

SOCIOCULTURAL PERSPECTIVES OF TRAPPING REVISITED: A COMPARATIVE ANALYSIS OF ACTIVITIES AND MOTIVES 1994 AND 2000

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Abstract: Vermont trappers are faced with multiple social, economic, and political factors that influence their harvest activities, the extent of their participation, and affect their motives for participating in trapping. The purpose of this study was to assess changes in participation and motives of Vermont trappers from 1994 to 2000. Data collected from 333 licensed Vermont trappers (63 % response rate) from a six state study of trappers in 1994 was compared to data obtained in a replicated study of 447 licensed Vermont trappers (69.8% response rate) in 2000. No differences were found between the two cohorts in participation in other types of natural resource harvesting activities other than trapping, age at which they began setting traps, general demographic data of the two cohorts, or in the income they received from trapping. A one way MANOVA used to examine the effect of year (2000 and 1994) on total days participating in trapping and total species of furbearers harvested indicated a significant effect ($\Lambda(2, 636) = 21.031, p < .000$). Follow-up univariate ANOVAs indicated total days trapping, were significantly effected by year ($F(1, 657) = 41.766, p < .000$), with those responding in 2000 expending about twice as much effort in days participating than those responding in 1994. A Principle Components analysis with varimax rotation was used to reduce the 25 motivation variables from each of the 1994 and 2000 responses to linear combinations of variables representing underlying dimensions of the motivations. An ocular examination of each of the five components selected for each of the two years used to compare motivation variables and factor loadings across the two cohorts (1994 and 2000) showed considerable consistency. The five components (factors) related to self-reliance, outdoor lifestyle activity, affiliation, wildlife control, and wildlife orientation. Trapping remains a central life interest by which people organize themselves, interact with each other and the natural environment, derive utilitarian satisfaction from the environment, and maintain a sense of autonomy from year to year. The varied

motivations of trappers indicate that policy makers and some wildlife managers must discontinue considering trappers as unithematic in why they trap, rather such policy makers must understand that implementation of policy initiatives may have varying effects on different groups of trappers. Future research needs to continue to monitor motivations and sociocultural aspects of trapping if it is to remain an effective wildlife management strategy and means to maintain lifestyle benefits for a specialized subgroup of society. Research also should address the effect of trapping on the development and maintenance of a sense of place.

Introduction

Over the past three decades, socioeconomic, demographic, and political changes have affected the traditional harvesting of furbearers. Changes in social values with regard to wildlife resources have spurred the animal rights movement, which in turn has resulted in a politicization that has been directed at, and sometimes successful at prohibiting various trapping devices used in the harvest of furbearers (Siemer, Batcheller, Glass, & Brown 1994). Habitat modification and destruction for some species has resulted from forest fragmentation and development; and the spread of disease among some wildlife populations has resulted in decreased harvests and hesitancy to target some species. Pelt prices in the early part of the past decade declined partly because of market forces, changes in fashion design, and changes in currency valuation.

Furbearer policy changes (e.g., ballot initiatives) are often developed and implemented without regard for their impact on the trappers who participate for a variety of social, commercial, recreational, and cultural motives (Daigle, Muth, Zwick, & Glass 1999). While the sociocultural aspects and politicization of furbearer harvesting has received attention in recent years (Mason 1990; Glass, More, & Distefano 1992; 1992; Siemer et al.; 1994, Daigle et al. 1999), further empirical research efforts need to focus on changes that may have over time in the motives, meanings, and threats to trapping. This research is especially important in light of the initiatives and referendums restricting trapping in states such as Massachusetts and Washington, and attempts to limit trapping in several states including Oregon and Vermont by bills introduced in the legislature. Likewise, pelt prices may affect trapping participation, causing some trappers to "stop out," until prices rise far enough to cover utility costs.

The purpose of this study is to assess the changes in participation and motivations of Vermont licensed trappers in two time frames of, 1994 and 2000. Since 1994, pelt prices (in constant dollars) have increased slightly for many furbearer species, whereas there was a twenty percent increase in the number of licensed trappers. Moreover, in late 1997 and early 1998 there was an organized attempt by animal rights groups opposed to trapping to lobby for the legislative restriction of certain types of traps. Changes in the cohort and the political climate of trapping may have concomitant changes in participation and underlying motivations of the cohort.

