

Non-Timber Forest Products: Alternative Multiple-Uses for Sustainable Forest Management

James Chamberlain

U.S. Forest Service, Southern Research Station

1650 Ramble Road, Blacksburg, VA 24060

jachambe@vt.edu

540-231-3611

Mary Predny

Virginia Polytechnic Institute and State University

Department of Wood Science and Forest Products

1650 Ramble Road, Blacksburg, VA 24060

mpredny@vt.edu

540-231-1861

Abstract

Forests of the southern United States are the source of a great diversity of flora, much of which is gathered for non-timber forest products (NTFPs). These products are made from resources that grow under the forest canopy as trees, herbs, shrubs, vines, moss and even lichen. They occur naturally in forests or may be cultivated under the forest canopy or in agroforestry settings. Over the last decade, interest in using these products as alternative income sources has grown tremendously. At the same time, concern about managing forests for these products has increased, as well. Unfortunately, there is insufficient scientific information or knowledge to assess the sustainability of NTFP harvesting. Very little is known about the materials collected, the people who collect them, or the enterprises that produce and market them. Preliminary results of on-going research to define the distribution of NTFP enterprises are presented. The state of knowledge concerning the markets for NTFPs in greater demand is reviewed. Issues and concerns regarding the sustainable management of non-timber forest resources to support these enterprises are discussed.

Introduction

In the southern United States, there appears to be a strong concentration of NTFP enterprises in the hardwood forest region of Appalachia. These forests provide resources that are gathered from the canopy, the understory, the forest floor, and even below ground. Interest in these non-timber forest products has increased to the point where they are being promoted as economic alternatives to timber harvest. Astute forest landowners, willing to make the effort, may improve their forest-based incomes by gathering and marketing these products. Although the markets for many NTFPs are well established and have formal channels through which the products flow, they remain unknown and mysterious to many forest

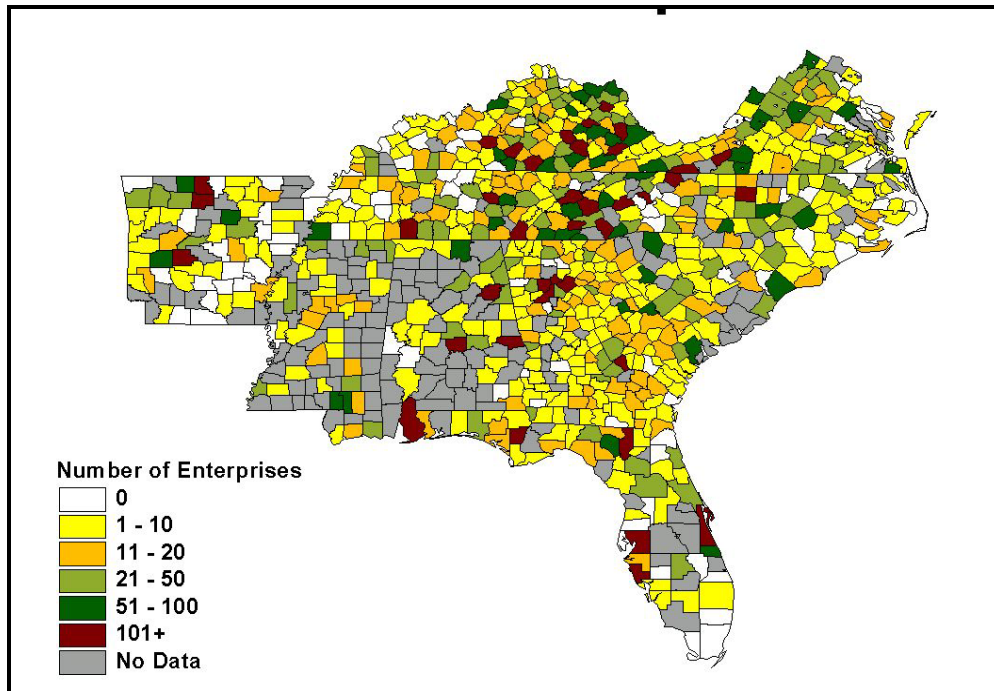
landowners. Some segments of the NTFP industry have grown rapidly over the last decade, and some have great potential for continued to growth. To realize the full benefits that can be enjoyed by harvesting NTFPs, forest landowners must consider the product markets and address issues of sustainability.

