

**Community Forestry Research Fellowship Program
Final Report**

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- **Briefly summarize your research problem (include any hypotheses) and the goals of your research.**

My goal is to contribute to sustainable management of non-timber forest products, which then contributes to greater stability of livelihood for harvesters. The existing critical lack of knowledge about the ecology of the resources, as well as the needs and practices of harvesters, each put the harvesters at risk of exclusion and the resource at risk of degradation. My work will provide ecological knowledge about one particular non-timber forest product, but perhaps more importantly will help develop relationships between harvesters and those controlling access to the resources. I hope that this in turn will improve the prospects for sustainable, humane management of many non-timber forest products. The methods that I employ, including participatory monitoring and collaborative research, should be applicable across a wide range of resource types and landownership settings.

This study is guided by the following research questions:

- 1) What are the harvest management approaches currently in use by different landowners in Mason County?
- 2) How do these harvest management approaches affect harvester activities and ultimately, salal harvest intensity?
- 3) How do different harvest intensities affect salal regrowth?

I will use participatory research methods to test the following two hypotheses:

- 1) Harvesters of relatively abundant non-timber forest resources, such as salal, choose to use different harvesting practices depending on the structure of their rights and abilities to access the resource, both formal and informal.
 - 2) The two main methods of harvest, defined here as High Intensity and Low Intensity, have differential and measurable effects on the ecological and commercial sustainability of salal.
- **Describe your field experience and data collection experience. Include a discussion of how your participatory research worked out.**

Project Status, Schedule and Experimental Design: During pre-dissertation fieldwork in Mason County from June to September 2001, I exceeded my goals for the summer in several ways. My goals were to identify the NTFP species, the field site, and the community partner with whom I would conduct my research, and investigate further sources of funding. In fact, I installed and collected pre-treatment data for salal harvest impacts on three experimental sites with my community partner, the Northwest Research and Harvester Association, as well as several enthusiastic harvesters and Forest Service personnel not affiliated with the Association. Beginning in June of 2001, several preliminary interviews and participant observation of salal harvest were conducted with harvesters of several ethnic backgrounds. Thirteen harvester interviews were conducted over the course of the summer, with many more informal discussions with other harvesters, land managers and buyers. Questions asked in the interviews can be grouped into the following categories: 1) preferred method of picking salal, 2) knowledge of salal's commercial qualities, ecological factors of growth and the relationship between them, 3) precise description of harvesting practices, 4) duration of time spent harvesting each day, month and year, ("activity cycles"), 5) use of potentially sustainable harvesting

practices (i.e. degree and type of disturbance of surrounding vegetation, use of fallow, use of knife vs. tearing stem).

At the conclusion of these interviews, I asked the harvester if he or she would like to help me develop a project on salal harvesting impacts, and I described the general study design at that point. Three groups of harvesters, each with different types of permits on different land ownerships, said I could put research plots on their land, with the permission of the landowner. As I often had already spoken with the land owner for approval, I then asked if they'd like to help me put in the plots and choose sites so they didn't interfere with their picking. Via this iterative process, some harvesters chose to help only in the first stages, others have been involved in all stages of the project so far. On the National Forest land, we installed the treatment areas and collected data by the end of August with both the harvester and Forest Service Forest Technicians who wanted to learn about the methods we were using.

Participatory Sustainability Experiments: Harvesters and land managers (particularly from the National Forest) have and will participate in all aspects of designing and conducting the study, including but not limited to:

- 1) choosing the appropriate plot locations to represent real harvest conditions,
- 2) developing the precise research question within the larger question of harvest intensity impacts,
- 3) developing hypotheses about particular ways the plants will respond to harvest,
- 4) designing methods to measure impact on regrowth on the plant. (No methods exist in the literature for measuring harvest impact on a rhizomatous shrub like salal. Forest Service personnel and some state and private land managers have

- requested collaboration with this project to aid in their ability to assess and monitor this resource.),
- 5) defining the harvest treatments to be tested based on actual harvest practices,
 - 6) collecting data for the 2 1/2 years of the study,
 - 7) interpreting the results after the researcher completes the statistical analysis,
 - 8) developing management recommendations based on experimental results and local knowledge and experience.

