

Chapter 8: Management Assumptions and Program Realities: A Case Study of Noncommercial Fern Gathering

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Abstract

In the mid-1990s, picking bracken fern (*Pteridium aquilinum* (L.) Kuhn) fiddleheads became a popular activity on the Mountaintop (formerly Arrowhead) Ranger District (MRD) of the San Bernardino National Forest in California. Concerned that fern picking was affecting the resource and that pickers were making large profits by selling the ferns, the MRD developed a program to charge a commercially based fee and limit fern picking to designated areas. Several years after implementation, MRD staff asked scientists to evaluate the program. Biologically, bracken ferns are very resistant, and there was no evidence of overpicking on the MRD. Studies also found no evidence of commercial resale of the ferns. Rather, fern gathering was a culturally-based recreational activity pursued primarily by Korean and Japanese family groups. Most participants picked for social and outdoor experiences and used the ferns in the preparation of culturally significant traditional dishes. As a result of program rules designed for commercial picking, most participants gathered many fewer pounds of ferns than they paid for. Similarly, many of the program violations resulted from the incompatibility between the commercially based rules and the pickers' recreational motivations. This case illustrates that special forest products programs and management strategies need to be based on site-specific biological and sociological factors.

Keywords: Special forest products, commercial use, recreation, race, ethnicity, bracken fern, ferns, program evaluation.

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Study objectives were to identify demographics and motivations of MRD fern gatherers, group characteristics and picking experience, interest in stewardship behavior while picking, and perceptions of discrimination or other inequities related to program rules and in-field behavior.

Introduction

Each spring, hundreds of Asians and Asian-Americans visit the San Bernardino National Forest's Mountaintop (formerly Arrowhead) Ranger District (MRD) to pick the tender young shoots, or fiddleheads, of bracken ferns (*Pteridium aquilinum* (L.) Kuhn) for use in preparing holiday and everyday meals. Bracken fern picking is accommodated under a special forest products (SFP) permit program introduced in 1981 and updated in 1993.

District staff and the San Bernardino National Forest Association (SBNFA) designed a permit program to address concerns that commercially motivated gatherers picked more ferns than they paid for, ranged onto private land, deliberately ignored program rules, demonstrated a lack of respect for the Forest Service and its employees, endangered the bracken fern resource, disturbed the state-listed threatened southern rubber boa (*Charina b. umbratica*) snake, and earned large profits from their harvests. A fee of \$1.00 per pound of ferns picked, with a minimum purchase of 40 pounds, was instituted and later reduced to 50 cents; color-coded picking bags were issued to verify fee payment; five legal picking areas were designated, signed, and flagged; and law enforcement services were contracted with the county sheriff.

The Forest Service initiated a pair of studies in 1996 and 1997 to evaluate the program. Study objectives were to identify demographics and motivations of MRD fern gatherers, group characteristics and picking experience, interest in stewardship behavior while picking, and perceptions of discrimination or other inequities related to program rules and in-field behavior. The project also compared survey responses of Korean and Japanese pickers to see whether major cultural differences exist (Anderson et al. 1997, 1998).

Review of the Literature

No studies of people who pick bracken ferns were found in the literature. The most relevant literature for this study was related to harvesting SFPs and sustainability of bracken ferns. Recreational characteristics of multicultural visitors are examined in the literature and were part of the development of both studies but have limited relevance to the present discussion. (For complete findings see Anderson et al. 1997, 1998).

Special Forest Products

Many categories of nonwood forest products have been documented and analyzed, including fiber products, food products from both plants and animals, medicinal and cosmetic products, live animals, and others (Richardson 1995). In addition to the direct use of forest commodities, other types of SFP values recognized in the literature include cultural symbolism, recreation, biological diversity, carbon storage, and commercial values (e.g., Emery et al. 2003, Love and Jones 2001).

The overwhelming majority of literature on the management of SFPs focuses on the economic value and commercial harvest of these products and on subsistence uses. Some common themes related to economic and subsistence concerns include harvest and resource value, subsistence vs. commercial use, harvest sustainability, marketing of SFPs, the role of SFPs in rural development, support of SFP harvest for household income and use, migrant SFP gatherers' attention to profit rather than resource sustainability, outsiders' intrusion on the commercial income of local/indigenous peoples through SFP harvest, and so forth (e.g., Adger et al. 1995, Ros-Tonen et al. 1995, Wickramashinghe et al. 1996). Although some authors emphasized the noncommercial, cultural, and symbolic values of nonwood forest products, even this acknowledgment was often couched in relationship to the economic value of the resources and collectors' livelihoods.

