
Historical Overview of Nontimber Forest Product Uses in the Northeastern United States

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Nontimber forest product (NTFP) uses in the United States are neither new nor merely quaint relics of some distant cultural and economic past. As the other chapters in this book make clear, there is a plethora of NTFPs in use at the beginning of the twenty-first century. They contribute to the livelihoods of individuals from diverse ethnic backgrounds in a variety of ways, and the social and ecological contexts within which these uses occur have profound implications for their future. However, today's uses and issues also have a past. Human reliance on nonagricultural plants has a deep and evolving history throughout North America. The story of these uses is fundamentally about relationships—between people and plants and the social structures and interactions within which those uses are embedded. It also is about movement, through both time and space. Examining those relationships and movements in the past provides insights into present-day NTFP issues and suggests questions that must be addressed as we think about their future.

In the United States, NTFPs have been derived from biomes as disparate as the temperate rain forests of the Pacific Northwest, the deserts of the Southwest, the prairie grasslands, and the New England coast. Regional NTFP uses reflect these biotic differences as well as multiple cultural traditions and their interactions. Native Americans had (and continue to have) strong local traditions that drew on a deep knowledge of the plants in their environment and incorporated practices from other peoples with whom they came into contact. Immigrant groups, whether their arrival was voluntary or forced, brought their own NTFP knowledge and practices with them, adapting them to a new environment and borrowing others from the people they encountered.

The long history of human migration has seen an accompanying movement of plant material, especially of species that people used and valued. Well before European contact, NTFPs moved along trade routes throughout North America (Turner and Loewen 1998). Within given regions, the

ranges of valued species were extended by people transporting seeds or stock of individual plants with propitious characteristics to locations outside the area of a species' previous occurrence (Black 1978; Erichsen-Brown 1979; Gilmore 1931). Species arrived from other continents whenever there was a major movement of people (Crosby 1986; Grisé 1979). Many of these naturalized rapidly and were adopted into the material cultures of others. Often, gatherers actively managed NTFP species to produce desired characteristics and increase their availability (Anderson 1996; Peacock and Turner 2000).

In this chapter I provide an overview of the historical relationships between people and plants and the associated social interactions that today we would classify as NTFP uses. I examine the many material ways in which nonagricultural plants have been vital to peoples of the United States as food, medicine, and utilitarian and ceremonial materials. I also consider the range of economic modalities through which people have derived livelihood resources, from subsistence to global commodity. From the outset, I intended to explore the NTFP uses of the greatest possible range of cultural groups. This historical, multicultural approach led to consideration of both the discrete development of NTFP practices in particular locations (social as well as geographic) and the flows of material and knowledge between them.

The review focuses on the northeastern United States, including the Upper Midwest. This emphasis reflects personal research interests and location rather than the relative importance of NTFPs in a region or the availability of references on them. I have made use of ethnobotanical texts and archaeological records as well as primary narratives such as explorers' logs, traders' journals, settlers' diaries, and the promotional tracts of officials trying to encourage settlement in "new" areas. Ethnographies published in outlets like U.S. Bureau of Ethnology annual reports and the pages of *American Anthropologist* recorded plant uses of many Native American groups in the nineteenth and early twentieth centuries. Records of nondomesticated plant uses by immigrant populations from Africa, Asia, and Europe, as well as all cultural groups prior to the 1800s, were generally embedded in broader narratives. My purpose here is to be suggestive rather than exhaustive. I hope to broadly outline the area, identify topics for further investigation by others, and highlight historical processes that have direct bearing on key issues in contemporary NTFP management and policy discussions.

NORTHEAST

Since the retreat of the Wisconsin Ice Sheet, human inhabitants of northeastern North America (present-day New York and New England states)

have been drawing on the region's plant life to support their existence. By approximately 3000 B.P., floral composition and locational zones were roughly similar to those of the present time (Funk 1978; Trigger 1978). Generally, deciduous tree species predominate in richer and more southerly locations, while coniferous species are more prevalent on poorer soils and at higher elevations and latitudes (Bailey 1995).

Archaeological work in New York and New England evidences the use of NTFPs as edibles and cultural materials from early prehistory to the time of European contact (Bolian and Gengras 1994; Haviland and Power 1994; Nicholas 1999; Ritchie 1969; Snow 1978). Early Woodland Era (circa 3000–2000 B.P.) burial sites have yielded shrouds and other artifacts made of bark and fiber textiles, suggesting the cultural importance of these materials. Basswood (*Tilia americana*), slippery elm (*Ulmus rubra*), Indian hemp (*Apocynum cannabinum*), and milkweed (*Asclepias* sp.) were used for cordage and textiles, the former two producing a coarse cordage while the latter two were used to make fine cordage.

