fence removal. Another, from 1999, involved noxious weed removal and several different types of thinning. The second type of contract generally involved a single type of technical work such as plant or animal surveys that the Forest Service had not traditionally contracted either because it has done the work in-house or because it was new work for the agency. These contracts included work such as red tree vole and mushroom surveys, harvesting native grasses, and collecting data from research plots. Although initially some viewed the work as requiring advanced biological degrees, the partnership soon agreed that experienced workers could do much

of the technical work. To ensure that the contractors who were bidding on the contracts understood the protocols, the Forest Service held lengthy (up to 2 days) prebid meetings at which agency scientists explained the projects.

In addition to multidisciplinary bundling, the project also combined work from the BLM and the Forest Service into single contracts. This bundling offers a seamless contract across agencies and combines small projects into a more attractive multiproject package. Initially, contracts involved the Willamette National Forest and the Salem and Eugene BLM districts. Over time the project expanded to include the Siuslaw National Forest. When one management unit creates an IDIQ contract, other units may issue task orders against the contract for work in that management unit.

Solicitation and award—Nearly all the solicitations were RFQs instead of sealed bids, as had been standard practice in the mid-1990s. In addition to requesting information about past performance and key personnel, solicitations asked for information about how they planned to hire and train displaced timber workers. Most of the funding for this project came from Jobs in the Woods, which was to be used in part to hire displaced timber workers. At times, the WPWP made use of the best-value provisions of the solicitations to award contracts to firms with excellent past performances with the government and the background and skills to perform the work rather than the lowest bid.

Implementation—Between 1996, when the partnership issued its first contract, and 2000, the WPWP let 31 contracts amounting to almost \$1,380,000. These contracts were issued to 14 contractors, most from Eugene and Corvallis with some of Willamette Valley's small communities such as Sweet Home and Oakridge capturing a contract or two. Table 3 lists the contracts, award amounts, duration, and mechanisms for the program's contracts. Twelve involved multidisciplinary bundling and 5 were IDIQ, with some involving both mechanisms.

These contracts have saved time and money for the Forest Service and BLM. For example, one year, the partnership issued 14 contracts. If these contracts had been structured in the traditional manner, the partners would have had over 70 contracts to solicit, award, and manage. Although some time was spent bringing work together into bundles, these contracts greatly reduced the work of the contracting officers and their field representatives. Similarly, the IDIQ contracts used task orders, which give the BLM and the Forest Service units the ability to order work quickly without a new solicitation.

Contractors liked the project, in part, because they had been rewarded for the quality of the work they perform as well as the price. In addition, the technical work, such as wildlife and plant surveys, have provided higher wages compared to the labor-intensive work that these contractors had performed previously.

Although partnership participants see the WPWP as a successful strategy that can be used in routine operations to create a high-skill, high-wage ecosystem workforce, people I interviewed also agreed that much of the success of the project was due to a few agency staff who have championed the program, constantly making improvements in the face of skeptics and inertia.

Monitoring—Ecosystem Workforce Program and the Willamette National Forest have undertaken a job-results evaluation. Early contracts required contractors to report crew size and wage rates, but this requirement was only implemented for the first few contracts.

Table 3—Willamette Province Workforce Partnership contracts, 1996-2000

Year issued	Contract title	Value	Duration	Mechanisms		
				Bundled	New work ^a	IDIQ ^b
		<i>Dollars</i>	<i>Months</i>			
1996	Watershed restoration, multidisciplinary	49,906	1.00	X	Partially	
1996	Watershed restoration, multidisciplinary	32,231	1.30	X	Partially	
1997	Watershed restoration, multidisciplinary	73,150	4.00	X	Partially	X
1997	Roadside revegetation	18,928	Unknown	X	Partially	X
1997	Instream enhancement	32,950	Unknown	X	X	
1997	Watershed restoration, multidisciplinary	64,726	6.00	X	X	X
1997	Instream enhancement, item 2	32,950	0.50	X	Partially	
1997	Multiagency wildlife snag creation	105,065	27.00		Partially	
1997	Timber stand exams	6,360	Unknown			
1997	Pier 48 platform and Echo Creek bridge	33,950	3.00			
1998	Watershed restoration, multidisciplinary	61,562	19.00	X	Partially	
1998	Vegetation inventory for big game forage	9,000	9.00		X	
1998	Individual wildlife tree release, down woody placement	40,470	6.00		X	
1998	Quartz Creek instream enhancement	12,400	1.00		X	
1998	Watershed restoration	67,360	18.00	X	Partially	X
1998	Native seed inventory	2,470	35.00		X	X
1998	Timber marking	39,612	12.00		X	X
1998	Stream survey document and timber sale boundary	42,088	Unknown		X	X
1998	Watershed restoration, multidisciplinary	66,084	24.00	X	Partially	X
1998	Rock crushing, stockpiling	45,896	0.50			
1998	Storm-proofing and road closure	59,530	Unknown		X	X
1999	Timber cruise	18,162	9.00		X	
1999	Timber marking for commercial thinning	4,402	0.85		X	X
1999	Stream restoration: tree pullover and placement	27,865	2.00		X	
1999	Road condition inventory	13,103	2.50		X	X
1999	Roadside revegetation	12,580	9.00		X	
1999	Multiagency storm-proofing and decommissioning	26,195	Unknown		X	X
1999	Watershed restoration, multidisciplinary	50,878	14.00		Partially	X
1999	Vegetation remeasurement and monitoring	22,168	3.00		X	
2000	Spring fungi survey	63,504	2.56		X	X

