



Appalachia-Science  
in the Public Interest

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# Moratorium on Wild American Ginseng Exports

## Summary

The U.S. Fish and Wildlife Service's Office of Scientific Authority is responsible (by authority of the international Convention on International Trade in Endangered Species of Wild Fauna and Flora treaty) for determining whether export of wild American ginseng (listed in Appendix II of the treaty) is "not detrimental to the survival of that species." The treaty allows export only if the Office of Scientific Authority issues a non-detrimental finding. Recent annual Office of Scientific Authority findings in this regard—in particular, the finding for 1999 that the export of five-year-old and older roots is "not detrimental," do not have a scientifically defensible basis. Yet there are many anecdotal reports that indicate declining wild American ginseng populations. In the absence of a genuinely scientific basis for non-detriment, the Office of Scientific Authority must establish a moratorium on wild ginseng exports. The impact of such a moratorium on growers of "wild-simulated" ginseng is addressed by recommending establishment of a plot monitoring program.

## History of Federal Regulation of American Ginseng Exports

The export trade in American ginseng (*Panax quinquefolium*), harvested each fall from forested areas in the eastern U.S. and shipped primarily to Asia (where it brings high prices as a medicinal plant), is a multi-million-dollar business. Concerns about potential overharvesting of wild populations of American ginseng resulted in the species being listed in 1977 in Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) treaty, to which the U.S. is a party, along with more than 150 other countries. The CITES treaty states:

Appendix II shall include . . . all species which although not necessarily now threatened with extinction may become so unless trade in specimens of such species is subject to strict regulation in order to avoid utilization incompatible with their survival . . .

The CITES treaty further states:

. . . The export of any specimen of a species included in Appendix II shall require the prior grant and presentation of an export permit. An export permit shall only be granted when the following conditions have been met:

- (a) a Scientific Authority of the State of export has advised that such export will not be detrimental to the survival of that species;

(b) a Management Authority of the State of export is satisfied that the specimen was not obtained in contravention of the laws of that State for the protection of fauna and flora . . .

. . . A Scientific Authority in each Party [State] shall monitor both the export permits granted by that State for specimens of species included in Appendix II and the actual exports of such specimens. Whenever a Scientific Authority determines that the export of specimens of any such species should be limited in order to maintain that species throughout its range at a level consistent with its role in the ecosystems in which it occurs and well above the level at which that species might become eligible for inclusion in Appendix I, the Scientific Authority shall advise the appropriate Management Authority of suitable measures to be taken to limit the grant of export permits for specimens of that species.

(CITES Appendix I includes “all species threatened with extinction which are or may be affected by trade. Trade in specimens of these species must be subject to particularly strict regulation in order not to endanger further their survival and must only be authorized in exceptional circumstances.”)

Exports from the U.S. of plants and animals listed in CITES Appendices I and II are regulated by the Department of the Interior’s Fish and Wildlife Service, which has established an Office of Scientific Authority (OSA) and an Office of Management Authority (OMA) to meet the obligations of the CITES treaty.

As for the details of ginseng export regulation, below are excerpts from a Fish and Wildlife Service notice in the Federal Register, October 7, 1999, pages 54632–54633 (primary author, Fish and Wildlife Service biologist Dr. Javier Alvarez):

. . . The Office of Scientific Authority uses a wide range of information to ensure that the species remains at healthy population levels throughout its range and to determine whether export of ginseng will not be detrimental to the survival of the species. That information includes but is not limited to the following: (1) Whether such export occurred in the past, and has appreciably reduced abundance or distribution of the species; (2) whether such export has or is expected to increase, remain constant, or decrease; and (3) whether the life-history parameters of the species indicate that the present and projected levels of export will reduce appreciably the numbers or distribution of the species. The information is available from State regulatory agencies, industry representatives and associations, non-governmental organizations, and academic researchers. . . .

. . . Since the inclusion of American ginseng in CITES Appendix II in 1977, the Office of Scientific Authority has issued its findings on a [U.S.] State-by-State basis.

