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A U.S. Forest Service Special Forest Products Appraisal System:

Background, Methods, and Assessment

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Abstract

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Increasing concern over the management and harvest of special forest products (SFP) from national forest lands has led to the development of new Forest Service policy directives. In this paper, we present a brief history of SFPs in the Western United States, highlighting the issues that necessitated new management direction. The new policy directives that led to the development of a cost appraisal system for SFPs are discussed. The framework, components, and uses of this cost appraisal system are described in detail. An informal assessment of the impact, effectiveness, and value of the cost appraisal system is also included.

Keywords: Nontimber forest products, special forest products, cost appraisal system.

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Introduction

Trade in plants, lichens, and fungi from forests in the United States has been important for generations. Native Americans had well-established trade routes throughout the land for thousands of years. As other groups came to North America, trade in these products expanded to Asia and Europe. Internationally, these forest botanical products are referred to as nonwood or nontimber forest products (NTFP). The U.S. Department of Agriculture, Forest Service (FS) refers to these products as special forest products (SFP). These terms are used interchangeably in this paper.

Increasing concern about the impact of commercial harvest of these wild resources on their sustainability and on wildlife, questions of tribal and treaty rights, concerns raised by amateur science groups (McLain et al. 1998), as well as concerns over access and property rights have resulted in efforts by state and federal governments to exert more control over harvests and harvesters. A significant federal regulatory response to these concerns is Public Law 106-113, legislation passed by Congress in the 2000 Appropriations Act titled "Pilot Program of Charges and Fees for Harvest of Forest Botanical Products" for the National Forest System, commonly referred to as "section 339" (Department of the Interior Appropriations Act 2000). This law provided the impetus for the development of a cost appraisal system for SFP sold from FS lands.

Although the primary focus of this paper is the cost appraisal system, to provide context, we begin with a brief overview of industry structure, harvests, and major markets for SFP from the Western United States. We then examine some of the events that gave rise to the need for new FS direction in the management of SFP. Next, we discuss the specifics of section 339 and its implications for SFP management. We then present an overview of the development, framework, components, and uses of a cost appraisal system originally developed for use in the Pacific Northwest Region of the FS, which comprises the national forests in Oregon and Washington (the region is also known as Region 6 [R6] of the FS and will be referred to as such hereinafter). Next, we summarize the results of informal interviews we conducted to get feedback on the value, impact, and effectiveness of this cost appraisal system. Our conclusions round out the paper.

Industry, Harvests, and Markets for SFP From the Western United States

For the most part, commerce in wild-harvested medicinals, florals, and foods has operated at unknown scales, as trade in these products is not generally tracked separately from agriculturally produced items. In addition, businesses in NTFP

industries have generally been small. Many small businesses operate at the margin of the formal and informal economies (Alexander et al. 2002). In 1998, the U.S. Census Bureau's County Business Patterns data reported 1,381 employees and 221 businesses, with an annual payroll of $45.9 million, in the relatively new industry code 1132, Forest Nurseries and Gathering of Forest Products. By 2007, this sector grew to 2,216 employees and 231 businesses, with an annual payroll of $75.5 million (U.S. Census Bureau 2009). About 75 percent of these businesses employed fewer than 10 people. County Business Pattern data provide useful information about industry structure and characteristics, but likely represent only a fraction of the actual number of businesses in this highly heterogeneous industry, particularly in light of the Schlosser et al. (1991) survey of floral green businesses. They found that roughly 10,300 people were employed by 60 businesses in that one segment of the NTFP industry in western Oregon, Washington, and British Columbia alone. The primary message that can be derived from County Business Pattern data is the fact that most NTFP businesses are small, operating at the edge of the formal-informal economy interface. McLain et al. (2008: 3) stated "'informal economy' is one of many terms used to describe economic activities that are omitted from or only partially accounted for in macroeconomic analyses." They also stated "much economic activity within the NTFP sector has historically taken place outside of or on the edges of the formal economy" (McLain et al. 2008: 2). The economic activity reported in the County Business Patterns data is only part of the total contribution of NTFP to communities. When both commercial harvest and personal use are considered, the contribution of forest botanicals to some local and regional economies is significant.

In the Western United States, three wild-harvested products stand out as significant commercial industries in the past century.

In the Western United States, three wild-harvested products stand out as significant commercial industries in the past century. These three products illustrate how wild-harvested products are subject to the same economic and social forces as any agricultural product, and in some cases, create unique issues owing to their special characteristics. Wild huckleberries (primarily *Vaccinium membranaceum* Douglas ex Torr. in the Western United States), also harvested and sold in the East, have experienced boom and bust cycles since the 1920s (Richards and Alexander 2006). Variations in the harvest of wild huckleberries illustrate the impacts of upswings and downturns in the national economy on open access forest resources. During downturns in regional or national economies, harvest of these products can increase significantly. The floral products (primarily salal [*Gaultheria shallon* Pursh] and evergreen [or California] huckleberry [*V. ovatum* Pursh]) industry has evolved from many small businesses to a concentration of large businesses that rely on wild-harvested product and cheap labor (Spreyer 2004). This concentration has

led these businesses to yield some control over harvest levels and some influence over attempts at regulation, even though the products themselves are open-access resources. Commercial harvest of wild edible fungi, particularly American matsutake (*Tricholoma magnivelare*) saw a huge upswing in the late 1980s and early 1990s, followed by a decline after the mid 1990s caused by the Japanese economic recession and increased competition from other countries. There are essentially two separate international markets for wild edible fungi: the European market and the Japanese market.