^a Work that the Forest Service had not previously done or had not contracted out.

^b Indefinite delivery-indefinite quantity. Includes any contract that had a subitem that was IDIQ.

Baker City Watershed Rehabilitation

Innovative mechanism—Goods for services and designation by description

Project development—The Baker City Watershed Rehabilitation project is located approximately 7 air miles west of Baker City on the east-facing slopes of the Elkhorn Mountains in the Wallowa-Whitman National Forest. The Forest Service and Baker City Municipal Watershed created the project to reduce fire hazard in 660 acres of the 1,000-acre Baker City Municipal Watershed. Baker City is one of three communities in Oregon that does not filter its water supply because the watershed has been well protected. However, 80 years of protection has included the exclusion of fire from the watershed. Project organizers worried that the high fuel load and multilayer stand structure placed the watershed at high risk for a stand-replacement wildfire. In addition, multiple insect infestations throughout the 1980s and 1990s caused extensive tree damage and mortality.

The project was planned to reduce the risk of stand-replacement wildfire by creating a defensible fuel-reduction zone with reduced woody fuel and surface litter (harvest and burning), eliminating ladder fuels (harvest and whipfelling), changing the fuel continuity (piling and burning), and improving the risk profile. Project planners hoped that this would limit fire size and intensity and diminish the chance of wildfire-related sediment from entering the city's water source. After this restoration, the forest staff hopes to reintroduce a 5- to 10-year fire cycle (Danks 2000; Loucks 2001a, 2001b).

Contract development—Initially, the Forest Service created a timber sale to accomplish the fire hazard reduction goals. However, the sale did not receive any bids, apparently because of the low quality of the wood and the high cost of the required helicopter logging. After the timber sale received no offers, the forest applied for and received national pilot project designation to test exchanging goods for services.

Project planners estimated project costs over \$1 million. The high project costs and the national pilot project status led to the involvement of Regional and Washington Office staffs. The Office of General Council's review of the program caused the forest, for example, to add a helicopter safety plan to the contract. People I interviewed reported that one of the project's central challenges was to navigate the internal contracting bureaucracy at the forest, regional, and Washington levels. Communication across levels was difficult and slow and sometimes led to changes in the contract without consultation with the local managers.

Solicitation and award—The forest used an RFP to solicit bids. They held a prebid meeting, and one contractor attended. The forest received four bids, but one was eliminated because it did not come from a small business. The solicitation and contract evaluation process took much longer and was more complex than expected. The solicitation was released in July 1999 but was not awarded until December. One of the challenges was that the initial government estimates were too low. Ultimately, the forest awarded the \$1.45 million contract to a logging firm from Baker City, Oregon.

Implementation—In addition to the \$1.45 million that the Forest Service paid the contractor, the firm estimated in its proposal nearly \$300,000 in timber revenue that would fund service and construction work. The contractor subcontracted the helicopter logging and hand thinning but completed the felling and road work with in-house crews during summer 2000.

In retrospect, Forest Service staff realized that this contract involved many factors, especially related to the materials markets and uncertainty about project specifications, that increased risks for the bidders and, therefore, cost to the government.

Prescribed Burning and Thinning

Monitoring—The Forest Service collected data on water quality, fuel loading, stand structure, wildlife habitat, and soil condition. Monitoring cooperators included Baker City and the Pacific Northwest Research Station.

Innovative mechanism—Multidisciplinary bundling and IDIQ.

Project origin and development—To save money, a few national forests have begun to procure prescribed burning services rather than perform the work with Forest Service crews. One of the challenges of prescribed burning, however, is that it can only be conducted on days with appropriate weather. A crew can mobilize for burning and then be unable to operate for several days. Under these circumstances, the crew is paid but no work is accomplished. The Wallowa-Whitman National Forest wanted to reduce labor and equipment costs and increase crew morale by bundling thinning work with prescribed fire work, anticipating that the contractor would be able to put the crew to work thinning on days when burning was not possible.

