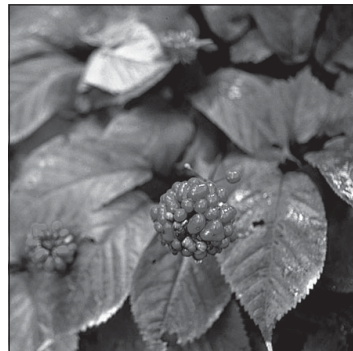


American ginseng

(Panax quinquefolius L.)



Introduction

Nontimber forest products (NTFPs), including American ginseng (*Panax quinquefolius* L.), have long been collected in Pennsylvania for food, medicine, income, and pleasure. Over the past three centuries, however, the impact of collection on such products has largely gone unstudied. In the face of reduced habitat availability and diminished wild supplies, *forest farming* and other forms of intensive husbandry are recommended to relieve collection pressure on existing wild stocks as well as in the hope of introducing interesting and potentially lucrative native forest resources to forestland owners.

Cultivation may offer a practical means for some to obtain NTFPs for sale or personal use. However, others continue to seek out wild sources. This situation may result from lack of access to forestland or appropriate types of forestland on which to culture particular species, or collectors may simply enjoy the activity itself. Whatever the circumstances, collectors need to recognize and consider characteristics of each NTFP that will ultimately determine the sustainability of their activities.

Sustainability is a word that conjures up many different ideas in natural resource management. In the collection of wild plants, or *wild-crafting*, sustainability should be considered as *the adoption of collection practices that do not degrade the regenerative and productive capability of the plant resource over time*. In order to accomplish this goal, understanding something of each species' biology and ecology becomes necessary to determine the manner in which harvesting is best pursued. This is the first in a series of publications on NTFPs that will discuss the considerations associated with collection and husbandry of popular NTFPs in Pennsylvania. In this publication, many important aspects of ginseng collection in the Commonwealth are reviewed and guidelines are presented for promoting sustainability in wild collection.



A ginseng root

Uses and Commerce

The genus *Panax* contains eleven species, according to recent study, and is considered to be a source of some of the world's premier PAT (panacea-adaptogen-tonic) plants. A panacea, briefly defined, is a cure-all; an adaptogen enhances adaptation to stress; and a tonic improves strength and well-being. Members of the genus have earned these reputations as a consequence of a long history of cultural use in eastern Asia and the Pacific Rim. The two most widely used species, Asian ginseng (*Panax ginseng*) and American ginseng (*Panax quinquefolius*), are native to eastern Asia and eastern North America, respectively. Both are considered to be the most valuable members of the genus from a therapeutic standpoint, and thus form the basis of the international ginseng trade.

The health-promoting properties associated with consumption of American ginseng as a food, beverage, or supplement continue to receive an increasing amount of scientific interest and scrutiny worldwide. Such studies have generally yielded favorable results, with many traditional claims corroborated by modern research. These positive findings, in turn, continue to drive demand, even in countries where ginseng does not have a history of cultural use. The whole root has the greatest commercial demand and, therefore, is the item most sought after by collectors. This is true even though all parts—leaves, fruit, and root—have been shown to contain various *ginsenosides* (the chemical constituents that are believed to be most responsible for the beneficial properties of ginseng). Trade in wild ginseng has remained important throughout the past century despite the fact that the species was introduced into horticulture in the late-nineteenth century and has since been cultivated intensively in artificial-shade gardens and plantations. These “gardens” can cover many acres, and their benefit to growers is that plants can be rapidly grown (in 3–5 years) at high densities by optimizing cultural conditions.

Widespread collection of American ginseng root from Pennsylvania forestlands was noted as early as 1783 and has undoubtedly contributed much to the economic prosperity of the Commonwealth over the years. During the 14-year period from 1989 to 2003, for example, over 37,000 pounds of dried root were recorded as harvested from Pennsylvania (Table 1). Using an average (and largely conservative) price of \$300/lb paid to collectors for dried root, the contribution of the ginseng trade to Pennsylvania's economy can be estimated at more than \$11 million during this era, and this figure does not

include the income received from downstream and value-added processing. From such estimates, American ginseng is clearly one of the Commonwealth's premier, yet little-acknowledged, natural resources.