Western huckleberries have been sold commercially at least since the beginning of the 20th century. With the development of preservation technologies such as canning, construction of roads creating access, and the stock market crash of 1928, huckleberries became a major crop in western forests. A.H. Abbott, a district ranger on what was formerly the Cabinet National Forest, noted rapid growth in commercial berry picking in 1933 (Abbott 1933). In the 1930s, the commercial huckleberry industry was probably the major national forest "free use" product (Richards and Alexander 2006). The commercialization of huckleberries changed the sociocultural interaction of Whites and Native Americans in the West (Fisher 1997). Although both groups sold berries commercially, the invasion of non-Native pickers created unprecedented competition for berries while also raising concerns that Native Americans' relationship to huckleberries was not being respected (Fisher 1997, Richards and Alexander 2006). Commercial harvest of wild huckleberries declined during WWII, owing to gas rationing and the replacement of wild fruit with frozen and fresh fruit. After the war, new jobs in the timber industry and dam projects offered better wages and benefits. Huckleberry pickers remained marginal participants in the formal economy. The industry saw yet another upswing in the 1980s, as huckleberry products were marketed in the West as local cultural symbols and tourist souvenirs. This upswing has persisted. Although the market is relatively small, continued pressure on resources has raised concerns from tribes with rights to forest resources, from people concerned about wildlife (such as bears), and from concerns about resource sustainability (Richards and Alexander 2006).

Markets and commodity chains for wild edible fungi harvested in the United States are primarily international, although there is a growing domestic market for wild fungi. Most wild edible fungi shipped overseas go out of the Seattle customs district, and much of the total volume harvested comes from public lands in the West. Many successful small businesses supply both domestic and international markets with fresh or lightly processed (dried or frozen) products, serving as peripheral nodes where the formal and informal economies meet (Alexander et al. 2002). The history of commercial mushroom harvesting in the United States has

been described by numerous authors (e.g., Alexander et al. 2002, McLain 2008, Pilz et al. 2007, Wurtz et al. 2005). Large-scale commercial harvesting of wild mushrooms surged in western North America in the 1980s. European demand for wild edible fungi, primarily morels (*Morchella* spp.) and chanterelles (*Cantharellus* spp.) from the United States expanded after the 1986 Chernobyl nuclear accident raised concerns about contamination of wild fungi from fallout (Kalač 2001). In addition, mushroom productivity in Europe was declining in the 1980s owing to nitrogen deposition from powerplant pollution (Arnolds 1995). An economic boom in Japan created sharp increases, and sometimes wild daily fluctuations, in prices and demand for American matsutake (*Tricholoma magnivelare*), a substitute for true matsutake from Asia (*T. matsutake*). The recession in Japan and the entry of suppliers from eastern European and Asian countries into various markets have caused prices to decline and stabilize somewhat. The opening of trade with eastern bloc countries gave the European Union a supply of wild mushrooms that are closer and have lower transportation and labor costs than U.S. fungi (Alexander et al. 2002).

Many small U.S. businesses have used their marketing skills and supply chains to develop domestic markets for wild edible fungi that did not exist even a decade ago. Concerns about commercial harvest of wild edible fungi have been raised by amateur science associations (McLain et al. 1998), land managers, and law enforcement groups. Many of the concerns raised have been expressed as ecological issues, but underlying much of the debate are issues regarding who has the rights to forest resources, and how regulation affects various groups (McLain 2008, McLain et al. 2008).

Floral greens markets, like those for wild edible fungi, are strongly international. Floral greens are sometimes harvested for personal use, but impacts from harvesting are due primarily to commercial demand. The harvest of commercial floral greens exhibits some of the same cycles as huckleberries. During the 1930s Depression, many people in the West depended on NTFP for income, including floral greens (Heckman 1951, Howell 1991, Lynch and McLain 2003). In the post-WWII era, as jobs in the formal economy became more available, NTFP harvest became a background issue for land managers. It emerged as a public policy issue in the late 1980s and early 1990s owing to a variety of factors, including regional declines in timber employment, increases in favorable habitat for floral greens owing to silvicultural conditions, immigration that led to large pools of laborers with limited work opportunities, and increasing demand for wild-harvested products worldwide (Lynch and McLain 2003). In the 1970s, the floral industry in the Pacific Northwest consisted of a network of small businesses. The industry has grown to become a significant player in many areas of the U.S. Pacific Northwest

