

A Glass Half-Empty, or Half-Full? Harvester Effects on Ginseng Populations

**Martha E. Van der Voort
and Brent Bailey
West Virginia University**

Current Management Paradigm:

- **Regulations designed to counter negative impacts of harvest**
- **Harvesters held responsible for declines**
- **Unilateral focus ignores other factors**

Demographic Research

- **Census of natural populations over multiple years**
- **Estimating population growth rate, or λ (lambda), primary objective**

Stages of Ginseng Life Cycle

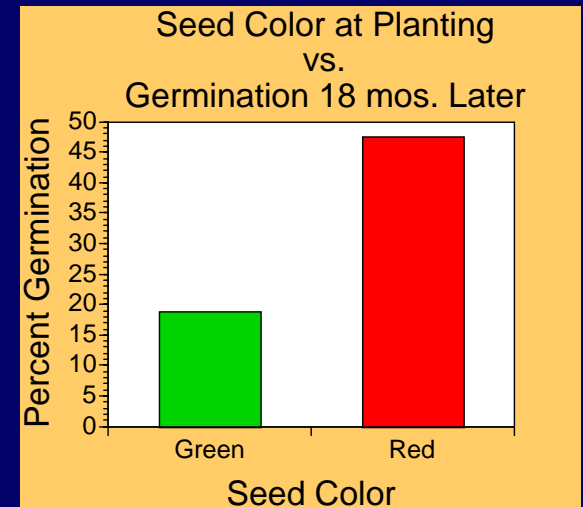


How do we Model harvester behavior?

Bailey, 1999;
Mooney,
Unpublished data;
McGraw et al. 2005,
Northeastern Naturalist;
McGraw and Furedi, 2005,
Science

Influences on Harvest:

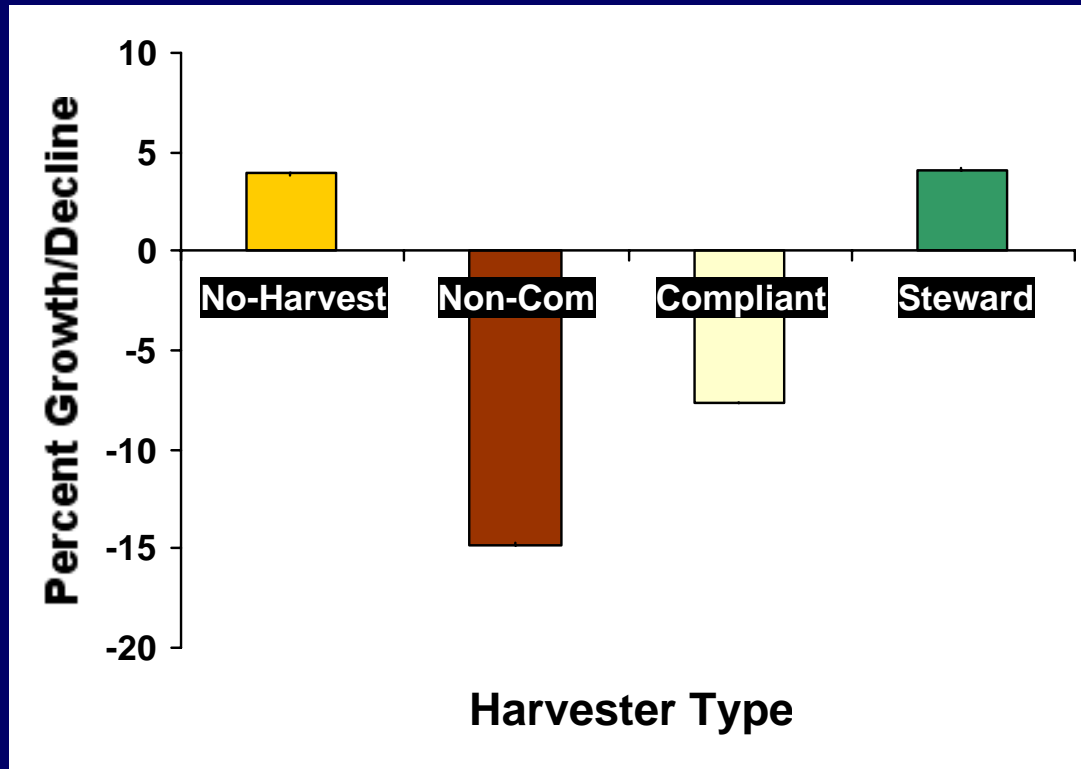
- Season
- Size
- Intensity
- Seed fate
- Deer browse