It has long been held that meat and fish constituted the largest part of Early Woodland diets. However, nut remains are almost omnipresent in middens and hearth pits of the period, and Nicholas (1999) states that "the gathering of wild foods and other resources was unquestionably the economic foundation of most hunting-and-gathering systems" (p. 34). Excavations at later Woodland sites in central New York and Vermont reveal seeds or shells of an increasing variety of plant foods, including acorns (*Quercus* spp.), hickory nuts (*Carya* spp.), butternuts (*Juglans cinerea*), walnuts (*Juglans nigra*), hazelnuts (*Corylus* sp.), hawthorn (*Crataegus* sp.), cherries and plums (*Prunus* spp.), grapes (*Vitis* spp.), strawberries (*Fragaria* sp.), blueberries (*Vaccinium* spp. and *Gaylussacia* spp.), raspberries and blackberries (*Rubus* spp.), elderberries (*Sambucus canadensis*), hog peanuts (*Amphicarpa bracteata*), pigweeds (*Chenopodium album*, C. sp.), dropseeds (*Sporobolus* spp.), dock (*Rumex* sp.), roses (*Rosa* spp.), sassafras (*Sassafras albidum*), and staghorn sumac (*Rhus typhina*).

Pits lined with bark and grass indicate that NTFPs also were vital storage materials used to preserve seasonal foods and other items. Among the foods dried for later consumption were raspberries, blackberries, elderberries, grapes, chokecherries, chestnuts (*Castanea dentata*), and butternuts. NTFPs also provided material for fishing equipment. Nets and lines were made of twisted Indian hemp fiber, and hooks made of hawthorn spines have been found in at least one location. Baskets and bags made from twisted Indian hemp and basswood fibers continued to be important functional and aesthetic items well into historical times. Shelters, whether long-houses or smaller structures, generally were constructed of bark or rush mats secured to a pole frame with flooring of mats or skins, often insulated by an underlayer of evergreen boughs in cold and damp seasons.

Extensive, well-documented contact by Europeans with northeastern North America dates to about 1600 B.P. Firsthand chroniclers of this period describe Native American NTFP uses through the filters of their own cultures and interests, principally immediate survival and the long-term prospects for commercial development and colonization. Several sources (Champlain 1603; DeForest 1851; Rutenber 1872; Society of Jesus 1898; Williams [1643] 1936) describe the use of the same construction materials that archaeological evidence suggests were used in prehistoric times. For example, writing in 1616, a missionary describes the relocation of camps in Acadia (present-day Nova Scotia, New Brunswick, and Maine):

Arrived at a certain place, the first thing they do is to build a fire and arrange their camp. . . . The women go to the woods and bring back some poles which are stuck into the ground in a circle around the fire, and at the top are interlaced, . . . Upon the poles they throw some skins, matting or bark. . . . All the space around the fire is strewn with leaves of the fir tree, so they will not feel the dampness of the ground; over these leaves are often thrown some mats. . . . In Summer . . . they nearly always cover them with bark, or mats made of tender reeds, finer and more delicate than ours made of straw, and so skillfully woven, that when they are hung up the water runs along their surface without penetrating them. (Society of Jesus 1898, 3:77)

The use of wild edibles by Native Americans and European settlers also was documented during this period. Writing of his voyage down the St. Lawrence River in 1603, Champlain notes the abundance of wild foods in rich soils at its confluence with the St. Croix, including grapes (*Vitis* spp.), serviceberry (*Amelanchier canadensis*), hazelnuts (*Corylus* sp.), cherries (*Prunus* sp.), and currants (*Ribes oxycanthoides* and *triste*). His description of the culinary virtues of "certain small roots, the size of a small nut, tasting like truffles, which are very good roasted or boiled" (Champlain 1603, 131) suggests that, like other explorers, he and his crew made use of NTFPs to sustain themselves. Jesuit epistolaries also mention potato- or truffle-like roots on at least three occasions between 1612 and 1616. Describing European settlers' and missionaries' efforts to dig enough to feed themselves at times when their own agricultural efforts and transatlantic food shipments frequently left them hungry, more than one of these accounts displays resentment toward indigenous inhabitants who had arrived at productive patches before them (Society of Jesus 1898).

Drawing on accounts by early English settlers in New England, DeForest (1851) indicates that Connecticut tribes sometimes mixed ground nuts (*Apios americana*) and Jerusalem artichokes (*Helianthus tuberosus*) in their

succotash (a mixture of the agricultural crops corn and beans) and thickened it with flour made from walnuts, chestnuts, or acorns. In 1643, Roger Williams included numerous edibles in his guide to the Narraganset language and culture.¹ He notes that fruits and nuts—including chestnuts, acorns, and currants (*Ribes* spp.)—were dried for later consumption. He further notes that the Narraganset made oil from walnuts, while English settlers brewed a beer from chips of the tree's wood. His comments about strawberries raise interesting issues about the relationship between field agriculture, wild edibles, and indigenous management of native vegetation (all spellings as in the original): "This Berry [strawberry] is the wonder of all the Fruits growing naturally in those parts: . . . In some parts where the *Natives* have planted, I have many times seen as many as would fill a good ship within few miles compasse: the *Indians* bruise them in a Morter, and mixe them with meale [presumably corn] and make Strawberry bread" (Williams [1643] 1936, 96; emphasis in the original).

