



The Future of Hunting in Pennsylvania



The Future of Hunting in Pennsylvania

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Executive Summary

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Hunting is a tradition for many Pennsylvanians, but its popularity seems to be declining. In Pennsylvania, the number of general resident adult hunting licenses sold between 1997 and 2004 decreased 6.6 percent. And while the number of junior resident licenses sold during the same period increased 7.8 percent, the increase may be misleading since changes in the type of junior licenses sold since 1999 may have come at the expense of other specialized licenses.

To better understand the trends in hunting participation in Pennsylvania and the impact those trends may have on the future of the sport, the research team surveyed hunters during the summer of 2004 to identify socio-demographic characteristics, patterns of hunting participation, and the initiation into hunting among young adult hunting license holders (ages 18-24) and mature hunting license holders (25 and older), including those who do and do not actively hunt. The researchers then used Geographic Information Systems (GIS) to determine geographic trends and hunting impacts according to the survey participants' place of residence.

The research team also examined current laws, regulations, and Pennsylvania Game Commission policies that potentially impact hunter participation, examined efforts of states bordering Pennsylvania that have attempted to increase hunting participation, and developed policy considerations.

According to the research results, the young adult and mature hunters reported nearly the same participation levels in the 2003-2004 hunting season and in the preceding five hunting seasons. The young adult and mature hunter participants were not significantly different in the distances they traveled to go hunting.

While the results of other studies suggest that increasing urbanization and suburbanization and decreasing residential stability are associated with the decline in hunting participation, some of the findings of this study supported those findings while others did not. However, it is important to note that none of the findings contradict the links between those factors and hunting participation.

To encourage increased hunting participation, the researchers suggest that policy makers focus on several actions including: facilitating hunting participation among citizens who are mobile or reside in urban and suburban areas, and among those who may not have been targeted as heavily in the past, such as women; facilitating programs for those who have not grown up hunting; introducing potential hunters to mentors; lowering the age limits for new hunters; and continuing to study the option of opening up more days to hunting.

Introduction

Despite hunting's long tradition in Pennsylvania, its future is unclear. In the commonwealth, the number of general resident adult hunting licenses sold between 1997 and 2004 decreased 6.6 percent (Pennsylvania Game Commission, 2005), while the commonwealth's total population grew 3.3 percent (U.S. Census Bureau, 1999 and 2005). Trends in general resident junior (ages 12-16) license sales were less clear. Overall sales of general resident junior hunting licenses between 1997 and 2004 increased 7.8 percent. However, this increase included the sale of resident junior combination licenses, which became available only in 1999. This new type of junior license provides regular firearms, archery, muzzleloader, and furtaker privileges. To an unknown degree, sales of the new junior combination licenses have come at the expense of other, specialized licenses that some juniors formerly purchased in addition to general licenses. For example, between 1997 and 2004, sales of resident junior furtaker licenses declined nearly 90 percent (Pennsylvania Game Commission, 2005).

Although the trend in the sale of general resident junior hunting licenses is difficult to discern because of changes in the types of junior licenses available, the trend in the sale of general resident adult hunting licenses is clearer, and the trend in Pennsylvania resembles national trends. Nationwide, it is unclear whether or not the absolute number of hunters is declining (Flather and Cordell, 1995; Duda et al., 1998), but the proportion of the U.S. population that hunts is in an extended period of decline (Heberlein and Thomson, 1992, 1996; Kelly and Warnick, 1999; Brown et al., 2000).

This study focused on young adult and mature hunters in Pennsylvania, possible reasons for declining hunting participation, and the impact this decline may have on the future of the sport.

Project Goals

The research had six goals as follows:

- Identify socio-demographic characteristics, patterns of hunting participation, and initiation into hunting of young adult hunting license holders (ages 18 to 24), whose patterns of hunting participation are being formed, and mature hunting license holders (age 25 and older), whose patterns of hunting participation are more established;
- Compare hunting participation, socio-demographic characteristics, and initiation into hunting of young adult hunters and mature hunters using a variety of statistical tests;
- Examine geographic and population trends in places where hunters live or have lived;
- Examine current laws, regulations and Pennsylvania Game Commission policies that potentially impact hunter participation;
- Examine efforts of similar/bordering states of Pennsylvania that have attempted to increase hunting participation; and
- Provide policy considerations that may help preserve hunting as a natural resource management tool, traditional outdoor opportunity, and contributor to Pennsylvania's economy.