Our objectives were:

- To examine the changes in trapping participation, effort expended (as measured by the number of days spent trapping, and the actual harvest of a given species). As a result of a limited but positive economic incentive (i.e., increase in pelt prices since 1994), and a decrease in disease among some furbearer populations, we hypothesized that there would be an increase in both effort and corollary harvest from 1994 to 2000.
- To identify any changes in underlying motivations or motivational dimensions as a result of the changes in the cohort, land development, and economic and political climate since 1994.

Methods

The 1994 data were based on a comprehensive six-state study, by state, of the sociocultural and economic aspects of trapping, which included 333 usable questionnaires (63 percent response rate) from Vermont (Daigle et al., 1999). Using the Total Design Method (Dillman, 1983), a replication of the 1994 questionnaire was mailed to a census sample of 682 licensed trappers in Vermont during the spring of 2000. A response rate of 69.8 percent (447 responses) was received from the 640 deliverable questionnaires after three waves of the survey. No sampling of non-respondents was undertaken because of the relatively high response rate.

The 18-page questionnaire booklet queried prospective respondents about their socialization into trapping, extent of participation, species targeted and harvested, trap types owned and used, economic aspects of trapping, use of other renewable resources, motivations for trapping and for possibly leaving trapping, and demographic information on trappers and their households. In addition, questions were included from a 1989 study (Glass et al., 1992) regarding estimates of opposition to trapping, and a series of questions about traps owned, used, modified, and employed for selected species.

Replicated data on the sample profile, extent of participation, and motivations from the 2000 study sample was compared to the data collected in 1994 to assess changes in the Vermont trapper cohort.

Results

Background literature suggests that people who trap are introduced to this activity at an early age, that family and friends act as the major agents of socialization, and that they are often involved in corollary natural resource harvesting activities (Muth, Zwick, Daigle, Glass, & Jonker, 1996). The mean age which Vermont trappers began setting traps was 15.9 in 1994 and 17.1 for those responding in 2000 ($t = 1.801$, $p = .072$). Friends or neighbors were the primary agent of socialization in both 1994 (53.8% were introduced to trapping by friends or neighbors) and 2000, sixty-four percent were introduced to trapping by friends or neighbors ($\chi^2 = .552$, $p = .006$).

There was no significant difference in the percentage who participated in other harvesting activities (see Table 1).

Table 1. Wildlife Harvesting Activities in which Trappers Participated, Vermont 1994 and 2000

Activity	2000 % Participation	1994 % Participation
Hunt deer	95.7	95.4
Hunt other big game	60.1	56.6
Hunt small game	83.3	81.7
Hunt upland birds	86.2	85.5
Hunt waterfowl	29.9	34.5
Fresh water fish	92.6	94.5
Salt water fish	23.8	20.3

Trappers from both study years were primarily male, two-thirds had a high school education, and almost nine of ten trappers grew up in a rural area (see Table 2).

Table 2. Trapper Characteristics

Characteristic	2000	1994
Gender (Males)	95.7%	95.4%
Educational Achievement		
Completed high school	66.2%	63.6%
Received college degree	13.6%	14.6%
Grew up (community type)		
Rural area	89.5%	88.8%
Suburban area	7.5%	8.1%
Urban area	2.9%	3.1%

Over 90 percent of trappers from both 1994 and 2000, trapped seven days a week, did so primarily on private lands which were owned by others than themselves or relatives (90.7% of 2000 respondents and 86.5% of those responding in 1994). They differed by year in where they trapped only in terms of lands owned by relatives, 51.3% of those responding in 2000 reported trapping on land owned by relatives compared to 36.3% of those who responded in 1994 ($\chi^2_{df=1} = 15.220$, $p = .000$).

Trappers also reported trapping on State owned land (58.4% in 2000, 55.3% in 1994), Federal lands (29.4% in 2000 compared to 23.7% in 1994), and other lands (8.3% by 2000 respondents and 5.9% by 1994 respondents). (See Figure 1.) The increase in state and federal land holdings (e.g., there was the establishment of a 26,000 acre National Wildlife Refuge) may account for the increased percent of respondents trapping on these lands.

