



DEMOGRAPHICS, RECRUITMENT, AND RETENTION OF MICHIGAN HUNTERS

Brian J. Frawley

ABSTRACT

At least 868,000 people purchased Michigan hunting licenses each year during 2000-2002. Hunter numbers have increased slightly since the 1960s when an average of 858,000 people purchased licenses. Although the number of licensees has increased since the 1960s, the percentage of Michigan residents (included all ages) that have purchased a hunting license has declined from an average of 10.1% during the 1960s to 8.7% during 2000-2002. Currently, most hunters reside in the southern Lower Peninsula; however, a higher proportion of residents in the Upper Peninsula purchased hunting licenses. During 2000-2002, about 91% of the license buyers were males, but participation by females has increased since the 1980s. Hunting in Michigan has become increasingly focused on deer hunting; at least 91% of the hunting license buyers purchased a deer hunting license during 2000-2002. The proportion of residents that hunted deer has increased gradually in all regions of the state since the 1960s. The proportion of residents that hunted deer has increased for all age groups and sexes since the 1950s. About 80% of deer license buyers purchased a license during consecutive years, higher than for any other group of hunters. As deer hunting has gained popularity, small game hunting has declined. The proportion of males and females hunting small game in 2002 was among the lowest levels recorded since 1950. Deer hunters in 2002 were more specialized in their pursuit of deer than they were in 1970. In 2002, 62% of the deer hunters only purchased a deer hunting license, while 51% of deer hunters purchased only deer hunting licenses in 1968. In contrast, fewer small game hunters pursued only small game in 2002 than they did in 1968. In 1968, 45% of small game hunters only purchased a small game hunting license, while in 2002, 16% of these small game hunters only purchased a small game hunting license.



A contribution of Federal Aid in Wildlife Restoration, Michigan Project W-147-R

Equal Rights for Natural Resource Users

The Michigan Department of Natural Resources (MDNR) provides equal opportunities for employment and access to Michigan's natural resources. Both State and Federal laws prohibit discrimination on the basis of race, color, national origin, religion, disability, age, sex, height, weight or marital status under the Civil Rights Acts of 1964, as amended (MI PA 453 and MI PA 220, Title V of the Rehabilitation Act of 1973 as amended, and the Americans with Disabilities Act). If you believe that you have been discriminated against in any program, activity, or facility, or if you desire additional information, please write the MDNR, HUMAN RESOURCES, PO BOX 30028, LANSING MI 48909-7528, or the MICHIGAN DEPARTMENT OF CIVIL RIGHTS, STATE OF MICHIGAN PLAZA BUILDING, 1200 6TH STREET, DETROIT MI 48226, or the OFFICE FOR DIVERSITY AND CIVIL RIGHTS, US FISH AND WILDLIFE SERVICE, 4040 NORTH FAIRFAX DRIVE, ARLINGTON VA 22203.

For information or assistance on this publication, contact: MDNR, WILDLIFE DIVISION, P.O. BOX 30444, LANSING, MI 48909-7944, <http://www.michigandnr.com>. This publication is available in alternative formats upon request. TTY: Michigan Relay Center 1-800-649-3777

INTRODUCTION

Hunting has always been an integral part of modern wildlife conservation programs in North America. Moreover, hunting can be important for promoting stewardship of all natural resources, not just game species (Holsman 2000). Between 1991 and 2001, the number of people hunting in the United States declined 7% from 14.1 million to 13.0 million people (U.S. Department of the Interior 2002a, Aiken 2004). In Michigan, the number of hunters declined 9% from 826,300 to 754,000 during this same period (U.S. Department of the Interior 1993, 2002b). In addition, the proportion of Michigan residents over 16 years of age that hunted in Michigan declined from 11% in 1991 to 10% in 2001. This trend could impact natural resource agencies' ability to provide recreational, management, and stewardship benefits of wildlife conservation programs (e.g., Brown et al. 2000a).

Although trends from national surveys indicate that hunting participation may have declined, it was unknown whether similar trends could be documented using independent data collected by the Michigan Department of Natural Resources (DNR). Thus, the major study objectives were to determine demographics (age, sex, and residency), recruitment, and retention of Michigan hunters and compare to previous estimates. Special focus was given to summarizing data from 2000-2002 because data collected prior to that time had been summarized previously (Frawley 2001).

METHODS

Hunters included anybody that purchased a license to hunt or trap bear, deer, elk, furbearers, small game, turkey, or waterfowl in Michigan (Table 1). Most people hunting in Michigan were required to purchase a hunting license. Only owners of farmland and their families that hunted on the property where they lived could hunt small game species without a hunting license. Additionally, any landowner (or their designee) could take raccoons and coyotes throughout the year on their property without a license if these animals were causing damage. Waterfowl hunters were generally required to purchase both a small game hunting license and waterfowl hunting license. Hunters younger than 16 years of age could hunt waterfowl without a waterfowl hunting license; however, they still were required to purchase a small game license.

Michigan currently sells hunting licenses using a statewide automated license sales system (i.e., Retail Sales System). This system allowed the DNR to maintain a central database containing license sales information (e.g., sales transactions and customer profiles). From this database, the sex, birth date, and state and county of residence of each license buyer were determined.

Residency of hunters was categorized by areas within the state that closely matched the DNR's wildlife management administrative units (Figure 1). The state was also divided into three ecological regions (Upper Peninsula [UP], northern Lower Peninsula [NLP], and southern Lower Peninsula [SLP]). These regions closely matched major

ecoregions (Albert 1995), except in the Upper Peninsula where two ecoregions were combined. Ecoregions are regions having similar soils, vegetation, climate, geology, and physiography. These ecoregions also matched regions used to report results from previous studies.

The DNR currently uses a random drawing to allocate a limited number of bear, elk, and turkey hunting licenses among applicants. An unlimited number of licenses were available for people hunting small game and hunting or trapping furbearers. An unlimited number of licenses were available for people hunting deer and waterfowl, although random drawings were also used to allocate certain types of deer licenses (e.g., antlerless licenses) and managed waterfowl area hunts among hunters.

The procedures used to award turkey hunting licenses to people that were successful in the drawing differed between 1997 and subsequent years. These differences affect how hunting license sales can be compared among years. In 1997, hunters paid an application fee and a license fee when they applied for a hunt. Hunters that were unsuccessful in the drawing were reimbursed their license fee, while hunters that were successful in the drawing were mailed their hunting license. Starting in 1998, hunters only paid an application fee when they applied for a hunt. People that were successful in the drawing were mailed notification that they were successful in the drawing, and it was their responsibility to purchase a hunting license. Successful applicants did not always purchase a license.

Hunters had to be at least 14 years old before they could purchase a firearm deer hunting license in Michigan. Before 1970, however, there was no minimum age required to hunt deer with archery equipment or to hunt small game species in Michigan (Ryel et al. 1970). Beginning in 1970, hunters had to be at least 12 years old before they could purchase either an archery deer hunting license or small game hunting license.

Starting in 1995, Michigan hunting licenses could be purchased through the Retail Sales System using one of four types of identification: Michigan Driver License, Michigan Identification Card, DNR Sportscard, or DNR Identification Card. Most hunting licenses were purchased using a driver license; however, younger people (≤ 16 years old) often used a DNR Sportscard because they did not have a driver license.

Hunter retention was the number of people remaining in the hunter population over time and was determined by monitoring a person's license purchases among years. Hunter retention was not estimated for hunters less than 18 years old because these young hunters often use multiple forms of identification to purchase licenses (e.g., DNR Sportscard and driver license). Hunter retention was underestimated for people that use multiple forms of identification to purchase licenses because they can appear as different people buying a license rather than the same person.

Estimates of hunter demographics prior to 1995 were based on information collected from random samples of hunting license buyers. Thus, these estimates were subject to

sampling errors (Cochran 1977). The Retail Sales System for selling hunting licenses has allowed the DNR to collect demographic information (sex, age, and residence) from nearly every license buyer. Thus, estimates derived for 1997-2002 were based on nearly complete counts (i.e., census) of hunting license buyers. Even with electronic licensing, a few license purchases were completed without collecting some demographic information. When summarizing data that included missing data, the distribution of hunter demographics among hunters with missing data was assumed to be the same as that for known hunters.

Many hunting participation studies estimate the number of people that actually hunted rather than people that purchased a license. Typically, 5-10% of the license buyers did not hunt. Thus, estimates from this study are not directly comparable to estimates based on actual participation. When calculating the percentage of Michigan residents that hunted, estimates of the population for Michigan were obtained from the U.S. Census Bureau and Michigan Department of Community Health.

RESULTS

At least 868,000 people purchased hunting licenses to hunt in Michigan each year during 2000-2002 (Table 2). Participation declined by 26,938 people (3%) between 2000 and 2002. Most hunters ($\geq 96\%$) were residents of Michigan and most lived in the SLP (Tables 3-5).

About 92% of the license buyers were males and 8% were females (Table 6). The proportion of female hunters was highest among people buying elk, deer, and bear hunting licenses. A relatively small proportion ($<3.5\%$) of the hunting licenses for furbearers, small game, and waterfowl were sold to females. The mean age of license buyers was 40 years (Table 7). On average, people buying small game and waterfowl licenses were the youngest hunters, while people buying elk and fall turkey hunting licenses were the oldest.

Of the Michigan population 16 years old and older, about 19% of the males and 2% of the females purchased a hunting license in 2000-2002 (Table 8). Hunting participation among Michigan residents younger than 65 years of age during 2000-2002, ranged from a low of 6% for 12-year old residents to a high of about 13% for residents that were in their late 30s or early 40s (Figure 2).

The most commonly hunted species in Michigan was deer. During 2000-2002, at least 91% of the hunting license buyers purchased a deer hunting license (Table 2). For Michigan residents (<65 years of age), deer hunting participation ranged from a low of 3% among 12-year old residents to a high of about 12% for residents that were in their late thirties to early forties (Figure 3). Among Michigan residents that were in their late twenties to their early fifties, hunting participation was greater than 10%.

Small game licenses were the next most commonly purchased licenses (Table 2). About 39% of the license buyers obtained a small game license during 2000-2002.

Small game hunting participation for Michigan residents less than 65 years of age ranged from 3% among 18- to 20-year old residents to about 5% for residents that were in their early teens (13-14 years old) and among hunters in their late-thirties to early forties (Figure 4). Participation was generally greater than 4% among Michigan residents that were in their late twenties to their early fifties. Among female hunters, participation peaked when they were 12-14 years old.

About 12% of license buyers purchased a turkey hunting license during 2000-2002 (Table 2). The number of people hunting turkeys has been steadily increasing in recent years. The number of turkey licenses sold increased 11% during 2000-2002. For Michigan residents less than 65 years of age, turkey hunting participation ranged from 0.5% among 18- to 22-year old residents to nearly 2.5% among hunters in their mid-sixties (Figure 5). Participation was generally greater than 2% among Michigan residents that were in their late thirties to their mid-sixties.

About 7% of the licensees purchased a waterfowl hunting license during 2000-2002; however, the number of waterfowl hunting licenses sold declined 2% during this period (Table 2). Nearly 2% of the license buyers in 2000-2002 purchased a license for furbearers, but the number of licensees has increased by 12% during this period. Generally less than 1% of the license buyers purchased either bear or elk hunting licenses during 2000-2002 because these licenses were limited.

Deer hunters were the most specialized group of hunters; about 62% of deer hunters did not buy any other type of hunting license during 2000-2002 (Table 9). The next largest group of specialist was small game hunters; about 17% of small game hunters only purchased a small game license. Most people that purchased a license to hunt species other than deer had purchased more than one hunting license type. Most of the people purchasing multiple hunting license types ($\geq 78\%$) had also purchased a deer hunting license (Tables 10-12).

Nearly 79% of the hunting license buyers (≥ 18 years old) purchased hunting licenses during consecutive years (Figures 6 and 7; Table 13). The license types that were allocated using random drawings (i.e., elk, bear, and turkey) had the lowest percentage of repeat license buyers. Nobody purchased an elk license during consecutive years because elk hunters were ineligible to obtain licenses in consecutive years. Among license types that were not restricted (i.e., deer, fur harvester, small game, and waterfowl), hunter retention rates were highest among people buying a deer hunting license ($\cong 80\%$) and about 66% among people buying other unrestricted hunting license types. Hunter retention rates were at least 21% higher among male than female license buyers.

About 69% of license buyers (≥ 18 years old) purchased hunting licenses each year during 2000-2002 (Figure 8, Table 14). Most males that purchased deer, fur harvesters, small game, or waterfowl hunting licenses in 2000 also purchased these licenses in both 2001 and 2002. Less than 50% of the males that purchased a bear, elk, or turkey hunting license in 2000 also purchased this same type of license each year during

2000-2002. (Hunter retention among bear, elk, and turkey hunters was artificially low because a limited number of licenses were available each year.) Most females (57%) buying licenses in 2000 did not consistently buy a hunting license each year during 2001 and 2002 (Table 14).

DISCUSSION

The number of people purchasing a hunting license has increased 3% from an average of 858,000 in the 1960s, to an average of about 885,000 during 2000-2002 (Figure 9). Although the number of licensees has increased since the 1960s, the percentage of Michigan residents (all ages included) that purchased a hunting license has declined from an average of 10.1% during the 1960s to 8.7% during the last three years.

The US Department of the Interior (2002b) reported 10% of Michigan residents at least 16 years of age had hunted in 2001. They also reported 18% of the males had hunted. These estimates were similar to the level of participation observed based on license sales data (Table 8).

The proportion of Michigan residents that hunted deer has increased gradually in all regions of Michigan since the 1960s. The number of people hunting during the regular firearm deer hunting season (November 15-30) has increased 52% between 1960 and 2002 (Figure 10). The average annual increase during this period has been 1.0% per year. These trends have also been reported nationwide as the number of deer hunters has reached record highs (U.S. Department of the Interior 2002a, Aiken 2004). Deer hunter numbers in Michigan have increased in response to increased deer numbers and expanded hunting opportunity. Nationwide, 79% of hunters pursued deer in 2001 (Aiken 2004). Deer hunting is more common in Michigan than reported nationwide; at least 91% of the Michigan licensees had purchased a deer hunting license during recent years (Table 2).