Methods

To meet the above goals, the research team reviewed relevant literature about hunter retention and recruitment and existing hunting-related policies and practices in Pennsylvania and similar states; surveyed hunters about hunting participation, residential history, and personal characteristics; and analyzed GIS data about patterns of development and residential movement in the state.

Survey of Young Adult and Mature Hunting License Holders

The survey of young adult (ages 18 to 24) and mature hunters (age 25 and older) consisted of current resident (statewide) and non-resident Pennsylvania hunting license holders. The mail survey asked specific questions about the barriers hunters might have faced to participate in hunting. For each age group, a random sample of license holders from the 2002-2003 season was hand selected from the records of the Pennsylvania Game Commission. Of the 900 surveys mailed to each hunter age group, 215 young adult hunters and 365 mature hunters responded, for a response rate of 24 percent and 41 percent, respectively.

GIS Analysis

The researchers used a GIS analysis to identify and map geographic differences across Pennsylvania that may be related to changes in hunting participation. Development, residential stability and access to hunting opportunities were mapped using data on

population density, land cover, average years of residence, and location of public and private lands open to hunting. These geographic trends were then compared to the survey respondents' patterns of hunting participation by county.

Literature Review

Research suggests declining residential stability, or length of time living in one area, may directly impact participation in hunting or other outdoor activities by altering the make-up of social groups or impeding access to some areas and opportunities (Burch, 1969; Decker et al., 1984; Purdy and Decker, 1986; Stokowski, 1990). Relocation of human populations can disrupt recreation social groups, and these groups may not be replaced or may be replaced by groups with different recreation preferences and behavior. In part, because of its strong reliance on social groups, hunter retention may be more vulnerable to relocation than retention in other outdoor activities. Furthermore, hunting typically depends on detailed knowledge about a specific environment. When relocation separates an individual from known environments, the individual may find it difficult and time-consuming to develop a similar level of knowledge about a new area, particularly if relationships with social groups that can facilitate the process must be reestablished in the new location. Although empirical evidence is limited, researchers hypothesize that relocation is likely to reduce hunting participation (Enck et al., 2000).

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Relocation may also inhibit the recruitment of new hunters in at least two ways. First, older family members that hunt typically recruit new hunters (Decker et al., 1984; Purdy and Decker, 1986; O'Leary et al., 1987). The disruption of hunting in one generation (as described above) may reduce hunter recruitment in the next generation. Second, hunting participation is associated with certain values (Fulton et al., 1996) and relocation may inhibit intergenerational transmission of these values. These values relate the qualities of wildlife that make it useful/valuable to humans, such as hunting deer for food or clothing, ethical hunting practices taught to new hunters, and teaching young people the value of protecting nature. At least two studies have demonstrated a link between residential stability and these values (Vaske et al., 2001; Zinn et al., 2002).

Relocation is accompanied by the gradual urbanization and suburbanization of the population (U.S. Census Bureau, 2000). Researchers have found a negative correlation between the extent of urbanization in a state and the proportion of residents who hunt (U.S. Fish and Wildlife Service, 1997; Brown et al., 2000).

Urbanization may also indirectly influence hunting participation by influencing long-term hunter recruitment, as an urban upbringing may impede hunter recruitment by reducing positive interaction with hunters (Brown and Connelly, 1994), inhibiting physical access to places to hunt and hampering the transmission of certain values from parent to child (Inglehart, 1997; Manfredi and Zinn, 1996).

Hunting is one of the few outdoor activities exhibiting a declining participation rate in this country (Kelly and Warnick, 1999; Brown et al., 2000). Fishing, another consumptive activity, exhibits relatively stable participation rates (U.S. Fish Wildlife Service, 1999). Furthermore, participation in many non-consumptive outdoor activities has been increasing rapidly. For example, Cordell et al. (1999) identified 10 non-consumptive activities that exhibited growth rates in excess of 35 percent between 1982-1983 and 1994-1995. These included: bird watching (155 percent), hiking (94 percent), backpacking (73 percent), primitive camping (58 percent), off-road vehicle driving (44 percent), walking (42 percent), motorboating (40 percent), sightseeing (40 percent), developed camping (38 percent), and non-pool swimming (38 percent). Researchers have collected limited empirical evidence about the relationship between hunting participation and participation in other outdoor activities, but it has been suggested that participation in multiple activities may be related to reduced participation in any one activity (for examples see Scott and Shafer, 2001).

In summary, the research suggests declining hunting participation is related to three social trends: declining residential stability, urbanization and increasing participation rates in other non-consumptive outdoor activities. Significant empirical evidence of these relationships has been found, but the effects are generally modest and leave much of the variability in hunting participation unexplained.