and the Canadian province of British Columbia. The industry is particularly important in the economy of the Olympic Peninsula in northwest Washington, where the market is dominated by a few wholesalers. The main floral green harvested in the region is salal, which comes from land not owned or controlled by either the buyers or the harvesters, except through loosely managed leases and permits (Spreyer 2004). Concern about resource sustainability led to studies examining the impacts of harvesting on floral green species (e.g., Ballard and Huntsinger 2006, Cocksedge and Titus 2006, Kerns et al. 2004). The results from several studies suggest that NTFP management will only be fully successful if it includes the involvement of all stakeholders in management decisions and regulation (e.g, Ballard and Huntsinger 2006, Charnley et al. 2007, Jones and Lynch 2007).

Events Leading to the Need for New Forest Service Management Direction for SFP[1]

Through the end of the 1980s, the U.S. Department of the Interior, Bureau of Land Management (BLM) and the FS sold permits and contracts for NTFPs, but the programs were not allotted a great deal of administrative time or money. Federal funding for these programs came out of the wood products or timber management allocated budgets. Special forest products programs literally had to compete for management dollars with timber programs. This was during the peak time for large timber harvest programs on national forest lands. Funding for SFP took a back seat owing to the "invisible nature" of the business and the small amount of money generated from permit sales. In addition, all funds generated from sales of SFP went to the Treasury and the FS did not get any back. Part of the income generated from timber sales is retained by the FS in the form of Knutson-Vandenberg (K-V) funds, named after the Knutson-Vandenberg Act of 1930 (as amended).[2] The majority of

[1] Much of the text in this section draws on the experiential knowledge of the senior author, who was a key player in developing FS approaches to SFP management in the 1980s through the early 2000s.

[2] The Knutson-Vandenberg Act (K-V) of June 9, 1930 (16 U.S.C. 576-576b; 46 Stat. 527), as amended by the National Forest Management Act of October 22, 1976 (16 U.S.C. 1600 et seq.) (FSM 1011), is the authority for requiring purchasers of national forest timber to make deposits to finance sale area improvement activities needed to protect and improve the future productivity of the renewable resources of forest lands on timber sale areas. Activities include sale area improvement operations; maintenance and construction; reforestation; timber stand improvement; range, wildlife, and fish habitat; soil and watershed; and recreation. Public Law 109-54 of August 2, 2005, further amended the K-V Act to allow the collection and use of K-V funds for watershed restoration; wildlife habitat improvement; control of insects, disease, and noxious weeds; community protection activities; and the maintenance of forest roads within the FS region in which the timber sale occurred: Provided that such activities may be performed through the use of contracts, forest product sales, and cooperative agreements. (WO AMENDMENT FSH 2409.19-2008-1, March 24, 2008).

timber funding was used for planning activities for future timber sales, on-the-ground harvest administration, tree planting and thinning, and other related activities. The SFP program remained an underfunded and little-recognized program.

This changed from the mid to late 1980s through the 1990s, owing in large part to interest generated by American matsutake mushroom harvest activities in the Pacific Northwest. The harvest in the Pacific Northwest occurred primarily in British Columbia prior to 1989. In 1989, British Columbia did not have a commercially viable crop of American matsutake. In August of that year, harvesters and scouts traveled south down the Cascade Mountain range in search of suitable habitat and commercial quantities of the mushroom. Scouts traveled south through Washington and continued into central Oregon to the Crescent Lake Junction and Chemult areas. There they found the right habitat and an abundance of American matsutake growing, and importantly, very little competition for them.

A large proportion of good American matsutake habitat in the area was on FS land. At the time, the FS had no set fee structure for permits. The FS had little to no information on sustainability, proper harvest procedures, market structure, user groups and their needs, or the science of the American matsutake and how to care for it.

Within a few weeks of discovery, several hundred people had arrived in the central Oregon area inquiring about permits, fees, areas to harvest, and where to camp. The sheer magnitude of this user population necessitated the development of new program guidelines by local national forests. Market research needed to be conducted to establish fair permit fees. The agency needed to understand the harvest techniques used and how those techniques factored into marketing the product. For instance, other Pacific Northwest wild-harvested fungi such as morels and chanterelles are cut off at the base when harvested. The fruiting body of the American matsutake is harvested whole in order for it to be marketable in Japan.

The customer base was very different than what the agency was accustomed to in central Oregon. A high percentage of customers inquiring about the program were of Southeast Asian descent. There were language and custom barriers between the agency and the customers. The harvesters and buyers did not know the rules and regulations the agency expected them to follow because the agency was unable to effectively communicate with many of them. Although most FS employees were well trained in natural resource management, many were initially unprepared to provide adequate services to these new customers. Owing to the language barriers and a lack of experienced translators, the SFP program managers had to first figure out where to find the information to better understand their customers' backgrounds, customs, and needs. Once gathered, this information was used to develop

programs to assist their customers in understanding what the FS regulations were and in explaining why they were necessary to ensure good stewardship of the land and resources. The SFP program in the Pacific Northwest had entered a totally new era with many new challenges and opportunities.