The proportion of Michigan residents hunting small game has declined 61% between 1960 and 2002 (Figure 10). The average annual decline during this period has been 2.2% per year. Declining numbers of small game hunters has also been noted nationally since the mid-1970s (Enck et al. 2000, U.S. Department of the Interior 2002a, Aiken 2004). The greatest declines among Michigan small game hunters occurred in the SLP where participation declined from 7.0% of the residents in 1964 to 2.5% in 2002. Hawn (1979) speculated that the declining ring-necked pheasant population was the primary reason for the declining small game hunter numbers in Michigan. Pheasants were most common in the SLP, which also was the region experiencing the greatest decline in small game hunters and the highest proportion of Michigan residents. Factors other than declining pheasant numbers were probably responsible for declining small game hunter numbers in Michigan because this decline has also occurred in areas where pheasants do not occur. Other factors may include increased urbanization of the human population, increased competition between hunting and other leisure activities, and loss of wildlife habitat (Brown et al. 2000b).

The number of people hunting turkeys during the spring has increased more than two fold between 1990 and 2002 (Figure 11). The average annual increase during this period has been 10% per year. Participation during the fall season has increased 72% between 1990 and 2002 (average annual increase = 4.6%). Turkey hunter numbers in Michigan have increased in response to increased turkey numbers and expanded hunting opportunity (Frawley 2003b). Increasing numbers of turkey hunters has also been noted nationally since the early 1990s (Aiken 2004).

The number of people hunting waterfowl has declined 19% during 1997-2002 (average annual decline = 4.1%, Figure 10). The number of trappers in 1960 was similar to the number in 2002, although during the interim years numbers have changed markedly (Figure 12). The number of people hunting bear has more than doubled during 1990-2002, and the average annual increase has been 9.8% during this period (Figure 13).

During 1960-2002, most of the deer and small game hunters resided in the SLP (Figure 14). The distribution of deer hunters among geographic regions has remained stable since the 1960s, but the distribution of small game hunters has shifted northward. Although most small game hunters still resided in the SLP in 2002, the proportion of hunters in the SLP has declined steadily since the 1960s (Figure 15).

The proportion of Michigan residents hunting deer and small game was highest among residents of the UP and lowest for residents of the SLP. Duda et al. (1995), Mankin et al. (1999), and U.S. Department of the Interior (2002a) noted that hunting participation was highest among people raised in rural areas. In 2002, 87% of Michigan residents lived in the SLP (U.S. Census Bureau, unpublished data). Thus, the higher rate of participation among Michigan residents in northern Michigan probably reflects their rural origins, although other factors such as greater access to public land in northern Michigan may also affect participation.

During 1960-2002, about 2-4% of deer and small game hunters were nonresidents (e.g., Jamsen 1967, Langenau et al. 1985). The proportion of nonresident hunters has been relatively constant since the 1960s (Figure 14). The U.S. Department of the Interior (2002b) reported that 6% of the state's hunters were nonresidents in 2001 (all types of hunting). This estimate may be flawed because information was collected from relatively few hunters which can lead to imprecise estimates.

As with male hunters, deer is the most frequently hunted species among female hunters (Henderson 2004). The proportion of female deer hunters in Michigan was about 6% during 1960-1980 (Figure 16). Since 1980, participation has generally increased, and during the last three years about 8% of deer hunters were females. Among small game hunters, females comprised about 2.5% of the hunters during 1960-1980. The proportion of small game hunters that were females has increased slightly since 1980. During the last three years, about 3.1% of the small game hunters were females.

Hunter retention rates were at least 20% higher among male than female license buyers. Female hunters also generally take fewer hunting trips, spend fewer days

hunting , and spend less money hunting than male hunters (Responsive Management 2003b, Henderson 2004). In addition, female hunters generally have hunted for fewer years than male hunters.

As deer hunting has become more popular, it has attracted a wider variety of individuals. The proportion of residents that hunted deer has increased for all age groups and sexes since the 1950s (Figure 17). Among males, hunting participation has remained constant among 10-19 year-olds since 1970 but has declined for most other age classes in recent years. Participation generally began to decline among males when they were 45-54 years old. Bouchard and Lerg (1977) also reported that in 1975 deer hunting participation started to decline when hunters were about 45 years old. Although deer hunting participation started to decline among males in the 45-54 year-old age class, the decline has become less apparent since 1980. Moreover, deer hunting participation among these older males has remained near all-time highs since 1980. The mean age of deer hunters was 40 years in both 1984 and 1991 (Langenau et al. 1985, Winterstein 1992), while the mean age of deer hunters in 2002 was 41.

Among females, deer hunting participation has generally increased among the youngest and oldest age classes since 1960 (Figure 17). Participation among people aged 20-54 has been declining since 1981. As noted for males, deer hunting participation among females began to decline when they reached 45-54 years of age. Participation among older females (≥ 55 years old) has increased since 1970 and has remained near all-time highs, similar to the trend for males.

Deer hunters were generally devoted to their pastime. No other form of hunting had as high a percentage of people participating during consecutive years. During the 1960s, about 80% of the people that hunted deer with a firearm reported that they also hunted during the previous year (Ryel 1965a, 1966, 1968, 1969). This percentage increased to nearly 85% of the firearm deer hunters during the early 1980s (Ryel 1982). The increasing trend was consistent with the increased hunting by older hunters (≥ 55 years old) during this period.

Unlike deer hunting, the proportion of people hunting small game has declined since the 1950s and 1960s (Figure 18). Furthermore, the proportion of males and females hunting small game in 2002 was among the lowest levels recorded since 1950 for most age classes.

Deer hunters in 2002 were more specialized in their pursuit of deer than they were in 1970. Ryel et al. (1970) reported that 51% of deer hunters purchased only deer hunting licenses in 1968. In 2002, 62% of the deer hunters only purchased a deer hunting license. In contrast, fewer small game hunters pursued only small game in 2002 than they did in 1968. In 1968, 45% of small game hunters only purchased a small game hunting license, while in 2002, 16% of these small game hunters only purchased a small game hunting license.

MANAGEMENT IMPLICATIONS

Trends in hunter recruitment and retention reflect the demand for hunting opportunities. These trends also may indicate changes in the number of people supportive of some conservation programs and number of people available to help achieve wildlife management goals. For example, declining hunter numbers may make it more difficult to reduce populations of nuisance or overabundant wildlife species.

Most hunters are initiated into the sport of hunting before age 20 (Responsive Management 2003a). Since the 1980s, the percentage of youths hunting deer (10-19 years olds) has remained at about 6%, and the average age of deer hunters has been relatively constant. Thus, recruitment of youth deer hunters appears to be relatively steady; however, retention has generally declined in older age classes. The net effect has been fewer people purchasing deer hunting licenses since 1998.

As deer numbers have increased in Michigan, hunting has become the primary method used to manage deer populations exceeding desired levels. Moreover, hunting will likely remain the primary mechanism for controlling regional deer populations for the foreseeable future (Brown et al. 2000a). In 1960, about 700,000 deer were present throughout Michigan prior to the hunting seasons (Michigan Wildlife Division, unpublished data), and about 481,000 people purchased a license to hunt deer. In contrast, about 1,800,000 deer existed throughout Michigan in 2002, and about 788,000 people purchased a deer hunting license. Deer hunter numbers have not increased proportionally with deer numbers. Deer numbers increased by 2.5 times between 1960 and 2002, but hunter numbers increased by only 1.6 times. During this same period, wildlife agencies have placed increased emphasis on harvesting antlerless deer to control deer numbers (Brown et al. 2000a). In Michigan, the annual harvest of antlered deer has increased five-fold, while harvest of antlerless deer has increased eight-fold between 1960 and 2002. Although harvest of antlerless deer has increased, a limited number of license buyers are willing to harvest antlerless deer. In 2002, 52% of deer license buyers purchased at least one antlerless license (Frawley 2003a). Thus, controlling deer numbers with hunting has become more difficult and complex (e.g., additional seasons and harvest restrictions) despite increasing hunter numbers and liberalized harvests of antlerless deer (Brown et al. 2000a). In the face of declining deer hunters, controlling deer populations will become increasingly difficult.

In Michigan, deer hunting participation by older hunters has increased since the 1970s. Older hunters generally harvest fewer deer and spend fewer days hunting deer than younger hunters (Frawley 2004). Moreover, older hunters generally hunt during fewer seasons, tending to concentrate their hunting effort during the regular firearm season. Despite the increased participation by older hunters in Michigan, deer population goals may be harder to achieve if Michigan hunters are less willing to harvest deer, particularly antlerless deer.

Although the proportion of youth that hunted deer has been relatively consistent since the 1970s in Michigan, deer hunter recruitment and retention has not kept pace with

increased deer numbers. Thus, hunting seasons designed to recruit new hunters of any age may be important to help increase deer harvest. Moreover, the Wildlife Division may need to consider additional strategies to increase harvest of antlerless deer (Brown et al. 2000a, Riley et al. 2003).

As small game hunter numbers have declined, fewer small game species have been harvested. Thus, many small game species have population surpluses that could be harvested if additional hunters participated. The Wildlife Division needs to promote opportunities that increase small game hunting participation.

ACKNOWLEDGEMENTS

I thank Michael Bailey, Cheryl Nelson-Flierman, Valerie Frawley, Pat Lederle, Barb Lercel, Glen Matthews, William Moritz, Brent Rudolph, Greg Soulliere, and Al Stewart for reviewing a previous version of this report.

LITERATURE CITED

Aiken, R. 2004. Fishing and hunting 1991-2001: avid, casual, and intermediate participation trends. Report 2001-5. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C., USA.

Albert, D. A. 1995. Regional landscape ecosystems of Michigan, Minnesota, and Wisconsin: a working map and classification. General Technical Report NC-178. U.S. Department of Agriculture, Forest Service, North Central Forest Experimental Station, St. Paul, Minnesota, USA.

Bouchard, M. E., and J. M. Lerg. 1977. Sex and age parameters in the population dynamics of Michigan hunters. Wildlife Division Report 2796. Michigan Department of Natural Resources, Lansing, USA.

Brown, T. L., D. J. Decker, S. J. Riley, J. W. Enck, T. B. Lauber, P. D. Curtis, and G. F. Mattfeld. 2000a. The future of hunting as a mechanism to control white-tailed deer populations. *Wildlife Society Bulletin* 28:797-807.

Brown, T. L., D. J. Decker, W. F. Siemer, and J. W. Enck. 2000b. Trends in hunting participation and implications for management of game species. Pages 145-154 in W. C. Gartner and D. W. Lime, editors. *Trends in outdoor recreation, leisure*, CAB International, New York, New York, USA.

Cochran, W. G. 1977. *Sampling techniques*. John Wiley & Sons, New York, USA.

Duda, M. D., S. J. Bissell, and K. C. Young. 1995. Factors related to hunting and fishing participation in the United States. *Responsive Management*, Harrisonburg, Virginia, USA.

- Enck, J. W., D. J. Decker, and T. L. Brown. 2000. Status of hunter recruitment and retention in the United States. *Wildlife Society Bulletin* 28:817-824.
- Frawley, B. J., 2001. Demographics, recruitment, and retention of Michigan hunters. Wildlife Division Report 3332. Michigan Department of Natural Resources, Lansing, USA.
- Frawley, B. J., 2003a. Michigan deer harvest survey report, 2002 seasons. Wildlife Division Report 3399. Michigan Department of Natural Resources, Lansing, USA.
- Frawley, B. J., 2003b. 2003 Michigan spring turkey hunter survey. Wildlife Division Report 3412. Michigan Department of Natural Resources, Lansing, USA.
- Frawley, B. J., 2004. Changes in deer hunting participation and harvest related to hunter's age. Report 3424. Michigan Department of Natural Resources, Lansing, USA.
- Hawn, L. J. 1979. Hunting results, Michigan small game seasons, 1978. Surveys and Statistical Services Report 189. Michigan Department of Natural Resources, Lansing, USA.
- Henderson, E. 2004. Participation and expenditure patterns of African-American, Hispanic, and female hunters and anglers. Report 2001-4. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C., USA.
- Holsman, R. H. 2000. Goodwill hunting? Exploring the role of hunters as ecosystem stewards. *Wildlife Society Bulletin* 28:808-816.
- Jamsen, G. C. 1967. Sex and age structure of licensed hunters, trappers and fishermen in Michigan. Research and Development Report 125. Michigan Department of Conservation, Lansing, USA.
- Langenau, E. E., E. J. Flegler, and H. R. Hill. 1985. Deer hunters' opinion survey, 1984. Wildlife Division Report 3012. Michigan Department of Natural Resources, Lansing, USA.
- Mankin, P. C., R. E. Warner, and W. L. Anderson. 1999. Wildlife and the Illinois public: a benchmark study of attitudes and perceptions. *Wildlife Society Bulletin* 27:465-472.
- Minnis, D. L., and R. B. Peyton. 1994. 1993 Michigan deer hunter survey: deer baiting. Federal Aid Job Performance Report W-127-R-12, Study 127-82, Job Number 2, Michigan Department of Natural Resources, Lansing, USA.
- Responsive Management. 2003a. Factors related to hunting and fishing participation among the nation's youth; phase V: final report. Report prepared under a grant from the U.S. Fish and Wildlife Service, Division of Federal Aid, Sport Fish Restoration Program. Harrisonburg, Virginia

Responsive Management. 2003b. Women's participation in shooting sports. Report prepared under a grant from National Shooting Sports Foundation. Harrisonburg, Virginia

Riley, S. J., D. J. Decker, J. W. Enck, P. D. Curtis, T. B. Lauber, and T. L. Brown. 2003. Deer populations up, hunter populations down: implications of interdependence of deer and hunter population dynamics on management. *Ecoscience* 10:455-461.

Ryel, L. A. 1965a. Hunter participation Survey D, 1964. Research and Development Report 46. Michigan Department of Conservation, Lansing, USA.

Ryel, L. A. 1965b. Small game hunter participation survey. Research and Development Report 47. Michigan Department of Conservation, Lansing, USA.

Ryel, L. A. 1966. Hunter participation Survey, D 1965. Research and Development Report 88. Michigan Department of Conservation, Lansing, USA.

Ryel, L. A. 1968. Hunter participation Survey D, 1967. Research and Development Report 149. Michigan Department of Conservation, Lansing, USA.