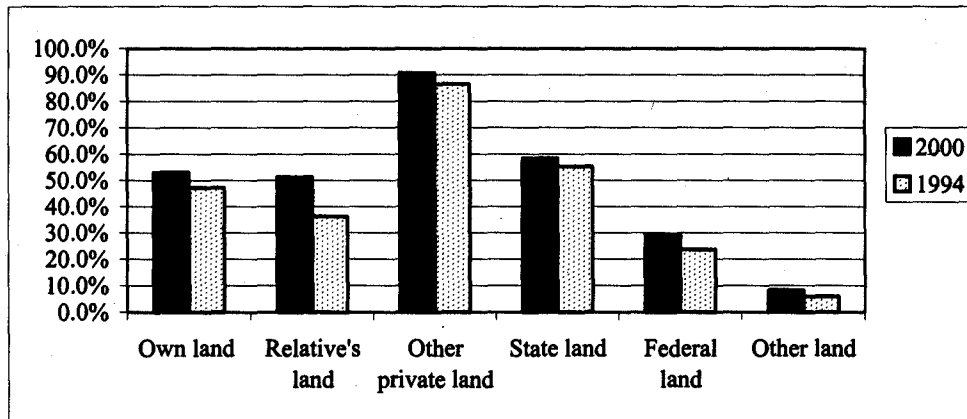


Figure 1. Ownership of Lands that Trappers Utilize

There was no significant difference between the two respondent groups in their mean income earned from trapping. In 1994 respondents earned an average of \$234.01, respondents from 2000 averaged \$271.15.

A modest increase in pelt prices since 1994, coupled with a resurgence of trappers purchasing licenses in Vermont suggested that trapping is increasing. We hypothesized that both the number of animals harvested and trapper's total effort (in days participating in trapping related activities) would vary by the year of harvest.

A one way MANOVA was calculated to examine the effect of year (2000 and 1994) on total days participating in trapping and total species of furbearers harvested (see Table 3). A significant effect was found ($\Lambda(2, 636) = 21.031, p < .000$). Follow-up univariate ANOVAs indicate that total animals harvested were not significantly effected by year trapping ($F(1, 657) = 1.962, p > .05$). Total days trapping, however, were significantly effected by year ($F(1, 657) = 41.766, p < .000$).

One of the objectives of this study was to compare the sociocultural and economic motivations for trapping in 2000 with those of 1994 (Daigle et al., 1999). Motivations for trapping were assessed by 25 Likert type questions requesting that the respondent rate how important each item

be to them as a reason for trapping. The items were scored from 1, "Not at all important," to 5, "Very important."

A Principle Components analysis with varimax rotation was used to reduce the 25 variables from each of the 1994 and 2000 responses to linear combinations of variables representing underlying dimensions of the motivations. The number of components was determined by eigenvalues > 1 , an examination of a scree plot for each year, and interpretability of the components (factors). Factor loading greater than .500 were used to interpret the components. Cronbach's alpha was used to assess the reliability of the motivation variables used to interpret the components.

A five component (factor) solution was selected as the best for each of the years. An ocular examination of each of the components was used to compare motivation variables and factor loadings across the two cohorts (1994 and 2000).

The first (or strongest) component of 1994 "loaded" on motivations related to self reliance and self sufficiency, this was similar to the third component of the 2000 sample. For example, in 1994, this component or factor was found to be related (or loaded) on the motivations of: "for the opportunity to be my own boss," "to maintain a sense of self reliance," "to do something exciting or challenging," "to feel my independence," and "to demonstrate or test my

Table 3. Days Trapping and Species Harvested by Year (MANOVA Analysis)

Year	Mean	Std Dev.	F	Sig.
Total days trapping				
2000	64.05	56.66	41.766	.000
1994	39.20	37.36		
Total species harvested				
2000	81.72	187.45	1.962	.162
1994	64.93	93.14		

skills and abilities." For the sample of trappers from the year 2000, their third strongest component (or factor) was defined by three of these same motivations, but also included the motivation "to provide income for myself and my family." Subsequently this component was labeled as "Self Reliant," because of the commonality of motivations between the two years (Table 4).

The second component from 1994, and first (or strongest) component of 2000, were defined by motivations related to the fun and pleasure of trapping, lifestyle, and traditions associated with trapping. This component was labeled as a "Outdoor Lifestyle Activity," component (Table 5).

Affiliate motivations define the third component of 2000 and the second component of the 1994 samples. This third component that they have in common was labeled "Affiliation" (Table 6).

The fourth component was defined as a "Wildlife Control" motivation component. The motivations most strongly related to the factor were related to controlling vermin or predator populations, removing nuisance animals-which are often a service of wildlife control for other landowners such as farmers, and to keep diseases such as rabies and canine mange in check (see Table 7).

The fifth component for both 1994 and 2000 sample respondents "loaded" on two motivations typically related to non-consumptive aspects of wildlife related activity. The component was labeled as a "Wildlife Orientation" (Table 8).