To determine whether or not to approve exports of American ginseng harvested in a State, the Office of Scientific Authority annually reviews publicly available data from many sources, including each State with a ginseng harvest program, on the general status of the species in each State. Based on information available (such as pounds of wild ginseng harvested; average roots/lb; average age of harvested plants estimated by counting bud scars or converting dry weight to age; and trends in abundance of wild ginseng populations as measured in field surveys), the Office of Scientific Authority makes a finding on the continued export of wild ginseng from a specific State. Information on ginseng harvest programs are reviewed and compared with information from previous harvest seasons . . . Afterwards, a finding on the export of ginseng to be harvested during the year in question is made by the Office of Scientific Authority early in the summer.

On August 2, 1999, the Office of Scientific Authority issued its finding on the export of American ginseng harvested during the 1999 season from States with ginseng harvest programs. Although the Office of Scientific Authority was able to make a positive finding, it was able to do so only for ginseng roots 5 years old or older, and not for all roots (as in previous years). We conditioned our non-detriment finding after reviewing the best scientific information currently available to the Office of Scientific Authority on the biology and status of American ginseng. Through communications with biologists from Great Smoky Mountains National Park and National Forests throughout the species' range (including those in Arkansas, Georgia, Illinois, Indiana, Kentucky, Michigan, North Carolina, Ohio, Pennsylvania, Virginia, West Virginia, and Wisconsin), the Office of Scientific Authority has become aware that ginseng plants are not only being overharvested in some parts of the country, but also that plants harvested are not afforded the opportunity to reach reproductive age and produce seeds. Independent ginseng researchers have contacted the Office of Scientific Authority concerning their surveys of ginseng populations in states that do not have wild ginseng harvest programs. They have found further evidence that young ginseng plants are being harvested and that ginseng populations may not be able to sustain harvest of such young plants.

Given that wild ginseng does not propagate asexually, it is critical that plants be allowed to reach reproductive age and produce seeds prior to their harvest so as to ensure replacement of the harvested plants and long-term survival of the species. Most ginseng plants start producing seeds when they attain 2 leaves (also known as prongs) at 3 to 4 years of age (R. C. Anderson, J. S. Fralish, J. E. Armstrong, and P. K. Benjamin. 1984. *Biology of Ginseng, Panax quinquefolius*, in Illinois. Illinois Department of Conservation, Division of Forest Resources and Natural Heritage, Springfield, Illinois. 32 pages.) Ginseng plants add a third prong between 5 and 9 years of age, with the majority of them doing so when they are 7 years old.

Based on the above information and to ensure that ginseng plants harvested from the wild reach reproductive age and produce seeds for at least two seasons, the Office of Scientific Authority requested in its August 2, 1999 finding that the Office of Management Authority, which is responsible for issuing CITES permits, condition permits for the export of ginseng roots harvested from the wild in the 1999 season so as to allow only export of roots that are 5 years of age or older. Without the inclusion of an age-based condition in each CITES export permit for wild American ginseng, we would not have found that the harvest of ginseng from the wild during the 1999 season is not detrimental to the survival of the species.

Most States with wild ginseng harvest programs (including Alabama, Arkansas, Georgia, Indiana, Iowa, Maryland, Minnesota, New York, Ohio, Pennsylvania, Tennessee, Vermont, West Virginia, and Wisconsin) already have regulations in place that prohibit the harvest of ginseng plants with less than three prongs (compound leaves); that is, harvested plants must be at least 5 years old. Therefore, the age-based restriction of export of wild ginseng roots does not constitute any new restriction on the harvest of wild ginseng roots in these States. We are simply assisting the States in the enforcement of their own regulations by discouraging individuals from digging plants that have not yet reproduced, as well as discouraging dealers from purchasing roots of young plants. Likewise, as of August 30, 1999, the U.S. Forest Service—Eastern Region has also directed that permits for the collection of wild ginseng on National Forest lands . . . be restricted to plants at least 5 years of age. Our ultimate objective is to prevent the extirpation from the wild of this valuable natural resource and the resultant negative economic impact this would have on citizens who depend on this plant as a source of income. . . .