Contract development—The contract was fairly straightforward to develop. It did not include particularly unusual authorities but bundled work in a new way by combining prescribed burning and associated activities with thinning and related stand improvement. In addition, this was an IDIQ contract for both prescribed burning and thinning. This would allow the Wallowa-Whitman National Forest to call on the contractors for prescribed burning and thinning via task order. The RFP had evaluation criteria that placed the greatest weight on the firm's experience with prescribed burning.

Solicitation and award—The Forest Service awarded the contract ranging from \$167,152 to \$1,162,969 in value to one of the region's larger forest contracting firms with headquarters in Merlin, Oregon. The selected firm was one of the few in the region that had the capacity to provide prescribed burning services.

Implementation—As the project was implemented, it became clear that the thinning described in the contract could not be completed during the burning season because of constraints caused by the habitat needs of threatened and endangered species. Although the combination of thinning and prescribed burning was compelling theoretically, in order for the bundling to reduce costs and improve crew morale, different kinds of thinning units, ones that could be thinned during burning season, would have had to be included in the contract.

Monitoring—None.

Opportunities for Innovation

These project profiles reveal lessons about the opportunities and challenges to improve ecosystem management, administrative efficiency, and quality jobs by using new contracting mechanisms or old mechanisms in new ways. Prior to reviewing opportunities, however, it is important to point out that efforts at contract innovation were hampered by institutional structures inside the Forest Service that inhibited innovation generally. The contracts that did emerge and flourish are testimony to the commitment on the part of Forest Service innovators and their community partners.

Institutional Barriers

Interviews with agency staff and community partners identified many institutional barriers that slowed efforts to develop and implement innovative contracts. First, most of the projects required intra-agency collaboration, especially between project planning staff and procurement officers. In addition, they also required coordination and agreement between timber sale contracting officers and service procurement staff. Unfortunately, early coordination was slow to occur and often staff from one department did not know

how the other department operated. This lack of interdepartmental knowledge and understanding often led to confusion and conflict because staff from one department proposed changes that staff from another opposed or considered illegal or inefficient. The segmented nature of the Forest Service and the narrow knowledge base of staff inhibited change. The Forest Service's administrative system in which the staff answer to different authorities compounded these challenges.

Second, innovators at the district or forest level frequently experienced resistance from superiors at the forest, regional, or Washington Office level. In many of the cases, district or forest staff designed projects only to have major objections raised at one or more levels above. In some cases, these objections led to constructive changes, but frequently they led to lost time as lower level staff justified their proposals to ensure that their superiors were comfortable with the change.

Third, and related, high-level administrators—especially in the Washington Office—were slow to provide clear authority and support to either innovate or use particular mechanisms. This was most obvious with the Washington Office's long delay revising and approving the desk guide for service contracting and timber sales (Contracting Task Force 2001). This inhibited innovators' ability to persuade other key staff that what they were proposing and implementing was viable and legal. Lacking clear authority, risk-averse staff were not inclined to support new projects and preferred to wait for direction from above.

Fourth, interviews with Forest Service personnel made it clear that staffing had been decreasing faster than the agency's workload. Forest Service staff I interviewed reported that increasing workloads were lowering morale and burning out staff who often felt that they did not have time to complete their assigned work much less foster innovations. This was particularly true of procurement staff, who were increasingly asked to create complex, time-consuming contracts with fewer personnel.

Fifth, high personnel turnover combined with slow replacement procedures also hampered innovation. Agency personnel reported that positions remained open for long periods, further increasing the workloads of would-be innovators. Moreover, constant and repeated turnover and open positions decreased the already short institutional memory. Several respondents said that they lost all but one or two project staff members in less than a year. In one instance, the ranger district went through so many district rangers and project coordinators that when the district picked up the project again after a year-long hiatus, district staff had to obtain a project briefing and a copy of the actual contract from a local nonprofit organization.

Sixth, the interviews made clear that innovations were dependent on a few committed staff who knew their jobs well, were creative thinkers, and were committed to making improvements. Some districts and forests short on personnel with this combination of attributes seemed to struggle with change. And innovations suffered, according to people I interviewed, because some fellow staff members were more concerned about "keeping their heads down" until they could retire than fostering innovations.

Seventh, ecosystem management and quality job innovations suffered from a lack of adequate funding. First, lack of adequate project and administrative funds made it difficult to pay for and administer the proposed projects. The procurement department seemed particularly short of staff. Second, and more subtly, the lack of funding for staffing created strong incentives to develop innovations that decreased administrative costs, sometimes at the expense of creating quality jobs (see below).

Eighth, and finally, some projects did not include biological or socioeconomic monitoring, and those that did plan for monitoring rarely included information that could be used to directly measure the economic impacts created by the projects. This lack of uniform and consistent biological and economic data makes it difficult for the Forest Service or other interested parties to determine whether contracts are having the intended effects.

