



# 25 Years of Economic Research on Non-Timber Forest Products in the United States: History, Trends, Status, and Future Priorities

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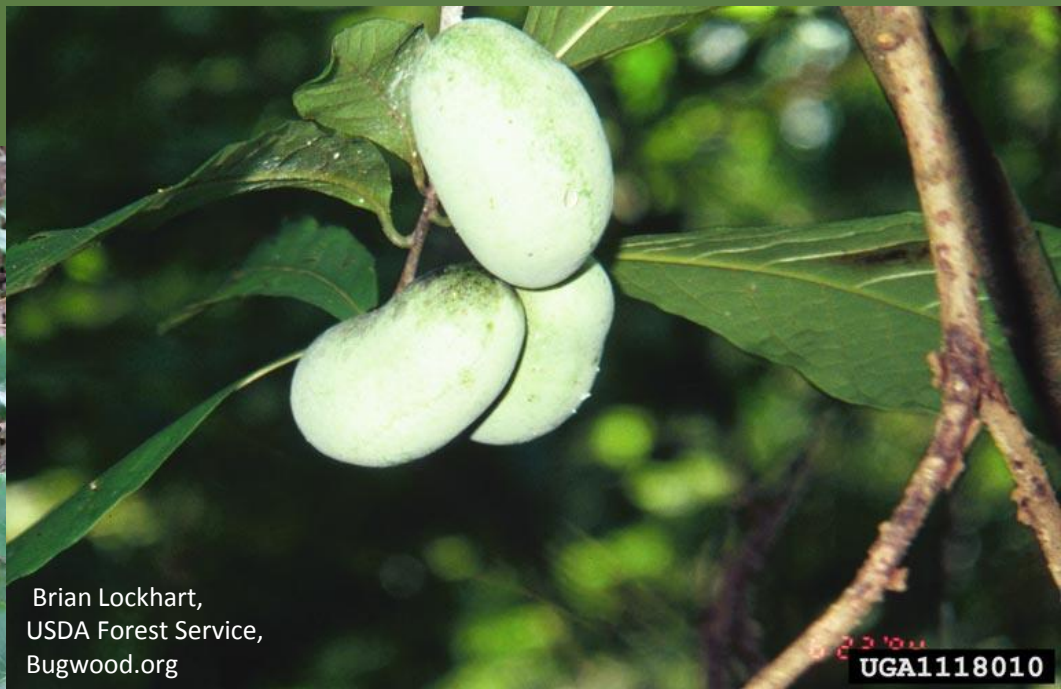
- Based on work for in progress chapter:  
“Economics of Non-Timber Forest  
Products.” In: A Comprehensive National  
Assessment of Non Timber Forest  
Products Impacts from Climatic Variability  
and Change.
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“[In the 1990s,]... NTFPs appeared to offer the prospect of reconciling two goals that seemed pitted against each other in the prevailing crisis – forest conservation and rural development.” – (Robbins, Emery, & Rice, 2008)



# Challenges

- Informality

(McLain, Alexander, & Jones 2008;  
Alexander *et al.* 2002)