. . . Prior to 1994, we issued multi-year findings on exports of American ginseng through a Notice in the

Federal Register as an informational matter. For the past several years, we issued our findings on an annual administrative basis. New biological information available to us precludes the issuance of a multi-year non-detriment finding. The Service consulted with the ginseng program coordinators from all States where harvest of wild ginseng is allowed, prior to the Office of Scientific Authority issuing its 1999 finding. . . .

Additional information can be found in a letter dated 8-2-99 on "Convention Permit Applications for Ginseng," sent by the Chief of the Office of Scientific Authority to the Chief of the Office of Management Authority. The following excerpts from this letter are from the U.S. Fish and Wildlife Service - International Affairs World Wide Web site.

. . . We will continue to monitor the status of American ginseng in the wild, with the understanding [that] the . . . new restrictions may be modified for the Fall 2000 harvest. This . . . age-based restriction should be seen as a pilot program. Based on our outreach to ginseng dealers and exporters, and in close cooperation with State ginseng coordinators, further revisions could be made for next year's harvest. We do not anticipate a total moratorium on exports next year, but if declines in the species populations in the wild continue, such a restriction may be needed in the future on a short-term basis to allow recruitment and recovery for the species. . . .

. . . Nationwide, analysis of the data provided by [Alabama, Arkansas, Georgia, Indiana, Iowa, Kentucky, Maryland, Minnesota, Missouri, New York, North Carolina, Ohio, Pennsylvania, Tennessee, Vermont, Virginia, West Virginia, and Wisconsin] revealed the following trends:

- a. Slightly more than half of the States (53%; 9 of 17) reported a decrease in harvest of wild ginseng between 1997 and 1998 exceeding 40% (only 1 State reported such trend in 1997);
- b. A fourth of the States (25%; 4 of 16) have experienced a statistically significant decline in harvest of wild ginseng since their ginseng programs began, including West Virginia and Virginia, the third and fourth top exporters of wild ginseng in the country, respectively (Kentucky is first; Tennessee is second);
- c. Almost half of the States (39%; 7 of 18) have experienced a statistically significant decline in harvest of wild ginseng in the 1990s, including West Virginia and Virginia. . . .

. . . economic factors, particularly the recent economic crisis in Asia . . . and a low unemployment rate in the United States, have influenced demand for and harvest of American ginseng in the last few years. However, the recent decline in the amount of wild American ginseng harvested in many States also reflects ginseng population declines in some parts of the species range. . . .

. . . Long-term, OSA has already taken several steps to improve monitoring of wild American ginseng.

- a. First, we have provided funding to researchers at West Virginia University examining, among other things, the status of wild ginseng in that State; the utility of some population indices currently being used by OSA to assess the status of wild populations of ginseng; the importance of timing of harvest season; and the possible effects of deer browsing and dispersal of seeds by deer and turkey. Preliminary results will be presented at a Ginseng Workshop . . . in Kentucky. . .
- b. Earlier this year, we also contacted Dr. Daniel Gagnon, a plant population biologist and ginseng researcher from the University of Quebec, to prepare a report containing recommendations for

the conservation and management of American ginseng in the United States. Dr. Gagnon's report also included a standardized statistically-based survey scheme for monitoring wild populations of ginseng throughout the United States. Dr. Gagnon will present his recommendations to federal and State biologists attending the Ginseng Meeting in Kentucky. Our goal is to develop a partnership with States to establish a long-term monitoring program for the species. This monitoring program would involve the establishment of survey plots across most States where wild ginseng is currently harvested, which will be surveyed annually by biologists from the States, National Park Service, National Forest Service, and US Geological Survey's Biodiversity Research Division. The data gathered would then be analyzed to determine whether current levels of harvest are sustainable and whether further restrictions in the harvest of wild American ginseng are needed. . . .