Ryel, L. A. 1969. Hunter participation Survey D, 1968. Research and Development Report 191. Michigan Department of Natural Resources, Lansing, USA.

Ryel, L. A., G. C. Jansen, and L. J. Hawn. 1970. Some facts about Michigan hunters. Research and Development Report 197. Michigan Department of Natural Resources, Lansing, USA.

Ryel, L. A. 1982. Deer hunters' opinion survey, 1981. Wildlife Division Report 2933. Michigan Department of Natural Resources, Lansing, USA.

U.S. Department of the Interior. 1993. 1991 National survey of fishing, hunting, and wildlife-associated recreation: Michigan. U.S. Department of the Interior, Fish and Wildlife Service, and U.S. Department of Commerce, Bureau of the Census, Washington, D.C., USA.

U.S. Department of the Interior. 2002a. 2001 National survey of fishing, hunting, and wildlife-associated recreation. U.S. Department of the Interior, Fish and Wildlife Service, and U.S. Department of Commerce, Bureau of the Census, Washington, D.C., USA.

U.S. Department of the Interior. 2002b. 2001 National survey of fishing, hunting, and wildlife-associated recreation: Michigan. U.S. Department of the Interior, Fish and Wildlife Service, and U.S. Department of Commerce, Bureau of the Census, Washington, D.C., USA.

Winterstein, S. R. 1992. Michigan hunter opinion surveys. Department of Fisheries and Wildlife, Michigan State University, Lansing, USA.

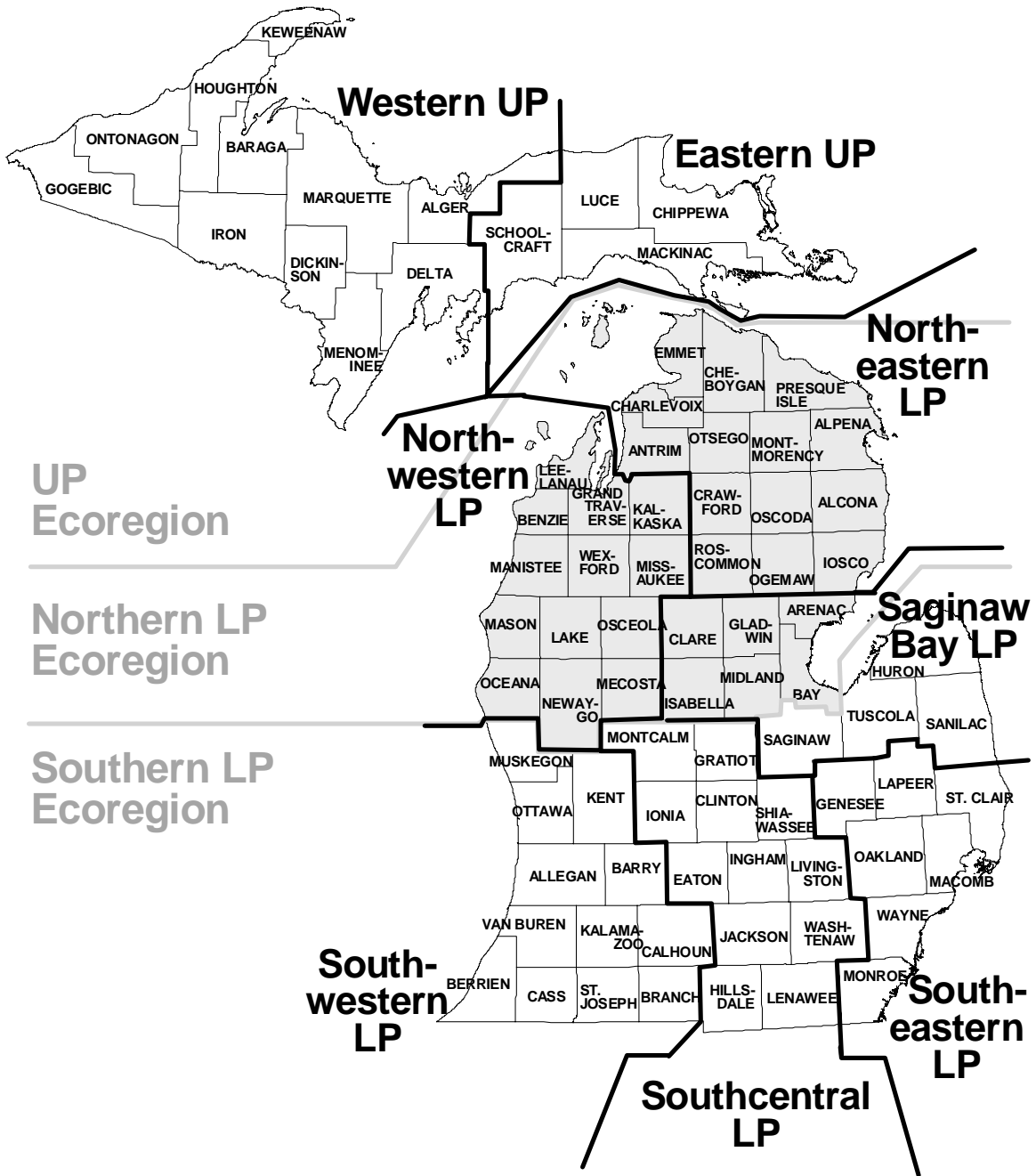


Figure 1. Areas used to summarize regional estimates of hunter demographics in Michigan.

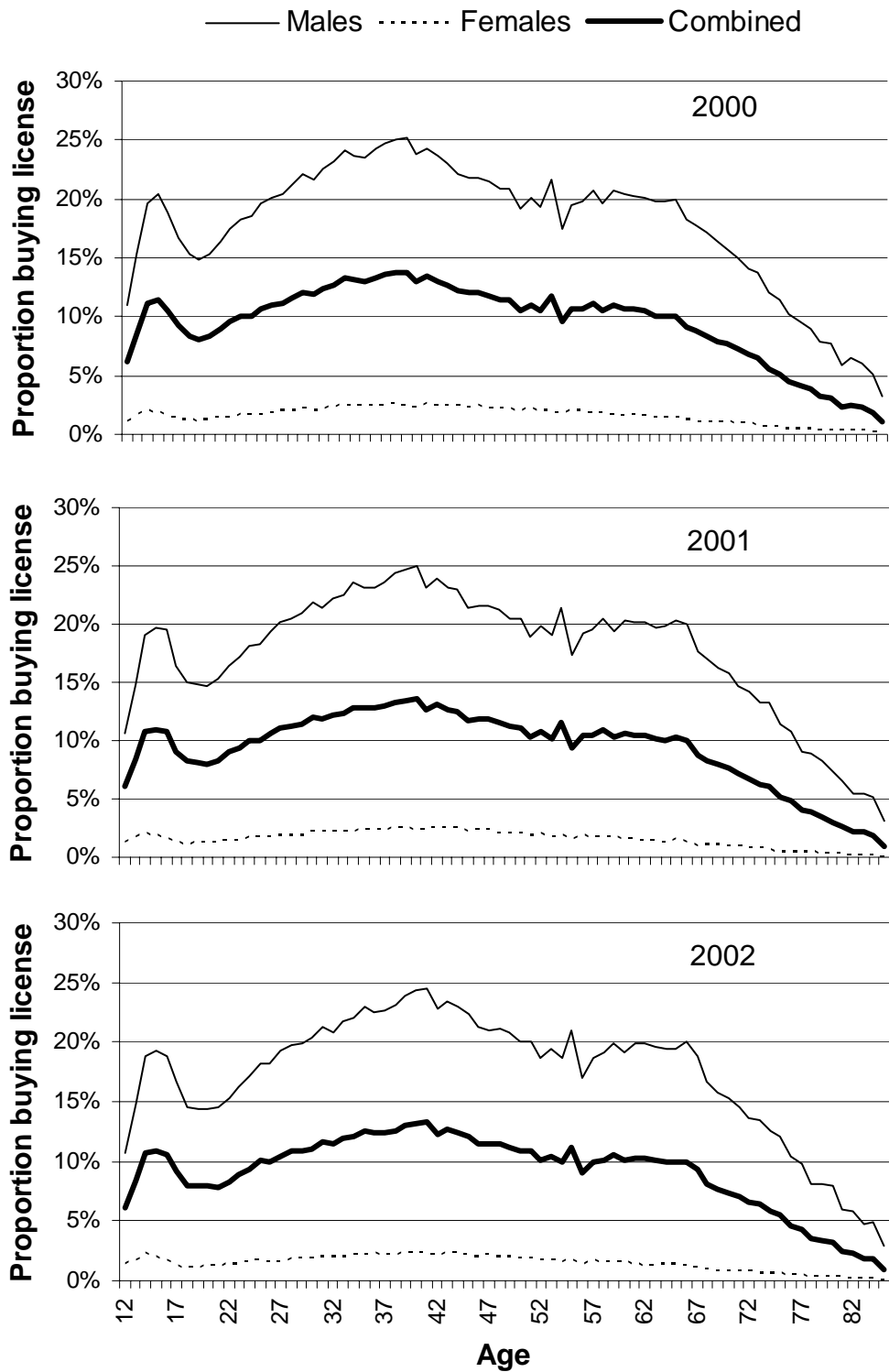


Figure 2. Proportion of Michigan residents that purchased Michigan hunting licenses (all hunting license types) by age, 2000-2002.

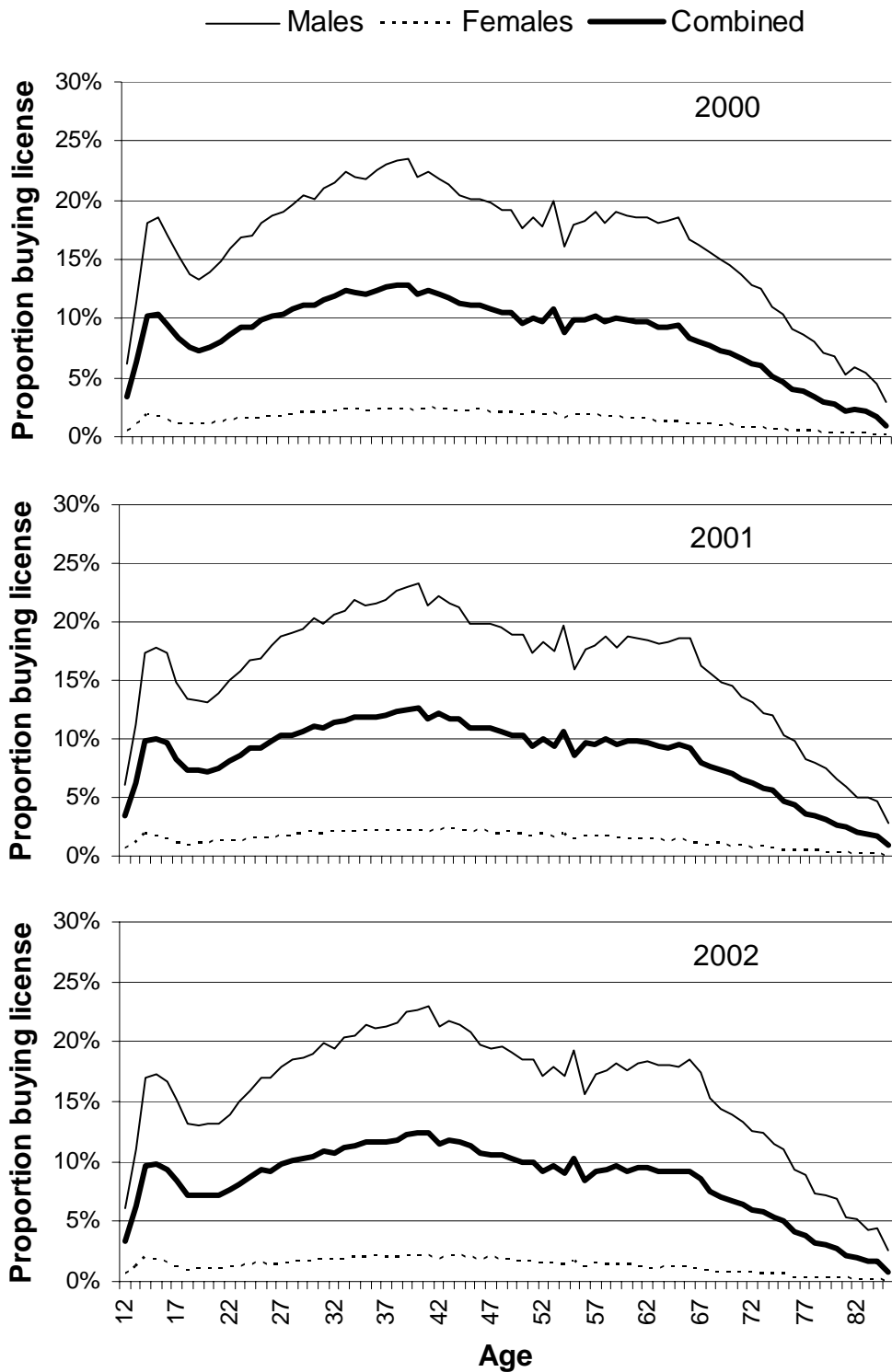


Figure 3. Proportion of Michigan residents that purchased Michigan deer hunting licenses by age, 2000-2002.