Table 1. Harvest totals and estimated value of wild American ginseng from Pennsylvania forestlands (1989–2003). Source: PA DCNR

YEAR	TOTAL HARVEST (DRY LBS)	ESTIMATED VALUE (LBS X \$300/LB)
1989	2,226	\$667,800
1990	4,236	\$1,270,800
1991	2,036	\$610,800
1992	3,122	\$936,600
1993	3,361	\$1,008,300
1994	3,463	\$1,038,900
1995	2,744	\$823,200
1996	2,860	\$858,000
1997	2,829	\$848,700
1998	1,722	\$516,600
1999	2,481	\$744,300
2000	2,028	\$608,400
2001	1,604	\$481,200
2002	1,711	\$513,300
2003	920	\$294,400
Total	37,343 lbs	\$11,221,300

The demand for wild ginseng root continues to be strong in large part because of the high regard that Asian consumers have for the appearance and quality of these roots. Approximately 90–95 percent of the wild American ginseng root harvested in the United States is destined for the Asian market. Along with differences in shape, other characteristics of wild roots include differences in color and well-developed “stress” rings (concentric rings on the roots). The age of the plants is also very important in valuation; given two roots of equal quality and appearance, the older root will generally be considered more valuable. Asian root buyers also give attention the geographical origins of a wild root. Ginseng from Pennsylvania results from a unique set of soil and climate conditions that cannot be duplicated elsewhere; this is reflected in the commercial value of harvested roots.

Occurrence in Pennsylvania

Historically, American ginseng has been documented, observed, or otherwise noted from every county of Pennsylvania. It is a shade-obligate plant and occurs naturally in forested habitats—particularly those dominated by broad-leaf deciduous trees.

Since the 1700s, American ginseng has been recognized as a potentially important trade item. Early descriptions by botanists, surveyors, traders, and others suggest that American ginseng was likely more plentiful in the Commonwealth in the past. The rarity of ginseng today is probably the result of a long history of extraction from Pennsylvania forests, coupled with alteration of land cover (clearing for agriculture, surface mining, housing development, etc.). This land-use legacy complicates determining a particular type of forested habitat that best supports natural ginseng growth and reproduction. Certainly, many accounts as to the specific *indicator plants* are useful for identifying good ginseng habitat. While these may indeed be useful, ginseng—as with all plant species—is a remarkably adaptable plant that can be found or cultured in a variety of forested habitats. Perhaps most importantly for collection, however, is that the habitat and soil conditions associated with one location may be more conducive than another to plant growth and fruit and seed production. Habitat variation is therefore important to observe and acknowledge since collection activities should be adjusted to accommodate differences in plant productivity with local site conditions. Plants that are surviving, but not thriving, in an area will require greater restraint by collectors with regard to the number of plants dug than plants that occur in supportive habitats that favor vigorous and fruitful plants year after year.