The common perception within the agency of this new phenomenon was that the FS was involved in a major biological issue with minor social overtones. The FS would soon find out how wrong that assumption was. Forest Service managers in the West were entering a time in which federal land management agencies were involved in tremendous social challenges with lesser biological issues. This situation was reminiscent of the huckleberry picking rush of the 1930s.

The sheer number of people coming to FS offices in the northern Klamath and southern Deschutes counties in central Oregon was staggering. Within a matter of hours on the first day the mushroom harvesters swept into central Oregon, employees on both the Winema and Deschutes National Forests were on the phone asking what others were doing in regards to permit fees, harvest regulations, camping, and communication and education efforts. Special forest products managers discussed the need for developing consistent programs across forest and district boundaries. What they did not know was how far that philosophy was going to be extended in the future, not only for American matsutake but for all SFP.

Not only was there a need to better understand the new customers, the FS also needed a process to help these customers understand the agency's processes and requirements.

What was happening in central Oregon would alter cultural barriers, education processes, customer service philosophies, and communication efforts and would increase the need to understand the agency's "new" customers. Not only was there a need to better understand the new customers, the FS also needed a process to help these customers understand the agency's processes and requirements. The FS needed to catch up with the times in order to become better human and natural resource managers.

According to Pilz et al. (1999), from the time they first issued permits for matsutake in 1989, the Deschutes and Winema National Forests in Oregon collaborated to develop biological studies, explore the needs of harvesters, and assess potential effects on local communities. The two forests designed a short training program, which harvesters seeking mushroom permits were required to take. The training included harvesting techniques and an explanation of the rules and laws governing harvesting, camping, and firearms on the national forests. Both permit sales and compliance with FS regulations increased dramatically as a result of this education program (Pilz et al. 1999). The forests also provided fee-based camping areas with amenities such as outhouses and picnic tables for commercial harvesters. Various national forests began communicating with each other regarding permit fees and structure and cooperating to issue multiforest permits for NTFP harvesting. Over

the years, state, FS, and BLM agency personnel communicated with each other and with the public in various efforts to make permits as consistent as possible in each location, given the funding and staffing limitations, and regulatory and legal constraints of each agency. The BLM had a widely used NTFP appraisal system in place by the late 1990s. In the following section, we discuss the section 339 legislation and its implications for SFP management on national forest lands.

Section 339 and SFP Management

This 2000 appropriations law defines forest botanical products as "any naturally occurring mushrooms, fungi, flowers, seeds, roots, bark, leaves, and any other vegetation (or portion thereof) that grow on National Forests System lands" (Department of the Interior Appropriations Act 2000, as amended November 2003). Section 339 directs the Secretary of Agriculture to develop and implement a pilot program to charge for forest botanical products through the establishment of appraisal methods and bidding procedures. The act also requires analysis regarding the sustainability of harvest levels and exempts personal, but not commercial, use from fees. The act was amended in 2003 so that fees are not only set by an appraisal process, but also require that a portion of fair market value and costs be recovered (Department of the Interior Appropriations Act 2000, as amended November 2003). Public forest management agencies define harvest of NTFP as either for personal or commercial use. For example, if someone gathers a few mushrooms or berries for personal consumption, in most places no permits are required, nor are fees charged.[3] If someone gathers larger quantities for personal use, the FS might require a free-use permit so the agency can keep track of such activities (Pilz et al. 2007). Commercial harvest, which is defined as harvesting forest products for the purpose of reselling for economic gain, requires a permit or contract that includes a fee.

Under the fees section of section 339, it is stated that the FS shall also charge and collect sufficient fees from harvesters to recover a portion of costs to the Department of Agriculture associated with the granting, modifying, or monitoring the authorization for the harvest of forest botanicals, including the cost of any environmental or other analysis. One of the most important directives from

[3] Many agencies, landowners, and states regulate more than what they often call incidental use. For example, a state might consider possession by an individual of more than a gallon of mushrooms commercial use and regulate that, but possession of less than a gallon would not require the person to show they have a permit or other form of source documentation. The definition of incidental use varies among federal agencies and state laws. McLain, R. 2010. Personal communication. Senior social scientist, Institute for Culture and Ecology, 711 SE Grand Ave., Portland, OR 97214.

the standpoint of the FS included in the law was the section "Deposits and Use of Funds." This section allows funds from the sale of botanicals to be deposited into a special account. Funds collected are available for conducting inventories, determining sustainable harvest levels, monitoring, assessing impacts of harvest levels and methods, and for restoration activities. This law created an opportunity for proactive program managers to develop programs that could be funded outside the appropriated funds process, instead of being limited by budgeted amounts for natural resource management. Subsequently, a decision was made that the deposited funds could be placed in a separate account on a national forest and used for forest botanical program needs on that forest. This decision allowed a funding mechanism for well-managed programs.