Although early English, Dutch, and Swedish immigrants to northeastern North America set out to duplicate European agricultural practices, they also relied on NTFPs. Undomesticated plant material was not only a recourse in times of crisis but also a regular complement to agricultural products. Berries, nuts, and maple sugar (*Acer saccharum*) were valuable sources of food for humans, while forests provided forage for cattle and pigs (Thompson 1853; Williams 1989). Settlers' reliance on NTFPs for both food and medicine is evident in the account of an early European resident of Long Island (all spellings as in the original; see Table 1 for Latin names):

The Fruits natural to the Island are Mulberries, Posimons, Grapes great and small, Huckleberries, Cramberries, Plums of several sorts, Rosberries and Strawberries, of which last is such abundance in June, that the Fields and Woods are died red: Which the Countrey-people perceiving, instantly arm themselves with bottles of Wine, Cream, and Sugar . . . and so rushing violently into the fields, never leave till they have disrob'd them of their red colours, and turned them into the old habit. . . . The Herbs which the Countrey naturally afford, are Purslain, white Orage, Egrimony, Violets, Penniroyal, Alicampane,² besides Saxaparilla very common, with many more. . . . did we know the vertue of all those Plants and Herbs growing there (which time may more discover) many are of opinion, and the Natives do affirm, that there is no disease common to the Countrey, but may be cured without Materials from other Nations. (Denton 1670, 3-4)

The activities of Jesuit missionaries in the early 1700s were responsible for the first documented entry of a North American NTFP into the international commodity market. Petrus Jartoux, a missionary in northern

Table 1. Historical and probable Latin names

Historical name	Probable Latin name
Mulberries	<i>Morus</i> spp.
Posimons	<i>Diospyros virginiana</i>
Grapes	<i>Vitis</i> spp.
Huckleberries	<i>Gaylussacia</i> and/or <i>Vaccinium</i> spp.
Cramberries	<i>Vaccinium</i> spp.
Plums	<i>Prunus</i> spp.
Rosberries	<i>Rubus</i> spp.
Strawberries	<i>Fragaria</i> spp.
Purslain	<i>Portulaca oleracea</i>
White Orange	<i>Atriplex patula</i> [?]
Egrimony	<i>Agrimonia parviflora</i> [?]
Violets	<i>Viola</i> spp.
Penniroyal	<i>Hedeoma pulegioides</i>
Alicampane	<i>Inula helenium</i>
Saxaparilla	<i>Aralia nudicalis</i>
Linden-tree	<i>Tilia americana</i>

China, described the use and harvest of Asian ginseng (*Panax ginseng*), surmising that it should likewise be found in northeastern North America. Joseph Francois Lafitau, a Jesuit working in New France, found that a similar root (*Panax quinquefolius*) grew in the forests of northeastern North America. Lafitau arranged for the first export to China in 1720, a trade that persists today (Foster 1995). Some decades later, George Washington is reported to have participated in the ginseng trade (Wigginton 1975).

Writing in 1853, a Vermont clergyman and schoolmaster says: "Upon the settlement of this state the ginseng was found to grow here in great plenty and perfection, and it soon began to be sought with eagerness for exportation. For many years it was purchased at nearly all the retail stores in the state, and was sent to the seaports to be shipped to China" (Thompson 1853, 221). However, he notes that heavy harvesting and forest clearing had rendered it scarce by his time. Although ginseng was much esteemed as a medicine in China, it does not appear to have been used widely in the United States. Moerman includes ginseng on the list of medicinals used by several Native American groups (1998). However, it is notably absent from Erichsen-Brown's authoritative *Medicinal and Other Uses of North American Plants* (1979), and Charles F. Millspaugh (1892), a physician and botanist writing at the end of the nineteenth century, notes that ginseng was removed from the 1882 revision of the *Pharmacopeia of the United States*.

In the 1800s, many settlers in the Northeast continued to rely on NTFPs. Thompson (1853) describes the uses of nineteen tree species found in Vermont's forests for medicinals, foodstuffs, fodder, tanning material, paper substitutes, and roofing material. Following a brief presentation of more than twenty wild fruits and berries eaten by residents, he laments, "We had

intended in this place to notice a few of the many herbs and roots which are, or have been, of repute for their medicinal virtues, but we have not room" (p. 221).

As this statement suggests, native and naturalized plants may have been especially widely used for their healing properties by settler populations in the nineteenth century. Among the competing medical schools of the time, the Eclectics championed what was known as a vegetal materia medica (Foster 1995). By 1892, Millspaugh's classic text, *American Medicinal Plants*, listed 180 plants indigenous to or widely naturalized in the United States. Those who did not prepare their own herbal medicines might purchase them from organizations such as Lloyd Brothers Pharmacists or the Shakers at New Lebanon, New Hampshire (Erichsen-Brown 1979; Foster 1995). The latter produced plant-based medicines using both gathered and cultivated sources of northeastern species for domestic and export sales. Other healers and lay people relied on their own preparations, with results ranging from the proverbial "snake oil" to carefully prepared and time-tested remedies.

James Still (1877) provides an example of the latter. The son of former slaves, he served as a medical practitioner in the New Jersey pinelands. At an early stage in his professional life he distilled sassafras root, peppermint (*Mentha piperita*), and other herbs for sale to the Philadelphia pharmaceutical market. After studying a medical botany text and a medical formulary, he began to prepare remedies for his family using native and naturalized species as well as cultivars. Eventually he was pressed into service for a larger community. Throughout his several decades of practice, he said, "It has always been my delight to prepare my own medicines. . . . By this means I had the pleasant satisfaction of knowing what I was giving to my patients, and I always knew it to be a good and pure article" (p. 130).