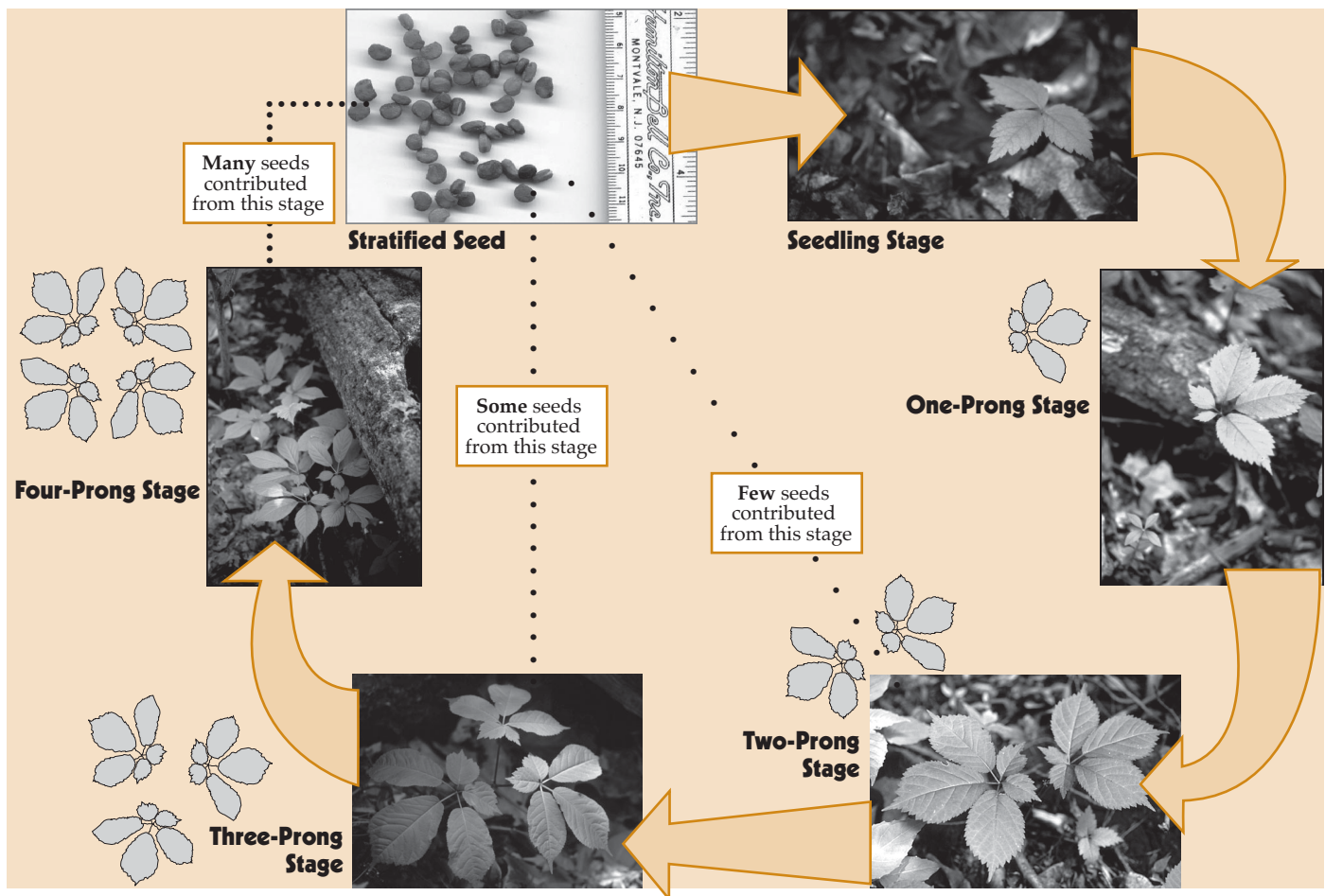
Collection Guidelines

Identifying the various stages of a plant's life cycle is important for maximizing plant *recruitment*, or seedling production. The life cycle of ginseng is very easy to divide into *stage classes*. Each stage class of ginseng bears a distinctive leaf appearance that is progressively altered with age (Figure 1). This process begins following germination, when the seedling emerges and appears with three leaflets (*trifoliate*). This form does not change the entire first growing season. Generally following the first year of growth, the leaf form in American ginseng transitions to *palmately compound*, meaning that each leaf consists of five to seven leaflets arranged around a central point at the tip of the leaf stem (*petiole*). Such a plant would be considered a *stage class one* plant or, more commonly in the ginseng trade, a *one prong*. A single-leaf plant, or *one-pronger*, will eventually attain a two-leaf form, with six to ten total leaflets, and would be called a *stage class two* or *two prong*.

The progressive alteration in ginseng form, with two-leaf plants eventually transitioning to three-leaf and so on, can take many years to occur in the wild. Habitat conditions and annual fluctuations in weather conditions appear to be the two most important factors influencing rate of development. Given optimal habitat conditions, American ginseng may attain the four or five prong stages rather rapidly, perhaps in as little as 4–7 years. It is more common, however, for plants to require longer periods of time to reach such advanced stages.

Ginseng reproduction is largely limited to seed production, and this begins only after plants have matured to the two-prong stage. Propagating the species by rhizome (i.e., neck) and root division is possible, but this is not practical for several reasons. First, the end product will often be less valuable because the impact of such handling on the root will influence final appearance. Second, such methods are often more unreliable than seed propagation. And third, as will be discussed further in later sections of this publication, export restrictions require roots to have their necks attached for verification of plant age. Many ginseng collectors and

Figure 1. Developmental stages in ginseng and their relative contributions to seed production.



stewards still use this technique, however, if they are interested in retaining plant stock for seed production.

