Appalachian Chain Demonstration Project

United States Department of Interior
National Park Service
International Association of Chiefs of Police

“We are not able to assert that the NPS has ever fashioned a design for a full-scope, professional law enforcement function.”

**Existing NPS Law Enforcement Model:**

- Mostly random patrol/overt activities
- Some reactive investigative response
- Focused within park boundaries
- Parks isolated from each other, their communities and other preserves.
- Protect resource as a whole (little prioritization and proactive planning)
Exploitative threats to resources are poorly understood.

Resources enforcement has not kept pace with evolving threats.

NPS protection efforts are self limited by administrative boundaries.

NPS assets are not focused on resource protection priorities.
The mitigation of exploitative threats to botanical resources

Demonstrate What?

Target enforcement efforts on specific resources at risk.
Demonstrate What?

The mitigation of exploitative threats to botanical resources

Protect threatened resources in their range.
Demonstrate What?

The mitigation of exploitative threats to botanical resources

Apply an interdisciplinary approach.

Data Management Specialists  Botanists
Forensic Specialists          Economists
Regulatory Specialists       Natural Resource Specialists
Intelligence Specialists     Law Enforcement Officers
Biogeographers               Protected Area Land Managers
Demonstrate What?

The mitigation of exploitative threats to botanical resources

Proactive investigative effort.
Demonstrate What?

The mitigation of exploitative threats to botanical resources

Law enforcement better linked to science
Demonstrate What?

The mitigation of exploitative threats to botanical resources

Develop new tools or new applications for old tools
Demonstrate What?

Develop new tools or new applications…

- Threat Assessment
- Intelligence gathering, analysis, sharing
- Covert enforcement operations
- Plant marking & forensic techniques
- Regulatory analysis
- Civil penalties & recovery for restoration
- Habitat modeling
- Education
Identified Resources at Risk

- Ginseng
- Black Cohosh
- Bloodroot
- Galax
- Goldenseal
Commercial Resource Exploitation

- Resource in Place
- Unlawful Collection/Derogation
  - Retail Buyer
    - Higher Level Accumulation/Profit
      - Retail Resale/Export
        - Consumer Use/Societal Acceptance
Intelligence Gathering, etc.
Covert Enforcement
Civil Penalty/Restoration
Threat Assessment
Inventory & Monitor
Habitat Modeling
Plant Marking & Forensics
Targeted Overt Enforcement

Resource in Place
Unlawful Collection/Derogation
Retail Buyer
Higher Level Accumulation/Profit
Retail Resale/Export
Consumer Use/Societal Acceptance
Regulatory Analysis/Change
Inventory & Monitor
Habitat Modeling
Plant Marking & Forensics
Targeted Overt Enforcement

Resource in Place
XX
Unlawful Collection/Derogation
XX
Retail Buyer
XX
Higher Level Accumulation/Profit
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Retail Resale/Export

Consumer Use/Societal Acceptance
Education

Regulatory Analysis/Change

Resource in Place

Unlawful Collection/Derogation

Retail Buyer

Higher Level Accumulation/Profit

Retail Resale/Export

Consumer Use/Societal Acceptance

Threat Assessment

Inventory & Monitor

Habitat Modeling

Plant Marking & Forensics

Targeted Overt Enforcement

Intelligence Gathering, etc.

Covert Enforcement

Civil Penalty/Restoration

Regulatory Analysis/Change

Education
Year Minus One

- Analyze fragmentary intelligence data to make ‘probable cause’ determination: ginseng and 5 other medicinal herbs are resources at risk.

- Launch resource risk assessment.

- Review readily accessible research economic factors, global status and evolving demographics driving exploitative risk.
Ginseng Dealers 2002

Data sources: State Coordinator reports
Year Minus One

- Analyze fragmentary intelligence data to make ‘probable cause’ determination: ginseng and 5 other medicinal herbs are resources at risk.

- Launch resource risk assessment.

- Review readily accessible research economic factors, global status and evolving demographics driving exploitative risk.

- Establish preliminary contact with Interagency partners in ecosystem to gather resource status and intelligence data.

- Organize available data for use in design of protection actions.

- Brief Superintendents: Obtain approval for inter park operations.
Year Zero

- Bring Resource Risk Assessment to completion.

- Determine chief hindrances to effective conservation eg:
  - Flawed regulatory patterns
  - Insufficient species or risk data
  - Flourishing black markets
  - Inability to identify protected area resources in the commerce stream.
  - Rapidly evolving socio-economic factors outpace protective response.

- Develop 2 to 5 year interagency action plan to focus all disciplines in reinforcing actions.