The Appraisal Process for SFP in R6

In 1905, Congress created the Forest Service in the U.S. Department of Agriculture. The mission of the FS is to sustain the health, diversity, and productivity of the Nation's forests and grasslands to meet the needs of present and future generations. Early on, the FS developed processes and guidelines for management and sale of products, which are outlined in FS manuals (FSM) and handbooks (FSH).

Guidance for consistent, accurate, and fair cost or appraisal systems is outlined in FSH 2409.18. Although there are products sold from national forest lands that do not have an active appraisal system, all products must have some type of cost analysis completed prior to being sold.

In response to section 339's requirement that fees for "forest botanical products" on National Forest System lands be set by an appraisal process, an SFP cost analysis program was initiated in 2000 by FS R6 members of the natural resources staff in the regional office. The goal was to design an appraisal method to address the language and opportunities contained in section 339 and FSH 2409.18, section 87.3-Valuation of SFP (USDA FS 2008). Staff in the R6 office worked with an FS enterprise business,[4] called Forest Resource Enterprises, to develop a design for the SFP cost analysis program. The draft design was to have a residual-value focus similar to the timber sale appraisal used by some regions in the FS. A residual-value timber sale appraisal uses the costs and revenues involved in the harvest of timber stands to develop minimum rates for the sale of the timber products.

[4] An enterprise business consists of one or more FS employees who operate like an internal consulting firm. Enterprise businesses do not receive any base or appropriated funding; rather, they market their services and products to customers within the FS, or with other government agencies and their partners.

All FS ranger districts or forests selling SFP are required to establish fair market values and develop minimum rates for individual products. A high percentage of the established minimum rates were reviewed by the R6 regional office and modified when product values were found to need revision or further analysis.

This appraisal model was intended to be user friendly to allow those with no previous experience with residual-value appraisals to easily use it.

The appraisal model for R6 was designed to address the fair market value directives in section 339; provide resource managers with current, accurate, and easily updated values for products being sold; and maximize the retained receipts opportunities outlined in the law. The appraisal system is essentially an Excel[5] spreadsheet model utilizing a residual-value appraisal design.

This appraisal model was intended to be user friendly to allow those with no previous experience with residual-value appraisals to easily use it. The system provides the required information quickly, whether the user is issuing one or many permits. It is also designed to develop permit prices for districts or forests, at the beginning of the calendar year, so users can see what the product and minimum rates are for all products. During the beta testing completed on the Chemult Ranger District, personnel unfamiliar with appraisal systems conducted a product appraisal in less than 1 minute.

The residual-value appraisal uses a process whereby all associated harvest costs are included in the analysis to assist in achieving a fair and unbiased base rate or a minimum fee for permits. These costs were obtained by contacting harvesters and discussing their activities. They were asked which products they harvested, the locations of their harvest activities, how many miles they traveled to harvest their products, how many hours they worked per day on average, how much they harvested on an average day, fuel prices in their area, and the locations of the sheds or buyers where their products were sold.

This information was entered into the product price spreadsheet model. The model performs the calculations needed to develop individual product minimum rates for the point of sale. These calculations can be downloaded from the R6 Web site into the "existing product" appraisal system used by forest or district personnel.[6] All products included in the "existing product" appraisal have cost and price data already included in the model.

Periodically, new markets develop, resulting in requests for new product sales. The "new product" appraisal module is designed for the frontline appraiser to collect the same harvest and cost information from the customer that has been

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

[6] This Web site is http://www.fs.fed.us/r6/nr/fp/FPWebPage/FP70104A/Special%20Forest%20Products.htm.

collected on the existing products. This information can be saved in a separate electronic file and then downloaded into the "product price" database and included in the "existing product" appraisal model in the future.

To gather first point of sales values for "new product" transactions, appraisers rely on relationships with customers to assist in gathering price information. An appraiser records the product name, the unit of measure by which the product is sold at the first point of sale, the fair market value of the product, harvest and transportation costs, and production per day. The average, or default, values for products by region are developed by gathering this kind of information for many locations and products. The starting point for fair market value is 10 percent of the average shed price for a given product.[7] A fair market value per unit of measure is developed for a given product, and is stored in the regional database. Each fair market value is based on the national forest in which the product is being appraised. Region 6 of the FS is divided into four zones that have significant differences in pricing, costs, or products: western and eastern Oregon, and western and eastern Washington.