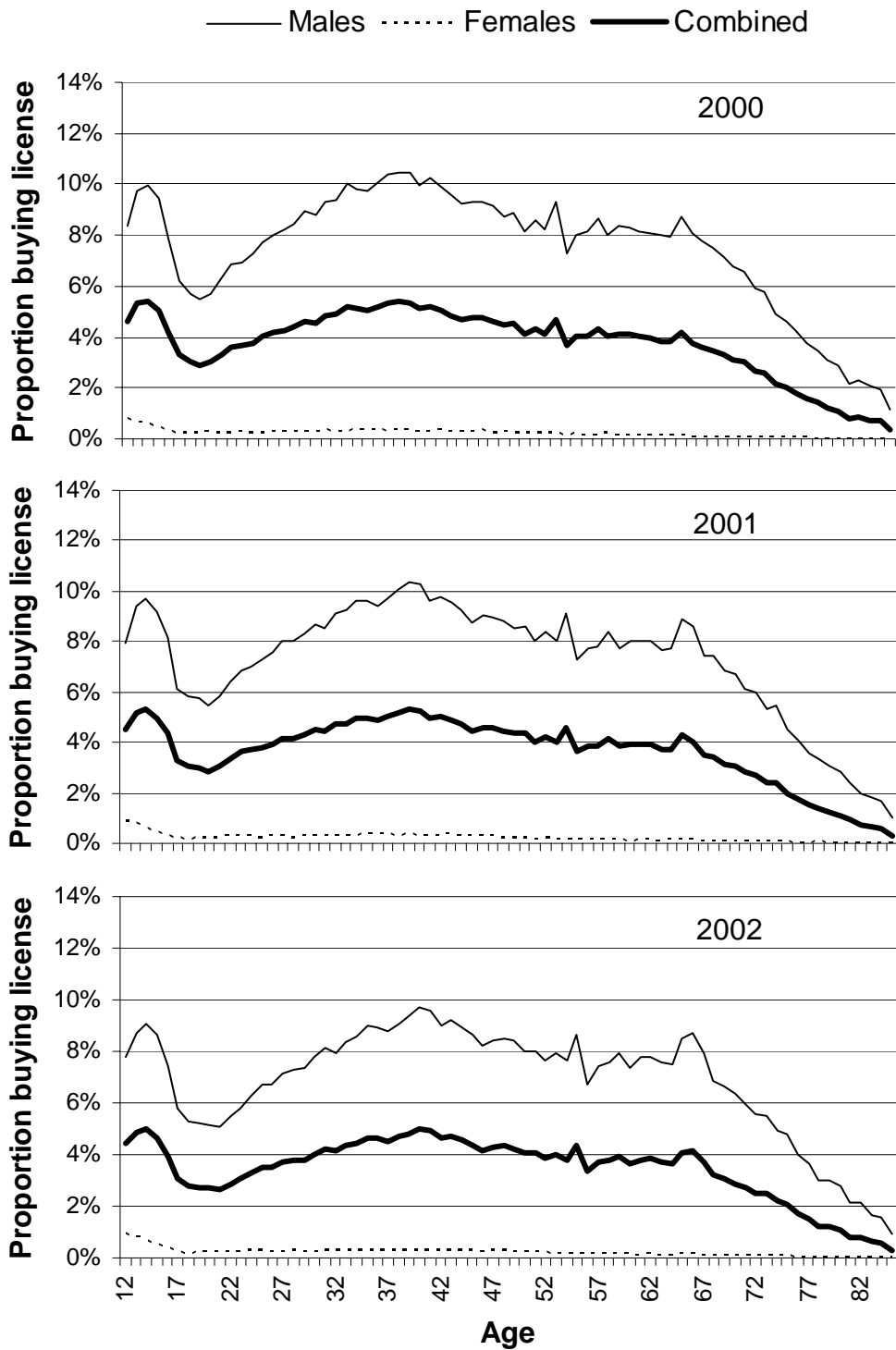


Figure 4. Proportion of Michigan residents that purchased Michigan small game hunting licenses by age, 2000-2002.

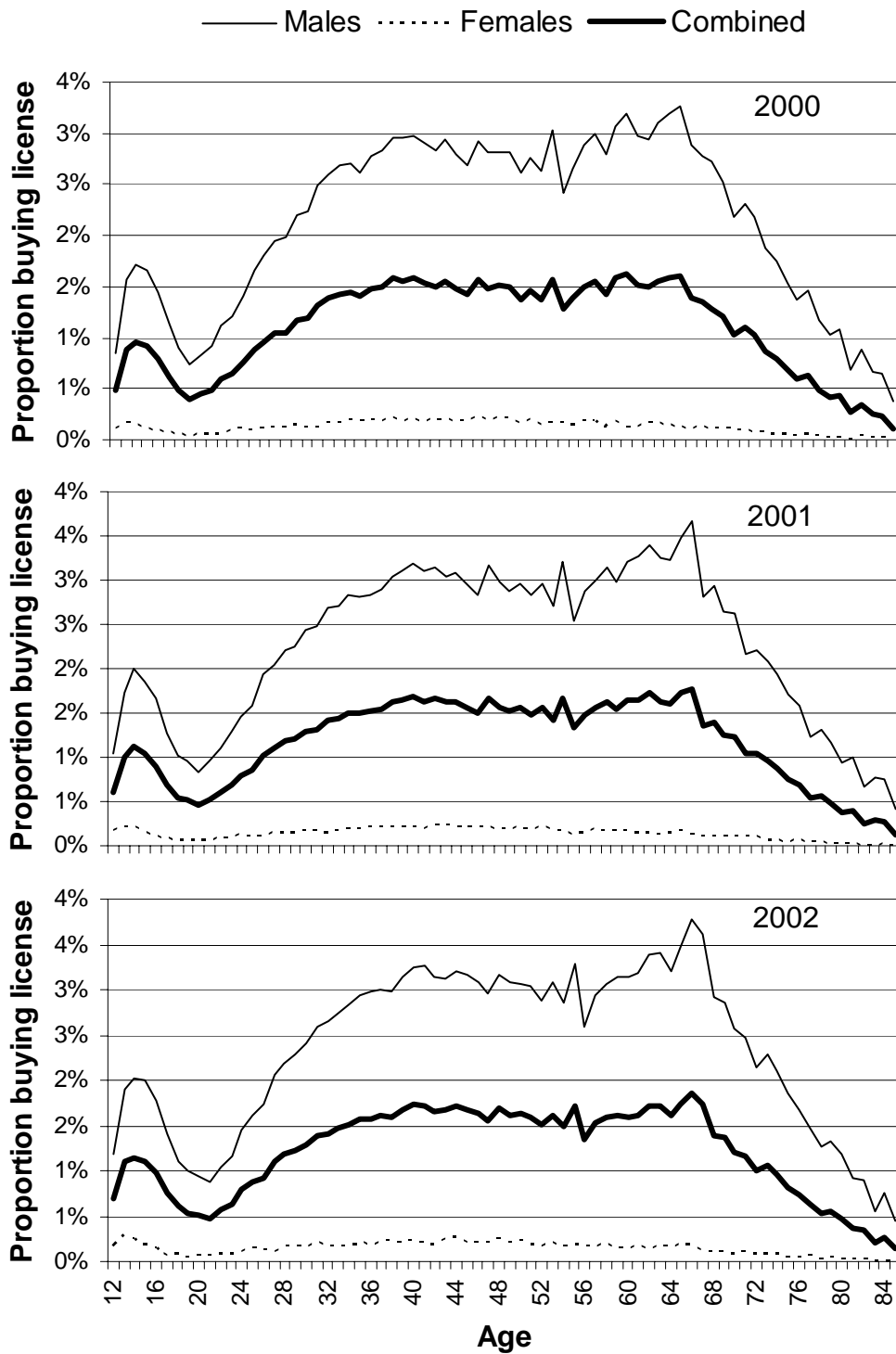


Figure 5. Proportion of Michigan residents that purchased Michigan turkey hunting licenses by age, 2000-2002.

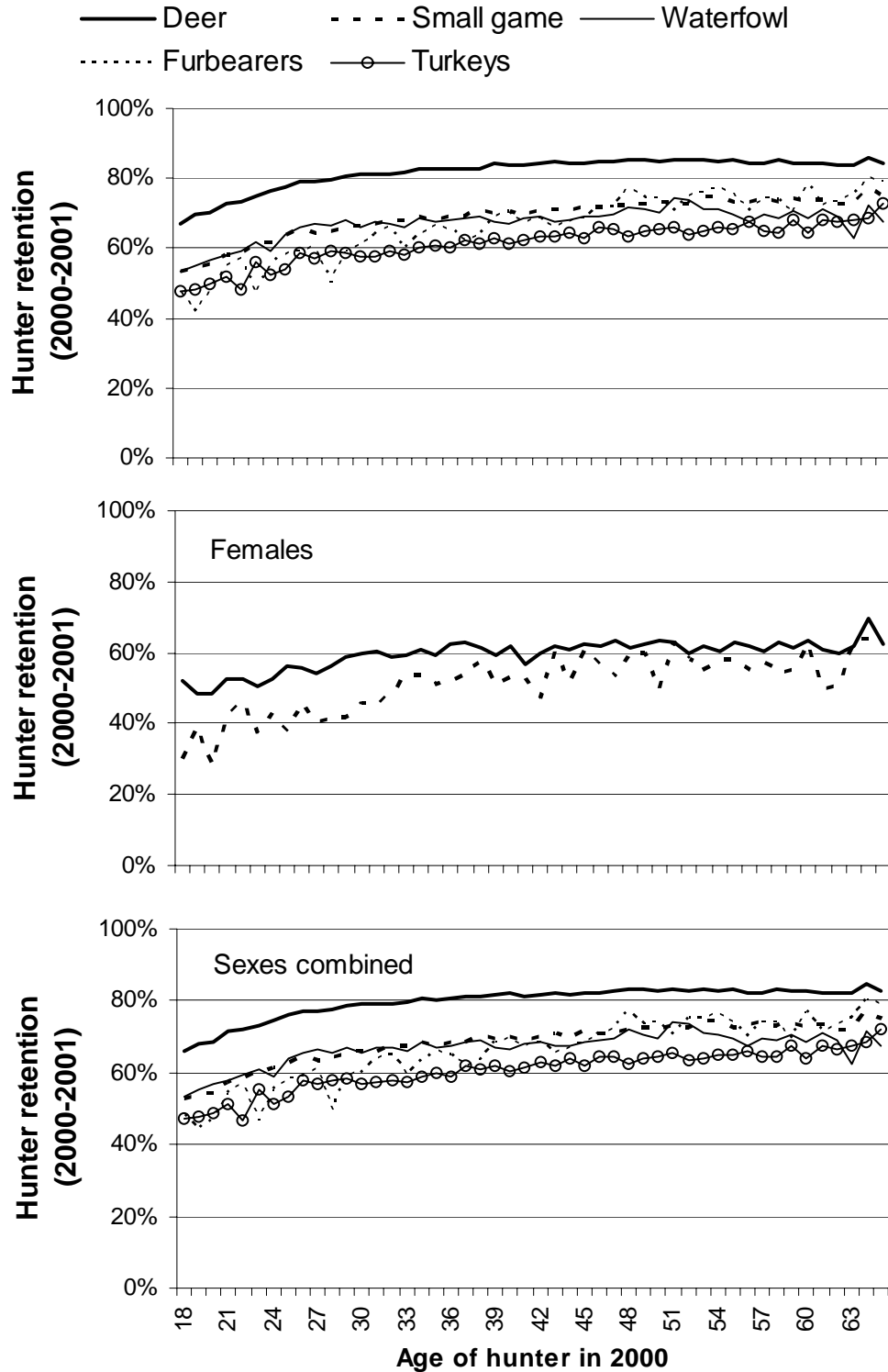


Figure 6. Proportion of hunters that purchased hunting licenses during both 2000 and 2001 in Michigan by age. Hunter retention was not plotted for females hunting waterfowl, furbearers, and turkeys because too few females purchased these license types to produce a smooth plot.

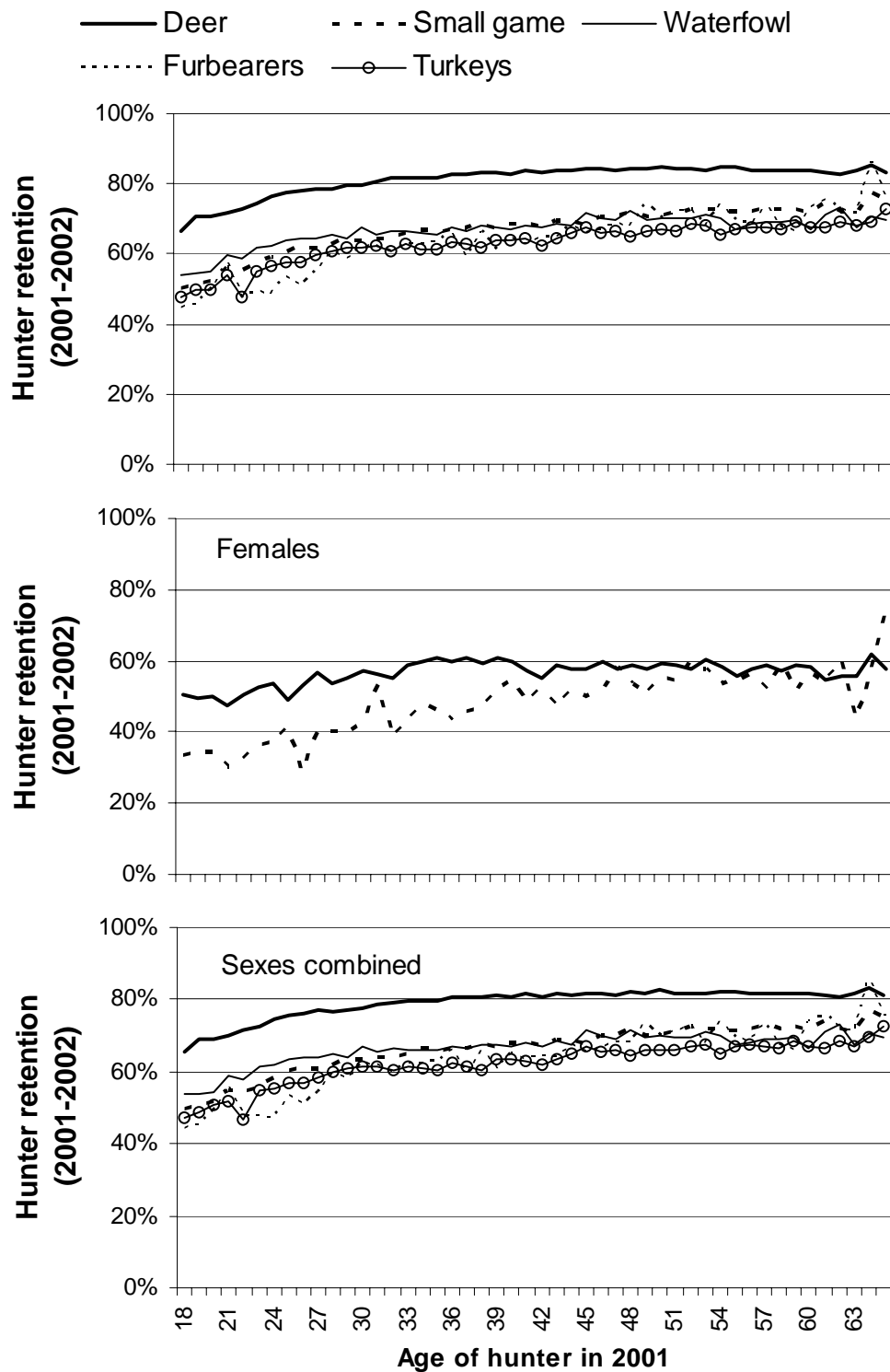


Figure 7. Proportion of hunters that purchased hunting licenses during both 2001 and 2002 in Michigan by age. Hunter retention was not plotted for females hunting waterfowl, furbearers, and turkeys because too few females purchased these license types to produce a smooth plot.