Further evidence of immigrant populations' uses of NTFPs during this time is gleaned from the 1863 proceedings of the Farmers' Club (American Institute 1864). More than three hundred pages of letters between farmers and the club's officers demonstrate the punctuated flow of NTFP knowledge and plant materials as well as the relationship between "wild" species, agriculture, and people. Kansas wildflower seeds were mailed to New York gardeners, and considerable interest was expressed in the "discovery" of a "new" fibrous plant—Indian hemp—which, as previously noted, had been used by Native Americans as a cordage and textile fiber from prehistoric times. A New Hampshire farmer described maple sugar production at length, recommending it for both personal consumption and sale.

By this time, the region's Native American population had been severely displaced both geographically and culturally. However, ethnographers working into the first decades of the twentieth century documented their use of NTFPs in the recent past and at the turn of the century. Morgan (1901) provides detailed descriptions and diagrams of Iroquois material

culture employing NTFPs. These include the continued manufacture of cordage from slippery elm and basswood, which was used for items ranging from tump straps to bird traps. He notes that tobacco, an important cultivated ceremonial plant, was cut with sumiac "to diminish its stimulating properties" (p. 34), while maple sugar and ground nuts continued to be important food items. During research conducted in the 1920s and 1930s, Tantaquidgeon (1972) documented the survival of medicinal-plant knowledge and use among members of northeastern Native American groups. Describing Delaware and Mohegan practices, she notes the highly personal and proprietary nature of much medicinal knowledge. Additional detailed descriptions of NTFP uses by northeastern tribes in this period can be found in annual reports of the Bureau of American Ethnology and the *American Anthropologist* (old series).

The use of NTFPs by northeastern Native Americans and immigrant Americans alike throughout the twentieth century and into the twenty-first demonstrates both change and continuity. The *Handbook of North American Indians* documents the contemporary importance of NTFPs to northeastern tribes in the 1970s (Trigger 1978). The continued Iroquois observance of maple and strawberry ceremonies and the inclusion of medicinal herbs in ritual prayer demonstrates the ongoing importance of gathering as a spiritual and practical act (Tooker 1978). Production of ash baskets has great cultural and economic importance for skilled individuals on and off reservations throughout the region (Benedict and David 2000; Fenton 1978; Hofman 1999; Woods 1994). However, like all cultural practices, basketry traditions in the region have evolved with their social and ecological contexts. Today, fancy baskets may follow traditional designs but are as likely to be colored with commercially purchased dyes as with vegetable and mineral preparations (Hofman 1999).

Among peoples from a variety of origins outside the North American continent, medicinal and edible uses of NTFPs may be especially important. A 1983 study of the health care beliefs and practices of Puerto Ricans, Haitians, and low-income African Americans in the greater New York City area documented herbal medicinal practices by each of these cultural groups. Haitian immigrants may consult with *Docteur-feuilles*, literally "leaf doctors," and *Sages-femmes*, or lay midwives, who use medicinal plants, herbs, and roots in their treatment of patients. Latino immigrants may seek remedies at botánicas located throughout Spanish-speaking neighborhoods. African American home remedies and traditional healers often use herb teas (John Snow Public Health Group 1983). Although sources for these medicinals are unclear, some may be harvested in the region's urban and/or rural forests.

The contemporary use of wild edibles is not confined to rural environments or any one ethnic group. The plethora of field guides and how-to

books on wild edibles, epitomized by Euell Gibbons's much reprinted *Stalking the Wild Asparagus* (1962), demonstrates the continued vitality of wild edibles as a broadly cherished notion, if probably somewhat less widely utilized food source. However, observations throughout the Northeast indicate that even in postindustrial cities, individuals from a variety of ethnic groups do continue to seek out and consume edible and medicinal NTFPs (Brill and Dean 1994; Emery 1999; Jahnige 1999; Tritton 2000).

UPPER MIDWEST

The mixed hardwood forests of the Great Lakes region also have supported humans since the emergence of woodlands following the last glacial retreat. Archaeological evidence provides clues to some NTFPs in use by humans in this region before written documentation is available. As in the Northeast, excavations from the late Archaic period (3000–1000 B.P.) in the Upper Midwest indicate extensive use of wild plant foods including hickory nuts, acorns, butternuts, and walnuts. Excavations of Middle Woodland sites (circa 100 B.P.) suggest that the seeds of marsh elder (*Iva frutescens*), giant ragweed (*Ambrosia trifida*), and pigweed were important food sources in this period, as were nuts, tubers, and berries (Cleland 1992; Keene 1981). Artifacts from sites dating to the early to mid-1600s include vegetable fiber cordage as well as gathered foodstuffs (Mason 1986).

Jesuit missionaries, chronicling their activities and observations for European readers, provide what is probably the earliest written documentation of NTFP use in the North Woods. Arriving in the upper Great Lakes region in the first half of the 1600s, their letters are peppered with descriptions of Native American uses of plant materials, which also helped to sustain the missionaries. Birch bark (*Betula papyrifera*) was used as a building material for housing and canoes as well as for baskets for food storage and cooking. Berries (eaten fresh and dried), wild rice (*Zizania palustris*), and maple sugar receive frequent mention as dietary staples. The Jesuits also noted medicinal plant uses as well as a root sometimes employed to poison enemies or commit suicide (Society of Jesus 1898).