Three Harvester Models

	Non-compliant	Compliant	Steward
Season	15 June	15 Aug.	1 Sept.
Stage	2-leaf, sm./lg. adults	Small and large adults	Sm./lg. adults w/ berries
Intensity	25%	25%	25% <i>with</i> berries
Seeds	N/A	Scattered/ lower seed germination	Planted/ Higher germination
Browse	N/A	9%	15%

Annual Percentage Growth/Decline of 3 Harvester Types (and No-Harvest)

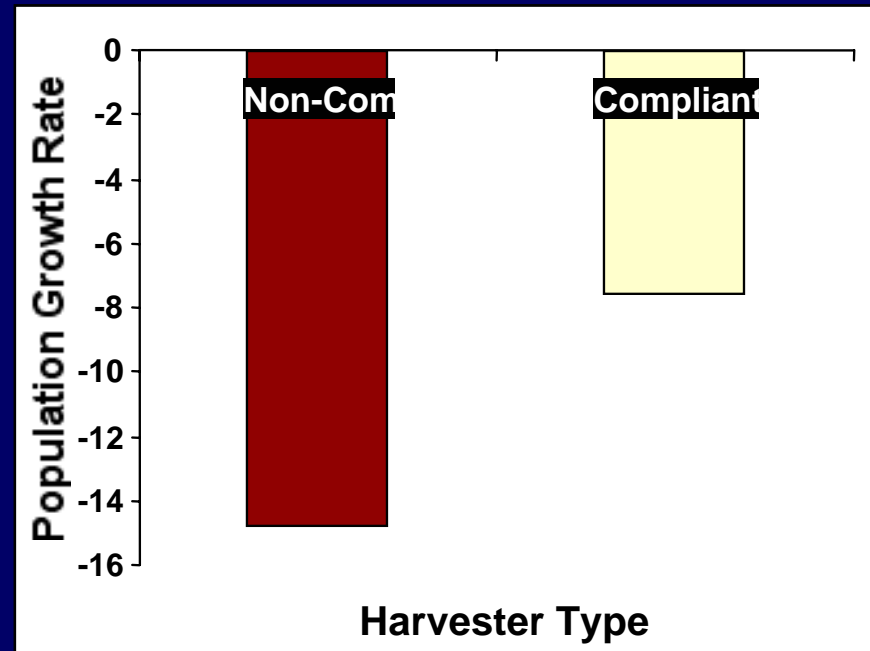


Van der Voort and McGraw, in press.