## **The Case for a Moratorium on American Ginseng Exports**

Last year, the Fish and Wildlife Service took the unprecedented step of imposing an age limit on ginseng exports. And the Service seems strongly committed to developing and implementing extensive monitoring of wild ginseng populations to provide data on which to base future findings with regard to the effect of exports on species survival. So the Service—in particular, its Office of Scientific Authority—appears to be adequately fulfilling its CITES obligations. But the appearances are deceiving. In fact, the OSA regulatory approach is fundamentally flawed, because its findings to date have not been connected in a demonstrably scientific manner to cogent data. And its future findings will be similarly flawed unless and until there are sufficient data on the dynamics of wild ginseng populations throughout the species' natural range—which will require at least a few years to gather. In the absence of good science, the OSA has been and will be essentially “flying blind” when making its findings. In principle, that is an unacceptable compromise of the aims of the CITES treaty; in practice, given abundant anecdotal reports of declining wild American ginseng populations, it is unacceptably reckless.

The illusion of genuine scientific method is well-preserved throughout the OSA materials quoted above. After all, voluminous data have been collected and analyzed with statistical methods utilized to establish trends, and biological facts have been gathered and applied evidentially. However, the issue is whether the analyses of the available evidence connect in a scientifically valid way with the findings. Do the analyses show scientifically that allowing export of wild American ginseng, even with an age limit, “will not be detrimental to the survival of the species”? Prominent ginseng researchers do not seem very confident that this is the case. At the May 2000 Kentucky Ginseng Workshop, West Virginia University biologist Dr. James McGraw said, “Presently, to a very large degree, our management [of wild American ginseng] is not based on scientific results.” And, also at the Workshop, Dr. McGraw's WVU colleague Brent Bailey said, “We don't really know” the true impact of harvesting on wild ginseng in West Virginia, although there is much anecdotal evidence. Even the enthusiasm of OSA staff for establishing a monitoring program for wild ginseng populations could be interpreted as an acknowledgment that a scientifically defensible link between findings and species survival is sorely needed. Yet in the meantime, the OSA's Dr. Alvarez has claimed (at the Kentucky Ginseng Workshop), “If everybody was following state regulations, all would be fine.” That assertion is totally unjustified in the absence of data and analyses that link harvesting behavior with species survival.



How is it that the data utilized by the OSA in 1999 lead to the finding that a general harvest is detrimental to species survival but that harvest only of 5-year-old and older plants is not detrimental to species survival? The answer can only be a non-scientific argument: since ginseng is known to reproduce only by seed, it will become extinct in the wild if plants are harvested before they old enough to produce seed, but (and here is the leap of faith) we can avoid threatening species survival by removing the economic incentive to harvest plants before they produce seed. This leap avoids several difficult questions for which scientifically collected data do not currently exist (but for which anecdotal data do exist and generally suggest caution with regard to making the leap):

- If all plants up through four years of age are unharvested, will reseedling be sufficient to maintain the sizes of individual wild populations?
- What net effect on harvest of young plants will actually result from an export ban on young roots?
- How accurately do export data reflect total harvest data?
- What about non-harvest effects on populations, such as loss or fragmentation of habitat and climate change?

Long-term monitoring of wild ginseng populations could provide data necessary for scientifically justified findings on ginseng exports made by the OSA, by revealing the actual in-field effects of regulatory endeavors. Such monitoring is to be encouraged, but the fact remains that a number of years will be required to establish baselines in order to factor out weather and economic fluctuations. In the meantime, enormous harm could be done to wild ginseng populations by continuing to allow exports on the basis of scientifically invalid findings.