By the 1800s, the westward expansion of the United States brought European American merchants, travelers, and government functionaries to the region in increasing numbers. Many of their journals and other records are preserved in the Library of Congress (1999) collection *Pioneering the Upper Midwest: Books from Michigan, Minnesota, and Wisconsin, ca. 1820–1910*. This collection documents the use of NTFPs for food, medicine, building materials, ceremonial and other cultural uses, and their important role in subsistence and commerce for both Native Americans and European Americans during that period.

Cranberries (*Vaccinium* spp.), maple sap, and wild rice are perhaps the most prominently mentioned NTFPs in these texts. Cranberries figure in writings as diverse as tracts designed to attract settlers to the North Woods (Henry 1896; McClung 1870) and travel logs (Michigan State Historical Society 1908; Seymour 1850). Citing an article in the September 29, 1849, issue of the *Minnesota Chronicle*, Seymour (1850) indicates that in that season Native American women were arriving daily in St. Paul to exchange cranberries for (unspecified) goods. As of that date, 2,135 barrels of the berries had been shipped from the area. Some twenty years later, McClung stated that "from the cranberry marsh on his farm, many a farmer makes more money than on his crop" (1870, 150).

Maple sap was processed into at least three forms: sugar, syrup, and vinegar. Sugar has the advantage of superior resistance to spoilage and ease of storage as compared to syrup. According to Seymour, maple sugar was a principal component of the northern Minnesota Chippewa (Ojibwa) diet. He reported that "some Indian families manufacture 1000 pounds annually" (1850, 195). Autobiographical accounts of life in mid- to late-1800s Michigan make it clear that maple sugar also was important to European American settlers (Hufford 1950; Michigan State Historical Society 1908; Nowlin 1876). Raised by Scottish parents on a homestead near Petoskey, Michigan, in the last decades of the nineteenth century, Hufford indicated that her family avoided the expense of purchasing sweetener by making maple sugar. They ate cakes of their sugar as candy, sometimes pressing it into iron muffin molds to produce attractive forms. In his 1876 narrative of growing up on a farm near Dearborn, Michigan, Nowlin recounted how his family derived much needed income by making and selling as many as three hundred to four hundred pounds of maple sugar in some years. The risk of spoilage notwithstanding, maple syrup was also a favored food item. Hufford reported that her family of thirteen enjoyed syrup on pancakes and hosted syrup-on-snow parties for their entire community. Both Native Americans and settlers also converted maple sap's sweetness into vinegar. Moerman (1998) indicates that the Ojibwa and Potowatomis permitted maple sap to sour into vinegar. Hufford and Nowlin each mention making maple vinegar. According to Hufford, "After the buds commenced to come out on the trees, the sap did not make such good syrup. Instead of making the sap from the last run into syrup, it was stored in barrels and made a very nice grade of vinegar" (1950, 106).

Additional NTFPs were important in the processing and trade of maple items. Sap-collecting implements were made from forest plant material including hollowed birch blocks and basswood branches shaped into spouts (Hufford 1950). Seymour's description of Ojibwa sap troughs illustrates the role of other NTFPs in the collection of maple sap: "A rectangular piece of birch bark, about eighteen by twenty inches, is plaited with two

folds at each end, which are secured in their places by a string made of the bark of the linden-tree; thus forming a tight and elastic square vessel, capable of holding a gallon or more" (1850, 195). Schoolcraft (1821) and Kinzie (1873) each report that mococks³—birch bark baskets often embellished with porcupine-quill designs—were filled with maple sugar and traded at Michilimackinac (Mackinaw, MI). Kinzie notes that Native American women brought them as commodities to exchange for other goods.

Wild rice, also known by the French term "folle avoine," was a staple of Native American diets in the Great Lakes region. Its importance is evidenced by the frequency with which it is mentioned in European Americans' descriptions throughout the 1800s (Keating 1824; Kinzie 1873; McClung 1870; Schoolcraft 1821; Seymour 1850; State Historical Society of Wisconsin 1804). Indeed, wild rice was so prominent a feature of regional Native American cuisine that both the Menominee in upper Wisconsin and the Ojibwa of the St. Croix River area frequently were referred to as the Folle Avoine (State Historical Society of Wisconsin 1804).

Throughout the 1800s, wild rice was a vital subsistence resource and commodity for trade. In a region where growing seasons are too short for most domesticated grains, this wild grass seed provided the staple carbohydrate of Native Americans and also was consumed by European American settlers (Seymour 1850). Chroniclers included in the *Pioneering the Upper Midwest* collection describe several variations on the basic three-part rice processing sequence of toasting, threshing, and winnowing. Processed wild rice was (and is) durable and easily portable. Other NTFPs no doubt played a role in its storage for subsistence use, as McClung reported that processed rice was stored in baskets (1870) and Kinzie observed that it was kept in cordage bags (1873). Several entries in the journal of French-speaking trader Michel Curot suggest that in the early years of the century, fawn skins, removed virtually whole and sewn shut, provided the container and unit of measure for trade in wild rice. For example, his entry of Tuesday, October 20, 1803, notes, "I traded for the Rum Four fawn-skins of wild rice" (State Historical Society of Wisconsin 1804, 410).