Enterprise Distribution

Non-timber forest products are commonly organized into four major product categories: culinary (edible), specialty wood-based, floral and decorative, and medicinal and dietary supplements. The NTFP industry is made up of a diverse collection of enterprises, which may collect, buy, sell, process or work with these products to produce goods or services. An enterprise may be an individual who collects and sells raw materials with little or no processing, such as a person who digs and sells medicinal plants. An enterprise also may be a family farm or small business that produces wreaths or other value-added products. More formal corporations that employ many people also are included as NTFP enterprises. The fundamental thread that embraces these organizations is the use of products gathered or collected from natural or manipulated forests (e.g., plantations), that are derived from flora or fungi, but are not timber-based.

Preliminary results of an ongoing study designed to provide an overview of the NTFP industry in the southern United States show a vibrant and extensive enterprise system. Cooperative Extension agents throughout the region were asked to estimate, based on their experience, the number of NTFP enterprises in each of the major product categories that are active in their geographic area of responsibility (Figure A.)

Figure A. Perceived distribution of NTFP enterprises in the southern United States



While further investigation and analysis is needed to complete and confirm the existence of NTFP enterprises at the county level, some general patterns are evident. For example, there is a strong concentration of enterprises in the southern Appalachian hardwood forests of western North Carolina and eastern Tennessee, ranging northward into southwestern Virginia and western Kentucky. To the west, the Ozark hardwood forests of northern Arkansas also have a greater concentration of enterprises.

Sub-dividing enterprise distribution by product categories would reveal other patterns of interest. Although not shown in Figure A, nine counties in western North Carolina and eastern Tennessee are perceived to have between 51 and 100 enterprises producing for the floral industry. In general, distribution of medicinal plant-based enterprises is limited to counties represented by southern hardwood forests. Three counties, one in Kentucky and two in Tennessee, are perceived to have more than 100 NTFP enterprises producing edible forest products. These examples are important in identifying areas within the region where concentration of NTFP activities can be found.

Market Dynamics

No formal estimates have been made of the total value of the NTFP markets in the southern United States. Available data, however, illustrates the economic importance of some products. In 1995 more than \$14 million worth of moss and

lichen, much of which was harvested from southern forests, were exported from the U.S. (Goldberg 1996). Collectors of the fruit of black walnut, which grows in eastern hardwood forests, were paid more than \$2.5 million in 1996 (J. Jones, Hammons Products Company, personal communication). An NTFP enterprise specializing in pine roping had sales in excess of \$1.5 million in 1997 (Hauslohner 1997). Retail sales of saw palmetto, an important medicinal plant, exceeded \$45 million in 1999; a thirty-four percent increase over the previous year (Blumenthal 2000). Our research has revealed that a volunteer fire department in Western North Carolina generates approximately 90 percent of its budget from its annual ramp (wild onions) supper. Based on 2001 prices, we estimate the average wholesale value of forest-harvested ginseng to collectors in a four state (Virginia, Tennessee, North Carolina, and Kentucky) region exceeds \$18.5 million.

The market economics of other important non-timber forest products illustrate the value and potential of these resources. Since the Food and Drug Administration banned Hormonal Replacement Therapy (HRT), demand for Black cohosh (*Actaea racemosa*) has increased dramatically. Although harvesting dropped in 1999 due to over-harvesting the previous year, by 2001 black cohosh harvests had rebounded to approximately 420,000 pounds, valued at more than \$2.25 million (Greenfield and Davis 2003).

In 2001, approximately 135,000 pounds (valued at an estimated \$1.9 million) of wild-harvested bloodroot (*Sanguinaria canadensis*) was sold, primarily as a cattle feed additive, to the German market (NC Consortium 2002). As the Commission of European Communities has mandated that all synthetic antibiotic compounds incorporated into livestock feed be removed from the market by 2005, the outlook for the bloodroot market is favorable.

