

## **Final Report for Ford Foundation Community Forestry Research Predissertation Fellowship**

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Developing a non-timber forest products sector in the Appalachian Ohio economy  
through experimental and participatory research with local growers

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### **Background:**

The goal of my proposal for the Community Forestry Research Fellowship was to contribute to the sustainable cultivation and management of non-timber forest products (NTFPs) in Appalachian Ohio. Appalachian counties of Ohio are stricken with some of the worst poverty rates in the United States. Natural resource industries (e.g., timber, coal and clay) that once supported local Appalachian Ohio communities a century ago have now left behind visible scars in an economically depressed landscape. However, within the past 50 years, Appalachian Ohio hardwood forests have experienced incredible regeneration. Positioned at the foothills of the central Appalachian Mountains, this rural region contains a remarkable number of native, medicinally active forest herbs that have been harvested from the wild for centuries. Consequently, the rich and diversified privately-owned woodlots of this region are ideally suited for the development of a small business sector that incorporates the woodland cultivation of native medicinal plants. With the over-arching goal of working towards the successful woodland cultivation of medicinal herbs, I was interested in exploring the possibility that a community-based research approach would help local farmers and overall development of a non-timber forest products sector in Appalachian Ohio.

### **Research Goals:**

This study began with the following research goals:

- 1) Gain a comprehensive understanding of the knowledge gaps in NTFP ecology, cultivation, and socioeconomics
- 2) Develop a relationship with private landowners and community action agencies
- 3) Conduct resource inventory analysis to determine ecological correlates of medicinal species and products of interest to the community
- 4) Develop an understanding of medicinal herbs socially preferred by local growers in Appalachian Ohio, through interactive exercises with the community and through direct observation
- 5) Screening of candidate medicinal species through species trials on farmland in collaboration with participating farm households

## **Field experience and data collection experience:**

Before initiating any type of field research, I comprehensively searched the published and gray literature on the ecology, sustainable harvest, and socioeconomics of non-timber forest products in central Appalachia. This process illuminated key NTFP species that are harvested from the wild and, therefore, are potential candidates for cultivation in a diversified agroforestry system in Appalachia Ohio.

Closer scrutiny of the vast literature, revealed large knowledge gaps on the basic ecology, cultivation, and market dynamics of native medicinal herbs. Despite a large amount of information on traditional crops (e.g., corn and soybeans), extension services in Ohio offered no technical information on NTFPs for private landowners. I thought it would be important to integrate the available information from other eastern forest regions into an all-inclusive manuscript. This would provide valuable information for local landowners initiating the development or expansion of NTFP woodland cultivation and help prepare me for future discussions and participation with private landowners, management agencies, and NGOs. This particular component of the project is currently close to completion, and will ultimately result in a manuscript submission to a peer-reviewed journal. My goal is to directly disseminate this vital information to community members at workshops and informal discussion sessions (e.g., RAGA; The Roots of Appalachia Growers Association). Moreover, by publishing this literature database, a regional audience is exposed to baseline information on these broadly distributed and potentially widely cultivated NTFPs. Additionally, this information provides a gateway for facilitating the discussion and reciprocal knowledge sharing of NTFP information with community members.

In June (2002) I began to develop community contacts with my community partner, Rural Action (a non-profit community action agency), and private landowners. After several phone discussions, I scheduled a meeting Rural Action, which resulted in a lengthy, informal discussion session at the National Center for the Preservation of Medicinal Herbs (Meigs county, Ohio). The 'Center', as community members call it, is a demonstration and research farm in the heart of Appalachian Ohio. Since its inception four years ago, the 'Center' has become nationally known in the medicinal herb industry. Presently owned by Rural Action, the 'Center' is a meeting ground for private landowners, where they can observe and participate in on-farm trials, and problem solve issues in NTFP cultivation through discussion with other landowners and NGOs. I met with two members of the community forestry program, a VISTA volunteer, and a private landowner to discuss future research directions for the summer. In turn, this meeting led to many more potential contacts, some of which will hopefully be participating in my future dissertation research (i.e., on-farm cultivation trials).