Steps #1-6 occurred during my pre-dissertation summer of 2001, and most steps will continue through the entirety of the project.

As mentioned above, three harvesters or groups of harvesters offered a small piece of their leased land for these and future experimental sites. One site is on State Forest land, one on National Forest land, and the third on private industrial timberland (Fig. 1).

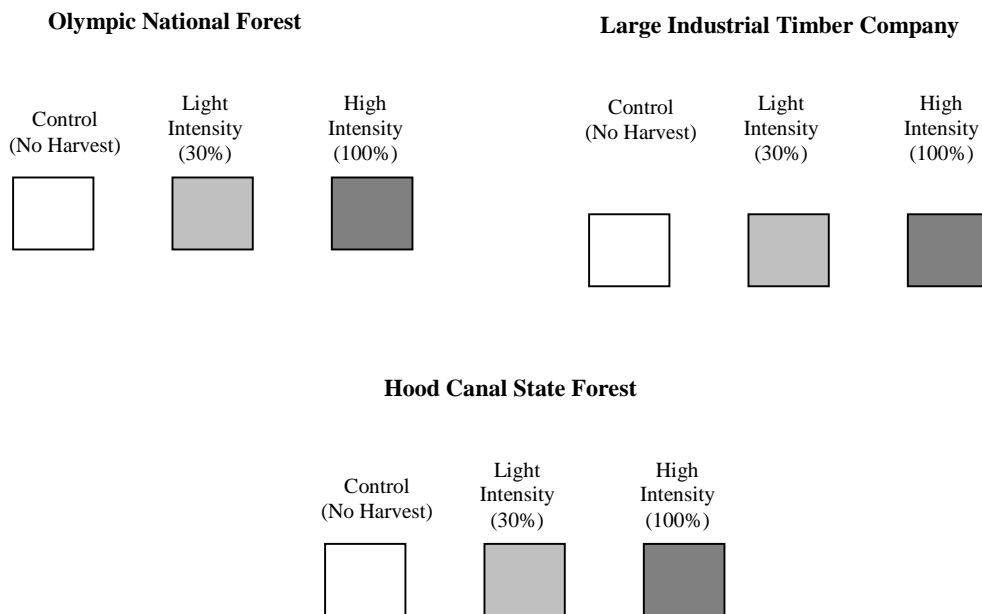


Figure 1. Location of Phase 1 Experimental Sites

The collaborators on State land are the Northwest Research and Harvester Association, who are enthusiastic about participating in this research. Together, we developed the following experimental design:

In order to determine the impacts of differing harvest intensities on commercial and non-commercial regrowth of salal, three sites, each with three 40 m x 40m treatment areas (Control, Light Intensity Harvest, and Heavy Intensity Harvest), were established in July 2001 (designated as Phase 1) (Fig. 1). Within each treatment area, nine plots with four nested sub-plots each were permanently established in which to measure response to harvest (Fig 2). In these plots, harvesters, Forest Service personnel, and I measured pre-treatment response variables (average height of shrub, number of new shoots per square meter, average length of new shoot, etc.) in July and August 2001. Harvest treatments were defined as Light Intensity (30% of the available commercial new growth) and Heavy Intensity (100% of the available commercial new growth), and were applied by harvesters in November 2001. The same response variables will be measured post-treatment all sites in July and August of 2002.