Multicultural Uses of Special Forest Products

Studies linking cultural differences and resource behavior are important to understand (1) diverse cultural groups whose numbers are growing on public lands, (2) the interests and preferences of underrepresented groups, and (3) potential sources of conflict over resource use. Little sociological or ethnographic research has been done on SFP harvesters in the United States with the exception of Native Americans and their subsistence use of SFPs. And while there is little research on recreational behavior of Asians in general, even less exists for harvesting SFPs.

Two studies of multicultural harvesters including several Southeast Asian groups were conducted in the Pacific Northwest by Hansis (1996), and Richards and Creasy (1996). Hansis (1996) interviewed Cambodian, Laotian, and Hispanic harvesters in Washington's Yakima Valley who collected beargrass (*Nolina bigelovii* (Jorr.) S. Watson), huckleberries (*Vaccinium scoparium*), matsutake (*Tricoloma magnivelare*) mushrooms, medicinal herbs, and other products. The primary purpose of the harvest was to sell these products for commercial use.

A study by Richards and Creasy (1996) focused on gathering matsutake mushrooms in the Klamath region of Oregon and California. The authors reported differences in both the cultural backgrounds and gathering behavior of Southeast

Asians and Native Karuk tribal members. The Asian pickers were relatively new to the practice in the Klamath region, and their primary motive was to sell mushrooms to help offset unemployment and to supplement their relatively low incomes in a way that reflected traditional forest resource gathering practices from their native countries. The traditional nature of the activity and the social gatherings were also important motives, but the pickers were primarily commodity-oriented and not necessarily concerned with resource sustainability or protection.⁴

Bracken Fern Biology

Bracken fern grows throughout the world, occurring almost everywhere with the exception of hot and cold deserts (Crane 1990). In fact, it may be the single most widespread vascular plant in the world (Richardson 1995). Two subspecies are recognized: *aquilinum* in the Northern Hemisphere, and *caudatum* in the Southern Hemisphere (Crane 1990).

Although spores germinate and grow in culture, most *Pteridium aquilinum* regeneration is vegetative. Spore generation appears to require soil sterilized by fire (Crane 1990). Even after fire, however, some rhizomes also survive to provide new growth. Bracken fern's hardy and aggressive rhizome system allows the plant to reproduce vegetatively and stores water for the plant's needs (Crane 1990). Some rhizomatous clones alive today may be over 1,000 years old (Crane 1990). In short, bracken fern is a survivor. In addition to fire, it also survives most herbicides—a fact well known to foresters who attempt to reduce bracken fern competition with conifer crops (e.g., University of Guelph 1996).

Methods

Study Background

The MRD is located in the San Bernardino Mountains, an hour's drive east of Los Angeles. In spring 1981, MRD staff first noticed heavy bracken fern picking by Asian visitors. At the same time they became aware of conflicts between fern pickers and private landowners in the area. In response to these conflicts, the MRD instituted a per-pound fee for gathering bracken ferns, designated approved picking sites, and began selling permits for the activity. In 1993, management of the fern program was assumed by the SBNFA, a nongovernmental support group.

⁴ For Native Karuks, by contrast, matsutake mushroom picking is a traditional activity they have conducted in the same areas for generations for who sustainability was a key concern (Richards and Creasy 1996).

The MRD's bracken fern fiddlehead season lasts about 6 weeks each spring, roughly from the last week in April through the first week in June. In 1996, 427 permits were sold, representing permission to pick nearly 10 tons (19,900 pounds) of bracken ferns. In 1997, 381 permits were issued for gathering 16,520 pounds. At the time of the 1996-97 study, the purchase of a \$20 permit allowed an individual or group to gather up to 40 pounds of bracken ferns.