Other Hunting Issues

Sunday hunting

Currently, Sunday hunting, which is addressed in Title 34 of the Game and Wildlife Code of the Pennsylvania Game Commission, is illegal in Pennsylvania, except for what are considered “nuisance” wildlife, such as fox, coyote and crow. Sunday hunting continues to be a hot topic issue since some persons are interested in keeping the law as it currently is and others would like to modify the current code.

In 2004, the Pennsylvania House of Representatives introduced House Resolution 927, which directed the Legislative Budget and Finance Committee to determine what the state might gain economically by allowing Sunday hunting and what the impact of Sunday hunting would have on private landowners. The report, *A Study of the Potential Economic, Social, and Other Impacts of Expanding Sunday Hunting in Pennsylvania* (2005), notes that Sunday hunting may positively impact the economy but may have negative social, religious and practical impacts.

Age limits

Currently in Pennsylvania the minimum hunting age is 12. As of 2004, 26 states have no minimum hunting age limit. Some people believe that starting young people this late may negatively influence young people in hunting participation because they have already developed interests in other activities.

A 2004 amendment to Title 34 (PN 4057 Game Laws) provides for lawful cooperation or assistance by unlicensed persons, which means that an individual may participate in hunting or trapping activities without a license provided that he/she accompanies a licensed hunter, does not possess any firearm, has proper protective materials, is listed on an applicable roster, complies with regulations and does not exceed a 1:1 ratio of licensed hunters to non-licensed hunters. The unlicensed person must always be in sight and close enough to a licensed hunter, who is at least 18 years old, to clearly hear and understand instructions through normal conversation (Act 48 of 2004). This law may provide potential new hunters of all ages the opportunity to determine if hunting is a recreation activity that is of interest to them.

Results

Mail Survey

Socio-demographics

Overall, the mail survey respondents were predominantly white males with a mean age of 41.7 years, with slightly more than a high school education and an earned income of between \$20,000 and \$60,000. When comparing young and mature hunter respondents, the researchers found that the young adult hunters had slightly lower education levels and household incomes, and more female respondents than the mature hunter group. (Figure 1)

Hunting behavior

Mature hunters had been hunting for significantly more years than young adult hunters. However, both groups reported nearly the same participation levels in both the 2003-2004 hunting season and in the preceding five hunting seasons. Young adult and mature hunters were also similar in reporting their intentions to hunt in the upcoming 2004-2005 hunting season (See Figure 2 on Page 8).

Young adult and mature hunters did not differ significantly on the number of days they spent hunting each game species/season (See Figure 3 on Page 8). However, mature hunters averaged more days hunting bear than young adult hunters. In contrast, young adult hunters averaged more days hunting small game and migratory/upland birds than mature hunters.

Figure 1: Socio-demographic profile of respondents

Characteristic	18-24 years (n)	25 & older (n)
Education (mean years)*	12.75 (180)	13.04 (348)
Gender (% male)*	90.3 (168)	95.0 (339)
Ethnicity (% Caucasian or white)	97.3 (180)	96.9 (343)
Income (% checked)*		
Less than \$20k	29.6 (48)	11.0 (34)
At least \$20k but less than \$40k	28.4 (46)	25.8 (80)
At least \$40k but less than \$60k	19.8 (32)	29.7 (92)
At least \$60k but less than \$80k	9.9 (16)	17.7 (55)
At least \$80k but less than \$100K	8.0 (13)	7.7 (24)
\$100k or more	4.3 (7)	8.1 (25)
Age (mean)*	21.3 (178)	52.7 (330)

* Results for age groups are significantly different (95% confidence level).

In terms of the distance hunters traveled from their residence to hunt each game species/season, respondents typically traveled farthest to go bear hunting, followed by turkey hunting and deer hunting, during the regular firearms season (Figure 4).

The survey asked hunters if they hunted on any of the four types of public lands: state parks/forests, state game lands, the Allegheny National Forest, and other public lands, such as county or municipal land and Army Corps of Engineers projects like Raystown Lake or Blue Marsh Lake. When hunting on public land, both groups hunted primarily on state game lands. However, mature hunters were more likely to hunt on state park/forest land than were young adult hunters during the regular firearm season for deer. Young adult hunters also were more likely to hunt on other public lands than were mature hunters during the regular firearm season for deer and during small game season.

Respondents were asked about three types of private lands on which they might hunt, including private lands not posted, private land that is posted and leased, and private land that is posted and not leased. Both groups hunted primarily on land that was not posted (Figure 5). However, mature hunters were more likely to hunt bear on land that was not posted while young adult hunters were more likely to hunt bear on land that was posted but not leased. During small game season, young adult hunters were more likely than mature hunters to hunt on land that was not posted.