**What are the
'root' causes of
the differences
in population
growth rate?**

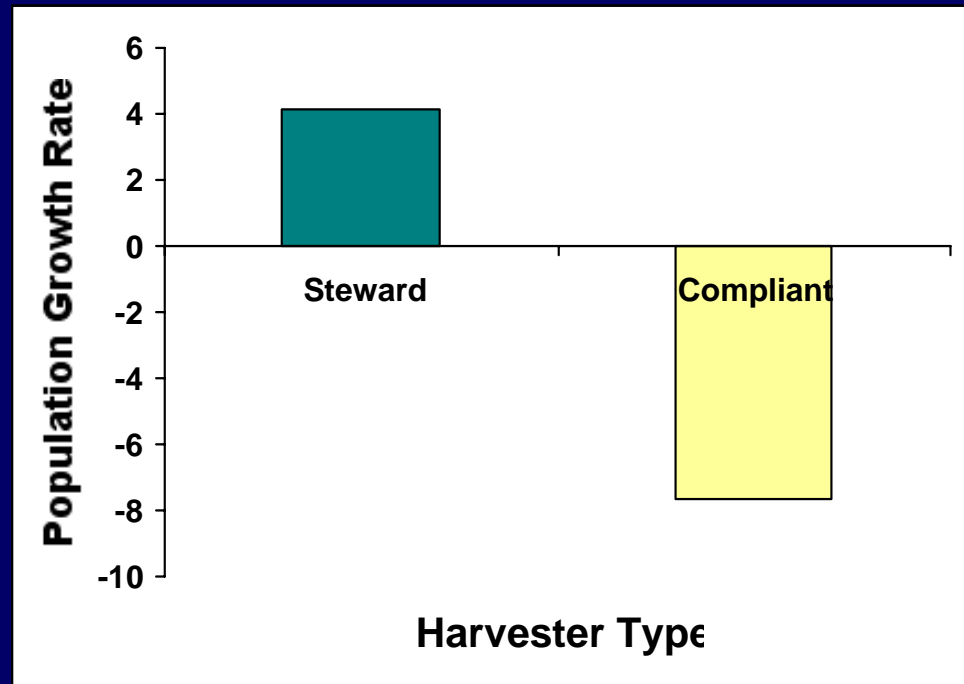
Compliant vs. Non-compliant

- Fates of 2-leaf plants
- Lower fertility of large adults for non-compliant harvester



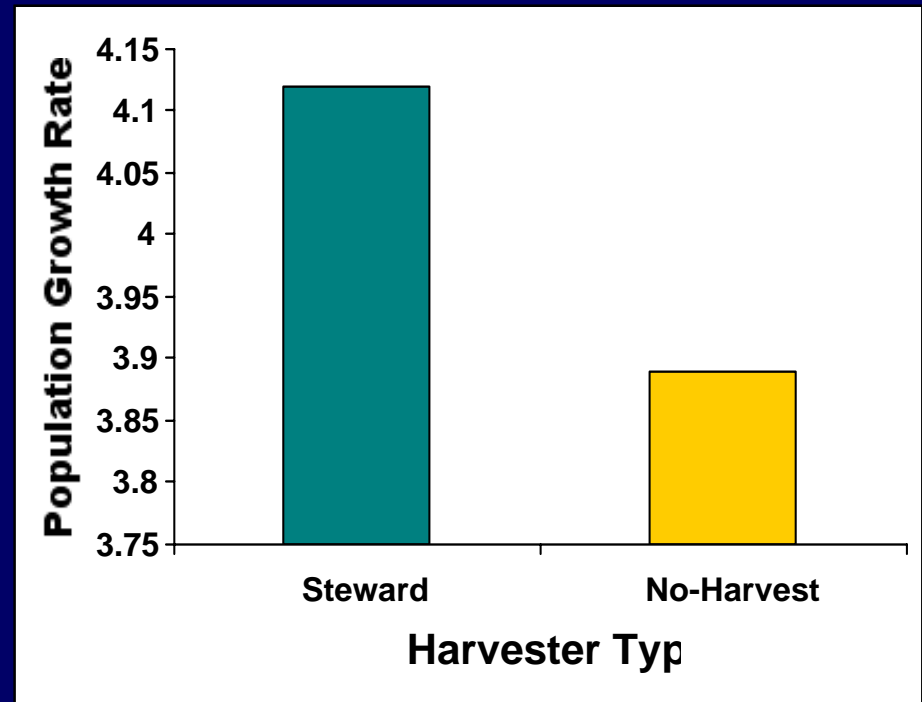
Steward vs. Compliant

- Increased seed germination accounted for 72% of the increase in population growth rate of Steward