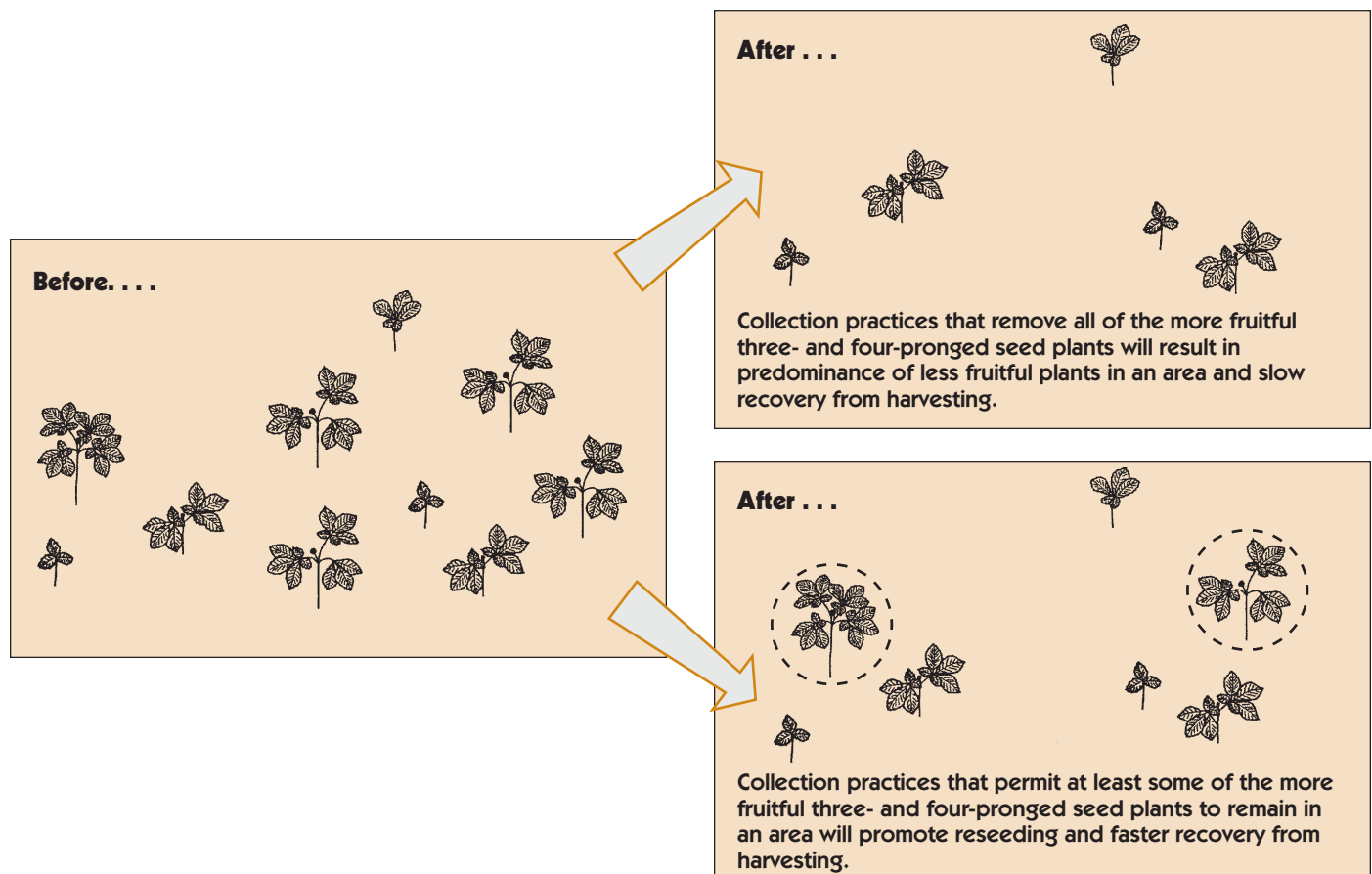
Propagation of ginseng by root division has limited application compared to other forest plants in which the rootstock may be easily divided with no adverse effect on the value of the final product. Because ginseng plants do not begin to reproduce until they reach the two-prong stage, the stage class at which seed production occurs, as well as the stage at which seed output is greatest, is absolutely essential to consider in order to achieve sustainability.

Research and observation have yielded the very important practical finding that *fruit and seed production in ginseng increases with both stage class and age*. A three-pronged plant, for example, will usually produce more fruit and seed than a two-pronged plant. Similarly, a 10-year-old three-pronged plant will tend to be more fruitful than a 5-year-old three-pronged plant. *You should, therefore, always permit at least a few three- and four-pronged seed plants to remain in an area* (Figure 2). By doing so, you will promote good fruit and seed production, resulting in increased (as opposed to the same or fewer) plant numbers over time.

This objective is accomplished by first determining the number of plants occurring in an area and observing their various stages of development *prior to any harvesting*. This visual assessment is then used to estimate the collection quota for the area, ensuring that at least some advanced stage class plants—three- and four-pronged plants—are allowed to remain in the area during any given year. By following this simple strategy, you will ensure that the more fruitful plant stages in ginseng—those producing the most fruit and seed—remain to maximize recovery during the intervals between harvest years.

If you are concerned about other collectors finding and removing seed plants that have been intentionally left, then remove the tops (leaf and stem) so that the plants are inconspicuous to others. *This must always be done after fruit and seed have matured*. Removal of leaves late in the growing season will not harm plants since the bud for next year's growth will already have been formed. However, removal of these parts before fruit have matured (i.e., turned completely red in color) is not only detrimental to seed production, it is also illegal.

Figure 2. The influence of ginseng collection practices on population recovery.



Regulations Concerning Ginseng Collection and Commerce in Pennsylvania

Conservation concerns surrounding collection of wild ginseng from forestlands have been expressed for at least a century, and certain restrictions have been placed on collection throughout the species range beginning as early as the late 1800s in order to address such concerns. Today, nineteen states export ginseng and each has a management program in place. These management programs (and any associated restrictions) vary somewhat from state to state, although most states do have similar programs. The information presented and discussed in this publication is accurate only for Pennsylvania; those involved in the trade elsewhere in the United States need to determine the specific regulations for their own state.