The management of this program is complicated by a mosaic of land ownerships as well as areas of rubber boa habitat. Therefore five specific areas were designated as legal picking areas and marked with plastic flagging and signs in English and Korean. Permits were sold at the MRD. With each permit, purchasers were issued two official fern collection bags as well as a handout including basic program rules and a map showing designated picking areas.

1996 Pilot Study

Accounts of large potential profits and ecological overuse from SFP harvesting carried in area newspapers caused concern among Forest Service and SBNFA staff members who managed the bracken fern program on the MRD. Staff members believed the sale or commercial use of ferns was an important motive for pickers, and the district instituted a relatively high fee for picking the ferns based on the price of processed ferns for sale in nearby Los Angeles. As noted above, the staff also felt there was a relatively low level of awareness of, and cooperation with, program rules. This perception was largely based on the fact that some pickers used collection bags other than those issued with the purchase of a permit. At the same time, conflicts with local landowners and the operator of a nearby arboretum had also been reported.

The results of the 1996 pilot study found little basis for the managers' concerns (Anderson et al. 1997). The study employed onsite observations at fern picking areas in the forest, indepth interviews with six agency and eight cultural key informants, an analysis of the previous season's permits, a brief postcard-length questionnaire sent to permit holders, and a review of literature related to bracken fern sustainability and regeneration. Some of the key findings of the 1996 study were (1) there were Japanese (13 percent) as well as Korean (83 percent) fern pickers on the MRD; (2) fern gathering is primarily a recreational and cultural, rather than commercial (<3 percent of respondents), activity; (3) bracken fern gathering is mainly an activity of the middle and older generations; (4) nearly 90 percent (86.4 percent) of the pickers purchased the 20-pound permit, the smallest permit size allowed; and (5) the bracken fern resource is not endangered by even extensive picking of the fiddleheads. The study also found that most harvesters came in groups of three or

four. As they spread out across picking areas, the two plastic bags provided were not sufficient for their needs, and consequently pickers brought additional bags from home.

1997 Followup Study

Questions for the 1997 followup mail survey were based on the 1996 pilot study and information from cultural key informants, including experienced Japanese and Korean fern pickers. An eight-page survey was mailed to each person who purchased a fern gathering permit during the 1997 picking season. Of the 269 deliverable surveys, 146 were completed and returned for a response rate of 54 percent (Anderson et al. 1998).

Results

Demographics

Bracken fern gathering on the MRD is primarily a family activity, with 89 percent of all respondents participating in family groups or with a combination of family and friends. Just two individuals came with organized groups, and one came alone. Unlike the predominantly lower income Southeast Asian SFP gatherers in the Pacific Northwest (Richards and Creasy 1996), fern pickers on the SBNF primarily had moderate household incomes (57 percent earning \$25,001 to \$65,000) and higher than average education levels (77 percent with education beyond high school).

Motivations

A 17-item list was used to identify specific motivations for picking ferns on the MRD in 1997. Based on a four-point scale (1 = not important at all, 2 = slightly important, 3 = moderately important, 4 = very important), regardless of ethnicity, the primary reasons for picking ferns were social and environmental: to spend time with family or friends (mean = 3.12), spend time in the mountains (3.00), get away from the city (2.99), and just being outdoors (2.99).

Although selling ferns was the lowest rated motivation at 1.05, 32 percent of the respondents reported that “needing the ferns to have enough food to eat” was at least slightly important (1.48), which suggests there may be a subsistence use of bracken ferns. Only one person said they were planning to sell some of the ferns they picked (2 pounds). Five respondents said “earning money by selling ferns” was a slightly or moderately important reason for picking ferns; at most 3 to 4 percent of the respondents reported they might sell some portion of their ferns.

When asked to identify the one or two most important reasons for picking, environmental and social reasons were again rated highest. Most common was

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“to enjoy the outdoors,” named by 27 percent. Twenty-three percent named spending time with others and liking the taste of ferns, and 19 percent named being in the mountains or using ferns in either holiday or everyday meals. Although there were some use differences between Japanese and Korean pickers—for example, Koreans were more likely than Japanese to use the ferns in holiday meals—social and environmental aspects of the experience were clearly rated highest by both cultural groups, and commercial activity was rated very low.