Challenges, ranging from poor coordination to lack of time and money, made developing innovative contracts time-consuming and challenging for even the most skilled and committed agency innovators. At times, institutional and financial challenges seemed to obscure the goals of ecosystem management and quality jobs. Although innovation is difficult by its very nature, this review identified institutional barriers that hampered its progress considerably.

However, people whose projects had been implemented reported that they were pleased with the results. Forest Service staff said that they discovered things they would do differently but that project implementation generally went better than expected. A few people I interviewed have already used the mechanisms that they tested again. Contractors, as well, preferred these contracts to traditional ones and generally said that they would like to do this sort of work again. Because innovators persevered, we can begin to see the opportunities that innovative contracts may present for ecosystem management, administrative efficiency, and quality jobs.

Ecosystem Management

With the exception of some of the work issued by the Willamette Province Workforce Partnership, the on-the-ground work involved in these innovative contracts were tasks that the Forest Service had been contracting using traditional contracting mechanisms or had been doing in-house. The similarity of work suggests that contracts did not so much change the type of restoration work being accomplished but rather where and how it was accomplished. Four mechanisms—service contract with an embedded timber sale, bundling, requests for quotes and proposals, and end-results contracts—appear to have had a direct impact on the Forest Service's ability to implement ecosystem management. In addition, the WPWP program incorporated new types of work, especially wildlife and plant surveys and native grass seed collection.

The service contract with an embedded timber sale allows fire hazard reduction, makes thinning viable in a wider variety of circumstances, and seems to reduce the environmental impacts of thinning activities. First, by not requiring that there be a positively valued timber sale in order to remove trees, it reduces the incentive to harvest larger trees to create a viable timber sale. Second, combining service and timber work on the same site at the same time may reduce the number of entries, which may in turn decrease impacts to soil, plants, and wildlife. Long-term monitoring will be required to verify these hypotheses.

A second mechanism that appears to facilitate ecosystem management is one type of bundled contract. When all the tasks occur on the same ground and can be completed at the same time, environmental and aesthetic impacts could be reduced. The Black Pine Campground project illustrates how this mechanism works. The contract required that some trees be felled and skidded, that others be pruned, and that the slash be piled or chipped. A single bundled contract allowed the contractor to complete the work with one entry that closed the campground only once for 6 weeks. This approach minimized the people and equipment in and out of the work site.

The third set of tools that may facilitate ecosystem management are the evaluation criteria allowed for with best-value contracting. In sealed bids, contractor experience, skill, and past performance are not considered when awarding contracts; a contractor who performs high-quality work cannot be chosen over another offering a lower price. The best-value evaluation criteria can be used to eliminate firms that have performed poor work. It can also create incentives for firms to perform high-quality work to create a reputation that could increase their chances of being awarded a subsequent contract. Because of the confidentiality of the evaluation process, it was not easy to determine how frequently these evaluation criteria led the Forest Service to choose one contractor over another. But all contract solicitations required that contractors provide information about their past performance, and some required references and descriptions of the skills of key personnel. In three instances, price was the most important evaluation criteria, whereas in three others, past performance or technical capability combined were more important than price. In the remaining two cases, as well as most of the WPWP contracts, the solicitations did not weigh the evaluation criteria. When price is the most important criterion, the Forest Service has limited ability to consider the quality of work completed by firms submitting bids. When past performance and technical capability are evaluated, the Forest Service has a strong method to award work to firms that have a record of high-quality work.

A fourth mechanism that may improve the quality of restoration projects is the end-results contract, such as the type used in the Littlehorn Wild Sheep project. That project required that the contractor create a particular biological condition rather than work from a narrow prescription. This could allow the contractor to choose actions that fit the biological objective in the face of natural variation. Because at the time of writing, the Littlehorn Wild Sheep project had not yet been implemented, we do not yet know how well this approach worked.

The remainder of the contracting mechanisms reviewed in the project profiles, such as commercial items and HUB zones appear to be neutral with respect to ecosystem management. Although we can point to the likely effects of the mechanisms based on logic and the reports of Forest Service staff and contractors, evaluating the biological effects of the contracts and associated mechanisms will have to wait for post-implementation monitoring. However, only five of the nine project profiles had biological monitoring plans, with one case unknown.

Financial Efficiencies

In addition to ecological improvements, several mechanisms appear to lower administrative costs compared to more traditional contracts. Contract innovations, such as IDIQ, bundling, and timber sales embedded in a service contract, that combine several tasks into one contract appear to reduce contract development and administration costs. Both bundling and IDIQ contracts may reduce costs by decreasing the number of contracts the procurement staff must advertise and administer; two contracting officers estimated that cost savings from bundling work amounted to a few thousand dollars.

