Furbearer Survey
Trapping, Hunting, and Harvest Report

License Year 2003

Harvest Surveys
Montana Fish Wildlife and Parks

March 21, 2005

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Introduction

This report contains statistical estimates of Montana Furbearer, Predatory, and Nongame species trapping and hunting effort, and harvest success, during license year 2003 (LY2003). The LY2003 Trapping season began in autumn of 2003 and ended in spring of 2003. The estimates are based on summary and analysis of returns from a mail survey of 100% of known Trapping license holders, conducted following the LY2003 season. (See 2003 Furbearer Survey Questionnaire enclosure.) The Trapping license holder was asked if he/she actively engaged in trapping/snaring, hunting, or hunting using hounds during the LY2003 season. Then, for each of these three activities, the respondent was asked for effort and success information, by County and furbearer/predator/nongame species. Survey responses were summarized at various groupings of Species, Location, and Activity. The inverse of the overall survey response rate (license holders/responses analyzed) determines the factor by which these summary statistics are expanded into statistical estimates of furbearer activity effort and success in Montana.

Information on Trapping license sales, sampling effort, survey return, response rate, expansion factor, and participation rate are presented below. All Trapping license holders in Harvest Surveys’ Sportsperson/License database by late April following the Furbearer season are sampled. The Trapping license and holder information came from the FWP point-of-sale Automated Licensing System (ALS), which began operation at the start of LY2002. The effective sample rate is slightly less than 100% because not all Trapping licenses are properly recorded in the database at the time of sampling. Sampled Trapping license holders are sent the Furbearer Survey by mail in the spring following the end of the Trapping season. Return rates have generally ranged between 30 and 40 percent over the past 8 years. Percent of Furbearer Survey respondents reporting they actively trapped or hunted furbearer/predator/nongame species has varied in the 50 to 60 percent range over the same period.

Estimation of Furbearer Effort and Success Statistics

The statistical estimates of trapping/hunting effort and harvest success were summarized and analyzed based on three variables: Species, Location, and Activity. They are organized in the tables of this report based on these three identifying variables.

1. Furbearer, Predator, or Nongame Species (in the order presented in the report tables):

   - All Species Combined
   - Bobcat (Furbearer)
   - Beaver (Furbearer)
   - Weasel (Predator)
   - Otter (Furbearer)
   - Skunk (Predator)
   - Muskrat (Furbearer)
   - Coyote (Predator)
   - Mink (Furbearer)
   - Fox (Nongame)
   - Marten (Furbearer)
   - Raccoon (Nongame)
   - Fisher (Furbearer)
   - Badger (Nongame)
   - Wolverine (Furbearer)
   - Other
   - Lynx (CLOSED SEASON)
   - Unknown

The category “All Species Combined” (ALL) indicates statistics are computed without regard to species. “Other” (OTH) indicates an unlisted species. “Unknown” (UNK) indicates an unidentified species.
2. Location of Trapping or Hunting Effort:

- **Statewide (State):** Indicates that statistics are computed without regard to County of effort and provides an overall picture of Trapper license holder activities and harvest in Montana.
- **Furbearer District (District 1 ... 7, District ?):** Statistics are computed based on effort reported within groupings of Counties which approximate MFWP Administrative Regions. Reported effort or success in an unknown County is lumped into “District ?”.
- **County:** Statistics are computed based on County of Trapper license holder effort. Counties are ordered alphabetically within Furbearer Districts. No attempt is made to screen out data reporting trapping or hunting of Furbearer species in Counties where their presence is unlikely. Reported location data are presented as is so Regional managers and biologists will have the opportunity to interpret it for themselves.

3. Furbearer Activity Type (corresponding to the 3 separate portions of the survey):

- **All:** Statistics are computed without regard to the Furbearer Activity Type.
- **Trapping/Snaring:** Statistics are computed for effort and success information from the “Trapping/Snaring” portion of the survey only.
- **Hunting (without hounds):** Statistics are computed for effort and success information from the “Hunting without hounds” portion of the survey only.
- **Hunting with Hounds:** Statistics are computed for effort and success information from the “Hunting with Hounds” portion of the survey only.

**Statistical Confidence and Precision**

The presented statistics relating to Trapper license holder trapping/hunting effort and harvest success are estimates based on the underlying Furbearer Survey response set for a particular combination of the various levels of Species, Location, and Activity. One expansion factor is derived from the population of holders of all Trapping License Types divided by the number of holders returning survey responses, for a given license year. (See table above.) The raw summarized survey response counts are multiplied by the expansion factor to obtain the estimates and 80% confidence bounds on the estimates. A low expansion factor (close to 1) indicates a high response rate, and favors good statistical precision in the estimate. Good statistical precision is reflected in relatively narrow 80% confidence bounds on the estimate. An expansion factor significantly higher than 1 indicates a lower response rate, relatively poor statistical precision, and relatively wide 80% confidence bounds on the estimate. A second factor influencing precision of an effort or success estimate is the raw number of survey responses reporting trapping/hunting activity or harvest, for a given combination of Species, Location, and Activity. The higher the total count of responding active trappers/hunters, or reported kill, the better the precision of the estimate of the effort or success statistic.