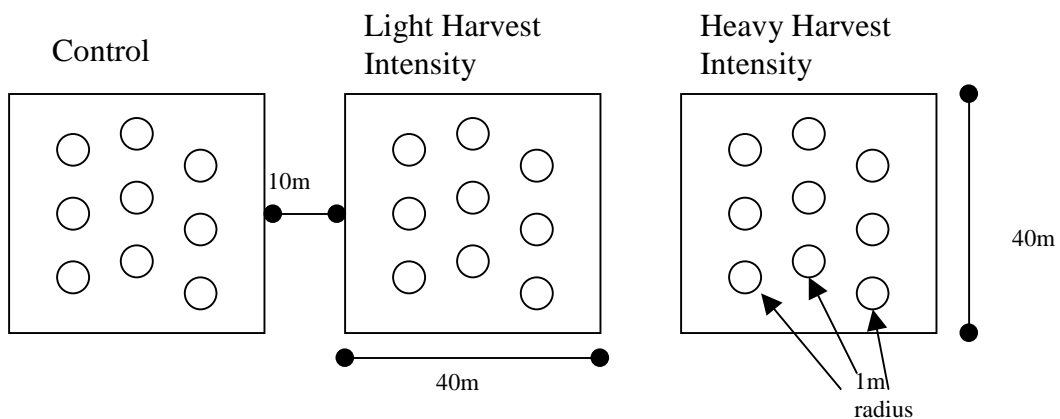


Figure 2. Experimental Treatments and Sampling Layout

Harvester Participation in the Experimental Design: After many semi-formal interviews with salal harvesters, I revamped the experimental design focused on commercial grades that I had originally intended to use based on my review of the literature and discussions with ecologists. Questions about harvest intensity due to demand for particular commercial grade became questions about harvest intensity due to permitting structures and long-term access to land. This led to the design of a 2 1/2 year study of Light and Heavy Harvest Intensity rather than a shorter study looking at commercial grades. Harvesters recommended site locations that reflected the variety of environmental conditions in the area, such as elevation and slope, as well as areas that would be less-likely to experience unpermitted harvest; these resulted in the current site locations. Determining the response variables was a difficult task, merging the requirements for a statistically rigorous, ecologically acceptable design with the recommendations of harvesters and managers for useful and easy-to-measure variables. Defining harvest treatments involved extensive conversations in the forest looking at previously harvested areas, past experiences, universal vs. personal harvesting methods, and statistical and ecological validity. Buyers were also involved in defining harvest treatments so that commercial quality could be included as part of the treatment. Every single step of the experimental design was altered in small or large ways by the active participation of harvesters.

- **Discuss your preliminary findings and analysis. How do they relate to your original goals/hypotheses?**

My original goals and project design changed dramatically as a result of harvester and other stakeholder participation. Prior to the field season of 2001, I had been given the distinct impression that Latino harvesters of unknown residency status would not be

interested in talking to or working with a young ecology researcher from California. Instead I found a variety of harvesters, Forest Service personnel and buyers who were happy to talk to me, and even further participate or somehow contribute to my efforts to study salal harvesting. This changed things. Whereas my original research questions were designed to for more extensive landscape-level research and extensive, almost survey-type interviews, I was able to do much more intensive experimental ecological research with continual participation from harvesters who were invested in the project. It became clear that I couldn't do both extensive and intensive work in the time I have for a dissertation, so I chose to have a closer relationship with fewer harvesters in order to involve them in more aspects of the project.

The most gratifying preliminary finding of the summer was regarding the relationship between harvest activities and permitting systems. I had suspected that harvesters do not pick the same way with the same intensity in all the areas they work in; some permits give them access to a piece of land for only two weeks, others may be for one year, still others may be three-year leases. Furthermore, different systems allow access for smaller or larger numbers of harvesters to the same piece of land; the Forest Service District allowed dozens of people access to the same 640-acre section of land, whereas an adjacent private timber company allotted several sections to one harvester. I conjectured, based on the political ecology literature I'd reviewed, that the various levels of competition and duration of access would certainly affect the way harvesters pick salal. In the field, when I asked harvesters to describe the way they pick salal, nearly all of them replied that it depends on where and who they are picking for. If they are picking on land for which they have a lease for a year or more, they pick it much less

intensively (fewer shoots removed per unit area) than when they are picking on land with a short-term permit to which they may never return. They demonstrated the different ways they picked depending on what kind of permit they had. The only exceptions were the pickers who had very recently begun picking salal and only had experience on one kind of land-ownership type or one kind of permit system. When asked if they would pick any differently if they had their own piece of land for five years or more, most replied, “of course!” Based on these interviews and subsequent discussions with harvesters, I changed the experimental design to test the harvesting practices they described. In addition, I intend to explore in much more detail the ways that each kind of permitting system affects the harvesting practices, and what kind of land access arrangements harvesters, Forest Service, private landowners, and buyers would prefer to be a part of.

In terms of the ecological research, I need to wait until I have post-harvest measurements to conduct most of the analysis. These post-harvest measurements will be taken during the summer of 2002.