Bundling and the service contract with an embedded timber sale also may reduce the costs associated with mobilizing equipment and completing the prescribed activities. The cost savings of a service contract with an embedded timber sale can be dramatic for the Forest Service. For example, by combining the timber sale and the service contract in the Starkey project, the contracting officer estimated that a single multipurpose entry saved approximately \$850,000 over the price of two single-purpose entries. The savings did not come from trading goods for services; rather, they came from having equipment and work crews from one firm complete multiple activities while on the site (Bird et al. 2000).

Goods-for-services contracts may result in similar savings when contracted work is accomplished with a single entry where two or more separate entries would have traditionally occurred. Goods-for-services contracts appear to offer a second saving because the timber revenue is applied directly to the cost of the service work. Traditionally, the revenue from timber sales returns to the Federal Treasury, whereas in goods-for-services contracts, timber revenue is applied to the service contract price. For a national forest, this can be a substantial sum. For example, in the Baker City Watershed project, the contractor reduced the service contract cost by about \$300,000 based on the assumption that he would get a similar return from selling the removed timber. The Littlehorn Wild Sheep project also expects timber revenue to expand the amount of restoration work that could be accomplished. Goods for services appears to increase the amount of money that can be used for on-the-ground projects because of reduced overhead associated with shifting money to the Treasury and receiving appropriated funds.

Designation by description also promises savings in preparation costs, especially for timber sales where the Forest Service has traditionally painted every tree to be cut. The two projects in this study that used designation by description reported such savings. The Antelope Pilot Project created the cut-stump-diameter system to monitor compliance. The Littlehorn project planners created a series of undisclosed plots to ensure that the contractor followed the prescription and, especially, did not remove any trees that were not included in the timber sale. In both cases, project planners reported considerable savings in sale preparation costs. In the Antelope Project, however, the contractor hired someone to mark any trees close to the diameter limit to be cut or left. This increased the contract price, although it still appears to have saved money overall.

This discussion of cost-saving mechanisms suggests that innovative contracting has been in large part about saving the Forest Service money and that agency innovators have been successful in this endeavor. However, some cost savings have the potential to negatively affect ecosystem management and quality jobs if taken to an extreme. For example, bundling work into very large contracts, be they multidisciplinary or single discipline, can exclude smaller firms, especially those located in isolated rural communities. Large IDIQ contracts have the same potential to surpass the contracting capacity of firms located in isolated rural communities, again not so much because of the mechanism but the overall size of the contract.

Although several of these contract innovations promise cost savings, the institutional barriers described at the opening of this chapter increase the cost of developing these mechanisms. Project planners spent considerable time gaining permission, coordinating in the face of noncollaborative institutional structures, and waiting as staff departed and new arrivals learned complex project histories. Undoubtedly, innovation can be more expensive than business as usual because it takes time to create new, viable procedures and products. But the frustration that many Forest Service staff conveyed suggests that the cultural and institutional structures made innovation more difficult and expensive than it otherwise needed to be.

Quality Jobs

Suggesting the ecological and financial savings that these innovative mechanisms offer is fairly straightforward compared to determining the economic opportunities that these contracting mechanisms represent. Except for the WPWP contracts, project planners paid little attention directly to structuring work to foster quality jobs. In several instances, the contracts gave preference to contractors who would process the most timber, and the hope of local economic benefit motivated the participation of many community partners. Also, because of cultural norms, it was difficult to get information about

the actual wages, benefits, and other information that would reveal contractors' profitability. Moreover, the Forest Service does not generally collect this sort of information in a way that is available to researchers. At the beginning of the WPWP program, the Forest Service collected wage information, but reporting did not last beyond the second contract. The Antelope Pilot contract required that the successful bidder report information about income and expenses associated with the project, although the report is not due until September 2002. The limited and qualitative information about profitability and wages combined with relatively few cases and large variation in tasks and environmental conditions make it difficult to determine if particular mechanisms improve job quality or raise wages above service contract minimums. Drawing conclusions about economic benefit in these cases is further hampered by the fact that, of the eight non-WPWP contracts included in the study, one had not been let and five more were not completed. Consequently, an analysis of quality jobs relies on information gleaned from contracts themselves and qualitative discussions with contractors.

The discussion of quality jobs turns on two themes—the characteristics of the work awarded and the location of the firms awarded the work. The Ecosystem Workforce Program at the University of Oregon defines quality jobs to include (1) high wages and benefits, (2) health and safety, (3) long duration, and (4) skill standards. In addition, rural community advocates argue that contractors living in rural communities near national forests should benefit from forest restoration (Danks and Jungwirth 1999, Gray et al. 2001, Kauffman 2001, Mitsos 1996).