Two important management actions have been taken within the past 30 years that have had important consequences for the ginseng industry in Pennsylvania and the United States. The first of these occurred in 1975 with the listing of wild American ginseng in Appendix II of the Convention on International Trade in Endangered Species of Fauna and Flora (CITES). The principal purpose of this international treaty is to protect wild plants and animals from overexploitation by humans. The United States, as a member of this treaty, requires that wild collection of ginseng continue to be sustainable. The Division of Scientific Authority—a branch of the U.S. Fish and Wildlife Service—is responsible for determining if collection and international trade are detrimental to the species. Due to concerns about the sustainability of wild ginseng, the U.S. Fish and Wildlife Service requires that plants be at least 5 years of age before they can be legally exported from the United States. The reasoning and relevance of this requirement within the ginseng industry are discussed later in this section.

A second important management step occurred in 1982 with the enactment of the “Wild Resource Conservation Act,” which directed Pennsylvania’s Department of Environmental Resources (DER) (the predecessor agency of the current Department of Conservation and Natural Resources (DCNR)) to identify endangered, threatened, and vulnerable wild plant species and to issue regulations governing their taking, possession, transportation, exportation, processing, and sale. Accordingly, in 1987, the DER issued regulations under “Conservation of Pennsylvania Native Wild Plants” that

established a recognized special status for wild plants known as *vulnerable plants* to include plant species “in danger of population decline within this Commonwealth because of their beauty, economic value, use as a cultivar or other factors which indicate that persons may seek to remove these species from their native habitats.” Three species are presently included in this category: American ginseng, goldenseal (*Hydrastis canadensis*), and yellow lady-slipper orchid (*Cypripedium calceolus*).

Buying, trading, or bartering plants listed as *vulnerable* is prohibited within Pennsylvania without first obtaining a *vulnerable plant license* (Figure 3). This license is granted on an annual basis to any interested individuals, provided they comply with record-keeping requirements. The DCNR oversees this program and uses information collected by licensed dealers to track the quantities of wild ginseng and other vulnerable plants collected for export from Pennsylvania forestlands. These statistics are obtained through buyer–seller transactions, so the accuracy of both collector and dealer reporting is an important aspect of the program.

The vulnerable plant management program also has established a set of restrictions regarding their collection. Four of these (provided under Section §45.69, Subchapter E) are specific to ginseng collectors and growers. Those interested or engaged in these activities need to become familiar with the regulations.

1. A person may harvest ginseng plants only from September 1 through November 30.¹

The intent of this regulation is to permit reproduction in wild plants since fruit mature in late summer and early fall. Collectors need to realize, however, that fruit maturation is dependent on weather and habitat conditions, which fluctuate both annually and locally. Therefore, although the regulation states that collection is permissible beginning September 1, instances occur frequently in which collection should be delayed beyond this date to permit fruit ripening. A fruit is not fully ripe until it is completely red.

Another important reason for the establishment of this harvest season is the difference in root quality resulting from harvest date. It has long been recognized that the best time for collecting ginseng (and many other medicinal roots) is during the autumn following plant die-back, when chemistry and water content becomes most agreeable. The importance of these traits on quality (and reputation) is twofold: (1) roots are generally more potent (that is, ginsenoside content is greatest in the root at this time); and (2) the process of drying roots is made easier (due to lower water content) and the final

requirement results from the observation that the three-prong stage in ginseng is generally not attained before the fifth year in the wild. Although no specific state or federal regulations mandate that roots have necks, these are nevertheless used to verify that plants meet the three-prong (5-year) minimum age requirement to be legally exported from the United States under the international CITES treaty. In the process of legal exportation, root necks are randomly inspected at State Forest District Offices and by the U.S. Department of Agriculture (USDA) Animal and Plant Health Inspection Service (APHIS) before shipments are approved for export from Pennsylvania and the United States, respectively. Necks are also used, however, by dealers to assess the value of the harvested roots. Because older plants are generally considered more valuable than younger ones, retaining the necks on roots has economic incentive. *For both reasons, you are strongly urged to retain the necks on all roots that are collected for sale.*

The second part of this state regulation—that plants may be harvested only when the berries have matured—is intended to permit reproduction every year. While there is often the temptation to dig plants before the fruit has matured, collectors must never do so (Figure 4). *Those individuals that collect root before the plants have had the opportunity to contribute seed to the population are ultimately driving the population to extinction.* While such devastating consequences may take years, even decades, to become apparent, it is nevertheless a logical result of not allowing plants the opportunity to reproduce in an area.