To understand hunting as a social activity, respondents were asked to indicate how many people they typically hunted with for each species/season (Figure 6). The regular firearms season for deer is comparatively more social than other seasons, with fewer than

Figure 2: Differences in general hunting behavior

Characteristic	18-24 years (n)	25 & older (n)
Years hunted (mean)*	8.7 (186)	35.9 (353)
Hunted 2003-2004 (% yes)	94.6 (174)	94.1 (334)
Intend to hunt 2004-2005 (% yes)	96.3 (180)	96.1 (357)
Hunted preceding 5 seasons (% yes)	95.1 (176)	95.1 (346)

* Results for age groups are significantly different (95% confidence level).

Figure 3: Number of days spent hunting each game species/season in 2003-2004

Game species/season hunted	Days hunted (mean)	
	18-24 years (n)	25 & older (n)
Deer - regular firearms	6.1 (168)	5.8 (311)
Deer - archery	7.9 (135)	6.5 (222)
Deer - muzzleloader	1.6 (127)	1.9 (218)
Bear*	0.2 (117)	0.7 (211)
Turkey	3.5 (138)	4.6 (239)
Waterfowl	1.4 (116)	0.7 (201)
Other migratory or upland birds*	2.0 (124)	1.1 (212)
Small game*	6.2 (146)	4.2 (238)

* Results for age groups are significantly different (95% confidence level).

Figure 4: Miles traveled from home to hunt each game species/season in 2003-2004

Game species/season hunted	Miles traveled (mean) *	
	18-24 years (n)	25 & older (n)
Deer - regular firearms	35.8 (166)	45.3 (317)
Deer - archery	15.2 (85)	24.6 (128)
Deer - muzzleloader	27.5 (46)	38.1 (91)
Bear	97.3 (25)	65.3 (58)
Turkey	38.6 (97)	45.2 (161)
Waterfowl	25.3 (26)	24.8 (21)
Other migratory or upland birds	18.7 (44)	25.7 (45)
Small game	18.7 (121)	18.9 (143)

* No significant differences between age groups (95% confidence level).

Figure 5: Private lands hunted for each game species/season by land type, 2003-2004

Game species/season hunted	Type of private land hunted (% yes)					
	Not posted		Posted and leased		Posted and not leased	
	18-24 years (n)	25 & older (n)	18-24 years (n)	25 & older (n)	18-24 years (n)	25 & older (n)
Deer - regular firearms*	57.3 (75)	55.7 (141)	13.0 (17)	5.5 (14)	24.4 (32)	33.2 (84)
Deer - archery	25.2 (37)	19.2 (44)	6.1 (9)	4.8 (11)	17.0 (25)	22.3 (51)
Deer - muzzleloader	12.2 (17)	17.1 (39)	21.3 (6)	3.5 (8)	7.9 (11)	10.1 (23)
Bear	3.1 (4)	6.5 (13)	0.8 (1)	2.0 (4)	0 (0)	4.0 (8)
Turkey	30.1 (40)	37.1 (85)	7.5 (10)	2.6 (6)	17.3 (23)	17.5 (40)
Waterfowl	5.2 (7)	6.6 (14)	1.5 (2)	0 (0)	2.2 (3)	0.9 (2)
Other migratory or upland birds	15.3 (20)	10.6 (22)	0.8 (1)	1.0 (2)	5.3 (7)	4.8 (10)
Small game*	43.8 (56)	36.2 (80)	9.4 (12)	4.1 (9)	18.8 (24)	14.5 (32)

* Results for age groups are significantly different (95% confidence level). Percentages do not add up to 100 due to multiple responses.

Figure 6: Number of people respondents hunted with for each game species/season in 2003-2004