Although we do not know the actual wages contractors paid their employees, we can derive minimum wage rates because Service Contract Act minimums apply to much of the work involved in this study. In Oregon, the 2001 Service Contract Act wage determination set wages including benefits ranging from \$9.91 per hour for slash piling to \$22.27 per hour for timber falling. Wage rates were \$14.34 per hour for thinning, \$15.38 per hour for heavy equipment operators, and \$16.08 per hour for forestry technicians, whereas the rate for general laborers was \$10.20 per hour.

In a few of the cases, firms paid their workers or subcontractors more than they had in the past, especially when the contract involved technical work or a new, more sophisticated piece of equipment. The WPWP strategy of contracting surveying and other technical work may be raising wages by changing the type of work performed.

Goods for services was the one contracting mechanism that may have changed wage rates owing to its contract structure, although the evidence is inconclusive. The work associated with a timber sale is not subject to the minimum wages of the Service Contract or Davis Bacon Acts. The same work when performed as part of a procurement contract, however, is subject to minimum wage. Consequently, in the goods-for-services contracts, logging and associated road maintenance were subject to service or construction contract prevailing wages. In contrast, placing logging and associated road reconstruction and obliteration in the timber sale exempts them from these minimum wage laws. To the extent that it could be determined, however, contractors said that they paid wages based on the type of work employees were doing rather than whether it was a service or timber sale contract. It is likely that wages were higher when work was subject to Davis-Bacon construction wages rates because they are generally above market rate.

In addition to wages, contract duration is important because long contracts provide contractors with stability that can translate to more consistent income for the firm and its employees. The duration of non-WPWP contracts in the study ranges from just over

a year to slightly over 4 years with an average contract length of 32 months. The average length for the WPWP contracts was 9 months with the shortest being only a couple of weeks and the longest lasting 3 years.

Contract duration can be somewhat misleading, however, because work is not required to occur continuously but proceeds in smaller chunks during the field season. The Starkey and Littlehorn contracts were awarded at the end of the fiscal year and the close of the field season; work did not begin until the following summer. This means that the contractor waited 6 or 8 months for the snow to clear. Nonetheless, contractors, especially those who specialize in labor-intensive work, said that these contracts were much longer than normal. The contractors preferred the long duration because it provided them with flexibility and stability. In lieu of a 20- or 30-day contract requiring work during the whole period, these long contracts allowed contractors to schedule the contract around other work. This was particularly true for the bundled and IDIQ contracts.

Skill standards are also important to consider in our discussion of quality jobs because they have the potential to raise worker compensation by rewarding skilled work with additional pay and by creating barriers to entry for people who lack skills but are willing to work for low wages. Although generally without formal standards, the solicitations in the study considered contractor skills through the evaluation criteria. Nearly all the solicitations required bidders to provide references and state the skills of key staff. The importance of skill and past performance relative to price varied considerably. A few contracts weighed these factors heavily and others not at all. The Prescribed Burn and Thin project, for example, considered experience with fire and prescribed burning the primary factor for evaluation. By contrast, in the Antelope Project, price was equal to all other factors combined, making past performance one-third the value of price, and personnel skills only one-sixth as important as price.

In the instances where price is the most important factor, skill and past performance can be considered only when bidders submit equally priced offers. Contractors had mixed feelings about the use of evaluation criteria, such as past performance. Some preferred the best-value contracts because they performed quality work, had good reputations, and wanted to be rewarded. They also hoped that best-value contracting would inhibit contractors from bidding far below the market price. On the other hand, contractors worried about cronyism or the development of systems in which firms get the work because they had developed good relationships with contracting officers.

For rural development advocates working in isolated forest communities, the number of contracts captured by local firms can be as important as wages and benefits. This is especially true if local firms typically capture only a small percentage of the work, as is frequently the case east of the Cascade Range in Oregon and Washington and in small towns located far from the Interstate-5 corridor in Oregon. Interestingly, in this study local capture was fairly high. Of the eight non-WPWP contracts, firms located along Interstate 5 captured only two east-side contracts: in one instance, the firm also had an office about 115 road miles from the issuing ranger station; in the other instance, the firm had recently moved from the county where the ranger station was located to a town along the I-5 corridor, also about 115 road miles away. The remainder were located close to the ranger district where the work was being performed, either in the same town or less than 70 miles away. Six of eight, or 75 percent, is above the local capture rate for even the Willamette National Forest, one of the forests in the region where locals capture the most work.

It is not surprising that a contractor distant from the work site was awarded the bundled, IDIQ contract for prescribed burning without Forest Service supervision. Only a few firms across the Pacific Northwest provide prescribed burning services commercially. Given the limited number of firms that could compete for the contract, bundling prescribed burning and thinning could put the thinning work out of reach of local firms.

For goods-for-service contracts, the distance between contractor headquarters and ranger district ranged from zero to 50 road miles. These distances are shorter than would be expected for thinning given the location of the work in eastern Oregon and Washington and the large contract value (compare Moseley and Shankle 2001). This may be because the contracts included logging, which one expects to be done by locals owing to the high costs of equipment mobilization and the presence of logging firms in isolated forest communities.