Figure 4. Ginseng berries develop and ripen over a 6- to 12-week period during late summer and early fall. Collectors have an ethical and legal obligation to ensure that all fruit are permitted to ripen and all seeds are planted before digging the root.



3. Persons harvesting ginseng plants shall plant the seeds from the plants in the immediate vicinity of the collection site.

The intent of this regulation is to ensure that a local population does not inadvertently become extinct because the collectors have removed the seeds and sowed them elsewhere (such as in their own backyards). Populations must be allowed to perpetuate themselves by reseeding in an area. However, forest habitat conditions often change; what may once have been an ideal forested site for establishment might now be largely unsuitable for plants. Such circumstances may occur as a result of changes in land use, alterations in forest cover resulting from silvicultural operations, or increased competition in an area from exotic or aggressive plant species.

In such cases, you should follow the *intent* of the regulation rather than the *letter* of the regulation. Collectors may adjust by sowing berries or seeds in the same general vicinity as long as those locations appear to be conducive to ginseng growth and maturity. These sites preferably would be habitats that are very similar in landform and vegetation characteristics. If seed is collected and kept for any length of time, certain precautions need to be taken to assure that viability is not lost, which includes making sure that the seeds *do not become dried out* (by leaving the berry pulp on the seeds and/or periodic moistening) and by ensuring that fruits/seeds are kept in a cool, dark space until they can be planted (a refrigerator is one option). Research has indicated that seeds should be planted at a *depth of 1 inch* for maximum germination and establishment. While it is rarely necessary to be exact in this regard, you should nevertheless be careful not to plant too shallow or too deep as there are consequences to both. Plant too shallow and one risks having seeds dry out or be eaten by birds or animals; plant seed too deep, on the other hand, and the seedlings will have a difficult time emerging.

In recent years, it has become fairly commonplace for people to introduce so-called “commercial” seed into forestlands in order to establish ginseng in an area or to increase existing plant numbers. “Commercial” seed in this case refers to any planting stock that originates from a vendor (whether from Pennsylvania or elsewhere), and that is therefore more than likely not native to your specific region. While reseeding is undoubtedly a worthwhile activity and has conservation merit, there is also concern that such nonlocal stock might harm existing local populations through interbreeding or through inadvertent introduction of disease.

Consequently, individuals interested in, or engaged in, this type of practice need to always bear in mind certain precautions. First and foremost, *you should never collect all plants occurring in an area with the justification that it will be reseeded later with “commercial” stock*. Rather, retaining and propagating local plants in an area should receive priority since these plants are adapted to local conditions (and thus perform well) and may hold unique genetic characteristics that might prove invaluable someday for breeding and conservation purposes. You should therefore always attempt to increase the number of plants in an area by first propagating and encouraging the local plants.

Secondly, introduced seed or roots should always be planted at some distance from locally occurring plants. While research has yet determined the appropriate distance for this segregation, the further the better is a general rule of thumb. Ginseng flowers are known to be visited, and presumably pollinated, by sweat-bees and other small flying insects, and thus the likelihood of such interbreeding increases with greater plant numbers (or density) and decreased distance between local and nonlocal plantings.

4. A person may not possess harvested, green ginseng roots between April 1 and September 1 of a calendar year.

The intent of this regulation is to ensure that collection does not occur at any time other than the permitted season. As discussed previously, the establishment of a collection season during the late summer and early fall is meant to ensure that wild plants have the opportunity to mature fruit and set seed, as well as to promote acceptable product quality. Possession of *green* (undried) roots suggests that they have been recently harvested, since the appearance and quality of green roots will eventually deteriorate (even given refrigeration) after digging.

Collectors should recognize that roots that are harvested prematurely, before the collection season has officially begun, will lack a growth bud on the *root neck*. This bud is not formed until late in the summer, in preparation for shoot emergence in a subsequent year. Roots lacking this bud are easy to discern. For now, dealers are strongly discouraged from purchasing such roots, but a time may come where roots without a bud are not approved for export in order to curb collection out of season.

Where to Collect

Theft or *poaching* of ginseng from public and privately owned forestland is a serious problem in parts of Pennsylvania. Those who collect ginseng without permission from landowners and/or managers are often doing great and, in many cases, irreparable harm. Such behavior can affect both the viability of the species (by interfering with management and encouragement practices) and the industry (by reflecting poorly on ginseng collectors within the public perception). You must, therefore, always consider the broader impact that individual collectors can have on continued trade of the species within Pennsylvania. This, of course, includes the very real possibility of a ban being imposed on collection, given enough public dissatisfaction with unscrupulous and unsustainable behaviors.