Game species/ season hunted	Typical hunting party size (% yes)							
	Typically hunted alone		Typically hunted with 1-2 others		Typically hunted with 3-5 others		Typically hunted with 6 or more others	
	18-24 years (n)	25 & older (n)	18-24 years (n)	25 & older (n)	18-24 years (n)	25 & older (n)	18-24 years (n)	25 & older (n)
Deer - regular firearms*	10.3 (18)	19.2 (64)	42.9 (75)	36.8 (123)	27.4 (48)	30.8 (103)	16.0 (28)	10.2 (34)
Deer - archery	25.8(41)	25.8 (67)	23.9 (38)	18.8 (49)	3.1 (5)	4.6 (12)	0 (0)	0.8 (2)
Deer - muzzleloader	8.6(13)	9.0 (23)	13.2 (20)	15.7 (40)	3.3 (5)	7.5 (19)	3.9 (6)	2.4(6)
Bear*	0.7(1)	6.8 (17)	3.3 (5)	8.0 (20)	4.0 (6)	6.0 (15)	4.7 (7)	3.2(8)
Turkey	10.5(17)	20.3 (54)	41.4 (67)	32.3 (86)	8.0 (13)	7.5 (20)	1.2 (2)	1.1(3)
Waterfowl	2.6(4)	2.6 (6)	6.6 (10)	3.8 (9)	6.0 (9)	1.3 (13)	0 (0)	0.4(1)
Other migratory or upland birds	2.7(4)	2.5 (6)	13.3 (20)	11.6 (28)	11.3 (17)	7.1 (17)	0 (0)	0 (0)
Small game*	14.5 (24)	18.4 (50)	36.8 (64)	30.5 (83)	18.2 (30)	8.1 (22)	3.0 (5)	0.4 (1)

* Results for age groups are significantly different (95% confidence level). Percentages do not add up to 100 due to multiple responses.

one in five respondents reporting that they typically hunt alone during this season. However, mature hunters were more likely to hunt alone during this season than were young adult hunters. Mature hunters were also more likely to hunt alone during small game season than were young adult hunters. During bear season, mature hunters were more likely to hunt alone while young adult hunters were more likely to hunt with six or more others.

GIS Analysis

As a measure of development, the researchers examined the amount of surface coverage, or paved versus unpaved areas, in Pennsylvania counties, and also classified Pennsylvania counties by population density.

In their analysis of surface coverage by county, the researchers determined that, overall: young adult hunters living in counties with less paved surfaces hunted more days than young adult hunters living in counties with more paved surfaces, although the trend was not significant; mature hunters living in counties with less paved surfaces hunted more days during turkey season than mature hunters in other counties; and among all respondents, those living in counties with less paved surfaces traveled shorter distances to go hunting.

The researchers also looked at population density by county and grouped counties into four categories as follows: low, mid-low, mid-high and high population density counties. (See Figure 7 on Page 10) Using these categories, the researchers classified respondents according to their current county of residence and then compared the distances traveled by respondents to hunt and the number of days they spent hunting each species/season in 2003-2004 to determine if there were differences in hunting behavior.

In general, among young adult hunters, respondents who lived in counties with mid-high or high popula-

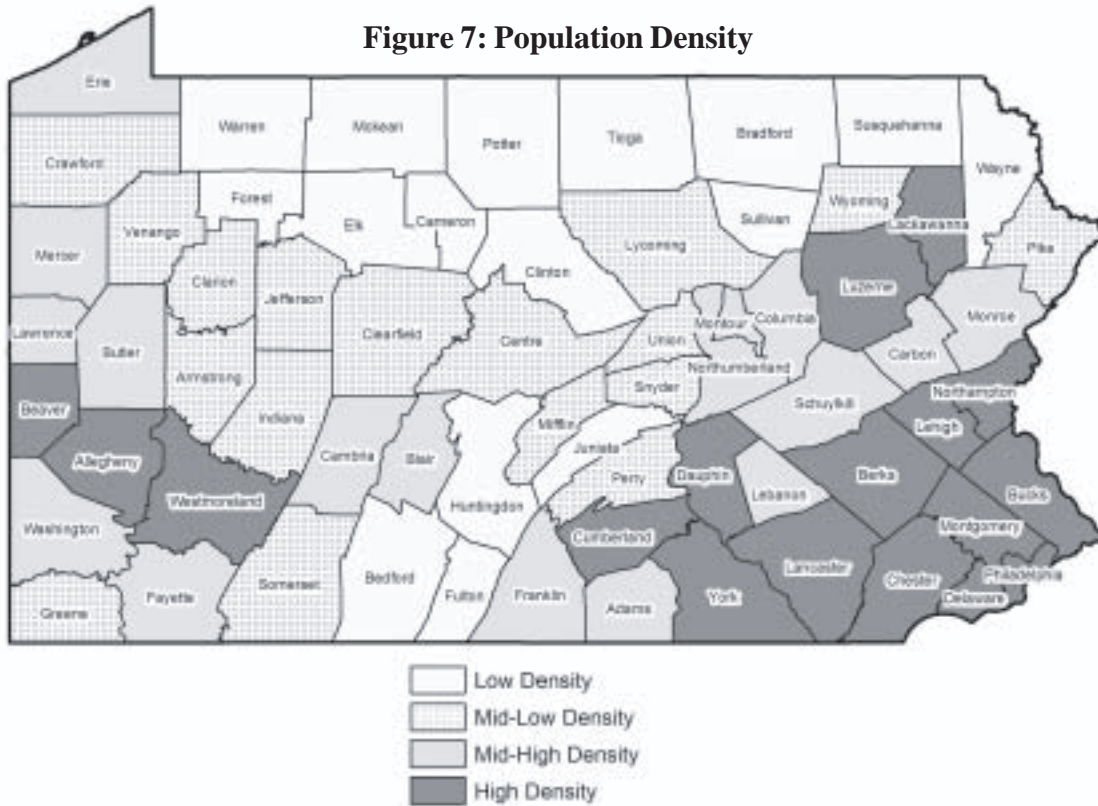
tion densities spent more days hunting most seasons than those living in other counties. However, this trend was not significant.