Relative statistical precision will be better for estimates at levels and groupings of Species, Location, and Activity where the total reported number trapping/hunting or harvesting is relatively higher. Total reported trappers/hunters and kill accumulate as the three grouping variables are lumped into higher levels, therefore the relative precision of the estimates get better. For example, precision in the Statewide estimates will be better than precision in Furbearer District level estimates, which will generally be better than precision in the County level estimates. In general, the poorest relative precision in the estimates occur at the finest level of response data splitting. This is particularly true at the County level for species with relatively restricted populations or low Trapper license holder interest.

Estimates of Trappers and Successful Trappers by Location will not sum to the District wide or Statewide estimates because an individual trapper/hunter may expend effort and take animals in more than one County. The Trapper/Hunter Days and Total Harvest estimates will sum across Locations because hunters report days and kill by County, and the same expansion factor is used to obtain the estimates for all Locations.
In cases where there was no Trapper license holder trapping/hunting effort for a given Species, at a given Location, for a given Activity, no row of effort or success statistics was generated. In cases where there was no Trapper license holder trapping/hunting success, some of the ratios comparing harvest within defined categories will be undefined. These are flagged in the tables as \(-0.0\). In other cases, effort or success ratios were too large to fit in the space formatted for the table column. These will appear as \#####\ and generally indicate values outside a meaningful range.

**Tables of Statistical Estimates of Furbearer Effort and Success**

The Furbearer tables are organized as follows:

**Tables of Trapping and Hunting Effort, and Harvest Success**

1. Summary of Trapping, Hunting, and Houndsman Activities
2. Detail of All Furbearer Activities Combined
3. Detail of Trapping and Snaring Activities
4. Detail of Hunting (without hounds) Activities
5. Detail of Hunting with Hounds Activities

**Tables of Confidence Bounds on Statistical Estimates**

6. All Furbearer Activities Combined
7. Trapping and Snaring Activities
8. Hunting (without hounds) Activities
9. Hunting with Hounds Activities

A description of each table, including definitions of each column is given below.

**Table 1: Summary of Trapping, Hunting, and Houndsman Activities**

This presentation joins the key statistics for the three Furbearer Activities with those for All Activities Combined into a single table. It is similar to the presentation given in Furbearer reports prior to LY1996. The following statistics were computed by Species (ALL combined and individual species) and Location (State, Furbearer District, and County within District):

**Trapping Activity**

- **Active Trapper**: Point estimate of number of Trapping License holders that actively set traps or snares for Furbearer Survey Species during the Furbearer season.
- **Trap Days**: Point estimate of the sum of Number of Traps Set multiplied by Days Set across every trapper reporting trapping for a given Species within a given County. An estimate of trapping effort.
- **Total Catch**: Point estimate of the total number of animals caught of a given Species at a given Location.
- **Trap Days/Catch**: Traps Days divided by Total Catch for a given Species and Location. An estimate of the trapping/snaring effort required to harvest an animal.

**Hunting Activity**

- **Active Hunter**: Point estimate of number of Trapping License holders that actively hunted without hounds for Furbearer Survey Species during the Furbearer season.
- **Hunter Days**: Point estimate of the sum of days or partial days afield hunting (without hounds) for a given Species at a given Location.
- **Total Harvest**: Point estimate of the total number of animals taken while hunting (without hounds), of a given Species at a given Location.

**Houndsman Activity**

- **Active Hounds**: Point estimate of number of Trapping License holders that actively hunted with hounds for Furbearer Survey Species during the Furbearer season.
- **Hunter Days**: Point estimate of the sum of days or partial days afield hunting with hounds for a given Species at a given Location.
- **Total Harvest**: Point estimate of the total number of animals taken while hunting with hounds, of a given Species at a given Location.

**All Activities**

- **Active in Fur**: Point estimate of number of Trapping License holders that actively trapped, snared, hunted or used hounds in the effort to take a Furbearer Survey Species during the Furbearer season.
- **Total Harvest**: Point estimate of the total number of animals taken while engaged in any Furbearer Activity, of a given Species at a given Location.
- **Mean Harvest**: Total Harvest divided by the number Active in Fur. An estimate of the number of animals taken by an average active Trapping License Holder regardless of Furbearer Activity, for a given Species at a given Location.
- **Species % Comp. (Species Percent Composition)**: Total Harvest of a given Species, divided by Total Harvest of ALL species, within a given Location, regardless of Activity of take, expressed as a percent. Provides an estimate of the percent Furbearer Survey Species composition of Harvest at a given Location.