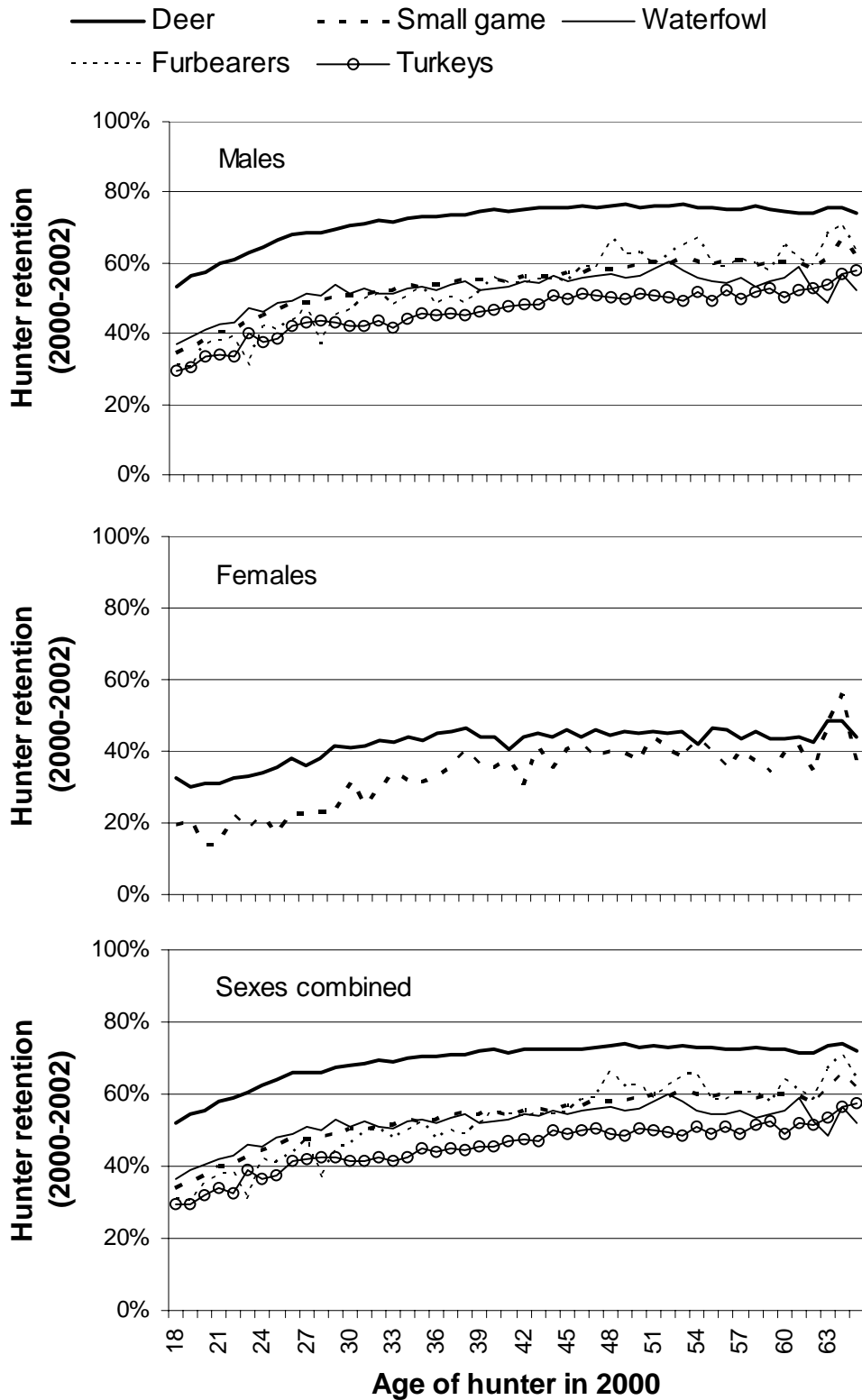


Figure 8. Proportion of hunters that purchased hunting licenses during three consecutive years (2000-2002) in Michigan by age. Hunter retention was not plotted for females hunting waterfowl, furbearers, and turkeys because too few females purchased these license types to produce a smooth plot.

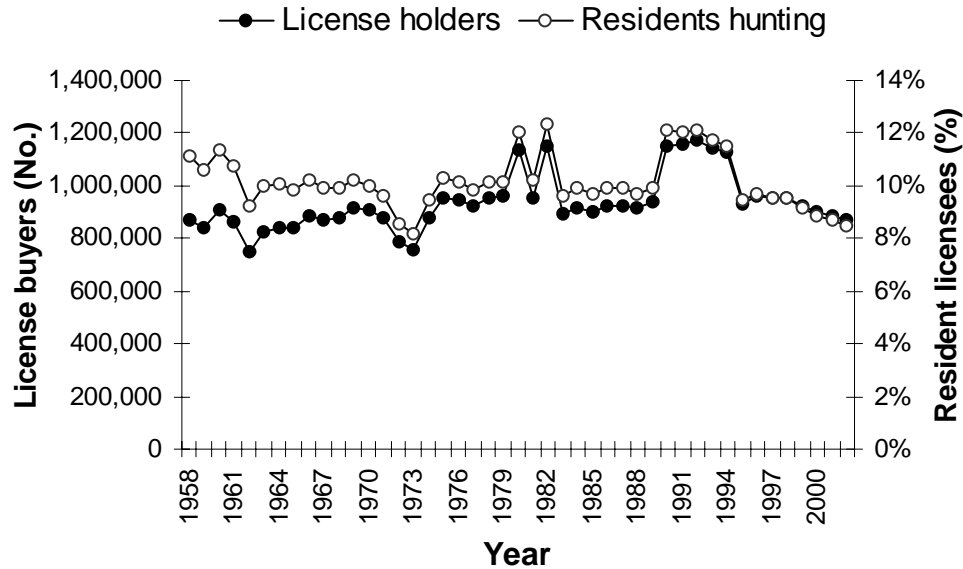


Figure 9. Number of people (both residents and nonresidents) that purchased a Michigan hunting license and proportion of Michigan residents that purchased a hunting license during 1958-2002. A person was counted only once regardless of the number of licenses purchased. It was assumed that 2% of the hunters purchasing a license were nonresidents when calculating participation by Michigan residents.

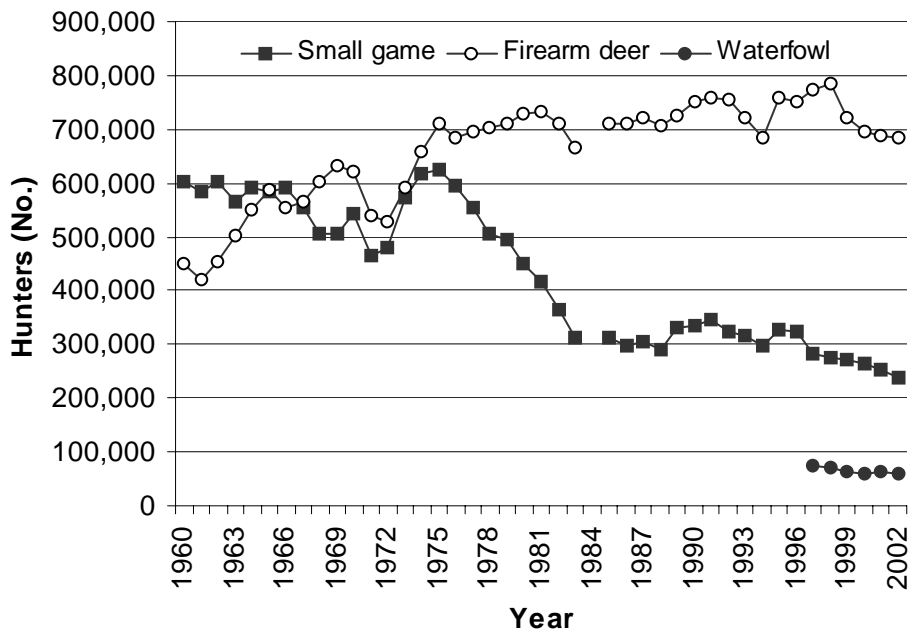


Figure 10. Number of active hunters (i.e., people that went afield) that hunted deer during the regular firearm season (November 15-31), small game, and waterfowl, 1960-2002. Estimates were not available for years when values were not plotted.

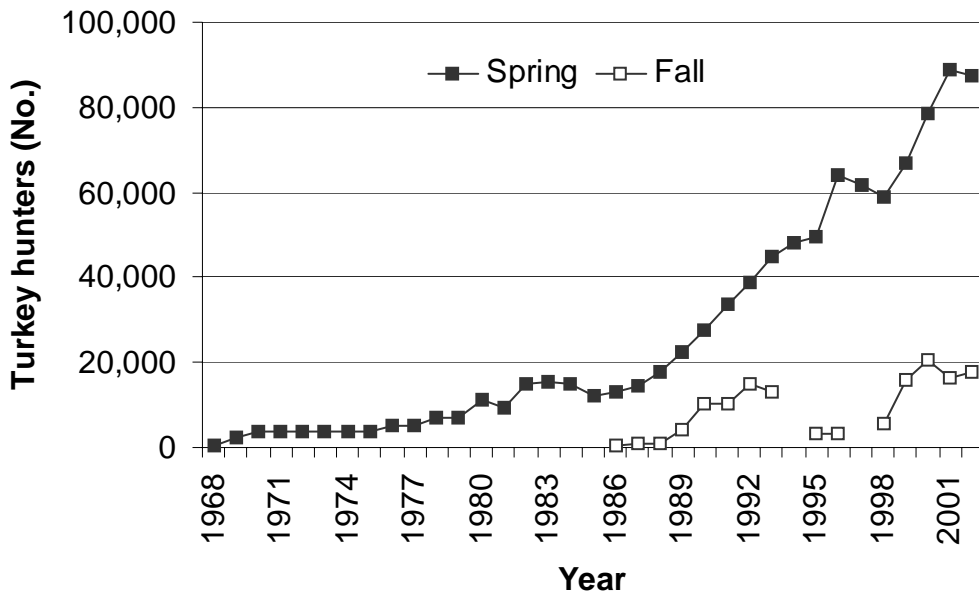


Figure 11. Number of active turkey hunters (i.e., people that went afield) participating in the spring and fall seasons, 1968-2002. No hunting occurred in years when values were not plotted.

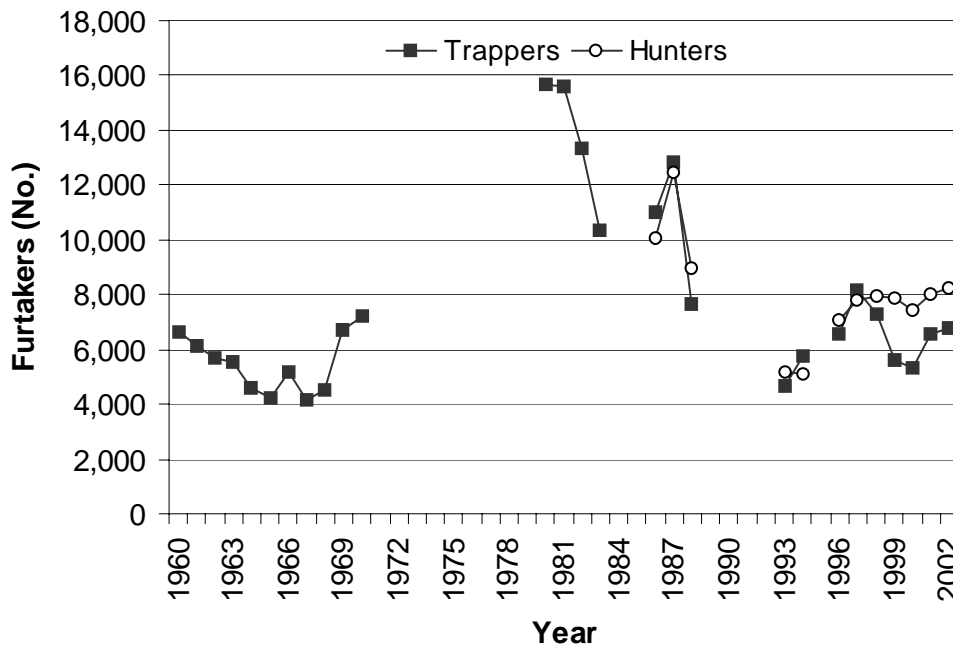


Figure 12. Number of active furtakers (i.e., people that went afield) that trapped or hunted furbearers during 1960-2002. Estimates were not available for years when values were not plotted.