- **What is the benefit of your research to the community?**

The Northwest Research and Harvester Association (NRHA) is the group of harvesters I’ve worked most closely with since I began my fieldwork in June 2001. In many discussions over breakfast and in the woods, several of the members have expressed their interest in and need for scientific research that helps to improve management practices related to non-timber forest products as well as validate the knowledge and skills of harvesters. Currently, my project is the sole research project that the Association has on the lands they are managing. In fact, they have asked me to help

them develop a sort of protocol for navigating their relationship as an Association with other researchers who want to work with them (which is very flattering for me). Another way I hope to help the Association that is not directly related to my experimental project is to provide administrative and organizational skills to help them document, catalogue, organize and preserve their systems of land and member management. In addition, they would like me to help them design the data sheets that each harvester will fill out whenever he picks on land managed by the Association to document what they picked, where, how much, for how long, with whom, and the ecological conditions of the site. This will be invaluable information for the Association in managing their lands, as well as for the landowners with whom the Association is collaborating.

An indirect benefit of working with me for the harvesters is that nearly every step in the research project so far has also involved Forest Service managers and/or researchers, thereby providing an informal exhibition of harvester knowledge, experience and concern for sustainability. Finally, I hope to jointly present with several harvesters the results of the sustainability study to the Forest Service District and Forest Supervisors, as well as the State DNR personnel, with recommendations for permitting and management changes based on our work. This will hopefully also expose managers and decision-makers to the range of harvesters' knowledge and experience that can contribute to future forest management practices and policies affecting non-timber forest products and harvester livelihoods.

- **Lessons learned. Include any suggestions you may have for improving the CFRF program.**

I believe my project is a textbook example of how the CFRF program can encourage novice researchers to adopt the philosophy and approach of participatory research.

Before receiving the Pre-Dissertation Fellowship, I had preliminarily designed a much more traditional ecology/conservation biology project focusing on determining the impacts of harvest on one or more non-timber forest products. Not having spent an extended time with harvesters in the region, I had been told that it would likely be very difficult to “enter” this community, gain trust, and “convince” them to participate in sustainability research. When I was awarded the Community Forestry Pre-Dissertation Fellowship, however, I felt an obligation to make an effort to involve harvesters as much as possible, and discovered that all my fears and assumptions were wrong. Not only were people generally glad to speak with me, they often expressed a concern for the sustainability of their harvesting practices before I ever suggested my project focus.

Because I felt I’d received a mandate from the CFRF’s support of my work, I continued to ask harvesters for opinions about my research questions, then hypotheses, then study design, then specific plant population monitoring methods, and finally the harvest treatments. Instead of using local college undergraduates as field assistants as many ecologist researchers suggested to me, I asked harvesters to come out for a few hours to help me put in plots, during which time we collaborated on the methods at a deep level I had not anticipated. This incredible potential for participatory research was unknown to me before my pre-dissertation summer fieldwork.

Several obstacles to this participatory research approach became apparent as well. One significant difference between using a participatory research approach and standard ecological research is the increase in time spent in the field. As opposed to a summer field assistant, I had to train a new person every few days to help me with the site installation and data collection because no one harvester could work with me for very

long; though I paid \$10/hour, this was still less than they could make picking salal if they were experienced pickers. Days in the field were not often optimally efficient. For example, many harvesters like their occupation because they don't have to report to a boss at any particular time of day; therefore, I had to be very flexible about when and how many hours we could work in the field. Finally, many of the landscape-level research questions I had been interested in will not be part of my project because they do not lend themselves to participatory research.

Despite these obstacles, I have completely internalized the participatory approach to research, and hope never conduct research in any other way. In terms of scientific validity, (often an issue with PAR), the results of my research will be much more capable of answering the questions of land managers and conservation biologists because of harvester participation. Most importantly, I have seen Forest Service personnel's attitudes change as a result of working with harvesters on this project. Whereas I had only vainly hoped that some harvesters would give some small input on the project when I applied for the Pre-Dissertation Fellowship in February 2001, I am now hoping to help empower harvesters by having them present the findings of our research to the Forest Service, State Department of Natural Resources, and several private timber companies. Though sweeping policy changes are unlikely, I believe the possibilities for attitudinal change are great, on the part of harvesters, managers and scientists. In light of this, I believe that the CFRF program was successful in promoting its mission for community forestry research in the U.S.