- Task patrol resources in 3 parks to gather further intelligence to guide protection planning.

- Prepare Funding Proposals for NRPF, Recreation Fee, ONPS redeployment, and other sources.
Year Zero

- Bring initial Interagency design of enforcement operations to preliminary agreement.

- Establish framework for year one operations, if funded, to identify scientific institutions and researchers and establish partnerships.
Year One

- Conduct Literature Review to determine the scientific state of knowledge. (USFS Research station)

- Computer model the distribution of species in each park unit by habitat type and then ground truth with fieldwork. (USGS develops predictive mode. NPS Natural Resource field work.)
Fig. 3. Mahalanobis distance model for American ginseng, northern study area, 2002–2003. Lower Mahalanobis distances indicate more favorable habitat. A. Shenandoah N.P.
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- Establish protocols for covert sample plots (NPS Natural Resource and Resource Protection Branch)
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- Mark some plants (utilizing methods developed previously) to support law enforcement efforts to trace products into local, regional, and national markets. (NPS Natural Resource)
Marking ginseng roots to deter unlawful removal while conducting population surveys. Appalachian Chain Demonstration Project.
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- Determine the historic uses and the changes in market factors for these botanical products that, over the last 10 years, have driven important changes in exploitation rates. (USFS Economist specializing in NTFP)
Value of Wild Ginseng Root Exports
(Total Value = $1,350,235,593)

Source of Data: Dept. Commerce
Year One

- Test the absorption and retention of taggants in different microclimates and soil types. (Appalachian State University)
Marked ginseng root under black light
Year One

- Test the absorption and retention of taggants in different microclimates and soil types. (Appalachian State University)

- Evaluate prototype intelligence management tools previously developed by Parks. (James Madison University)

- Transfer those programs to the other parks in preparation for future training of enforcement personnel. (SHEN Intelligence Analyst)

- Meet at the conclusion of the data collection phase to aid collaboration among resources managers, law enforcement officers and superintendents on risk-focused protection for these species.

- Begin collaboration with resource protection training specialists to utilize this example for broader application. Communicate results to Jeri Hall, project coordinator of Resource Stewardship and Protection Curriculum and Tom Cherry, training manager - FLETC
Year Two

- Refine and Expand Baseline Data on Species Distribution.
  - (USGS population modeling with NPS field work)

- Improve Ability to Identify Stolen Protected Area Resources
  - Maintain marking using existing method during NPS field work
  - Prepare a literature review on existing and developing marking or detection techniques (such as DNA typing) which may be more cost effective, and to identify future research which may be of benefit in resolving this problem. (Appalachian State)
  - Intelligence operations now begin to guide marking operations,

- Develop Prototype eco-system level regulations to improve species protection (NC Department of Agriculture)
Total Wild Harvested & Exported Ginseng

Thousands

Volume in Dry Pounds

Year of Harvest/Export

Data source: Dept. of Commerce & USFWS

- Total Wild Harvest
- Total Wild Export
Year Two

- Commence eco-system level interdiction operations.
  - Formalize interagency agreements
  - Transfer funding from this project to the task force.
  - Commence interdiction operations
    - (Criminal Investigative Unit)
Tracking Ginseng from
SHENANDOAH NATIONAL PARK
Year Two

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  - Transfer funding from this project to the task force.
  - Commence interdiction operations
    - (Criminal Investigative Unit)

- Implement ‘first step’ intelligence recommendations.
  - Establish secure connectivity among the headquarters locations and selected test field locations in all 3 Parks.
  - Develop and present training for field law enforcement supervisors on the importance and application of intelligence tools to resource missions.
  - Develop standardized performance management tools which reinforce the collection and sharing of intelligence data at all organizational levels.
Year Three

A. Implement regulatory change. (NCDA and resource protection branches in parks with support from criminal investigative unit)

B. Interdict unlawful takings from protected areas. (Criminal Investigative Units in 3 agencies and two NPS regions)

C. Maintain inventory and marking effort to support active protection. Resurvey covert plots

D. Model convergence of species density and violator behaviors to guide future marking and protective operations
Fig. 19. Example of potential application of plant habitat models to assist plant protection activities in the Big Meadows area of Shenandoah N.P. By combining information from the ginseng habitat model with an index of accessibility, areas can be identified where potential ginseng habitats are concentrated that are relatively vulnerable to poaching.

Excerpted from *Habitat Modeling for Protection of Illegally Harvested Plants in National Parks of the Blue Ridge Mountains* (Young et. al., 2003)
Year Three

- F. Implement phase 2 of intelligence system development recommendations

- E. Distribute lessons learned over 3 year project for service-wide benefit.