This participatory approach was particularly successful at revealing information about the demographics of local landowners and the general culture of harvesting herbs from wild populations. For instance, I was unaware that only a handful of private landowners in Appalachian Ohio cultivate woodland medicinal herbs as a sole source of

income. In fact, many private landowners use woodland medicinal herb gardens as a supplemental source of income. Furthermore, many private landowners with woodland cultivation operations also supplement their incomes by harvesting from National Forest Land. Wild harvesting provides an economic buffer in the case of crop failure, market decline, or poaching (i.e., illegal harvesting of NTFPs from private land). I learned that sustainable harvesting was a major concern among local harvesters. Since National Forest Land consists of a patchwork of forest stands woven into the Appalachian Ohio landscape, it provided an incredible abundance of NTFPs for this rural region. As the medicinal market has exploded the past few years, I learned from my discussions that local harvesters were concerned with large-scale commercial harvesters reducing NTFP resources from public land.

Discussions with community members sparked many more questions than I had initially started with. For example, what is the National Forests role in the management of non-timber forest resources? What type of harvest management or approaches to sustainable harvest from wild populations are currently in use by local harvesters? Is there a way to gauge harvesting intensity?

With these questions in mind, and given the limited time frame of a pre-dissertation fellowship, I decided to abandon many of my initial goals (goals 3-5 in **Research Goals** section) and focus the remainder of the summer on the issue of sustainable harvest from public lands. I began by contacting a forest manager from the National Forest Lands to discuss wild harvesting. After several discussions and an informal interview with a key forest manager, we decided to examine the permitting system as a way to gauge harvesting intensity. Plant collection permits are issued every field season to members of the community who intend to collect medicinal plants from public land. In a collaborative effort, we tallied plant collection permits over the past seven years to determine temporal variation in plant harvesting on National Forest Land.

My discussions with forest managers revealed that the Forest Service had very little contact with local harvesters, therefore, my next goal was to conduct semi-informal interviews with local harvesters. Specifically, I was interested in four broad categories to better understand harvesting dynamics: 1) methods for harvesting wild herbs, 2) methods for locating wild populations, 3) observations of the abundance of natural populations over time, 4) frequency of forest stand or wild population harvest within a single year and between years.

As mentioned before, I learned from my discussion that Forest Service personnel had little contact with wild harvesters. This to me was an important relationship that needed to be formed to successfully address the sustainable harvest of NTFP species from National Forest Land. However, as the summer field season came to a close, I also was encouraged to begin collecting data for my dissertation research as well (sampling National Forest Land to estimate the abundance and ecological correlates of native medicinal herbs). Therefore, my interviews with harvesters will begin in the spring (2003), at RAGA (Rural Appalachia Growers Association) meetings.

## **Preliminary Findings and Analysis:**

My initial goals were to develop an experimental ecological design to address local farmers' needs. Through on-farm trials and participation with local farmers, I planned on filling knowledge gaps revealed in my literature survey and discussions with community members. I successfully completed my first and second goals: identifying key NTFP resources in the Appalachian Ohio economy and developing a relationship with Rural Action, my community partner. I found that private landowners were most interested in the woodland cultivation of goldenseal, ginseng and black cohosh. These three native medicinal plant species are viewed as sound investments since their market value has been steady the past five years. In general, however, I found that market dynamics fluctuated greatly from year to year for many NTFPs. This is a serious concern to local farmers who are concerned that the economic return would not exceed initial start-up costs of a woodland garden. More importantly, my discussion with community members revealed that poaching has been a major issue among woodland farmers. Numerous farmers have reported large stands of valuable ginseng and goldenseal being completely wiped out in a day's time. Rural Action is presently petitioning the state government to enforce stricter poaching laws aimed at protecting private landowners' medicinal herb crops

My preliminary research changed markedly following this participatory approach. I found that sustainable harvesting was a key issue in the community, particularly since market demand has increased pressure on three native medicinal herbs: black cohosh, bloodroot, and goldenseal. In addition, forest managers have done little to forge a relationship with harvesters. Because I feel it is important to involve local harvesters, I intend to collaborate with forest managers, harvesters and private landowners in my dissertation research, with the following goals in mind: 1) to better understand the temporal and spatial variation of harvesting on National Forest land through semi-informal interviews with local harvesters, 2) to work closely with forest managers and harvesters to better understand the impact of harvesting on natural populations and the economic benefits of wild harvesting to community members, 3) to incorporate harvesters input into my study design and experiments to measure the impact on population growth and regeneration of various methodologies for harvesting the roots, rhizomes, and bulbs of economically and culturally valuable forest herbs, 4) to develop management recommendations to ensure the future supply of NTFPs for rural communities like Appalachian Ohio based on experimental results.