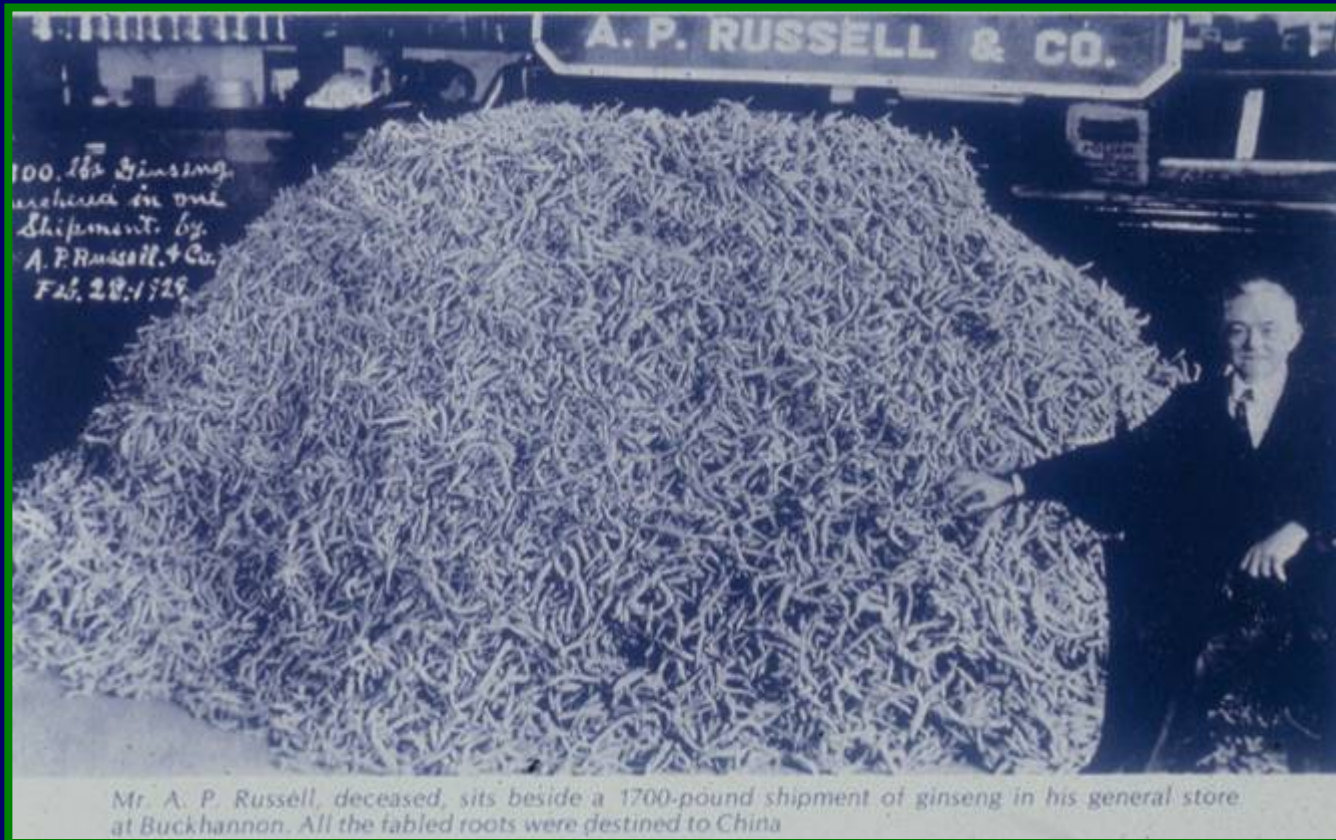
Steward vs. No-Harvest

- All changes in matrix were negative except seed germination; contributed 58% to higher population growth rate of Steward



Goal of harvesters, ecologists, and resource management agencies:

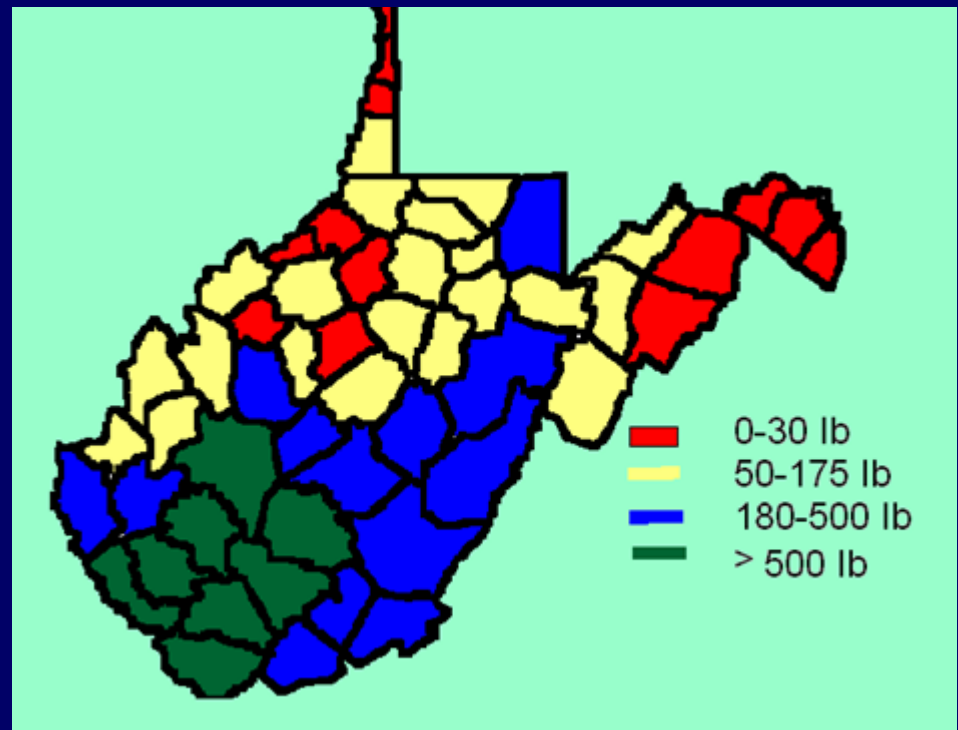
Healthy and abundant populations of wild ginseng