A harvest and transportation cost per unit of measure is developed for each zone. The harvest and transportation cost includes the following variables:

- Hours per day: hours worked per day, including travel (the default is 8 hours)
- Hourly wage rate: an estimate of the average hourly wage for harvesters for each national forest, using the state minimum wage where the harvest occurred
- Mileage rate: the cost per mile traveled, using the Internal Revenue Service mileage reimbursement figure ($0.55 per mile as of January 1, 2009)
- Miles per trip: average miles traveled, by zone and product type using the assumption that a trip is from home to the harvest area to the buying shed
- Production per day: average amount harvested per day by unit of measure, such as pounds or bunches

The equation for harvest and transportation cost is as follows:

harvest and transportation cost = [(hours per day x hourly wage rate)
+ (miles per trip x mileage rate)]
÷ production per day

[7] Forest Service Handbook 2409.18.87.3 specifies that 10 percent be used to ensure that a harvester has a reasonable chance of making a profit over and above the fees paid for permits.

The appraisal cost is adjusted by a percentage of the fair market value, called a rollback factor, designed to adjust for profit and risk fluctuations. The rollback factor in R6 is currently 10 percent of the fair market value.

There is a feature built in called "other costs." This feature is an adjustment input that can be used for any additional or unusual costs outside the scope of normal business operations. This adjustment is only to be used in special situations, such as when motorized access to a harvest area is blocked so that the additional cost of the time it takes to walk in and out of the area needs to be taken into account. The appraiser would work with the harvester to come up with a factor to be input as a monetary value. For example, if the minimum rate for the product is $0.10 per unit of measure and the additional time it takes to walk in adds 10 percent to the harvest and transportation cost, the input value would be $0.01. This would adjust the harvest and transportation cost-per-pound data and could change the permit price-per-pound amount. There is also a "notes" block associated with the "other costs" feature, where the appraiser types in the reasons and justification for these additional costs.

The appraised price per unit of measure is given by the following equation:

appraised price per UOM = FMV (1 – RBF) – (harvest and transportation costs),

Where

UOM = unit of measure,

FMV = fair market value,

RBF = rollback factor, and

harvest and transportation costs have been adjusted for any "other costs."

The permit price per unit of measure charged to the customer may or may not be the appraised price per unit of measure. The permit price per unit of measure is the greater of either the minimum rate per unit of measure or the appraised price per unit of measure. The appraised price per unit of measure may actually be a negative value. If the appraised price per unit of measure is a negative value, then the price paid per unit of measure for the product will revert to the established minimum rates. The minimum rates charged for each product are reviewed and approved by the R6 program director.

The appraisal model includes the option to include program charges in the appraisal calculation. Section 339 includes wording associated with cost recovery, which can include activities such as inventory, planning, environmental analysis, permit issuance, and monitoring. The cell "program charge" addresses the need to include a method to provide for cost recovery. It can accommodate an additional charge to the cost of the permit. This charge can provide additional funds for the

programmatic needs of SFP programs. This feature can only be used at the direction of the R6 regional office. This charge can only be applied to forest botanical products.

The cell "total value" is equal to the permit price per unit of measure multiplied by the total number of units requested by the customer. As mandated by the Washington office of the FS, this charge cannot be less than $20.00 per transaction.

The appraisal model showcases the pricing structure for an entire region and allows for periodic updates, value analysis, and monitoring. Product values, and harvest and transportation costs such as the mileage reimbursement rates, can be changed quickly. The model also meets the need for more consistent pricing structures on a broad geographic scale. For many years, customers had been expressing their dissatisfaction with the previous programs' lack of consistent permit prices between districts and forests.

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The default values and assumptions used in the model can be displayed in a table to illustrate how individual products are appraised. This feature is the "default" tab located on the bottom left area of the "existing product" spreadsheet. The intent of this feature is to provide an overview of the parameter values used to establish the permit fees that permit issuers can share with their customers. This table provides the viewer with a visual record of costs included in the computed values of the product. The information includes the default item, the values used, and a notes column with an explanation of the individual values.

This feature was designed to be an educational tool for internal and external users of the program. The intent is to showcase the level of analysis that has gone into developing the prices for individual products. Although customers may not agree with the prices established for the products, they at least have the option of viewing the values included in the calculations, which provides a basis for discussion. Tables 1 and 2 are two examples of default tables.

These tables illustrate that in some cases, a product will have a different permit price depending on the zones from which it is harvested and sold. Transplants 2 to 3 feet in height sold on the Umpqua National Forest have a slightly different value than the same product sold on the Okanogan National Forest. The total permit price ("total permit value" in the tables) for 100 units sold on the Umpqua is $886.00, whereas the total value for this amount sold on the Okanogan is $856.00. In this example, this is due to differences in trip miles and differences in wage rates.