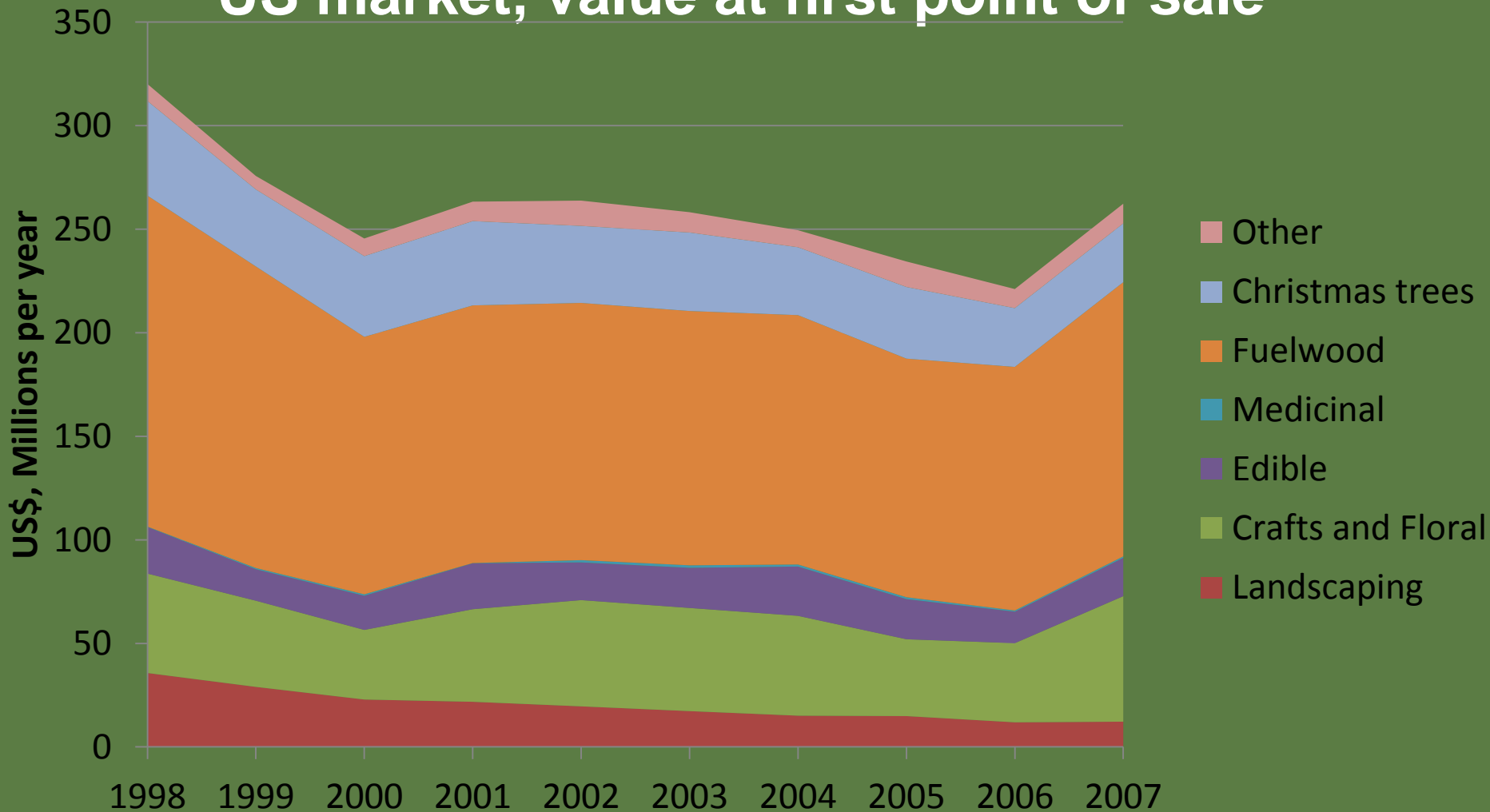


- Secrecy





# US market, value at first point of sale

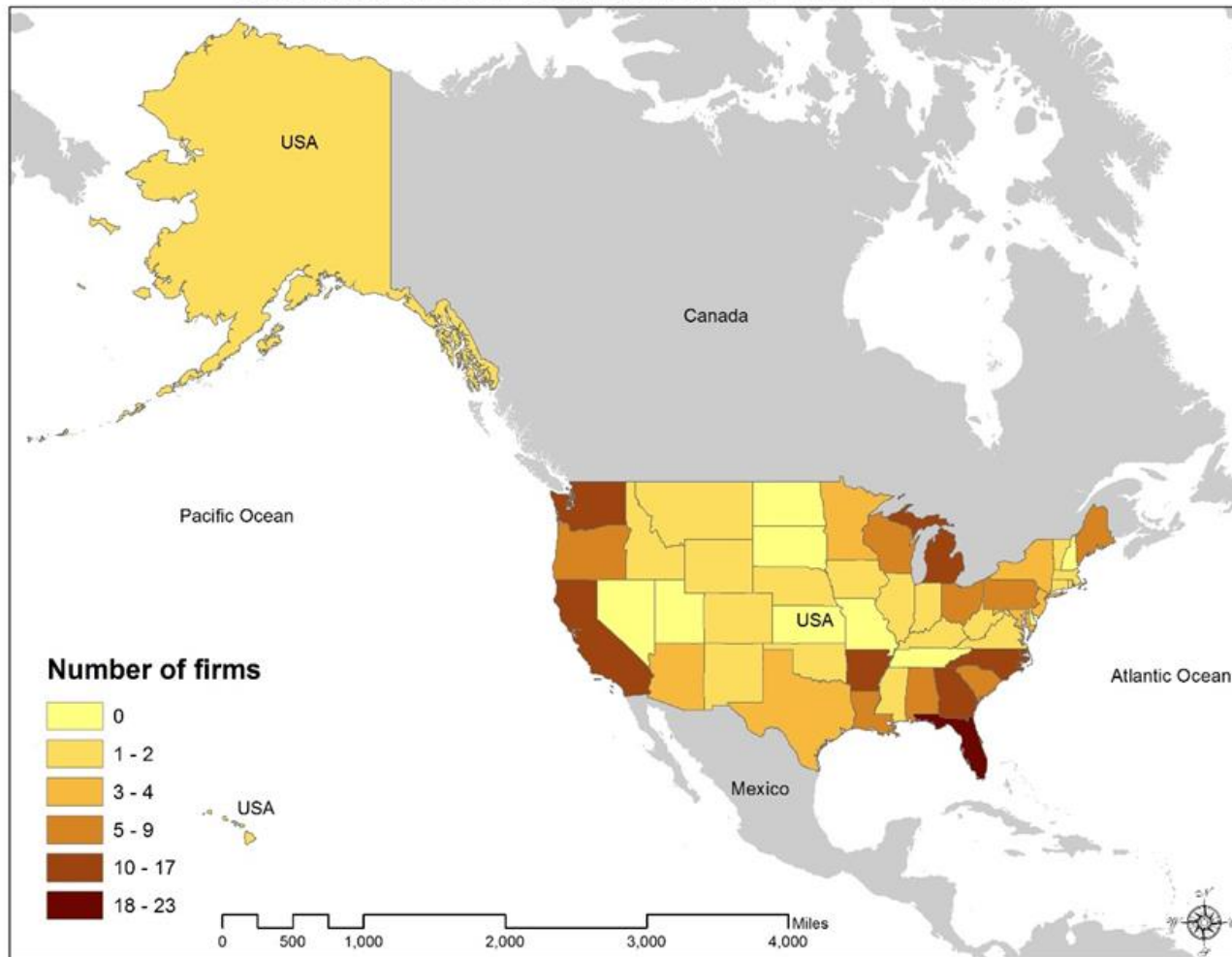


(Alexander, Oswalt, & Emery, 2011)





Number of firms producing NTFPs in 2007:  
Classified in U.S. Census Bureau NAICS 113210





*American Ginseng and Timber Harvest Relationships*

**TABLE 6** Average Annual Revenue From American Ginseng and Hardwood Timber Harvest by State for 2000–2007

State	Average annual ginseng harvest (kg)	Ginseng revenue* (thousand \$)	Timber revenue (thousand \$)
Alabama	271	254	46,401
Arkansas	587	551	30,137
Georgia	160	150	9,401
Illinois	1,128	1,057	30,404
Indiana	2,391	2,241	75,251
Iowa	333	312	9,942
Kentucky	7,254	6,797	78,843
Maryland	219	205	7,079
Minnesota	580	543	
Missouri	836	783	81,739
New York	290	272	82,157
North Carolina	3,442	3,225	56,968
Ohio	1,570	1,471	55,216
Pennsylvania	629	589	228,374
Tennessee	3,652	3,422	137,345
Vermont	55	52	22,986
Virginia	1,649	1,545	73,176
West Virginia	2,604	2,440	150,099
Wisconsin	1,052	986	90,749
Totals	28,703	26,895	1,266,266

*Note.* No data were available to estimate the timber revenue for Minnesota.