Among mature hunters, results were more variable regarding county population density and the number of days hunted. The only significant difference was for turkey season, where mature hunters living in counties with the lowest population densities spent more days hunting turkey than respondents living in other counties.

In general, hunters residing in counties with lower population densities traveled shorter distances to hunt. For all species/seasons except archery, waterfowl, and other migratory/upland birds, young adult hunters living in counties with the highest population densities reported traveling the longest distance from their residence to hunt. Similarly, for all species/seasons except waterfowl and other migratory/upland birds, mature hunters living in counties with the highest population densities reported traveling the longest distance from their residence to hunt.

The data suggest that both young adult and mature hunters hunted most often for bear, turkey, and deer during the regular firearms season in counties with the lowest population densities. Both groups also hunted most often for small game in counties with mid-high population densities. When hunting for waterfowl or other migratory/upland birds, young adult hunters hunted most often in counties with mid-high population densities while mature hunters hunted most often in counties with mid-low population densities. Additional differences exist for hunting deer during archery and muzzleloader seasons where young adult hunters hunted most often in counties with mid-high population densities while mature hunters hunted archery season most often in counties with high population densities and hunted muzzleloader season in counties with low population densities.

Figure 7: Population Density



Years at current address

To examine the relationship between residential stability and distance traveled to hunt, the researchers looked at the number of years respondents had lived at their current address and the distance they traveled to their primary hunting locations for each species/season in 2003-2004. Among young adult hunters, the results suggest that the longer respondents lived at their current address, the farther they traveled to hunt turkey and small game but the less distance they traveled to hunt deer (all seasons), bear, waterfowl, and migratory/upland birds. However, this trend was statistically significant only for hunting deer in the regular firearms season. Among mature hunters, the results suggest that the longer respondents lived at their

current address, the farther they traveled to hunt deer during the regular firearms and archery seasons and migratory/upland birds, and the less distance they traveled to hunt deer during muzzleloader season, bear, turkey, waterfowl, and small game. However, this trend was only significant for bear season.

The researchers also examined the relationship between the number of years respondents had lived at their current addresses and the distance traveled to hunt different species/seasons. Among young adult hunters, the results suggest that the longer respondents lived at their current address, the more days they spent hunting all species/seasons except small game. Among mature hunters, the results suggest that the longer they lived at their current address, the more days they spent hunting

deer, during regular firearms and muzzleloader, bear, turkey, migratory/upland birds, and small game. The only significant correlations for mature hunters were for hunting deer during the regular firearms season and small game. In each of these two cases, mature hunters tended to hunt more days the longer they lived at their current address.

Figure 8: Respondents' level of agreement with hunting involvement statements

Statement	Rating (mean)	
	18-24 years (n)	25 & older (n)
Hunting determines much of my lifestyle.	3.65 (185)	3.69 (357)
Hunting is one of the most important activities in my life.	3.78 (185)	3.78 (357)
I spend a lot of time before the season scouting areas I will hunt.	3.59 (188)	3.51 (352)
I plan my vacation time around hunting.	3.55 (185)	3.56 (347)
Hunting is a test of my skill.*	4.35 (185)	4.12 (350)
I spend a lot of time in the off-season planning for the hunt.*	3.62 (183)	3.40 (349)
I would rather go hunting than any other recreation activity.	3.50 (183)	3.56 (351)
If I cannot find anyone to hunt with me I often go alone.*	3.52 (185)	3.86 (353)

* Results for age groups are significantly different (95% confidence level). Based on a scale of 1=strongly disagree to 5=strongly agree.