Harvesters: a Constituency for Ginseng Management and the Agencies that Track the Species

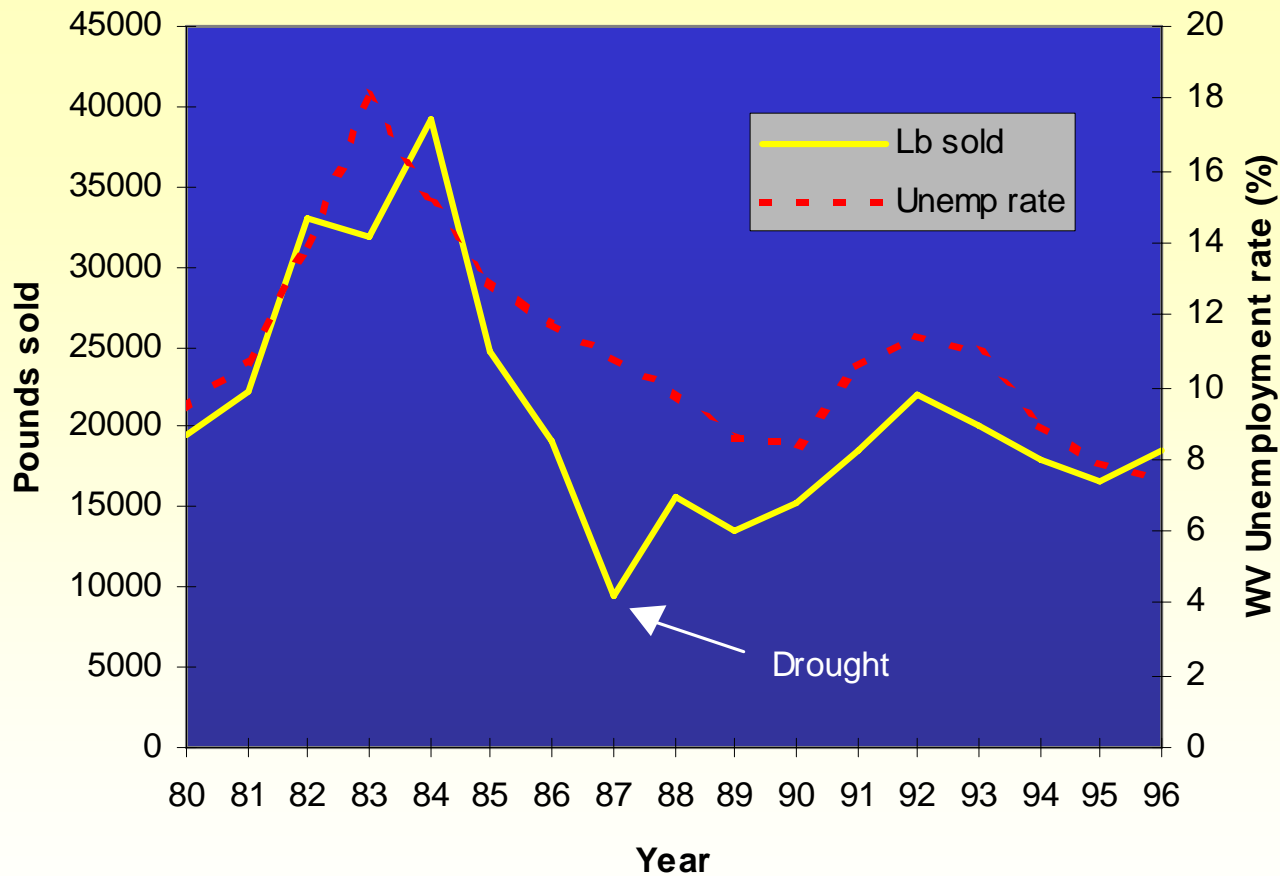
12,000 harvesting
households in WV in
1994.