**Table 2: Detail of All Furbearer Activities Combined**

The statistics in this table were computed without regard to type of Furbearer Activity.

- **Active in Fur**: Point estimate of number of Trapping License holders that actively trapped, snared, hunted or used hounds in the effort to take a Furbearer Survey Species during the Furbearer season.
- **Activity Days**: Point estimate of the sum of days or partial days afield while engaged in any Furbearer Activity, for a given Species at a given Location.
- **Days/Trapper**: Activity Days divided by Active In Fur. An estimate of the number of days the average active Trapping License holder spent afield while engaged in any Furbearer Activity, for a given Species at a given Location.
- **Success Trapper (Successful Trappers/Hunters)**: Point estimate of number of Trapping License holders that successfully trapped, snared, hunted or used hounds to take a Species at a given Location.
- **Percent Success**: Success Trapper divided by Active in Fur. An estimate of the percent of active Trapping License holders that successfully trapped, snared, hunted or used hounds to take a Species at a given Location.
- **Total Harvest**: Point estimate of the total number of animals taken while engaged in any Furbearer Activity, of a given Species at a given Location.
- **Mean Harvest**: Total Harvest divided by the number Active in Fur. An estimate of the number of animals taken by an average active Trapping License Holder regardless of Furbearer Activity, for a given Species at a given Location.
- **% Take 1 (Percent of Harvest of Bag Size 1)**: An estimate of the percent of Harvest where only one animal was taken, of a given Species, at a given Location, disregarding Activity of take. The percent of harvest within the 8 bag size classes (% Take 1 ... % Take 30+) provide a frequency distribution of number of animals harvested which can be compared across Locations and between Species.
- **% Take 2-3 (Percent of Harvest of Bag Size 2-3)**: An estimate of the percent of Harvest where 2 to 3 animals were taken, of a given Species, at a given Location, disregarding Activity of take.
• **% Take 4-6 (Percent of Harvest of Bag Size 4-6):** An estimate of the percent of Harvest where 4 to 6 animals were taken, of a given Species, at a given Location, disregarding Activity of take.

• **% Take 7-10 (Percent of Harvest of Bag Size 7-10):** An estimate of the percent of Harvest where 7 to 10 animals were taken, of a given Species, at a given Location, disregarding Activity of take.

• **% Take 11-15 (Percent of Harvest of Bag Size 11-15):** An estimate of the percent of Harvest where 11 to 15 animals were taken, of a given Species, at a given Location, disregarding Activity of take.

• **% Take 16-21 (Percent of Harvest of Bag Size 16-21):** An estimate of the percent of Harvest where 16 to 21 animals were taken, of a given Species, at a given Location, disregarding Activity of take.

• **% Take 22-29 (Percent of Harvest of Bag Size 22-29):** An estimate of the percent of Harvest where 22 to 29 animals were taken, of a given Species, at a given Location, disregarding Activity of take.

• **% Take 30+ (Percent of Harvest of Bag Size 30 or more):** An estimate of the percent of Harvest where 30 or more animals were taken, of a given Species, at a given Location, disregarding Activity of take.

• **Species % Comp. (Species Percent Composition):** Total Harvest of a given Species, divided by Total Harvest of ALL species, within a given Location, regardless of Activity of take, expressed as a percent. Provides an estimate of the percent Furbearer Survey Species composition of Harvest at a given Location.

**Table 3: Detail of Trapping and Snaring Activities**

The statistics were computed from the Trapping and Snaring section of the Furbearer Survey.

- **Active Trapper:** Point estimate of number of Trapping License holders that actively set traps or snares during the Furbearer season.

- **Activity Days:** Point estimate of the sum of days or partial days afield while engaged in Trapping or Snaring, for a given Furbearer Survey Species at a given Location.

- **Days/Trapper:** Activity Days divided by Active Trapper. An estimate of the number of days the average active Trapping License holder spent afield while engaged in Trapping or Snaring, for a given Species at a given Location.

- **Traps Set:** Point estimate of the sum of Average Number of Traps Set across every trapper reporting trapping for a given Species within a given County.

- **Traps Per Trapper:** Traps Set divided by Active Trappers. An estimate of the number of traps or snares set by an average Trapper, for a given Species at a given Location.

- **Trap Days:** Point estimate of the sum of Number of Traps Set multiplied by Activity Days across every trapper reporting trapping for a given Species within a given County. An estimate of trapping effort.

- **Trap Days/Trapper:** Traps Days divided by Active Trappers, for a given Species and Location. An estimate of the trapping or snaring effort expended by the average Trapper.

- **Success Trappers (Successful Trappers):** Point estimate of number of Active Trappers that successfully trapped or snared at least one animal of a given Species at a given Location.