Ethnobotanical studies written in the early twentieth century for the Bureau of American Ethnology (Densmore 1974) and the Public Museum of the City of Milwaukee (Smith 1923, 1928) attest to the continued importance of NTFPs for Native Americans of the region. On the basis of studies conducted between 1907 and 1922, Densmore documented the ongoing use of 208 botanical species or groups of species by Chippewa (Ojibwa) peoples for such uses as amusement, antidote, ceremonial, charm, dye, food, medicine, pleasure, smoked, toys, and utility. Her exhaustive work, first published in 1928 in the *Forty-fourth Annual Report of the Bureau of American Ethnology* and later reprinted by Dover Publications

(1974), provides detailed descriptions of the preparation and use of many NTFPs, copiously illustrated by photographs of plant materials, equipment, and people, often engaged in processing NTFPs.

Densmore states that "the two most important vegetable foods were maple sugar and wild rice" (p. 308) and describes the preparation of these foods, including timing, social organization, processes, structures, and equipment. As her photographs of birch bark lodges for boiling maple sap and basswood fiber used for hooking and tying wild rice indicate, structures and equipment for processing edibles were made from other NTFPs. Densmore also details Chippewa use of plants as medicine. She notes two broad types of medical practice involving plant material: the specialized and proprietary cures of the trained medical society, the Midewiwin, and generally known household remedies for common ailments. On the basis of descriptions provided by Midewiwin affiliates and others, she describes the preparation and storage of medicinal barks, roots, flowers, leaves, and stalks. Brief sections also document the use of plants for dyes, charms, and "useful and decorative arts." Noting that "the uses of birch bark are many and various" (p. 387), she also describes birch bark harvesting and processing in detail.

Botanist Huron Smith identifies plants and plant uses described to him between 1921 and 1923 by Menominee on their reservation in northwest Wisconsin and Meskwaki (a.k.a. Fox) on tribal lands in Tama, Iowa (1923, 1928). Following multiple three- to four-week field trips to each location, Smith lists 277 and 267 plant species for the Menominee⁴ and Meskwaki, respectively, documenting their uses through the categories of dyes, fibers, foods, medicinals, and miscellaneous practices (including charms and ceremonials). Focused particularly on medicinal plant species and their uses, Smith notes the individuality of cures employed by skilled healers in both tribes and their predominant use of remedies that combined several plant ingredients.⁵ Both he and Densmore (1974) indicate that skilled medical practitioners would suspend the use of a treatment after approximately eight days if a patient's condition did not appear to improve. According to Smith, skilled medical practitioners "understand that there is a proper season for gathering the various medicines, when the medicinal principles are the most active," and interrupt or defer other activities to harvest at this time. He reports somewhat bemusedly that Meskwaki medicine men and women observe "certain rules about gathering these medicines, which they still follow religiously" (1928, 191), including harvesting no more than a specified amount even when the supply was abundant and a long journey was required to reach the site.

Like conservation biologists today (Cox 2000; Nabhan et al. 1991), Smith lamented the loss of traditional knowledge and practice due to the passing of tribal elders and the impingement, both physical and social, of European American culture:

The young people are not interested in retaining the lore of their grandparents. . . . The older people, who have this lore, are fast dying out. (1928, 180)

With encroaching civilization, these [wild] foods are becoming harder to find. . . . Then, too, last year, the game warden who patrols the reservation warned them that they could not gather their wild rice as before, for he said it was against the law, and that he would arrest them and throw them in jail, if they did. Imagine a whole tribe of 1800 Indians, named after the wild rice and forbidden to gather it on their own reservation. (1923, 59)

Although much knowledge was surely lost, many practices may simply have gone unlooked for and, consequently, largely unnoticed in the industrial and postindustrial 1900s. Evidence that Native Americans and European Americans in the region continued to rely on NTFPs is found in photographs and formal studies. In 1937, Farm Security Administration photographer Russell Lee captured Red Lake Ojibwa (Chippewa) picking blueberries in the cutover region around Little Fork, Minnesota, and the archives of the Hiawatha National Forest include photographs of European Americans picking berries in Michigan's Upper Peninsula two years later. Nor was NTFP use erased by the second half of the century. I documented the continued use of over 130 NTFPs from more than 100 botanical species by people of diverse cultures in the mid-1990s (Emery 1999). The gatherers I interviewed in upper Michigan ranged in age from sixteen to seventy-six and harvested NTFPs to preserve family and personal customs as well as to obtain vital livelihood resources (Emery 1998).

INSIGHTS FROM THE PAST, QUESTIONS FOR THE PRESENT

The history of NTFP use in the northeastern United States provides several insights into the relationships between people and plants and associated social processes that are germane to contemporary debates throughout the nation. The patterns of the past help clarify the complexity of many current issues and model the range of potential futures for NTFP use and management.