> 90% of those
households also hunt
deer



Ginseng harvest sources, WV, 1994.

The Appalachian forest: A safety net in rural communities, and “Plan B” for household economies.



What's not known?

- How many harvesters
- Who they are
- How to reach them
- Patterns of harvest: quantity, source, intensity
- Distribution and abundance of ginseng

DOF-F-12 GINSENG DEALER'S 30-DAY REPORT

Date of Transaction	Name, Address and Social Security Number of Digger or if Dealer list Dealer #	County & State Roots Were Dug J/W if wild J or C if Cult	Amount Purchased			
			Green		Dry	
			Pounds	Ounces	Pounds	Ounces
9-26-94	Richard Priest D. Daily Bridge	W Kan				12 1/2
9-26-94	Sam Roberts Sams Roberts	W Kan				6
9-26-94	Gaulley Orange	W Fay				3 3/4
9-26-94	John A. Hines 235-84-6014	W Kan				3
9-26-94	Nathan Elsworth Rt 75 BOLD	W NIC				1 1/2
9-26-94	Chris Elsworth Rt 15 Box 10 below Cherokee Trail	W NIC				1 1/2
9-26-94	Ray S. Balva 266	W NIC				1 1/4
9-27-94	Lynny of ... Box 114 ...	W Clay				3 1/2
9-29-94	Billy Neal BOX 179	W Kan				3
9-29-94	DIXIE W. 4 Rob Kincaid	W Fay				9
9-29-94	John Pitt Lizcano 100	W Kan				1
9-29-94	John Wood Blumson ...	W NIC				3 1
9-27-94	Paul ... PO Box 118 D. Pitt	W Fay				7
9-28-94	JAMES BROWN Box 1000 Dol	W Fay				9 1
9-28-94	Kathy Saunders PO Box 5, Jodir, WV 013-84-5634	W Fay				3
9-28-94	Joe Nickson 20656 BOA183	W NIC				1 1/4
9-28-94	Paul Brown	W Fay				4 3/4
9-29-94	Gunn ... PO Box 223 W. W. ...	W Clay				15 3/4

5/16 94
day

What do harvesters want?

**Investment in ginseng:
seeds, enforcement,
information**

**Involvement:
feedback, contributing
to management
guidelines**

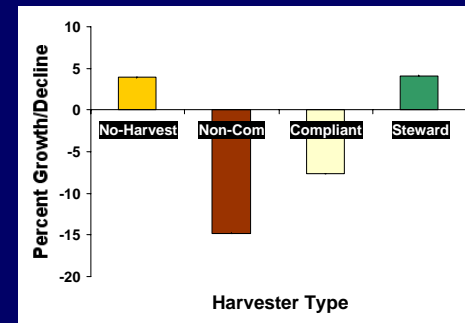
**Opportunity to harvest
and to sell their
product; fewer
restrictions**

Options

- **Monitoring wild populations**
- **Licensure**
- **Surveys of harvesters**
- **Increased outreach**
- **Investment in ginseng restoration.**

Management of a Glass Half-Full: A Modified Approach

- Put more “ethno” into the botany of ginseng management
- Work with harvesters on shared goals
- Ginseng harvest: Wildlife management
- Eat more deer meat
- Conserve the plant and the harvest tradition
- An ounce of prevention...



Population structure 9 years following harvest

Van der Voort, Bailey,
McGraw and Samuel.
2003. *Am. Midl. Nat.*