\*Based on an average of \$937 kg<sup>-1</sup> (dried).



Daniel Boone National  
Forest area harvesters:  
\$200-\$15,000 per year  
from NTFPs

(Hembram & Hoover 2008)





Forest farming shiitake  
NPV \$1,339 for 500 logs  
(Frey 2014)



**Table 6** Net present value (NPV, US\$, 1/10 Ha) of North American medicinal forest crop candidates at three discount rates and three price levels (mean, minimum, maximum prices, 1990–2005)

	NPV (4% discount rate, US\$)			NPV (6% discount rate, US\$)			NPV (8% discount rate, US\$)		
	Mean price	Min price	Max price	Mean price	Min price	Max price	Mean price	Min price	Max price
ACRA	-12,731 <sup>T</sup>	-12,888 <sup>T</sup>	-12,485 <sup>T</sup>	-12,312 <sup>S</sup>	-12,441 <sup>S</sup>	-12,092 <sup>T</sup>	-11,654 <sup>S</sup>	-11,770 <sup>S</sup>	-11,472 <sup>S</sup>
CATH	-15,609 <sup>T</sup>	-15,662 <sup>T</sup>	-15,495 <sup>T</sup>	-14,851 <sup>T</sup>	-14,899 <sup>T</sup>	-14,750 <sup>T</sup>	-14,171 <sup>T</sup>	-14,214 <sup>T</sup>	-14,081 <sup>T</sup>
CHLU	-14,137 <sup>S</sup>	-15,454 <sup>S</sup>	-12,720 <sup>S</sup>	-13,272 <sup>S</sup>	-14,403 <sup>S</sup>	-12,056 <sup>S</sup>	-12,505 <sup>S</sup>	-13,479 <sup>S</sup>	-11,458 <sup>S</sup>
DIVI	-12,971 <sup>T</sup>	-13,044 <sup>T</sup>	-12,810 <sup>T</sup>	-12,543 <sup>T</sup>	-12,610 <sup>T</sup>	-12,394 <sup>T</sup>	-12,148 <sup>T</sup>	-12,210 <sup>T</sup>	-12,010 <sup>T</sup>
HYCA	-10,518 <sup>S</sup>	-12,084 <sup>S</sup>	-8,423 <sup>S</sup>	-10,257 <sup>S</sup>	-12,084 <sup>S</sup>	-8,388 <sup>S</sup>	-10,011 <sup>S</sup>	-11,259 <sup>S</sup>	-8,340 <sup>S</sup>
PAQU	15,261 <sup>T</sup>	4,610 <sup>S</sup>	32,030 <sup>T</sup>	12,414 <sup>T</sup>	2,879 <sup>S</sup>	27,372 <sup>T</sup>	9,937 <sup>T</sup>	1,455 <sup>S</sup>	23,307 <sup>T</sup>
PHAM	-7,782 <sup>S</sup>	-7,816 <sup>S</sup>	-7,707 <sup>S</sup>	-7,611 <sup>S</sup>	-7,643 <sup>S</sup>	-7,538 <sup>S</sup>	-7,448 <sup>S</sup>	-7,480 <sup>S</sup>	-7,379 <sup>S</sup>
SACA	-13,441 <sup>S</sup>	-14,234 <sup>S</sup>	-12,632 <sup>S</sup>	-12,783 <sup>S</sup>	-13,490 <sup>S</sup>	-12,061 <sup>S</sup>	-12,190 <sup>S</sup>	-12,822 <sup>S</sup>	-11,545 <sup>S</sup>