Table 1—Default values for transplants 2+ to 3 feet on the Umpqua National Forest in Oregon[a]

Appraisal item	Default or calculated value	Notes
Product	Transplants 2+ to 3 feet	Type of special forest product
Units (UOM)	Each	Base unit of measure for product
Forest or region	Umpqua	Product location, national forest, or region
Fair market value (FMV)	$15.00	Dollars per unit, average wholesale price for forest or region
Wage rate	$8.40	Dollars per hour for forest or region (minimum wage)
Mileage rate	$0.55	Dollars per mile
Production	50.0	Average units produced per day
Hours per day	8.0	Hours worked per day, includes travel
Trip miles	300.0	Average trip miles for forest or region
Harvest and transportation cost	$4.64	Harvest cost + trans cost (per UOM)
Quantity	100.0	Quantity of units purchased or appraised
Rollback factor	10.0 percent	Percentage of FMV (market fluctuation factor)
Minimum rate	$1.00	Lowest amount per UOM the product can sell for
Total permit value	$886	
Value per UOM	$8.86	

UOM = unit of measure.

Note: This table is a modified version of the actual spreadsheet.

[a] Default and calculated values used in cost appraisal, version R6-3.53, appraisal date August 4, 2009.

Table 2—Default values for transplants 2+ to 3 feet on the Okanogan National Forest in Washington[a]

Appraisal item	Default or calculated value	Notes
Product	Transplants 2+ to 3 feet	Type of special forest product
Units (UOM)	Each	Base unit of measure for product
Forest or region	Okanogan	Product location, national forest, or region
Fair market value (FMV)	$15.00	Dollars per unit, average wholesale price for forest or region
Wage rate	$8.55	Dollars per hour for forest or region (minimum wage)
Mileage rate	$0.55	Dollars per mile
Production	50.0	Average units produced per day
Hours per day	8.0	Hours worked per day, includes travel
Trip miles	325.0	Average trip miles for forest or region
Harvest and transportation cost	$4.94	Harvest cost + trans cost (per UOM)
Quantity	100.0	Quantity of units purchased or appraised
Rollback factor	10.0 percent	Percentage of FMV (market fluctuation factor)
Minimum rate	$1.00	Lowest amount per UOM the product can sell for
Total permit value	$856	
Value per UOM	$8.56	

UOM = unit of measure.

Note: This table is a modified version of the actual spreadsheet.

[a] Default and calculated values used in cost appraisal, version R6-3.53, appraisal date August 4, 2009.

Assessment of the Cost Appraisal System for R6

In general, the harvesters and buyers had little to no knowledge of the detailed mechanics of the cost appraisal system.

To assess the value, impact, and effectiveness of the cost appraisal system, we contacted four FS SFP program managers, four SFP harvesters, and four SFP buyers in the Pacific Northwest. In general, the harvesters and buyers had little to no knowledge of the detailed mechanics of the cost appraisal system. Some felt that the system had resulted in more consistent permit pricing for products across the region, whereas others felt that pricing was still inconsistent. Several of the harvesters and buyers offered comments that were unrelated to the cost appraisal system itself, but which point to the benefit of retaining receipts from the sale of permits. For example, they felt retained receipts could be used to train FS personnel to lay out SFP sales better.

Buyers cited instances in which FS estimates of the amount of product in a sales area were overestimated. They expressed concerns that on some districts, very few sales were available, and, in some cases, access to harvest areas was difficult, whereas on other districts with proactive SFP managers, there were many sales, and access to products was very good. They also offered examples in which products were misidentified and sold as the wrong product (i.e., Shasta red fir [*Abies magnifica* A. Murray var. *shastensis* Lemmon] was being sold as noble fir [*Abies procera* Rehder]). One harvester/buyer stated that if the FS did not put out sales, the products would just be stolen without the FS or local communities reaping any of the benefits. They disliked the fact that on some districts, the SFP program was handled by detailers[8] or persons who had many other responsibilities with little commitment to SFP. Some felt retained receipts could be used to improve pricing consistency, product access, and quality of the offered sales. One harvester commented that a lot of theft was occurring and perhaps the retained receipts could be used to provide better enforcement of harvest. Another harvester believed retained receipts that allowed the FS to put money back into the program is a good thing, but worried that permit prices might be increased for this purpose even if actual costs and values do not change. This harvester did not believe the process of gathering fair market values was a good, equitable process and felt that the government is finding more ways to not provide goods and services to the public.

The SFP managers contacted had various levels of experience in that role ranging from a little over 2 years to over 20 years. Concurring with results from our harvester and buyer interviews, the managers felt that most harvesters and buyers

[8] A detailer is an employee who is temporarily assigned to a different position for a specified period and who is expected to return to his or her regular duties at the end of the assignment.

are not interested in the inner-workings of the appraisal system and that questions generally arise only when a permit price is higher than expected. The managers appreciated the ability to show customers how prices are derived by either walking them through the appraisal process for a particular product or printing out a default page, which lists the prices and costs used in the calculation of the permit price for the product in question. If a customer believes some of the values or costs used have changed and can provide supporting information for more accurate costs or values, these new values can be easily put into the system to calculate updated permit prices.