Figure 9: Perceived Negative and Positive Factors Affecting Hunting

Negative Trends	Percent
Declining access	46
Changing lifestyles or poor school support	18
Lack of mentor	11
Diminishing deer herd/poor management	10
Increased fees	3
Declining upland bird opportunities	3
Poor season structure	3
Animal rights activists	3
Drought	3
Positive Trends	
Large number of game animals	24
Innovative seasons-youth and other	19
Traditional nature of state	19
Youth hunting/mentoring programs	13
Access to public land	13
Free or discounted junior license	6
Long hunting season	6

Note: Percentage represents the number of responses for that answer out of the total number of responses.

Hunting involvement

Respondents were asked to rate their agreement with a series of statements designed to assess their level of hunting involvement (Figure 8). While both groups reported similar levels of agreement with the statements, young adult hunters reported higher levels of agreement with hunting as a test of their skill and with spending a lot of time in the off-season planning for the hunt. In contrast, mature hunters reported higher levels of agreement with hunting alone if unable to find someone with which to hunt.

Also, compared to mature hunters, young adult hunters reported higher levels of agreement with the importance of having hunting partners who hunted the same places, days and times, and the young adult hunters were more likely to indicate they had plenty of hunting partners. Young adult hunters also agreed more with the statements about discussing hunting experiences with both family and friends and sharing their harvest with family members. These results suggest that young adult hunters may place more importance on the social aspects of hunting. For mature hunters, social support is also important but to a lesser degree.

Finally, young adult hunters were more likely to agree that they had enough hunting partners, family and friends to both actively and passively share hunting. This finding suggests that while mature hunters may place importance on the social aspects of hunting, they may be less satisfied than young adult hunters with their current levels of social support.

In terms of hunting partners, both young adult and

mature hunters rated the importance of spouses as hunting partners lower than other potential hunting partners. Young adult hunters placed more importance on their parents, other relatives, friends under 18, members of their hunting camps, friends over 18, and their children as hunting partners. In contrast, mature hunters placed more importance on other relatives and their children as hunting partners. It is likely that young adult hunters rated their children lower because more of them do not have children of hunting age. Similarly, it is likely that mature hunters rated their parents lower because more of them have older parents who no longer hunt or are deceased. Although the young adult hunters and mature hunters differed in their ratings of the importance of other relatives, members of their hunting camps, friends under 18, and friends over 18, the magnitude of these differences was modest, indicating that the differences perceived by the two age groups were not large.

Efforts by States to Increase Hunting Participation

The researchers surveyed nonprofit and government representatives from Maryland, New Jersey, New York, Ohio, Pennsylvania and West Virginia to obtain their perceptions of what is causing both positive and negative trends in hunter numbers in their states. Respondents were not limited to one reply and the researchers recorded 16 positive factors and 29 negative factors. The larger number of negative factors makes it apparent that agencies and people associated with hunting believe their sport is being negatively impacted from various sources.

Figure 9 highlights the negative and positive factors mentioned by the respondents.

Respondents also named educational or outreach programs offered by their agency that directly encouraged hunter recruitment. (Figure 10)

Figure 10: Educational/outreach programs to encourage hunter recruitment

Education Outreach Programs	Percent (n=6)
Hunter education	18%
Modernized hunter education	6%
ProjectWild	3%
BOW	15%
Junior hunt days – mentored	30%
Lowered/lack of minimum hunting age	3%
Specialized classes – archery/muzzleloader	6%
Educate the non-hunting public	3%
STEP OUTSIDE	3%
WITO (Women in the Outdoors)	3%
JAKES (Juniors Acquiring Knowledge/Ethics)	3%
Other	6%

Note: Percentage represents the number of responses for that answer out of the total number of responses.

The respondents also cited reasons why youth were dropping from the hunting ranks. Many of the reasons from state to state were similar (Figure 11).

Survey participants were also asked about land access issues, specifically to list some reasons that land access was becoming such a problem. Urban/suburban sprawl (36 percent) was the most common response of why land was being lost to hunting, followed by leasing (29 percent) and liability (21 percent).

Figure 11: Reasons for Declining Youth Participation

Responses	Percent (n=6)
Not exposed to hunting by parent or mentor	49%
Lack of access	12%
Lack of time/other interests	19%
Lack of public school support	8%
No instant gratification	8%
Lack of society support	4%

Note: Percentage represents the number of responses for that answer out of the total number of responses.

Conclusions

Young adult and mature hunters did not differ significantly in the percent that hunted in 2003-2004, the percent that hunted during the preceding five years, the percent that anticipated hunting in 2004-2005, or in the distance typically traveled to hunt. Nor did they differ significantly in the number of days hunted for most seasons/species. Mature hunters, however, hunted more days than young adult hunters for bear and fewer days for upland birds and small game. These findings suggest that bear hunting may be taken up later than other types of hunting and that upland birds and small game may serve as “introductory” species for younger hunters, as they have done in the past.