## **Benefit to the Community:**

Due in large part to the limited time frame, I feel my research thus far has had only a small direct benefit to the Appalachian Ohio community. However, some contributions have been made. One contribution of my summer's research to the Appalachian Ohio community was taking the initial steps in understanding the complex interaction between local harvesters and wild medicinal plant populations. By

collaborating with a local forest manager, we were able to find substantial increases in the local harvesting of bloodroot, black cohosh, and goldenseal on National Forest Land. These three medicinal herbs were formerly not locally harvested in large quantities. However, increases in commercial popularity has driven the market price upward, and placed greater demand on wild plant material. Local, and, in particular, commercial harvesters have responded to the market by increasing the frequency of harvesting. If harvest rates continue to ascend, wild populations may face unsustainable harvesting and potential declines in abundance. This component of my research identified the potential decline of a forest resource that is incredibly important to the livelihood of many harvesters in the community. So far, the gap between harvesters and forest management personnel remains wide. Hopefully, forest managers and local harvesters can build a stronger partnership to meet the community's request of protecting wild harvested NTFPs.

I plan on examining the sustainable harvesting of these particular species in a variety of landownership sites in my dissertation research (e.g., local farms and National Forest Land). This study design will incorporate knowledge on various local harvesting methodologies employed by local harvesters, and include participation by local farmers and private landowners.

### **Lessons learned and suggestions for improving the CFFR program:**

As a traditionally trained ecologist, I was somewhat skeptical of participatory research. This is in part due to the science community's general pessimistic view of participatory research methods as lacking strength and validity. Another reason for my skepticism was that I had up to this point little exposure to participatory methods, and, therefore was often not confident in my approach to contact community members. Through the participatory approach I did learn that sustainable harvesting from wild populations was a serious concern among many harvesters, and that forest managers and local harvesters had little contact. I realized this would be a great opportunity for me to bridge the gap between management and harvesters, which of course would ultimately benefit the community. However, by the end of the summer I had not completed this task, and was still undecided as how to convince local forest managers of the importance of a community-based approach to NTFP management. The participatory component of this research was unsuccessful in part because I had few interactions with local harvesters. For these reasons, I have set a personal goal of continuing to nurture relationships with community members that were started in my pre-dissertation research, and making new efforts to involve local harvesters in my dissertation research. I plan on using a participatory approach in spring 2003 to understand the dynamics and preferred methods of wild harvesting within the community.

As I look back at my pre-dissertation research experience, I feel I have learned important lessons from my mistakes. For instance, when sampling on National Forest Land, I should have obtained more input from local harvesters or encouraged them to participate in the process. Harvesters generally have a wide-ranging breadth of

knowledge on local forests, and I am confident this would have benefited the formation of a partnership between forest managers and local harvesters.

I feel the CRFR pre-dissertation fellowship serves an important function in community-based forestry research. For myself, and I would imagine other students in more traditional science programs, the exposure to participatory methods are enormously beneficial. After utilizing these methods, many of my initial goals were placed aside to address more urgent issues expressed by the community. Although I have not successfully facilitated a partnership between forest managers and local harvesters, I believe that the participatory approach enlightened me to this important relationship that would have otherwise gone unnoticed. It seems that the pre-dissertation fellowship serves more as a period for students, like myself, to explore various avenues of community-based research methods within the local community. I also feel this fellowship played a critical role in helping me formulate these methods into my dissertation research, which previously was going to take a more traditional applied ecology approach. If it were not for the community-based approach, I most likely would have neglected pursuing harvester interviews for my dissertation research. By and large, this experience benefited me as a student. Because of this, I feel this program serves an important role in the applied natural sciences.