American ginseng (*Panax quinquefolius*) is the “prow of the ship” as far as medicinal plants are concerned. The roots of this herb have been exported from the United States for more than 250 years. We estimate the value of annual exports of wild-harvested roots between \$29 million and \$58 million, depending on the data source. Although there has been a decrease in production and export of cultivated ginseng, there is still a strong market for wild and wild-simulated ginseng root. As wild ginseng becomes more scarce, the market for wild-simulated will become stronger.

Plant materials collected for other products have market potential as well. For example, galax (*Galax urceolata*), a ground cover with heart-shaped leaves, is

harvested from the mountains of North Carolina for the international floral trade. Results of a NTFP market study of Western North Carolina suggest that the wholesale value of galax could be more than \$10 million (Greenfield and Davis 2003). Further research is needed to confirm these figures. For individuals who are unemployed, the prospects of generating cash income by picking galax could be attractive. Other products, such as ramps (*Allium tricoccum*), moss, and live plants for the nursery trade have local, regional and international market potential.

Issues Concerning Sustainable Management

Managing forests for the sustainable production of non-timber products requires considering three types of issues: ecological, economic and social. Under current, laissez-faire management strategies, harvesting of many non-timber forest products could have devastating ecological impact on entire plant populations. As the flora and fungi that are collected to produce NTFPs are not adequately incorporated into forest management, it is difficult to determine if harvest levels are sustainable. The inventory or monitoring of the resources from which these products originate is not being undertaken. Current scientific knowledge is not sufficiently developed to address the multitude of ecological issues associated with harvesting non-timber forest products.

The economic value of non-timber forest products is not well defined, nor adequately understood by decision makers. In general, the depth and breadth of the NTFP economy remains a mystery, and many people involved in the industry hope that it remains that way. Much of the trade remains in the informal economy, as many primary collectors deal only in cash. Often, businesses do not want to share 'trade secrets' for fear of losing competitive advantage. The volumes and values of commercially traded NTFPs are not sufficiently documented. Economic and market data is essential for determining fair market value, as well as for setting fair and equitable rates of collection permits. Policy makers need to be aware of the economic importance of NTFPs to rural communities. Accurate and reliable data on the supply and demand for NTFPs is essential to determine sustainable economic harvest levels.

The social dimensions associated with NTFP harvesting are equally important in sustainable management of these resources. Changes in forest management to accommodate non-timber forest products can have drastic effects on people involved in these activities. To deny collectors, who can trace their heritage and relationship with NTFPs back several generations, access to traditional gathering locations would contradict a basic principal of sustainable forest management. At the same time, the income generated from the sale of NTFPs can have significant impact on the lives of rural peoples. Efforts are needed to get the collaboration of

collectors in developing approaches to managing forests for non-timber forest products. This will require understanding and respecting these peoples' views, concerns, and uses of the resources.

Summary

There is tremendous potential for landowners to diversify their forest-based income from gathering and marketing non-timber forest products. Clearly many NTFPs have considerable economic value. The market conditions for some products are promising for astute forest landowners. Significant issues must be addressed to ensure the sustainability of the resources, the trade and industry, as well as the social well-being of the people involved.

Literature Cited

Blumenthal, M. 2000. Saw palmetto gets strong public boost: USP publishes monograph and *Consumer Reports* gives thumbs up, recognizing benefits for BPH. *HerbalGram* 50:32-37.

Goldberg, C. 1996. From necessity, new forest industry rises. National Report Section, New York Times, Sunday March 24. p. 1.

Greenfield and Davis. 2003. Western North Carolina non-timber forest products: Draft final report 2003. Fletcher, North Carolina: Mountain Horticultural Crops Research and Extension Center. 32p. Unpublished report. On file with: Mountain Horticultural Crops Research and Extension Center, 455 Research Drive, Fletcher, NC 28732

Hauslohner, A.W. 1997. Couple builds green empire with pine-roping outfit. Metro Edition, Roanoke Times, December 6. p. A1.

Jones, Jim. 1998. Personal communication. Vice President, Hammons Products Company, Stockton, Missouri.

NC Consortium. 2002. Analysis of the economic viability of cultivating selected botanicals in North Carolina. Report of a study commissioned by the North Carolina Consortium on Natural Medicinal Products, performed by Strategic Reports, Reading, Pennsylvania and North Carolina State University. (*as referenced in Greenfield and Davis 2003*)