For most seasons/species, types of public and private land hunted did not differ between age groups. When hunting on public land, however, mature hunters were less likely than young adult hunters to hunt on state game lands when pursuing deer (regular firearms) or small game. These findings suggest that young adult hunters may be less aware of or less knowledgeable about hunting opportunities on other types of public lands, such as state forests, or less interested in hunting on other types of public lands. When hunting on private land, young adult hunters were less likely than mature hunters to hunt bear but more likely to hunt small game. These findings may simply reflect the fact that young adult hunters hunt bear less overall and hunt small game more overall.

Lower percentages of paved surfaces in counties of residence were typically associated with more days hunting and less travel to places to hunt.

County population density and days hunting were significantly associated only in the case of mature hunters hunting turkey as those living in the least densely populated counties reported hunting turkey more days than other mature hunters. The meaning of this result is unclear. Hunters in both age groups who lived in the least densely populated counties tended to report traveling the shortest distances to hunt, although this was not true for hunting waterfowl or upland birds. This result is consistent with the fact that opportunities to hunt most seasons/species are more common in areas with lower human population densities.

Respondents reported hunting deer (regular firearms), bear, and turkey most often in counties with the lowest population densities. Small game, waterfowl, and upland birds were hunted most often in counties with mid-level population densities, and the results for archery and muzzleloader deer hunting were mixed. These results may reflect habitat needs to the degree that deer, small game, waterfowl, and upland birds can successfully inhabit areas of moderate human density. The results may also reflect methods of take to the degree that deer (during regular firearms season) and bear are generally hunted with long-range rifles, which present a greater safety hazard in areas of higher human density. However, turkey is not hunted with long-range rifles, yet turkey was hunted most often in counties with the lowest population densities.

Residential stability, measured by years at current address, was significantly associated with distance traveled to hunt only for young adult hunters pursuing deer during regular firearms season and mature hunters pursuing bear. In each case the association was negative; those who had been at their current address a short time tended to travel farther to hunt. These two findings are consistent with suggestions that relocating disrupts hunting participation, but it is unclear why years at current address were not significantly associated with distance traveled to hunt other seasons/species.

The number of years respondents lived at their current address was not significantly associated

with the number of days hunted for young adult hunters, regardless of season/species. For mature hunters, the number of years at the current address was significantly associated with number of days hunted for deer (regular firearms only) and small game. This

finding is consistent with suggestions that relocating disrupts hunting participation, but it is unclear why the relationship was not significant for other seasons/species or for young adult hunters.

Policy Considerations

While the results of other studies suggest that increasing urban and suburbanization and decreasing residential stability are associated with declining participation in hunting, some of the findings of this study support those findings and others do not. However, it is important to note that none of the present findings contradict the links between increasing urban and suburbanization, decreasing residential stability, and declining participation in hunting.

Since increasing urban and suburbanization and decreasing residential stability are large, societal trends, they are not easily influenced by policy makers. Therefore, the researchers suggest that policy makers may want to focus on the following actions.

- Facilitate hunting participation by citizens who are mobile and reside increasingly in urban and suburban areas and those who have not been targeted as heavily in the past, such as women.
- Facilitate programs for those who have not grown up hunting, and provide access to hunting opportunities.
- Facilitate the introduction of individuals to potential hunting partners or mentors and/or programs like low-cost or guided hunts open to the public and conducted by state agencies or by approved concessionaires.
- Increase the opportunities to hunt by opening more days to hunting. Just how the Pennsylvania Game Commission and legislature choose to do this is open to debate. Sunday hunting, while controversial, should be examined from as many avenues as possible.
- Determine additional methods of wildlife population control that do not rely on recreational hunting. While it is beyond the expertise of the researchers to recommend specific methods of wildlife population control that do not rely on recreational hunting, such as fertility control, the researchers note that if hunting participation continues to decline, additional methods of wildlife population control will become increasingly important as options to control deer populations, particularly for ecological and economic reasons.
- Provide incentives to landowners that are willing to open their lands to the public. These incentives may include financial rewards, technical services and additional liability relief.
- Encourage more youth participation by lowering the current age limit of 12 years old for new hunters, or by allowing younger participants to hunt during special hunting seasons. The younger hunters would be required to acquire a “permit” at no cost rather than purchase a license and to participate in hunter safety courses.

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