Relationships between People and Plants

NTFP uses have been an important factor in the development and maintenance of many past and present plant assemblages. For example, immigrants to North America transported valued plant species such as traditional culinary and medicinal herbs between continents. With time

such species can become so integral to the landscapes within which they are found that it may be difficult to ascertain their origin and not altogether sufficient in assessing their biological importance. Thus, a noted nineteenth-century botanist and physician wrote in the introduction to his edition of a Virginia flora:

My *Flora* professes to be principally an outline of the *indigenous* plants of Virginia. . . . Concerning not a few of the other plants which I have described in the following pages, I have found it much more difficult to determine, in what light I ought to consider them; whether as truly indigenous, or as foreigners which have early made their way into the country, and have now completely established themselves in the new soil, mixing and even breeding, with the natives. (Barton 1812; emphasis in the original)

Movement of plant material also has occurred at intracontinental scales, as valued plant material was transported along regional trade routes. Within small territories, people moved individuals of favored species for ease of access and ensured availability. Indeed, human cultures and forests may reasonably be considered to have coevolved in glaciated regions. Not infrequently, the movement of NTFP species was designed to integrate them functionally and geographically with other livelihood activities. Such was the case when Algonquin farmers in the Northeast promoted the growth of strawberries near their cornfields, preserving them for the production of strawberry bread outside of their growing season.

In addition to the deliberate transport of NTFP species, people have historically tended the individual plants they relied on and used other techniques to manage the landscape for species they valued. For example, Native Americans in California pruned favored shrub species and managed their landscapes to produce basket-making materials (Anderson 1999).

Observations of the role of humans in moving and tending plant material suggest a set of interrelated questions that probe the terms "native," "natural," and "wild" and their implications for contemporary NTFP management.

- How long must a plant species have been present in an area to be considered "native"? Are there scalar issues in that designation (i.e., how far must a plant species have been moved before it leaves its "native" territory)? Does the transport vector make a difference (i.e., nonhuman animal or weather/hydrologic versus human action)?
- What makes a plant assemblage "natural"? What distinguishes an introduced species that is considered invasive and a target for eradication from one that is designated ecologically benign or valuable and, thus, to

be maintained? What kinds and levels of human intervention can be accommodated within the term "natural"?

- What are the salient characteristics of a "wild" plant? Is a plant wild if its form is to some extent the result of human manipulations? Are there meaningful gradations in human management from entirely unmanaged to semicultivated to fully domesticated?⁶ How are these expressed ecologically? How do they interact?
- What role might human activity have played in the establishment and maintenance of ecological communities that we value today? Does the discovery of human agency change our sense of its value? By what criteria do we judge such value?
- As we negotiate and renegotiate the answers to these questions, what guidance, if any, do they offer for making decisions about vegetative management and NTFP policy?

Relationships between People Involving NTFPs

It is particularly striking that people of diverse ancestral origins have used nontimber forest products. The NTFP practices of cultural groups developed in the places they inhabited, using the plant material in their environments with the knowledge acquired through experience. But just as plant material has been deliberately (and accidentally) moved through space, so too have knowledge and practice. Thus, NTFP uses have been both culturally distinctive and reflective of intercultural exchange.

Development and transfer of traditional knowledge are important factors in the dynamics of NTFP use. In some cases, the exchange of knowledge has been multidirectional. Drawing on early historical records and experiments with precontact cooking technologies, Munson (1989) suggests that early Native Americans consumed processed maple sap only as syrup. European settlers, who learned to harvest and process maple from the region's first inhabitants, introduced the iron kettle for boiling. This change in processing technology may have led to the first production of maple sugar by both cultural groups. However, knowledge "flow" has not always been continuous and unbroken. Rather, it has been conveyed again and again between individuals and groups, sometimes being reinvented or transformed in the process. For example, as noted earlier, Native Americans had used Indian hemp to make cordage for millennia before European American settlers in the early 1800s wrote enthusiastic letters to Farmers' Club officers about a wonderful "new" fiber.⁷ Further, while some NTFP knowledge has historically been widely available, other knowledge has been regarded as highly specialized and proprietary. Thus, the identity of edible berries and simple herbal remedies were broadly known, while complex medicinal preparations and their proper harvesting and administration were not.

Diversity is a feature of past NTFP economic uses. From early history to the present, NTFPs have contributed to livelihoods through a variety of exchanges between people that include family-centered subsistence, gift giving, barter, petty commodity production, and sale as global commodities. One or more of these economic uses often were integrated with other livelihood strategies, as attested to by the diaries of midwestern settlers who describe farming, consuming their own maple sugar to avoid the expense of purchasing sweetener, and selling some for much needed cash. NTFPs also have been central to the maintenance of social and spiritual life. The smoking of tobaccos, in which the domestic species and non-domesticated species such as sumac and mullein (*Verbascum thapsus*)⁸ often were mixed, was an essential element in many Native American spiritual ceremonies and social negotiations.

Numerous historical examples suggest that NTFPs may be particularly important livelihood resources in times of crisis and for individuals with limited access to other economic strategies. For example, Turner documented the use of famine foods by indigenous peoples in the Pacific Northwest (Turner and Davis 1993). Malcolm X reported that when he was a child his family ate dandelion greens picked in the yards of their Lansing, Michigan, neighborhood when they faced extreme hunger (Haley and X 1964). Biographers of Bonnie and Clyde noted that during the Depression "jobless American families were forced to survive in any way possible. Sending children into the woods to pick dandelions, wild mushrooms and onions for 'Hoover Soup' was common" (Steele, Scoma, and Scoma 1999, 11).