NPV given is for the most profitable propagation method (Method of propagation: S, seed; T, transplant)

ACRA, *Actaea racemosa*; CATH, *Caulophyllum thalictroides*; CHLU, *Chamaelirium luteum*; DIVI, *Dioscorea villosa*; HYCA, *Hydrastis canadensis*; PAQU, *Panax quinquefolius*; PHAM, *Phytolacca americana*; SACA, *Sanguinaria canadensis*



- Huckleberry single-year consumer surplus of \$93,000 (2003) for a District in GFNP.  
(Starbuck, Alexander, Berrens, & Bohara, 2004)



## Safety Net / Natural Insurance

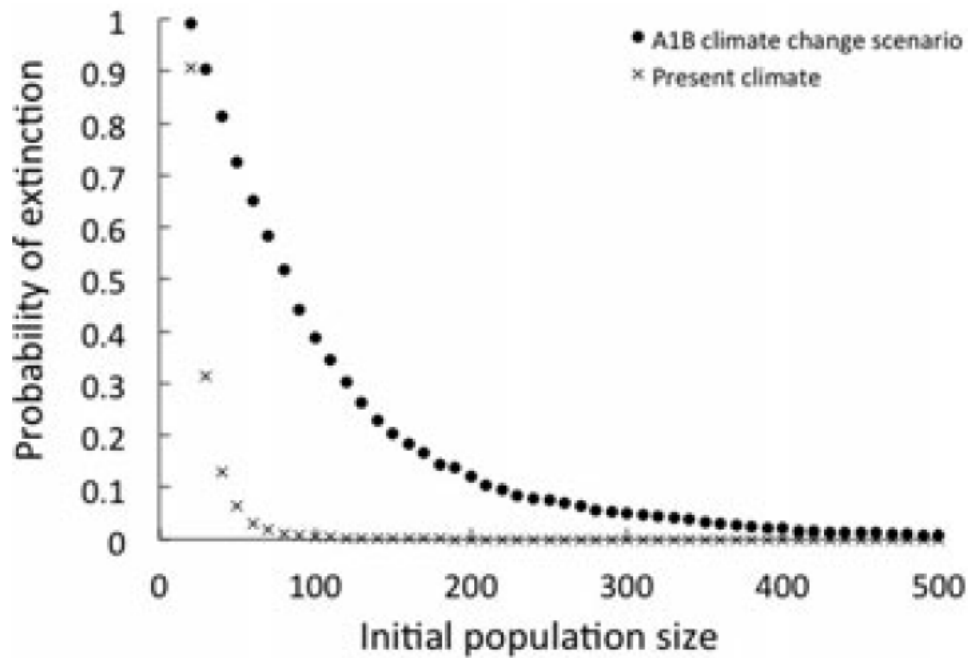
- Recent immigrants (Anderson, Blahna, Chavez, 2000; Emery, Ginger, & Chamberlain, 2006)
- Unemployed (Bailey, 1999)

## Social Capital

- Gifts (Baumflek, Emery, & Ginger 2010)
- Networking (Hurley et al. 2015; McLain et al. 2014)



Ecology and conservation of ginseng



**Figure 8.** Probability of extinction as a function of the initial population size for two warming scenarios.



# Gaps in Knowledge

- Limitations for **land management and resource-use policy**





# Gaps in Knowledge

- Limitations for **rural economic development**



# Gaps in Knowledge

- Limitations for **mitigating vulnerabilities and enhancing well-being**



New Brunswick Tourism



# Strategy?

1. Data coding for NTFPs.
2. Tracking system(s) of NTFP trade(s).
3. Include questions about collection and consumption of NTFPs.
4. Quantitative studies of the general population.
5. Identify communities dependent on NTFPs & vulnerabilities.
6. Meta-analyses of existing studies.
7. Studies for specific species or forests.
8. Test and compare management regimes.
9. Better integrate NTFP information in forest management.