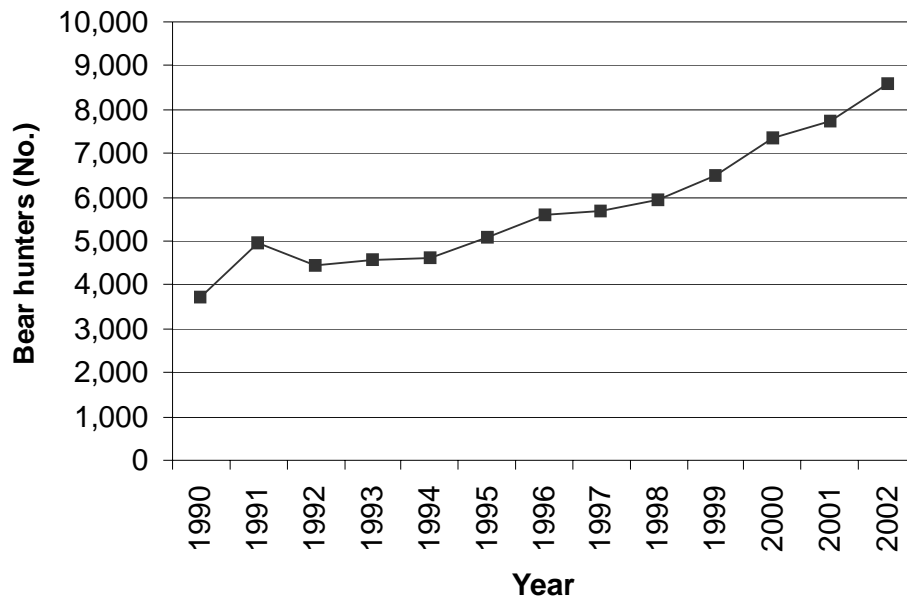


Figure 13. Number of active bear hunters (i.e., people that went afield) during 1990-2002.

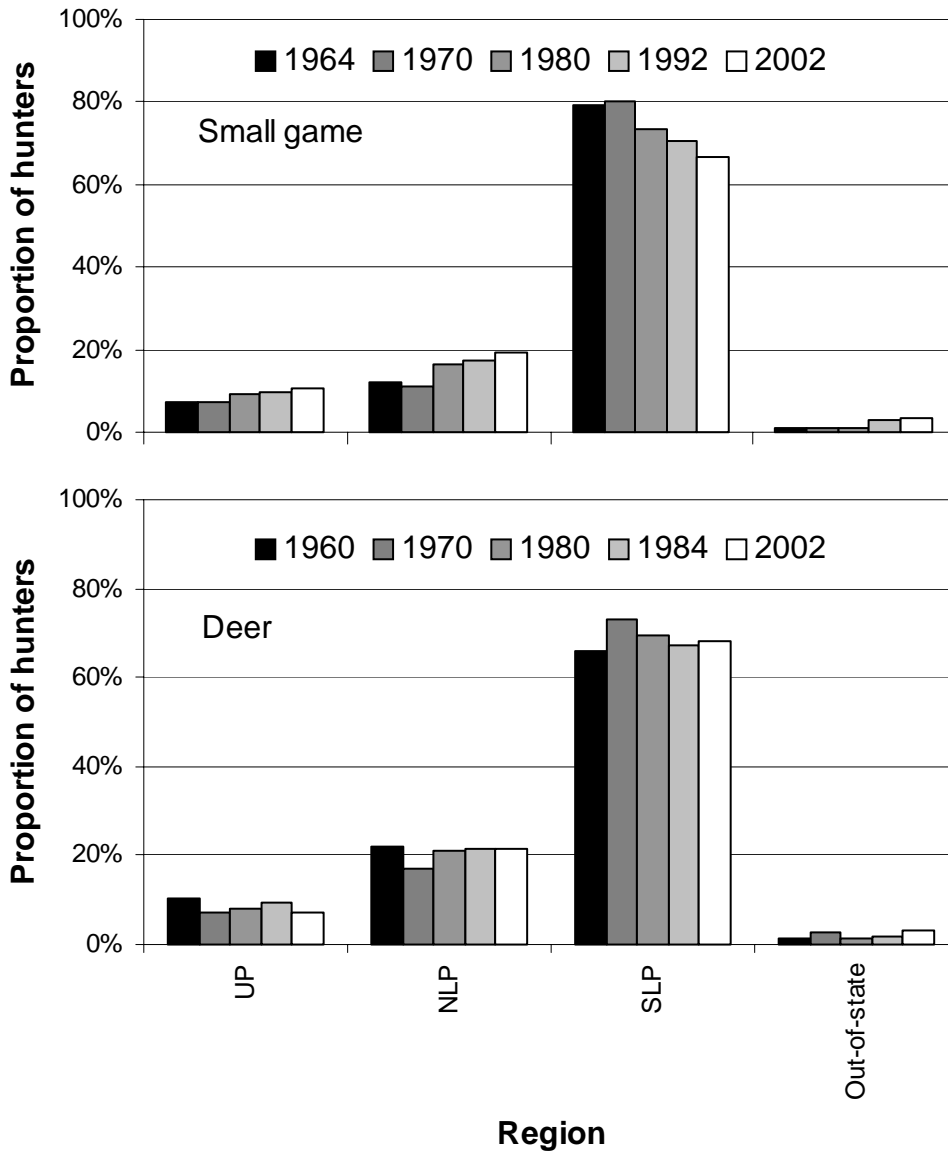


Figure 14. The residency of people that purchased small game and deer hunting licenses in Michigan, 1960-2002 (Ryel 1965b, Langenau et al. 1985, unpubl. data). Data were not available for the same years for small game and deer hunters.

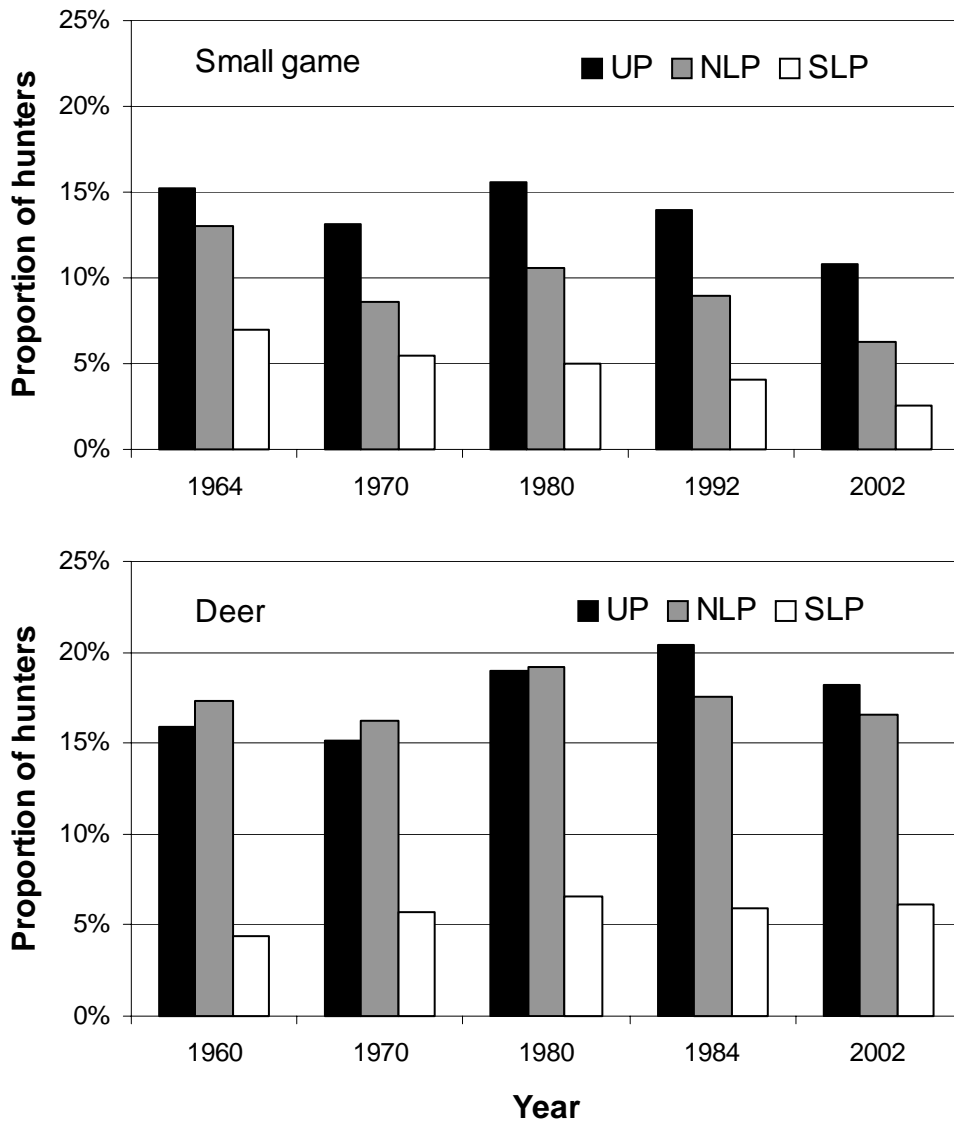


Figure 15. Proportion of Michigan residents that purchased a small game and deer hunting license in Michigan by area of residence, 1960-2002 (Ryel 1965, Langenau et al. 1985, unpubl. data). Data were not available for the same years for small game and deer hunters.

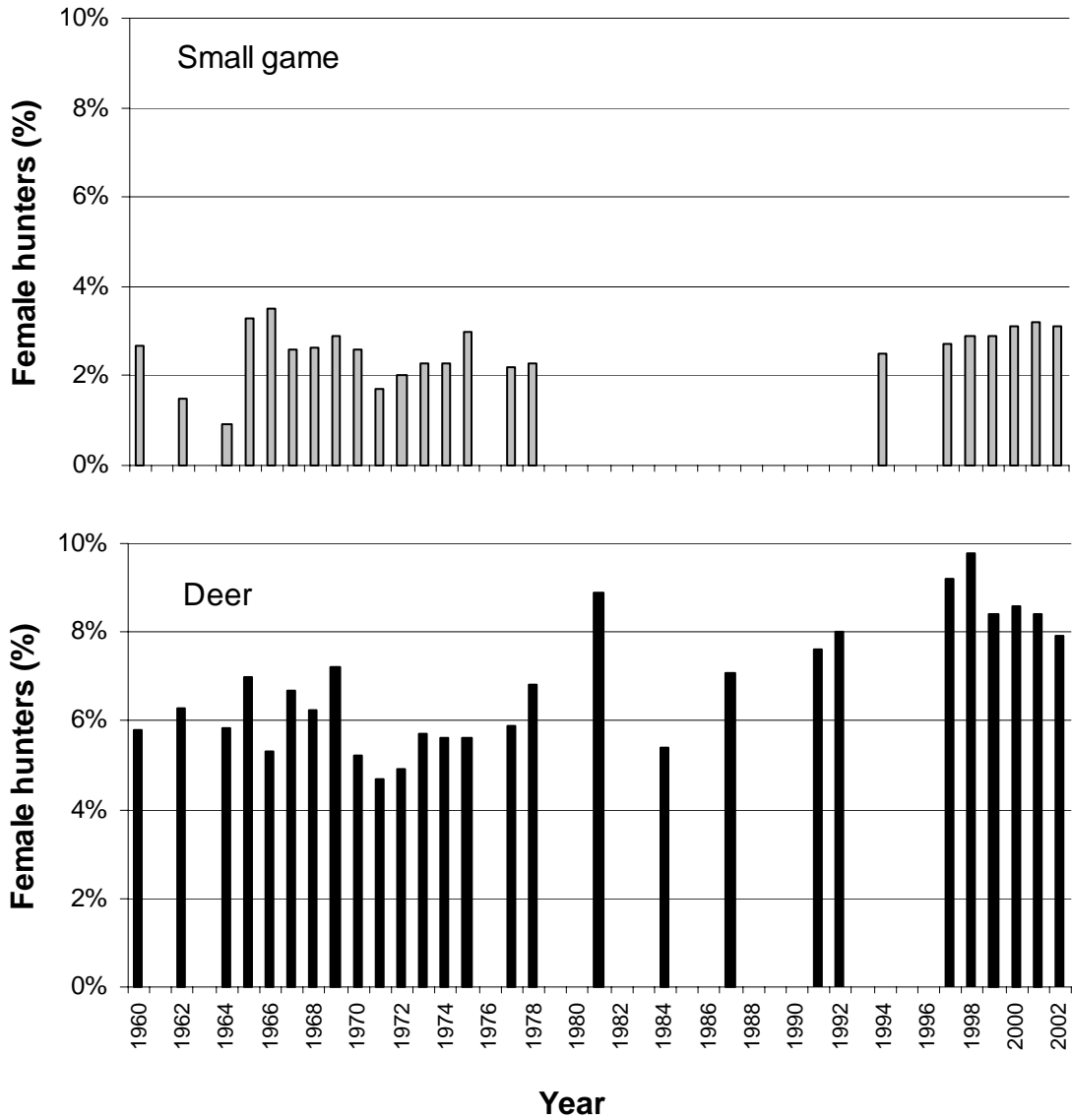


Figure 16. Proportion of female small game and deer license buyers in Michigan, 1960-2002 (Jamsen 1967, Ryel et al. 1970, Langenau et al. 1985, Winterstein 1992, Minnis and Peyton 1994, unpubl. data).