Experience

For 91 percent of all respondents, the MRD is the only place they go to pick ferns, and a large majority picked ferns on the MRD only once during the 1997 season. The mean time spent picking was 2.4 hours. Among pickers on the MRD, 37 percent had no previous MRD visits, and 33 percent had picked there just once or twice previously. By contrast, Richards and Creasy (1996) found Southeast Asians camping in the area and picking matsutake mushrooms an average of 3.75 weeks per year. No MRD respondent reported camping in association with their fern visits.

About half (45 percent) of Japanese and one-third (35 percent) of Korean respondents said they take some special effort to ensure that ferns will be available in the future. Seventeen different stewardship actions were named in an open-ended question. These included, for example, “take only what’s needed,” “don’t damage the roots,” and “pick only young ferns” (Anderson et al. 1998). Again, this is in contrast to Richards and Creasy’s (1996) finding of little or no concern for resource sustainability among Southeast Asian gatherers in the Pacific Northwest.

Program Satisfaction

The major area of dissatisfaction with the fern program was the price charged. Seventy-three percent of respondents felt that \$20.00 to pick up to 40 pounds of ferns was too high. When asked what a fair price for 40 pounds of ferns would be, the mean response was \$10.06. In open-ended comments, five respondents (3 percent) indicated that the fee is too high considering that they pick for fun or to remember their culture, rather than for commercial profit.

Most groups picked significantly fewer ferns than they bought permits for. Estimates by those who purchased a permit for 40 pounds, the smallest permit they could buy, averaged 25 pounds picked, while those who paid for 80 pounds of ferns reportedly picked an average of only 37 pounds. Just two respondents bought permits for 120 pounds. One of these said they picked 50, and the other reported picking 110 pounds.

Discussion

This study illustrates the problem of making assumptions about visitor motivations and resource sustainability as well as generalizing research findings across visitor groups, activities, locations, and forest products. Failure to make appropriate resource impact, user group, and SFP distinctions can lead to management decisions that are not in the best interests of the resources, SFP gatherers, or even the agency itself.

Many of the 1996 and 1997 findings contrast with the conclusions of Hansis (1996), Richards and Creasy (1996), and other authors who identified commercial resale as the primary goal of the SFP harvesters they studied. Whereas Southeast Asians in the Pacific Northwest often gathered SFP for consecutive days and even weeks, the majority of fern gatherers came to the MRD only once for just over 2 hours of picking, and almost no resale of their harvest was reported. Other survey responses that suggested commercial picking is not the basis of the MRD's fern gathering activity include (1) the most commonly named motivations for picking were social and environmental, (2) the MRD was the only place most respondents gathered ferns, (3) most respondents gathered considerably fewer ferns than they paid for despite the fact nearly 90 percent of the pickers purchased the smallest possible permits, and (4) many more pickers considered fern gathering a fun activity rather than work.

These findings suggest that an economic or commercial approach to managing the MRD fern program is inappropriate. While it is clear from MRD staff members that some abuses of picking limits and boundaries have occurred, there was no real evidence that this was a common occurrence or that the abuses (in one case, a car trunk-full of ferns by a group holding a single 40-pound permit) indicated commercial activity. Rather, fern gathering on the Mountaintop Ranger District appeared to be primarily a social and recreational activity that was laden with cultural meanings, an activity in which every step—from picking through processing, cooking, and eating—serves to reinforce ethnic group affiliation. Although this project identified several differences between Japanese- and Korean-background pickers, the similarity in the two groups' picking motives and behaviors turned out to be greater when compared with the managers' concept of what was important about the fern gathering activity—especially as picking bracken fern fiddleheads does not endanger the resource (Anderson et al. 1998).

Managers who focus exclusively on economic or subsistence values may implement management strategies that are inappropriate to the particular SFP activities they oversee. The fact that most SFP research has focused on commercial gathering and economic values may give the impression that SFP gathering is always eco-

nomic in intent. Study results revealed that in addition to the two major types of SFP collectors discussed in the literature—subsistence and commercial pickers—a third general category exists: the cultural/recreational picker.

In light of these results, it is clear that both (a) knowledge of participants and their motivations and (b) understanding of the biology of the resource are essential to designing appropriate management strategies for SFPs.

Metric Equivalents

When you know:	Multiply by:	To find:
Pounds	454	Grams

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