The ocular examination revealed similar linear structure of motivation sub-dimensions for both 1994 and 2000, suggesting similarity in motivation structure between the two years, and the dimensions had similar scale reliability for each year. As many of the trappers from 1994 (about 80%) also were included in the 2000 sample the stability of motivations is not unexpected. Similar to other studies of recreation motivations this study seems to confirm the relative stability of motivations for participation.

Implications

- Throughout the recorded history of North America, trapping has been one of the major factors associated with the management and harvest of wildlife resources. Participation has traditionally fluctuated with the cycles in pelt prices, over-trapping of furbearers, available time, personal health, and access. These latter three factors appear to be affecting the current cohorts being examined in this study.
- Effort expended at trapping is a better indicator of the extent of trapping than just sheer numbers of trappers purchasing licenses. Effort (i.e., days trapping) increased by over 63 percent from 1994 to 2000, while trapper number increased by 20 percent.
- Trapping remains as a serious avocation for a group of participants who trap primarily as a valued component of an outdoor lifestyle, maintaining tradition and a utilitarian outdoor activity.

- The independence, challenge and self-reliance aspect of trapping, combined with its utility, may have few, if any, substitutes in terms of activities. Trappers spend an average of one fifth of their year engaged in trapping and related activities (e.g., scouting for animals, talking with land owners, tuning equipment), with a hardcore of five-percent reporting they spent over half their year in trapping activities. Trapping requires an intensity and commitment, ninety percent engage in the activity both weekends and weekdays as traps, by law, have to be checked every 24 hours. While many trappers hunt and fish, such activities appear to be a corollary activity bundle rather than a substitution, lacking the intensity participants associate with trapping.
- Socialization and affiliation are seen as a component of trapping for many, approximately 56 percent were members of trapper organizations in both 1994 and 2000. The motivations and a subsequent k-means cluster analysis indicate that a sizable number of trappers clearly are engaged in interacting with other trappers, maintaining relationships with landowners, sharing their experiences with family and friends, and sharing skills and knowledge with others. As this affiliative component may be important for establishing a community of meaning, policy implementation that eliminates or severely restricts this activity may result in undesirable effects on maintenance of social networks.
- Trappers see themselves as providing a valuable animal management function by proactively lowering animal population levels, and assisting in nuisance animal problems. They also are motivated by these animal control aspects, in some cases for self-reliance reasons and for others as a means for maintaining ties with landowners to assure access.
- This study indicates that trapping remains a central life interest by which people organize themselves, interact with each other, derive utilitarian satisfaction from the environment, and maintain a sense of autonomy from year to year; and that generally motivations have remained stable. Future research needs to continue to monitor these motivations and sociocultural aspects of trapping, examining the patterns in trapping participation in relation to cycles in pelt prices, substitutable activities, and perceived threats to trapping that may effect subgroups of trappers or the trapping community as a whole.
- The alternative to this utilitarian resource based system is a reactive nuisance animal approach which results in increased animal damage complaints and a loss of lifestyle benefits by this segment of the society who traps.

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Table 4. Self-reliant

Motivation	Component Loadings	
	1994	2000
Provide income for myself and family	.261	.589
Opportunity to be my own boss	.700	.766
Maintain a sense of self reliance	.762	.672
Do something exciting or challenging	.625	.320
Feel independence	.800	.707
Demonstrate skills and abilities	.658	.469
Cronbach's Alpha	.8366	.7576

Table 5. Outdoor Lifestyle Activity

Motivation	Component Loadings	
	1994	2000
Remain in touch with heritage of trapping	.556	.643
Feel like a part of nature	.484	.507
Maintain rural tradition	.553	.602
Continue important part of my lifestyle	.729	.737
Participate in a favorite outdoor activity	.836	.784
Experience fun and pleasure of trapping	.745	.744
Cronbach's Alpha	.8159	.8525

Table 6. Affiliation

Motivation	Component Loadings	
	1994	2000
Share experiences with friends	.744	.726
Share my skills and knowledge with others	.794	.748
Share experiences with my family	.658	.733
Interact with other trappers	.727	.541
Cronbach's Alpha	.7817	.7729

Table 7. Wildlife Control

Motivation	Component Loadings	
	1994	2000
Control predator or vermin populations	.846	.814
Remove nuisance or problem animals	.771	.790
Keep diseases from spreading	.712	.743
Provide a valuable service to landowners	.651	.660
Cronbach's Alpha	.7993	.8155

Table 8. Wildlife Orientation

Motivation	Component Loadings	
	1994	2000
Observe wildlife	.728	.886
Learn about wildlife	.697	.889
Cronbach's Alpha	.8572	.9414

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