Some of the managers commented that the prices coming out of the appraisal system were the same or varied little from the previous prices they were charging. However, they all agreed that having a single, well-documented system in place, which is used regionwide adds consistency and credibility to the prices charged. One manager stated that the system not only allows for better communication with customers regarding permit prices, but also facilitates better communication regarding the pricing process and the SFP program in general to line officers and other FS employees. Some managers felt that in the short term, their work load increased when the appraisal system first came online, but in the long term, it is leading to less work because the appraisal system allows them to easily update existing product prices when necessary and provides a consistent framework to follow to determine permit prices for new products as customers request them.

In general, the managers were satisfied with the system used to update costs; however, one manager stated that he would like to be more involved in gathering information from harvesters during the updating process, because he feels managers are missing out on the benefits of customer contacts and building good relationships. He also believes a larger sample size (of harvesters to derive cost and product value estimates) would improve the credibility issue with harvesters.

With regard to their new ability to retain receipts, the managers felt that not enough money has yet been retained to lead to major improvements, but as time passes and receipts increase, there will be more opportunities for individual program improvements. Some of the current or proposed uses of retained receipts mentioned by managers included increased staffing of front desk employees during peak harvest times, funding SFP-related National Environmental Policy Act projects, and developing and implementing processes for monitoring the harvest and management of SFPs.

Conclusions

The SFP appraisal system developed for R6 was the first of its kind within the National Forest System. It was designed to be user friendly, address the needs for consistency across regional boundaries, showcase the pricing structure, and simplify the updating of costs. The system was to be flexible, quick, and easy for appraisers to use to establish both individual permit prices and annual pricing structures.

The appraisal system was developed to address the language contained in section 339, the Forest Service Manual, the Forest Service Handbook, and the Code of Federal Regulations. It also provides opportunities contained in the wording within Section 339 regarding programmatic funding, environmental analysis, monitoring, and the important issue of sustainability. The potential for SFP programs to become more fiscally independent was also an important part of the design of the appraisal system.

The cost appraisal system has led to a more consistent permit pricing methodology that is easier for managers to use, provides transparency for customers, and results in defensible permit prices.

Many program managers had heard complaints from their customers about the lack of consistency in pricing structures in SFP programs across the region. Many complaints regarded pricing differences for the same products between districts on the same forests. Region 6 has been particularly proactive in addressing these issues. Many meetings were held with FS personnel, concerned citizens, and public interest groups to share thoughts on how programs were managed and issues that needed to be addressed. The SFP appraisal system was one of the primary tools that resulted from these meetings and discussions with customers.

Our interviews with managers, harvesters, and buyers indicate that the cost appraisal system has led to a more consistent permit pricing methodology that is easier for managers to use, provides transparency for customers, and results in defensible permit prices. If a harvester believes the permit price for a particular product is incorrect, the default table for that product can be used to identify the specific values used in the calculation of the product's permit price. This provides the harvester and manager the ability to easily identify and discuss the individual values that may (or may not) require adjustment.

The fact that some harvesters interviewed felt that prices were still inconsistent across the region may be attributable to a lack of understanding of the cost appraisal system. As discussed above, and illustrated by tables 1 and 2, there may be valid (and defensible) reasons why the permit price for a particular product will differ by zone within the region. More meetings to demonstrate the system to customers may help alleviate this perceived inconsistency. Whether customers would attend such meetings is unknown. Another possibility would be to develop a simple brochure to

illustrate why permit prices for the same product may differ between zones (similar to our illustration in tables 1 and 2).

The comment by one harvester who did not think the process of gathering fair market values is a good, equitable process is of concern. This comment lends credence to one of the manager's statements that the SFP managers themselves should be more involved in the cost updating process or at least have more individual contact information, because they are missing out on the benefits of customer contacts and building good relationships. This manager's comment that increasing the sample size of harvesters contacted when updating values for the model would help with the credibility issue with harvesters also appears valid.

Although in general the managers interviewed concurred that not enough receipts had yet been retained to provide substantial enhancements to SFP programs, they were hopeful regarding their future use. Region 6 accounted for almost 82 percent of the funds accruing to the FS retained receipt funds nationwide in fiscal year 2008, which is a testament to the proactive efforts in this region. In the future, some of these retained receipts may be used to address concerns raised by the harvesters and buyers interviewed including the need for permanent employees in SFP positions, better training for these employees in the design, administration, and monitoring of SFP sale areas, and more emphasis on putting SFP sales out on some forests or districts.

In conclusion, although there were some issues raised with the cost appraisal system, these issues stem mainly from a lack of understanding of how the system actually works rather than with the system design. Increased demonstration of the mechanics of the system and more interaction between SFP managers and customers in the updating process could go a long way to alleviate these issues. Perhaps the most important contribution of the SFP cost appraisal system developed for R6 is that the methodology it employs has been demonstrated to work. Other regions of the FS have already adopted this system, and those regions that do not yet have a permit pricing system in place have this readily adaptable and proven system available to use.

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Metric Equivalents

When you know:	Multiply by:	To find:
Feet	0.305	Meters
Miles	1.609	Kilometers

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