Anecdotal reports (including those cited in the above-quoted OSA letter) overwhelmingly suggest that, in the absence of scientifically justified findings, continued export of wild American ginseng could threaten the survival of the species—this does not look like a situation in which “what we don’t know won’t harm us”! To the contrary, as New York Extension Agent and ginseng researcher Robert Beyfuss said at the Kentucky Ginseng Workshop, “The breadth [note that he did not say depth] of data suggesting decline in natural populations is a cause for concern.” Also at the Workshop, Dr. Alvarez of the OSA said, “The information that we have all leads us to think that we need to be very careful.” Those opinions are backed up by a year-long study by TRAFFIC North America (the wildlife trade monitoring program of the World Wildlife Fund), published in May 1998. Here are some excerpts from a TRAFFIC press release dated 5-26-98 (contact: Tina Dreyfus, World Wildlife Fund US, phone 202/778-9509, e-mail [tina.dreyfus@wwfus.org](mailto:tina.dreyfus@wwfus.org)):

... [wild American] ginseng ... could be at risk of overexploitation unless federal and state agencies improve regulation and management practices. ...

... [wild] ginseng populations in the United States are at critical risk of exploitation.

It is not cynicism, but rather an appreciation of political reality, to suggest that the OSA has been so constrained that, lacking a solid scientific basis for its findings on ginseng export, it has been able to make only minimal accommodations to the anecdotal evidence for high risk to wild American ginseng survival due to harvest pressure. Establishment of an age limitation that simply seconds the existing regulations of many of the states with ginseng programs is one way to appear to be boosting conservation efforts while avoiding much opposition from wild ginseng harvesters and dealers. The OSA’s ability to decide that it cannot, on a scientific basis, issue a finding that export of wild ginseng is not detrimental to the survival of the species might be much strengthened by greater public support for wild ginseng conservation. Comments can be directed to Dr. Javier Alvarez, Office

of Scientific Authority, U.S. Fish and Wildlife Service, Mail Stop ARLSQ-750, Washington, DC 20240, phone 703/358-1708, fax 703/358-2276, e-mail r9osa@fws.gov.

One additional misconception must be corrected, because it is a tempting excuse for avoiding or delaying positive action to prevent the extinction of wild American ginseng populations. The suggestion has been made, even by some ginseng researchers, that broadscale artificial seeding of ginseng in wild areas could (possibly more than) offset any negative effects of harvesting. Seed collected from intensively cultivated (“shade-grown”) ginseng or (at considerably greater expense and potential impact on wild populations) seed collected from wild ginseng could be used. There are at least two possible problems with widespread artificial seeding, both of which require more research to determine how serious they might be. First, artificial seeding might introduce diseases into new areas. Second, based on preliminary work done by Holly Grubbs of the College of William and Mary and presented at the Kentucky Ginseng Workshop, there is high genetic variability among, and low genetic variability within, wild ginseng populations. This suggests that local populations are highly adapted to local conditions, and that artificial seeding might lead to local loss of fitness. It is possible that artificial seeding schemes could be devised to avoid such difficulties, but time is needed for further investigations. A moratorium on exports would serve to protect wild populations while such investigations were carried out. (Note that wild-simulated cultivation of ginseng would be expected to have minimal negative effects on wild ginseng, because few wild-simulated plots would be sited in close proximity to existing wild populations, thus limiting the chances for spread of diseases and for interbreeding.)

OSA findings will serve the purposes of the CITES treaty only if and when adequate data exist to provide a scientifically justified basis for judging the impact of export regulations on wild ginseng survival. Until then, risky unscientific procedures must be abandoned and the most prudent interim measure instituted, namely a moratorium on wild American ginseng exports.