Notwithstanding the importance of the multiple economic uses of NTFPs, the global commodity status of some products has long commanded special attention. Ginseng provides the most notorious historical example of the promise and pitfalls of global commodity status. North American ginseng has had a sustained international market, if fluctuating prices, for more than three centuries. Figures as noteworthy as George Washington and as unsung as Appalachian woodfolk have profited from the sale of this prized root. However, their respective positions in the commodification process were quite distinct as, no doubt, were their earnings. Sustained demand, heavy harvesting, and conversion of forestland eventually led to the development of agricultural production systems that currently satisfy much of the market demand.

Unfortunately, there is nothing new about conflicts over access to NTFPs. And as the notes of hungry Jesuits suggest, neither are the racial overtones to these conflicts. Traditional gathering systems often included strategies for allocating access to an NTFP and harvesting for sustained availability (Densmore 1974; Peacock and Turner 2000). The long histories of many gathering systems suggest that where gatherers understood these

strategies and complied with them, they were both socially and ecologically effective. However, the example of the game warden who threatened to arrest Great Lakes Ojibwa if they harvested wild rice in the early decades of the twentieth century is illustrative of one of the many ways that the social structures and processes of NTFP use have been disrupted in the past. These include the criminalization of gathering and the imposition of an alternative land use/land cover on gathering grounds.

Again, historical observations raise questions that are central to the development of contemporary NTFP policy:

- Who has valuable information about nontimber forest products? What kinds of NTFP knowledge are there and how are they produced? How is such knowledge disseminated? To whom? By whom? To whom does that knowledge belong? What is the relationship between knowledge, harvesting practices, and ecological results?
- How is access to NTFPs established and controlled? What are the historical patterns of access? What shaped them? What are the respective needs and interests of groups that harvest or seek to harvest NTFPs? What kinds of criteria are accepted as legitimate claims? What is the relationship, if any, between different types of access regimes and social and ecological results?
- How do the economics of NTFP use affect associated social and ecological patterns? Are different economic uses associated with different social groups? Do different economic uses tend to produce correspondingly different ecological patterns? What are the spatial and social dynamics of different economic uses? Are they mutually exclusive or can they cohabit the same space?
- What role do NTFPs play in gatherers' material and cultural lives? How do vegetative management and regulatory policies affect the viability of those roles? What responsibility, if any, do public land managers and policy makers have to understand and incorporate gatherers' concerns into their decisions? How can, or should, the episodic nature of much NTFP use—particularly that associated with economic crisis—be factored into management and policy?

OPPORTUNITIES FOR FUTURE RESEARCH

This overview of historical NTFP use suggests the fallacy of simplistic assumptions about the relationship between people and plants. The history of ginseng harvesting in the Northeast makes it clear that NTFP use can deplete a plant population. However, the use and active management of other species has demonstrably increased their populations and enhanced biodi-

versity at the community and landscape scales (Peacock and Turner 2000). Thus, the historical evidence indicates that the ecological results of NTFP use are contingent upon the interaction of biophysical and social structures and processes. The reproductive characteristics of a species and its role(s) in the ecological community and landscape, the plant part being harvested and the manner and timing of harvest, all have a bearing on the results of NTFP use for the plants in question and the people who rely on them.

The historical record also sheds light on the types of people who use nontimber forest products and the variety of their functional and livelihood uses. Indigenous peoples were the first to rely on North America's NTFPs, and they continue to have special importance for many Native Americans today. However, virtually every immigrant group to arrive on the continent has made use of its nondomesticated plants. NTFPs have been consumed directly, given as gifts, and exchanged for cash and other goods. They have been notably important livelihood resources for individuals at times when the market economy has failed to provide adequate means of existence. At the start of the twenty-first century, they continue to be important to rural and urban residents from a variety of ethnic backgrounds.

This chapter has only scratched the surface of the lessons of the past. The opportunities for more research on historical NTFP uses are great, and in-depth regional studies that explore the full range of such uses by multiple cultural groups have yet to be written. Perhaps more sorely needed, however, are critical historical studies that probe the questions above. The potential value of such studies is great. Policies that fail to acknowledge the biophysical and social complexity of NTFP use run the risk of creating results that are ecologically perverse or socially unjust or both. History cannot provide easy answers to our current dilemmas, but it can help to put them in context and point the way toward workable solutions for tomorrow.

NOTES

1. The Narraganset lands were located in present-day Rhode Island.
2. The inclusion of Elecampane (*Inula helenium*); a species indigenous to Europe, and its medicinal use by several eastern tribes (Moerman 1998; Tantaquidgeon 1972) illustrates the multidirectional flow of plant material and use knowledge between people and places.
3. Spelled "makuk" by Densmore (1974).
4. However, Smith did not document a use for all species listed in the Menominee ethnobotany. Citing the common experience of ethnographic scholars, who learn new information with each subsequent visit, he indicates that "the writer has decided that plants not known to be used by the Menomini [*sic*] should be included in the various lists, so that future investigators may discover and record names and uses of such plants" (1923, 13-14).

5. Smith's descriptive lists of individual medicinal species also mention European American pharmacological uses where he was aware of them.
6. Ford (1985) suggests that human behavior toward plants may be viewed along a continuum of degrees of human manipulation from simple foraging to cultivation to domestication.
7. Although use of Indian hemp for fiber clearly was not new, the proposal that it be converted to a fully domesticated field crop likely did constitute a new relationship between people and the species, with attendant changes in the social structures and processes that would surround its use.
8. Mullein was introduced to North America from Europe.

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