Ginseng collection from privately owned forestlands is currently allowed without any type of permit, assuming that one is *either the owner of the forestland or has express permission from the owner*. If there is any doubt regarding who owns a particular parcel of land, then every effort must be made to determine ownership prior to removing plants. Ethical collectors should recognize that developing and nursing ginseng interests with landowners can often yield great partnerships. Such relations can, for example, ensure that the ginseng resource is acknowledged in any land management decisions (e.g., logging and road building) that would impact the ability to collect from the area again. Discussing one's interest in the ginseng resource with the property owner, therefore, is not only appropriate but may also ensure that you have a place to collect for years to come.

On some public lands in Pennsylvania—state forest and U.S. Forest Service National Forestlands, for example—collection is prohibited without approval from the regional office charged with land management. Such consent is typically granted in the form of an annual fee-based permit, which entitles one to collect from designated forestlands. Each state land management authority will regulate the quantity of permits issued in a year in order to allow certain plant populations to recover from harvesting and/or to facilitate monitoring and evaluation of populations. Decisions regarding whether to allow collection during each year are made on an individual management unit basis.

Collection of ginseng from state parks in Pennsylvania is not permitted. These areas are intended to serve as places where the public can enjoy nature unmolested.

Similarly, collecting ginseng from state game lands in the Commonwealth is unlawful. It is very important for the reputation of the ginseng industry, as well as for continued appreciation and study of ginseng in the Commonwealth, that collectors abide by these prohibitions. Those who willingly collect from state parks and game lands are not only facing stiff penalties for their activities, they are also tarnishing the image of ginseng collectors as a whole.

All ginseng collection activities, regardless of where they take place, are subject to the regulations outlined in the preceding section. Rather than viewing these as an intrusion on personal freedoms, you should appreciate that these regulations are established to help ensure long-term sustainability of the ginseng resource—no matter what the land ownership status is. Consequently, following these regulations will benefit private forest landowners as well as public land managers by ensuring the survival and health of the state's ginseng resource.

Forest Farming

Agricultural bulletins from 100 years ago represent some of the first efforts to encourage various forms of ginseng planting and husbandry on private lands. This was done both to alleviate pressure on wild plant populations and to provide landowners with alternative sources of income. Over the past century very little has changed; establishment and encouragement of ginseng on forestlands are still necessary to produce marketable quantities of root and seed while simultaneously conserving the resource. Similarly, ginseng continues to be an excellent alternative crop for landowners interested in diversifying income and operations.

The fondness for forest-grown ginseng root by the east Asian consumer, coupled with a growing market for such root by Americans and others around the world, provide a unique opportunity for small-scale production of ginseng on forestlands. Many farmers have some woodland on which cultivation of ginseng might be feasible. Similarly, private forestland owners also have good prospects for success. The demand for woods-grown ginseng actually favors less-intensive production methods over intensive ones. Consequently, for many Pennsylvania forest owners, American ginseng husbandry represents an excellent opportunity to diversify income, maintain the integrity of forest ecosystems, and increase appreciation for Pennsylvania's wild resources.

If all of this sounds too good to be true, it must be said that there are many challenges to growing ginseng.



A ginseng forest farm

An individual plant may take 10 or more years to attain marketable size and quality in the forest understory and many difficulties are certainly possible during such a long period of time. One of the principal difficulties is that ginseng does not take well to crowded conditions; many fungal diseases emerge under intensive production, requiring the frequent application of fungicides. Consequently, low intensity, so-called *wild-simulated* arrangements are best, in which natural conditions are mimicked to the greatest extent possible. Other challenges to ginseng culture, however, include herbivory by deer, seed predation by turkey, and poaching by man. Such challenges, however, continue to ensure that only a certain variety of farmer or landowner will become involved in forest farming and ginseng. This, in turn, supports a strong future market. Those interested in the methods and economic potential of ginseng culture on private lands should consult a companion publication to this one: *Opportunities from Ginseng Husbandry in Pennsylvania* (Forest Finance Series #5, College of Agricultural Sciences, The Pennsylvania State University [UH162]).