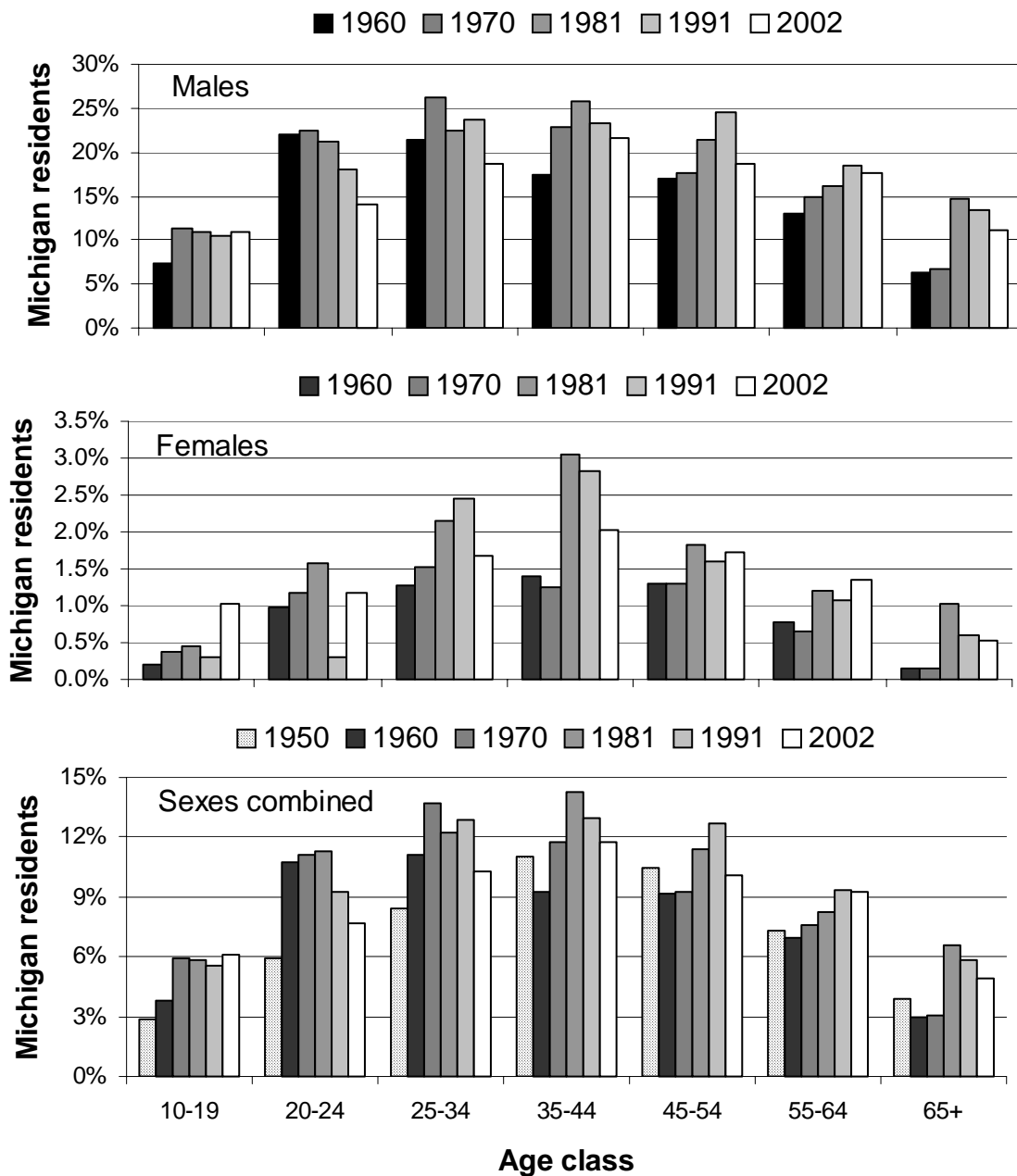


Figure 17. Proportion of Michigan residents that hunted deer by sexes and age, 1950-2002 (Ryel et al. 1970, Winterstein 1992, unpubl. data). Data were available in 1950 for the sexes combined but not for the sexes separately.

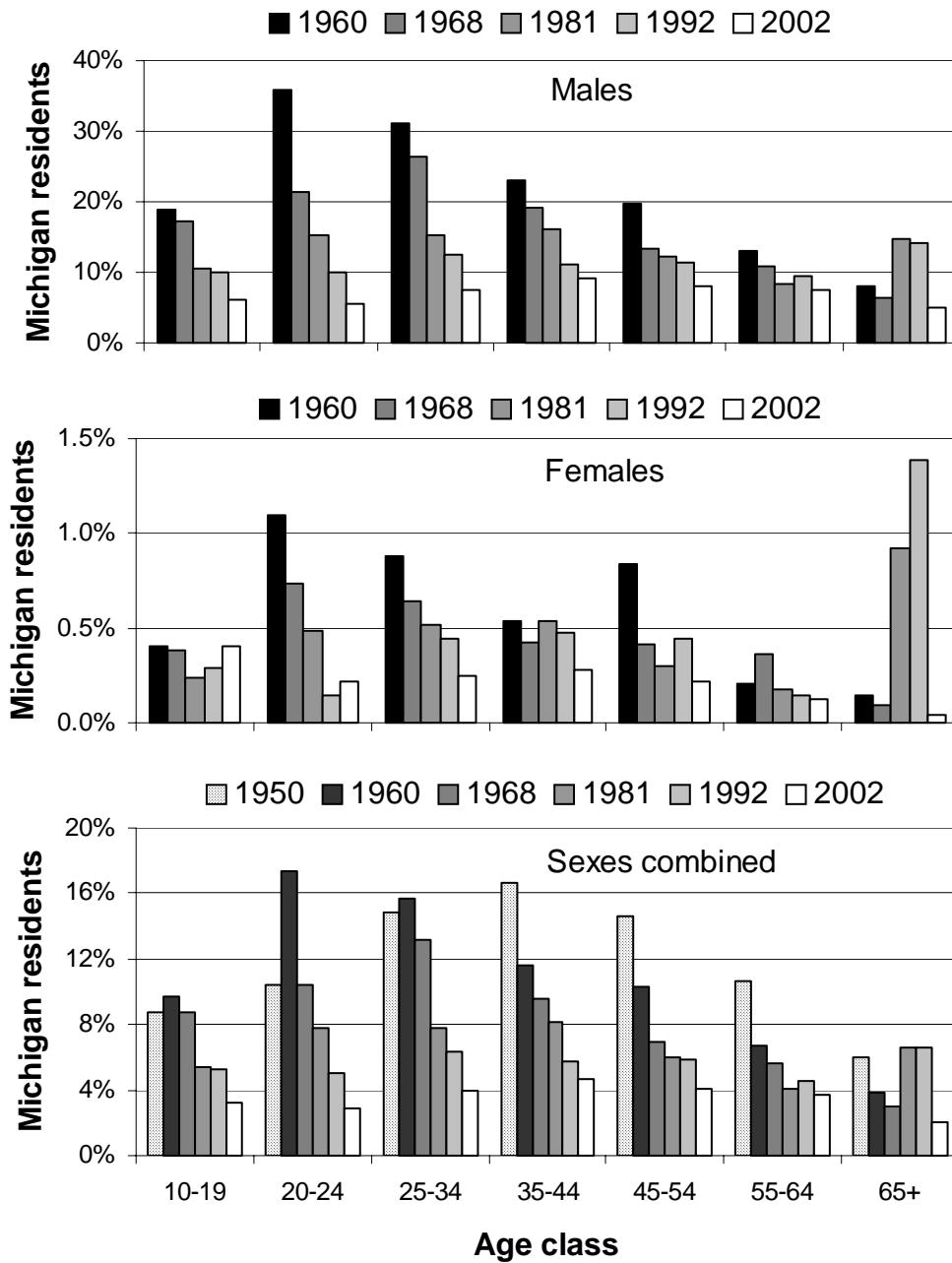


Figure 18. Proportion of Michigan residents that hunted small game by sexes and age, 1950-2002 (Ryel et al. 1970, unpubl. data). Data were available in 1950 for the sexes combined but not for the sexes separately.

Table 1. Hunting licenses that were available to hunt game animals in Michigan, 2000-2002.

Species	Hunting license types	Species that can be taken
Bear	Resident, Senior, Nonresident, and Lifetime bear hunting licenses	Black bear
Deer	Resident, Senior, Junior, and Nonresident Combination; Resident, Senior, and Nonresident Firearm; Resident, Senior, Junior, and Nonresident Archery; Early, Harsens, Shiawassee, Resident, Junior, and Nonresident Antlerless; and Military hunting licenses	White-tailed deer
Elk	Elk Hunting License	Elk
Furbearers ^a	Resident, Senior, Junior, and Nonresident fur harvester licenses; Resident, Junior, and Nonresident trapping only; and Military Fur Harvester licenses	Badger, beaver, bobcat, coyote, fisher, fox, mink, muskrat, opossum, otter, raccoon, skunk, or weasels
Small game ^{a,b,c}	Resident, Senior, Junior, Nonresident, 3-day Nonresident, and Military small game hunting licenses	Coyote, American crow, snowshoe hare, ring-necked pheasant, cottontail rabbit, ruffed grouse, squirrels, skunk, waterfowl, or American woodcock
Turkey	Resident, Senior, and Nonresident spring turkey hunting licenses; and Resident, Senior, and Nonresident fall turkey hunting licenses	Wild turkey
Waterfowl ^d	Waterfowl Hunting and Military Waterfowl licenses	Ducks or geese

^a Landowners (or their designee) could take raccoons and coyotes throughout the year on their property without a license if these animals were causing damage.

^b Landowners and their families that hunted on property where they live could hunt small game without a hunting license.

^c Only residents could hunt coyotes with a small game license. Nonresidents were required to purchase a Fur Harvesters License to hunt coyotes.

^d Waterfowl hunters were normally required to purchase both a small game license and a waterfowl hunting license. Hunters 12-15 years of age could legally hunt waterfowl without a waterfowl hunting license; however, they were required to purchase a small game license.

Table 2. Number of people that purchased a Michigan hunting license during 2000-2002.^a

Hunting license type	Year		
	2000	2001	2002
Bear ^b	7,900	8,262	9,107
Deer	810,864	800,872	788,180
Elk ^b	365	247	142
Fur harvester	17,346	18,871	19,386
Small game	354,858	347,314	327,279
Turkey ^b	96,484	103,386	107,316
Spring turkey	84,355	95,595	98,286
Fall turkey	25,507	19,348	21,952
Waterfowl	66,110	65,961	64,582
All types ^c	895,853	884,859	868,915

^aWithin each license type, a person is counted only once regardless of the number of licenses purchased.

^bA restricted number of licenses were available, and these licenses were distributed using a random drawing.

^cTotal for all types does not equal sum of all license types because people can purchase multiple license types.

Table 3. Residency of people (%) that purchased Michigan hunting licenses in 2000.

Area ^a	License type									
	Bear	Deer	Elk	Fur harvester	Small game	Turkey	Spring turkey	Fall turkey	Waterfowl	All types
DNR Administrative Units										
West Upper Peninsula	21.1	6.0	1.9	9.4	9.1	4.5	3.8	8.7	4.4	6.2
East Upper Peninsula	5.6	1.9	1.4	4.4	2.7	0.9	0.8	1.3	2.2	1.9
NE Lower Peninsula	10.4	7.0	15.1	10.2	7.1	9.2	8.4	12.9	5.6	6.9
NW Lower Peninsula	8.1	8.8	9.9	9.2	7.3	8.7	8.9	7.2	5.3	8.4
Saginaw Bay	11.6	11.9	14.2	14.1	10.9	13.8	13.8	15.2	11.1	11.6
SW Lower Peninsula	11.6	18.6	15.3	16.1	17.3	21.9	22.7	18.7	20.9	18.4
SC Lower Peninsula	11.0	16.4	14.8	16.2	14.4	17.1	18.1	11.5	15.0	16.0
SE Lower Peninsula	19.7	26.3	27.1	20.2	27.6	23.0	22.4	24.0	30.7	26.6
Ecoregions										
Upper Peninsula	26.5	7.8	3.4	13.6	11.7	5.3	4.5	9.8	6.5	8.0
Northern Lower Peninsula	25.0	21.8	31.6	25.5	19.6	24.1	23.2	28.8	15.9	21.1
Southern Lower Peninsula	47.6	67.4	65.0	60.6	65.2	69.6	71.2	60.9	72.8	66.9
Out of state	0.9	3.1	0.0	0.3	3.6	1.0	1.1	0.5	4.8	4.0

^aSee Figure 1 for area boundaries.

Table 4. Residency of people (%) that purchased Michigan hunting licenses in 2001.

Area ^a	License type									
	Bear	Deer	Elk	Fur harvester	Small game	Turkey	Spring turkey	Fall turkey	Waterfowl	All types
DNR Administrative Units										
West Upper Peninsula	22.5	5.9	0.8	9.6	8.5	4.3	3.8	9.3	4.2	6.0
East Upper Peninsula	4.9	1.8	1.2	4.3	2.6	0.9	0.8	1.4	2.0	1.8
NE Lower Peninsula	11.0	7.0	15.4	10.1	6.9	7.3	7.1	7.9	5.4	6.8
NW Lower Peninsula	6.7	8.9	9.8	9.3	7.3	9.0	9.1	7.3	5.3	8.5
Saginaw Bay	11.3	11.9	12.6	13.9	11.0	13.2	13.4	11.5	11.1	11.6
SW Lower Peninsula	11.4	18.8	16.7	16.3	17.6	24.1	23.7	32.8	21.1	18.6
SC Lower Peninsula	10.2	16.4	12.2	16.3	14.6	18.3	19.0	12.3	15.2	16.0
SE Lower Peninsula	20.3	26.3	31.3	19.6	28.1	21.8	22.0	17.0	31.1	26.8
Ecoregions										
Upper Peninsula	27.3	7.6	2.0	13.7	11.0	5.1	4.5	10.3	6.1	7.7
Northern Lower Peninsula	24.1	21.9	30.4	25.7	19.5	22.1	21.8	22.2	15.6	21.2
Southern Lower Peninsula	47.0	67.5	67.6	60.1	66.2	71.8	72.5	67.0	73.8	67.3
Out of state	1.6	3.0	0.0	0.5	3.4	1.1	1.1	0.4	4.5	3.9

^aSee Figure 1 for area boundaries.

Table 5. Residency of people (%) that purchased Michigan hunting licenses in 2002.

Area ^a	License type									
	Bear	Deer	Elk	Fur harvester	Small game	Turkey	Spring turkey	Fall turkey	Waterfowl	All types
DNR Administrative Units										
West Upper Peninsula	21.1	5.7	1.4	9.8	8.1	4.1	3.6	8.3	4.1	5.8
East Upper Peninsula	4.6	1.7	0.0	4.3	2.5	0.8	0.7	1.1	2.0	1.8
NE Lower Peninsula	12.5	6.7	16.9	10.6	6.7	6.1	6.2	3.8	5.5	6.6
NW Lower Peninsula	7.9	8.7	9.9	9.2	7.4	8.0	8.1	6.3	5.4	8.4
Saginaw Bay	12.1	11.9	13.4	14.1	11.2	13.0	13.2	9.7	11.4	11.6
SW Lower Peninsula	10.6	18.9	14.8	16.7	18.0	25.2	24.6	35.0	21.2	18.7
SC Lower Peninsula	10.5	16.7	17.6	15.6	15.0	19.5	19.9	18.7	15.2	16.3
SE Lower Peninsula	19.5	26.5	26.1	19.4	27.8	22.1	22.4	16.7	30.6	26.8
Ecoregions										
Upper Peninsula	25.6	7.3	1.4	13.9	10.4	4.8	4.2	9.0	6.0	7.4
Northern Lower Peninsula	27.3	21.5	33.8	25.9	19.5	19.4	19.5	16.3	16.0	20.8
Southern Lower Peninsula	45.9	68.1	64.8	59.9	66.8	74.6	75.1	74.2	73.5	67.8
Out of state	1.2	3.1	0.0	0.3	3.3	1.1	1.1	0.5	4.5	3.9

^aSee Figure 1 for area boundaries.