This does not fully explain local capture, however, because in two instances the projects involved helicopter yarding, which could not be done by local firms. Yet, locals put in bids, planning to subcontract the helicopter logging to a distant firm. Although combining thinning and logging probably does make the contract more viable for nearby firms, Forest Service outreach and prebid meetings also probably helped contractors become interested in and successfully bid for contracts. These new complex contracts required that contractors learn about Forest Service expectations and walk the project ground with them to be able to create a viable offer. This preparatory work would have made it difficult for a distant firm unfamiliar with the ground and Forest Service expectations to submit a viable offer.

Goods-for-service and timber sales embedded in a service contract may be more accessible to local contractors owing to their complexity and particular bundling. The HUB zone set-asides and evaluation criteria regarding local benefit also may increase local capture compared to traditional mechanisms. There was only one HUB zone set-aside contract in this study, and it went to a local firm. But, the HUB zone program sets aside contracts for any certified firm located in a HUB zone, not just the closest one. Nonetheless, because many—though not all—rural counties in Oregon and Washington are HUB zones, the program could direct work to disadvantaged rural communities. The evaluation criteria in request for proposals and quotes ask the contractor to specify how the contractor would provide benefit to communities near the national forest. Although logic dictates that this could increase local economic benefit, only the Grassy Flats contract used this criterion, and the contract was never awarded, so we cannot yet tell the effects of this mechanism.

When considering local benefit, the last mechanism that requires attention is the WPWP strategy of contracting and sometimes bundling high-skill work. Of the 31 contracts issued between 1996 and 2000, only one contractor was clearly outside the broadest definition of local. Just over one-third of the contracts were issued to Eugene, Oregon, contractors. Corvallis, Oregon, firms captured an additional 6 to 8 contracts. This level of local capture is somewhat larger than what occurred on the Willamette National Forest overall during the late 1990s. In 1998 and 1999, Willamette Valley contractors captured nearly 70 percent of contract value and 72 percent of all contracts on the Willamette National Forest. Eugene contractors captured about 20 percent of the contracts and 12 percent of contract value forest-wide during this period. Although nearly universal capture by Willamette Valley contractors appears to be a victory for local benefit, the benefit to rural communities was limited. Nearby rural communities

such as Sweet Home, Junction City, and Oakridge together captured only a handful of contracts. It appears that the focus on high-skill work attracts the high-capacity firms in Eugene, but contractors from rural communities in the Willamette Valley did not effectively compete.

Conclusion

The contracts discussed in this study involved a variety of mechanisms that agency innovators and their community partners developed and implemented. Despite the difficulty that innovators faced when creating these contracts, several of the mechanisms seem to improve ecosystem management, provide local economic benefit, and increase administrative efficiencies. For example, well-structured bundled and IDIQ contracts can increase flexibility and stability for both the Forest Service and contractors. Goods-for-service and service contracts with embedded timber sales allow fire hazard reduction in new areas and provide diversification for logging firms. Best-value contracting using evaluation criteria that reward high-quality work and a skilled workforce can help the Forest Service meet multiple objectives including quality jobs and improved ecological conditions.

Along with these revealing opportunities, this study offers some cautions. First, the quest for administrative efficiency sometimes obscured the goals of ecosystem management and quality jobs. Second, limited data collection and monitoring will make determining the long-term biological and economic effects of these and other contract innovations difficult. Finally, although many of these contracts worked just as innovators had hoped, institutional structures inside the agency appear to be inhibiting innovation and slowing progress.

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Acronyms

AMA	Adaptive Management Area
BLM	Bureau of Land Management
CFR	Code of Federal Regulations
CO	Contracting officer
CSD	Cut stump diameter
d.b.h.	Diameter at breast height
FAR	Federal Acquisition Regulations
HUB zone	Historically underutilized business zone
IDIQ	Indefinite delivery, indefinite quantity
IFB	Invitation for bid
NFMA	National Forest Management Act
RFP	Request for proposal
RFQ	Request for quote
SBA	Small Business Administration
USDA	United States Department of Agriculture
USDC	United States Department of Commerce
USDI	United States Department of the Interior
WPWP	Willamette Province Workforce Partnership

Metric Equivalents

	<u>When you know:</u>	<u>Multiply by:</u>	<u>To find:</u>
Inches		2.54	Centimeters
Feet		.305	Meters
Acres		.405	Hectares