Concluding Remarks

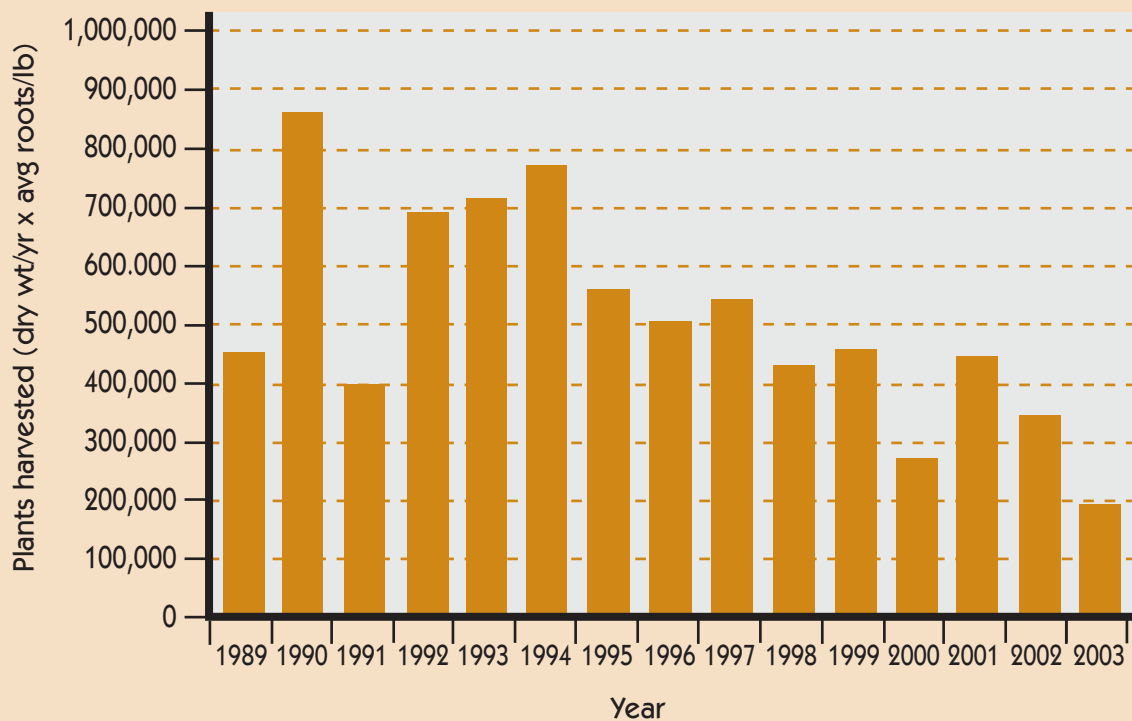
Interest in ginseng collection and cultivation in Pennsylvania remains strong. This is undoubtedly due to the fact that the price commanded for forest-cultured root is much greater than that of field-cultured roots. Because of favorable prices and market demand, the potential for overexploitation of wild populations in Pennsylvania is of great concern. Estimates for the period 1989–2003 suggest that 7.5 million ginseng plants have been harvested from Pennsylvania forests during the 14-year period (Figure 5). Clearly, if these estimates are even partially accurate, the fate of wild plants is a justified concern. It is recognized, however, that many individuals in the commonwealth continue to actively plant and harvest ginseng and sell this product as “wild.” Thus, the estimates presented in Figure 5 in all likelihood represent a wide range of husbandry practices (e.g., wild-simulated production) rather than wild collection alone.

Sustainability of collection from wild ginseng stands depends on collector attention and restraint in order to leave plants that are fruitful and vigorous in an area. Every collector needs to determine the harvest quota for

each collection site. This can be done by a visual assessment of the plant stage classes prior to harvest. Using this simple technique, you can easily determine the composition and abundance of the various stages and adjust the harvest to favor maximum plant reproduction in each and every year. Sustainability also depends on adhering to harvest-season restrictions, allowing fruit and seed to mature before harvesting root, permitting all young plants (seedlings, one-, and two-prongers) to remain in populations, and planting of seed from plants in an area to facilitate good germination and seedling establishment.

Pennsylvanians are fortunate to have such a unique and valuable natural resource opportunity available; it is in the best interest of all collectors to act responsibly and ethically to maintain a legal and thriving trade in the species. While a rural ginseng industry is supported by many in the Commonwealth, there are also those who feel that wild collection should be prohibited given the present scarcity of the plant. Only through communication and cooperation between stakeholders can the dual objectives—ginseng conservation and commerce—be accomplished. For this reason, collectors, growers, and dealers must all participate in efforts to develop and share information about one of Pennsylvania’s most valuable forest assets—American ginseng.

Figure 5. Estimated number of wild American ginseng plants harvested in Pennsylvania (1989–2003). Source: PA DCNR



For Further Information

The following Web sites provide further information about American ginseng and ginseng husbandry.

- Pennsylvania Department of Conservation and Natural Resources (DCNR)
www.dcnr.state.pa.us/forestry/wildplant/vulnerable_plants.aspx
Contains information specific to ginseng in Pennsylvania including publications available, educational opportunities, and dealer contact information.
- U.S. Fish and Wildlife Service (USFWS)
international.fws.gov/animals/ginindx.html
Contains information about ginseng in North America including CITES participation requirements.

Ginseng

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