Therefore, this document is being submitted, with a cover letter urging immediate attention, to both the U.S. Fish and Wildlife’s Office of Scientific Authority and the CITES Secretariat (empowered by the CITES treaty to “be assisted by suitable inter-governmental or non-governmental international or national agencies and bodies technically qualified in protection, conservation and management of wild fauna and flora” to take certain measures to ensure proper implementation of the treaty’s provisions). Specifically, ASPI requests that the OSA admit that it cannot make a scientifically justified finding for 2000 that export of wild American ginseng (with or without an age limit on roots) is not detrimental to the survival of the species in the wild, and therefore the U.S. Fish and Wildlife Service should stop issuing export permits for wild ginseng. Furthermore, ASPI asks the Secretariat (as authorized by Article XIII of the CITES treaty) to communicate to the U.S. Fish and Wildlife Service’s Office of Management Authority that the U.S. Fish and Wildlife Service’s Office of Scientific Authority has not “effectively implemented” the provision of the CITES treaty requiring advice prior to issuing permits for export of an Appendix II-listed species (namely *Panax quinquefolium*) stating that such export “will not be detrimental to the survival of that species” (as documented in this Technical Paper).

Article XIII specifies:

1. When the Secretariat in the light of information received is satisfied that any species included in Appendix I or II is being affected adversely by trade in specimens of that species or that the provisions of the present Convention are not being effectively implemented, it shall communicate such information to the authorized Management Authority of the Party or Parties concerned.
2. When any Party receives a communication as indicated in paragraph 1 of this Article, it shall, as soon as possible, inform the Secretariat of any relevant facts insofar as its laws permit and, where appropriate,

propose remedial action. Where the Party considers that an inquiry is desirable, such inquiry may be carried out by one or more persons expressly authorized by the Party.

3. The information provided by the Party or resulting from an inquiry as specified in paragraph 2 of this Article shall be reviewed at the next Conference of the Parties which may make whatever recommendations it deems appropriate.

## **Toward Regulation of, Rather than a Moratorium on, Wild-Simulated Ginseng**

Currently, federal regulations on American ginseng exports do not differentiate between wild plants and plants cultivated under forest conditions (“wild-simulated” ginseng, which includes “virtually wild” ginseng as advocated by Syl Yunker of the Appalachian Ginseng Foundation). Thus, a moratorium on exporting wild American ginseng means a moratorium also on wild-simulated ginseng—if additional measures are not taken to differentiate the two products. Harvest of wild-simulated ginseng does not affect truly wild ginseng populations, so, in theory, growers of this crop should not be prevented by the OSA from exporting their roots. In practice, because truly wild and wild-simulated ginseng roots are indistinguishable (allowing the former to be labeled as the latter), completely unregulated export of wild-simulated ginseng together with prohibiting export of truly wild ginseng would invite illicit harvest of wild plants for sale as wild-simulated. One way to avoid this would be to require pre- and post-harvest inspections of wild-simulated plots, thus documenting the origins of wild-simulated roots. U.S. burley tobacco quota program crop inspection and measurement operations, with a long and successful history in the Southeast, could serve as prototypes for ginseng inspections. And combining such inspections with organic certification inspections might help to keep the costs of such a program low, while ensuring premium prices. (The potential for obtaining higher prices for organically grown roots was noted by various wild-simulated ginseng growers and by one ginseng dealer at the Kentucky Ginseng Workshop.)

Development of the organization of, authority for, and funding to support a wild-simulated ginseng plot inspection program would require considerable input from wild-simulated ginseng growers, state and federal regulators, and the general public. It is possible that a moratorium on wild and wild-simulated ginseng exports could provide a significant motivation to begin working toward an inspection program. The prospect of substantial economic losses due to a moratorium on both wild and wild-simulated ginseng, combined with the prospect of substantial economic gains if there were a moratorium on only truly wild ginseng (resulting in higher prices due to reduced supplies), together could provide an enormous incentive for rapid establishment of an inspection program allowing export of wild-simulated ginseng with negligible harm to wild ginseng populations.

Anyone interested in providing suggestions on a wild-simulated ginseng plot inspection program is invited to contact the Appalachian Ginseng Foundation, c/o ASPI, 50 Lair St., Mt. Vernon, KY 40456, phone 606/256-0077, e-mail [aspi@a-spi.org](mailto:aspi@a-spi.org).