References

- Bird, S.R.; Monismith, C.M.; Hathaway, B.; Burry, T. 2000.** Costing for combined service contract/timber sale projects. <http://www.fs.fed.us/bluemountains/pubs.htm>. (May 6, 2002).
- Blue Mountains Demonstration Area. 2001.** Restoration contracting questions and answers. Unpublished report. 10 p. On file with: Blue Mountains Demonstration Area, Forestry and Range Sciences Laboratory, 1401 Gekeler Lane, La Grande, OR 97850.
- Contracting Task Force. 2001.** Contracting task force report. Washington, DC: U.S. Department of Agriculture, Forest Service. Unpublished report. On file with: Cassandra Moseley, 5247 University of Oregon, Eugene, OR 97403-5247.
- Danks, C. 2000.** Stewardship project summaries. Unpublished report. [Not paged]. On file with: Watershed Research and Training Center, P.O. Box 356, Hayfork, CA 96041.
- Danks, C.; Jungwirth, L. 1999.** Community-based socioeconomic assessment and monitoring of activities related to national forest management. Hayfork, CA: Watershed Research and Training Center. 40 p.

- Ecosystem Workforce Program. 2001.** Programs. <http://ewp.uoregon.edu>. (March 2002).
- Gray, G.J.; Enzer, M.J.; Kusel, J., eds. 2001.** Understanding community-based forest ecosystem management. Binghamton, NY: Food Products Press. 447 p.
- Grumbine, R.E. 1994.** What is ecosystem management? *Conservation Biology*. 8: 27-38.
- Grumbine, R.E. 1997.** Reflections on "What is ecosystem management?" *Conservation Biology*. 11: 41-47.
- Hirt, P.W. 1994.** A conspiracy of optimism: management of the national forests since World War Two. Lincoln, NE: University of Nebraska Press. 416 p.
- Kauffman, M.J. 2001.** An analysis of Forest Service and BLM contracting in Lake County, Oregon: Fremont National Forest, Bureau of Land Management, Lakeview District 1994-1999. Portland, OR: Sustainable Northwest. 37 p.
- Kitzhaber, J.; Williams, R.; Zielinski, E. 1998.** (June 1). Letter to Staff. Quoted in: USDA Forest Service. 2001. Toolkit: Promoting Health and Sustainability, A Stewardship Approach to Ecosystem Management. Portland, OR: Pacific Northwest Region. 118 p.
- Loucks, A.B. 2001a.** Proceedings: introduction to multi-party monitoring and evaluation USDA Forest Service stewardship contracting pilots. Washington, DC: Pinchot Institute for Conservation. [Not paged].
- Loucks, A.B. 2001b.** USDA Forest Service stewardship contracting pilots initial survey of monitoring program status. Washington, DC: Pinchot Institute for Conservation. [Not paged].
- Mitsos, M. 1996.** Proceedings: issue in community stewardship. Washington, DC: Pinchot Institute for Conservation. 48 p.
- Monismith, C. 2000.** Implementing the Starkey restoration project through creative contracting. Unpublished report. 11 p. On file with: Wallowa-Whitman National Forest, P.O. Box 907, Baker City, OR 97814.
- Moseley, C.; Shankle, S. 2001.** Who gets the work? National forest contracting in the Pacific Northwest. *Journal of Forestry*. 99(3): 32-37.
- Natural Resources Law Center. 1998.** Innovations in forestry: stewardship. Boulder, CO: University of Colorado School of Law. 6 p.
- Ringgold, P.C. 1998.** Land stewardship contracting in the national forests: a community guide to existing authorities. Washington, DC: Pinchot Institute for Conservation. 184 p.
- Small Business Administration. 2001a.** HUB zones. <http://www.sba.gov/hubzone>. (October 2001).
- Small Business Administration. 2001b.** Small Business Administration. <http://www.sba.gov>. (October 2001).

- Thomas, J.W. 1997.** Foreword. In: Kohm, K.A.; Franklin, J.F., eds. Creating a forestry for the 21st century: the science of ecosystem management. Washington, DC: Island Press: ix-xii.
- U.S. Department of Commerce, Bureau of the Census. 2001.** NAICS—North American Industry Classification System. <http://www.census.gov/epcd/www/naics.html>. (October 2001).
- U.S. Department of Agriculture, Forest Service; U.S. Department of the Interior, Bureau of Land Management. 1994.** Record of decision for amendments to the Forest Service and Bureau of Land Management planning documents within the range of the northern spotted owl. 74 p. [plus appendices].
- U.S. Department of Agriculture, Forest Service. 2000.** Amendment of solicitation/ modification of contract. Starkey Fuels Reduction, R6-00-34. Baker City, OR: Wallowa-Whitman National Forest. [Not paged].
- U.S. Department of Agriculture, Forest Service. 2001.** Toolkit: promoting health and sustainability, a stewardship approach to ecosystem management. Portland, OR: Pacific Northwest Region. 118 p.
- U.S. House of Representatives. 2000.** Making appropriations for the Department of the Interior and related agencies for the fiscal year ending September 30, 2001, and for other purposes. Conference report 106-914. 226 p.

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