Table 6. Sex of people (%) that purchased Michigan hunting licenses, 2000-2002.

Hunting license	2000		2001		2002	
	Male	Female	Male	Female	Male	Female
Bear	91.7	8.3	91.9	8.1	92.3	7.7
Deer	91.4	8.6	91.6	8.4	92.1	7.9
Elk	90.1	9.9	96.4	3.6	90.8	9.2
Fur harvester	97.9	2.1	97.8	2.2	97.8	2.2
Small game	96.9	3.1	96.8	3.2	96.9	3.1
Turkey	94.0	6.0	94.0	6.0	93.8	6.2
Spring turkey	94.2	5.8	94.0	6.0	93.8	6.2
Fall turkey	94.3	5.7	94.6	5.4	94.5	5.5
Waterfowl	98.0	2.0	98.0	2.0	97.9	2.1
All types	91.5	8.5	91.7	8.3	92.0	8.0

Table 7. Mean age of people buying a Michigan hunting license during 2000-2002.^a

License type	Year								
	2000			2001			2002		
	Males	Females	Combined	Males	Females	Combined	Males	Females	Combined
Bear ^b	43	41	43	44	42	44	44	44	44
Deer	40	40	40	41	40	41	41	40	41
Elk ^b	46	42	46	46	37	45	47	38	46
Fur harvester	42	39	42	42	38	42	43	40	43
Small game	40	34	39	40	34	40	40	33	40
Turkey ^b	44	42	43	44	41	43	44	41	44
Spring turkey ^b	43	42	43	44	41	43	44	41	44
Fall turkey ^b	46	43	46	47	43	47	46	44	46
Waterfowl ^c	40	37	40	40	36	40	40	36	40
Any species	40	40	40	40	40	40	41	39	40

^aAge on October 1.

^bA restricted number of licenses were available and were distributed using a random drawing.

^cHunters 12-15 years of age could legally hunt waterfowl without a waterfowl hunting license; however, they were required to purchase a small game license.

Table 8. Percentage of Michigan residents purchasing a Michigan hunting license, by age and sex, during 2000-2002.

Age ^a	Year								
	2000			2001			2002		
	Males	Females	Combined	Males	Females	Combined	Males	Females	Combined
≥12	19.1	1.7	10.2	18.9	1.7	10.1	18.5	1.6	9.8
≥16	19.4	1.7	10.3	19.2	1.7	10.2	18.8	1.6	9.9
12-17	16.6	1.5	9.3	16.5	1.6	9.2	16.3	1.7	9.2
12-18	16.4	1.5	9.1	16.2	1.5	9.1	16.0	1.6	9.0
12-19	16.2	1.4	9.0	16.0	1.5	8.9	15.8	1.6	8.9
18-24	16.2	1.3	8.8	15.7	1.3	8.6	15.0	1.2	8.2
25-34	21.5	2.1	11.8	20.9	2.0	11.5	20.0	1.8	11.0
35-44	23.5	2.4	12.9	23.4	2.4	12.8	23.1	2.2	12.6
45-54	20.2	2.1	11.0	20.4	2.0	11.1	20.2	1.9	10.9
55-64	19.7	1.7	10.4	19.3	1.6	10.2	19.2	1.5	10.1
65-74	15.8	1.0	7.7	16.2	1.0	7.9	16.0	0.9	7.8
75-84	8.3	0.4	3.5	8.3	0.4	3.5	8.3	0.3	3.5
≥85	3.2	0.1	1.0	3.1	0.1	1.0	2.9	0.1	0.9

^aAge on July 1. July 1 was used because the U.S. Census Bureau reports Michigan demographic estimates as of July 1.

Table 9. Number of people that purchased a hunting license to hunt only a single species in Michigan, 2000-2002.^a

Species group	Year		
	2000	2001	2002
Bear^b			
Number (N)	536	550	545
% ^c	6.8	6.7	6.0
Deer			
N	499,307	492,295	492,078
%	61.6	61.5	62.4
Elk^b			
N	25	12	7
%	6.8	4.9	4.9
Fur harvester			
N	709	809	795
%	4.1	4.3	4.1
Small game			
N	59,922	58,213	53,637
%	16.9	16.8	16.4
Turkey^b			
N	6,729	7,487	9,234
%	7.0	7.2	8.6
Spring turkey			
N	6,280	7,241	8,772
%	7.4	7.6	8.9
Fall turkey			
N	758	459	757
%	3.0	2.4	3.4
Waterfowl^d			
N	351	283	261
%	0.5	0.4	0.4
Any single type^e			
N	567,270	559,436	556,262
%	63.3	63.2	64.0

^aWithin each species group, a person is counted only once regardless of the number of licenses purchased.

^bA restricted number of licenses were available, and these licenses were distributed using a random drawing.

^cWithin each species group, the percentage of license buyers that only purchased a license to hunt this species.

^dWaterfowl hunters normally were required to purchase both small game and waterfowl hunting licenses.

^eFall and spring turkey licensees treated as hunters pursuing separate species.

Table 10. Number of people buying licenses to hunt multiple species in Michigan during 2000.

Primary species	People buying license to hunt primary species	People that also purchased a license to hunt a secondary species								
		Bear	Deer	Elk	Fur harvester	Small game	Turkey	Spring turkey	Fall turkey	Waterfowl
Bear^a										
Number (N)	7,900		7,153	14	922	5,324	2,491	2,180	794	1,256
%	100		90.5	0.2	11.7	67.4	31.5	27.6	10.1	15.9
Deer										
N	810,864	7,153		334	15,578	278,296	87,002	75,649	24,121	51,880
%	100	0.9		<0.1	1.9	34.3	10.7	9.3	3.0	6.4
Elk^a										
N	365	14	334		21	228	156	131	67	50
%	100	3.8	91.5		5.8	62.5	42.7	35.9	18.4	13.7
Fur harvester										
N	17,346	922	15,578	21		14,872	5,377	4,815	1,726	4,755
%	100	5.3	89.8	0.1		85.7	31.0	27.8	10.0	27.4
Small game										
N	354,858	5,324	278,296	228	14,872		59,779	52,103	17,682	65,187
%	100	1.5	78.4	0.1	4.2		16.8	14.7	5.0	18.4
Turkey^a										
N	96,484	2,491	87,002	156	5,377	59,779		84,355	25,507	17,461
%	100	2.6	90.2	0.2	5.6	62.0		87.4	26.4	18.1
Spring turkey^a										
N	84,355	2,180	75,649	131	4,815	52,103	84,355		13,378	15,640
%	100	2.6	89.7	0.2	5.7	61.8	100		15.9	18.5
Fall turkey^a										
N	25,507	794	24,121	67	1,726	17,682	25,507	13,378		5,083
%	100	3.1	94.6	0.3	6.8	69.3	100	52.4		19.9
Waterfowl^b										
N	66,110	1,256	51,880	50	4,755	65,187	17,461	15,640	5,083	
%	100	1.9	78.5	0.1	7.2	98.6	26.4	23.7	7.7	

^aA restricted number of licenses were available and were distributed using a random drawing.

^bWaterfowl hunters normally are required to purchase both small game and waterfowl hunting licenses.

Table 11. Number of people buying licenses to hunt multiple species in Michigan during 2001.

Primary species	People buying license to hunt primary species	People that also purchased a license to hunt a secondary species								
		Bear	Deer	Elk	Fur harvester	Small game	Turkey	Spring turkey	Fall turkey	Waterfowl
Bear^a										
Number (N)	8,262		7,492	7	1,197	5,526	2,872	2,680	655	1,310
%	100		90.7	0.1	14.5	66.9	34.8	32.4	7.9	15.9
Deer										
N	800,872	7,492		229	16,922	272,555	92,902	85,588	18,434	52,106
%	100	0.9		<0.1	2.1	34.0	11.6	10.7	2.3	6.5
Elk^a										
N	247	7	229		21	159	113	105	26	41
%	100	2.8	92.7		8.5	64.4	45.7	42.5	10.5	16.6
Fur harvester										
N	18,871	1,197	16,922	21		15,973	6,272	5,864	1,516	5,249
%	100	6.3	89.7	0.1		84.6	33.2	31.1	8.0	27.8
Small game										
N	347,314	5,526	272,555	159	15,973		63,390	58,423	13,534	65,138
%	100	1.6	78.5	<0.1	4.6		18.3	16.8	3.9	18.8
Turkey^a										
N	103,386	2,872	92,902	113	6,272	63,390		95,595	19,348	18,780
%	100	2.8	89.9	0.1	6.1	61.3		92.5	18.7	18.2
Spring turkey^a										
N	95,595	2,680	85,588	105	5,864	58,423	71,196		11,557	17,588
%	100	2.8	89.5	0.1	6.1	61.1	100		12.1	18.4
Fall turkey^a										
N	19,348	655	18,434	26	1,516	13,534	19,348	11,557		4,106
%	100	3.4	95.3	0.1	7.8	70.0	100	59.7		21.2
Waterfowl^b										
N	65,961	1,310	52,106	41	5,249	65,138	18,780	17,588	4,106	
%	100	2.0	79.0	0.1	8.0	98.8	28.5	26.7	6.2	

^aA restricted number of licenses were available and were distributed using a random drawing.

^bWaterfowl hunters normally are required to purchase both small game and waterfowl hunting licenses.

Table 12. Number of people buying licenses to hunt multiple species in Michigan during 2002.

Primary species	People buying license to hunt primary species	People that also purchased a license to hunt a secondary species								
		Bear	Deer	Elk	Fur harvester	Small game	Turkey	Spring turkey	Fall turkey	Waterfowl
Bear^a										
Number (N)	9,107		8,315	3	1,275	5,894	3,196	2,987	683	1,399
%	100		91.3	<0.1	14.0	64.7	35.1	32.8	7.5	15.4
Deer										
N	788,180	8,315		129	17,514	257,491	94,973	86,730	20,618	51,141
%	100	1.1		<0.1	2.2	32.7	12.0	11.0	2.6	6.5
Elk^a										
N	142	3	129		11	83	65	63	14	31
%	100	2.1	90.8		7.7	58.5	45.8	44.4	9.9	21.8
Fur harvester										
N	19,386	1,275	17,514	11		16,287	6,575	6,139	1,660	5,336
%	100	6.6	90.3	0.1		84.0	33.9	31.7	8.6	27.5
Small game										
N	327,279	5,894	257,491	83	16,287		63,416	57,922	14,759	63,813
%	100	1.8	78.7	<0.1	5.0		19.4	17.7	4.5	19.5
Turkey^a										
N	107,316	3,196	94,973	65	6,575	63,416		98,286	21,952	19,166
%	100	3.0	88.5	0.1	6.1	59.1		91.6	20.5	17.9
Spring turkey^a										
N	98,286	2,987	86,730	63	6,139	57,922	98,286		12,922	17,880
%	100	3.0	88.2	0.1	6.2	58.9	100		13.1	18.2
Fall turkey^a										
N	21,952	683	20,618	14	1,660	14,759	21,952	12,922		4,430
%	100	3.1	93.9	0.1	7.6	67.2	100	58.9		20.2
Waterfowl^b										
N	64,582	1,399	51,141	31	5,336	63,813	19,166	17,880	4,430	
%	100	2.2	79.2	<0.1	8.3	98.8	29.7	27.7	6.9	

^aA restricted number of licenses were available and were distributed using a random drawing.

^bWaterfowl hunters normally are required to purchase both small game and waterfowl hunting licenses.

Table 13. Percentage of hunters purchasing a hunting license during two consecutive years.^a

License type	Period					
	2000-2001			2001-2002		
	Male	Female	Combined	Male	Female	Combined
Bear ^b	5.1	3.2	4.9	6.4	3.4	6.1
Deer	81.8	59.7	79.9	81.2	57.1	79.2
Elk ^b	0.0	0.0	0.0	0.0	0.0	0.0
Fur harvester	67.3	52.3	67.0	65.3	50.8	65.0
Small game	69.3	50.7	68.8	67.5	47.2	67.0
Turkey ^b	62.7	49.6	61.9	64.4	52.4	63.7
Spring turkey	63.9	50.7	63.1	64.1	51.8	63.4
Fall turkey	31.4	23.7	30.9	40.3	32.3	39.9
Waterfowl	67.2	50.7	66.9	66.7	51.4	66.4
All types	81.5	60.0	79.7	80.7	57.5	78.7

^aIncludes only people that were at least 18 years old on October 1 of the first year of the interval.

^bA restricted number of licenses were available and were distributed using a random drawing.

Table 14. Proportion of people that purchased a hunting license in 2000 that also purchased licenses during 2000-2002.

License type	Period								
	One year (2000 only)			Two years (2000 and either 2001 or 2002)			Three Years (2000-2002)		
	Males	Females	Combined	Males	Females	Combined	Males	Females	Combined
Bear ^a	82.2	85.8	82.5	16.0	13.9	15.8	1.8	0.3	1.7
Deer	13.1	33.4	14.9	15.3	24.3	16.0	71.6	42.4	69.1
Elk ^a	100.0	100.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0
Fur harvester	26.1	41.5	26.4	19.9	19.0	19.9	54.0	39.5	53.7
Small game	23.3	43.0	23.9	22.4	24.5	22.4	54.3	32.5	53.7
Turkey ^a	27.5	42.1	28.4	24.9	24.1	24.8	47.6	33.7	46.8
Spring turkey ^a	26.3	40.5	27.1	25.0	24.3	25.0	48.7	35.1	48.0
Fall turkey ^a	59.3	69.4	59.9	24.5	20.2	24.3	16.1	10.4	15.8
Waterfowl	26.1	42.6	26.5	21.4	24.9	21.5	52.4	32.4	52.0
Any species	13.6	33.2	15.3	15.0	23.9	15.8	71.3	42.9	68.9

^aA restricted number of licenses were available and were distributed using a random drawing.