- **Percent Success:** Success Hunter divided by Active Trapper. An estimate of the percent of Active Trappers that were successful in taking at least one animal of a given Species at a given Location.

- **Total Catch:** Point estimate of the total number of animals caught of a given Species at a given Location.

- **Mean Catch:** Total Catch divided by the number of Active Trappers. An estimate of the number of animals taken by an average active trapper, for a given Species at a given Location.

- **Trap Days/Catch:** Traps Days divided by Total Catch for a given Species and Location. An estimate of the trapping or snaring effort required to catch an animal.

- **% Take 1 (Percent of Harvest of Bag Size 1):** An estimate of the percent of Harvest where only one animal was taken, of a given Species, at a given Location, by Trapping or Snaring. The percent of harvest within the 8 bag size classes (% Take 1 … % Take 30+) provide a frequency distribution of number of animals harvested which can be compared across Locations and between Species.

- **% Take 2-3 (Percent of Harvest of Bag Size 2-3):** An estimate of the percent of Harvest where 2 to 3 animals were taken, of a given Species, at a given Location, by Trapping or Snaring.
The statistics were computed from the Hunting without hounds section of the Furbearer Survey.

- **Active Hunter**: Point estimate of number of Trapping License holders that actively hunted without hounds for Furbearer Survey Species during the Furbearer season.
- **Hunter Days**: Point estimate of the sum of days or partial days afield hunting (without hounds) for a given Species at a given Location.
- **Days/Hunter**: Hunter Days divided by Active Hunters. An estimate of the number of days the average active Furbearer hunter spent afield while engaged in Hunting without hounds, for a given Species at a given Location.
- **Success Hunter (Successful Hunters)**: Point estimate of number of Active Hunters that successfully Hunted without hounds to take a Species at a given Location.
- **Percent Success**: Success Hunter divided by Active Hunter. An estimate of the percent of active hunters that successfully hunted without hounds to take a Species at a given Location.
- **Total Harvest**: Point estimate of the total number of Furbearer animals taken while hunting without hounds, of a given Species at a given Location.
- **Mean Harvest**: Total Harvest divided by Active Hunter. An estimate of the number of animals taken by an average active Furbearer Hunter not using hounds, for a given Species at a given Location.
- **% Take 1 (Percent of Harvest of Bag Size 1)**: An estimate of the percent of Harvest where only one animal was taken, of a given Species, at a given Location, while Hunting without hounds. The percent of harvest within the 8 bag size classes (% Take 1 … % Take 30+) provide a frequency distribution of number of animals harvested which can be compared across Locations and between Species.
- **% Take 2-3 (Percent of Harvest of Bag Size 2-3)**: An estimate of the percent of Harvest where 2 to 3 animals were taken, of a given Species, at a given Location, while Hunting without hounds.
- **% Take 4-6 (Percent of Harvest of Bag Size 4-6)**: An estimate of the percent of Harvest where 4 to 6 animals were taken, of a given Species, at a given Location, while Hunting without hounds.
- **% Take 7-10 (Percent of Harvest of Bag Size 7-10)**: An estimate of the percent of Harvest where 7 to 10 animals were taken, of a given Species, at a given Location, while Hunting without hounds.
- **% Take 11-15 (Percent of Harvest of Bag Size 11-15)**: An estimate of the percent of Harvest where 11 to 15 animals were taken, of a given Species, at a given Location, while Hunting without hounds.
- **% Take 16-21 (Percent of Harvest of Bag Size 16-21)**: An estimate of the percent of Harvest where 16 to 21 animals were taken, of a given Species, at a given Location, while Hunting without hounds.
- **% Take 22-29 (Percent of Harvest of Bag Size 22-29)**: An estimate of the percent of Harvest where 22 to 29 animals were taken, of a given Species, at a given Location, while Hunting without hounds.
% Take 30+ (Percent of Harvest of Bag Size 30 or more): An estimate of the percent of Harvest where 30 or more animals were taken, of a given Species, at a given Location, while Hunting without hounds.

Species % Comp. (Species Percent Composition): Total Harvest of a given Species, divided by Total Harvest of ALL species, while Hunting without hounds within a given Location, expressed as a percent. Provides an estimate of the percent Furbearer species composition of Hunting without hounds Harvest at a given Location.

Table 5: Detail of Hunting with Hounds Activities

The statistics were computed from the Hunting with Hounds section of the Furbearer Survey.

- **Active Hunter**: Point estimate of number of Trapping License holders that actively Hunted with Hounds for Furbearer Survey Species during the Furbearer season.
- **Hunter Days**: Point estimate of the sum of days or partial days afield Hunting with Hounds for a given Species at a given Location.
- **Days/Hunter**: Hunter Days divided by Active Hunters. An estimate of the number of days the average active Furbearer hunter spent afield while engaged in Hunting with Hounds, for a given Species at a given Location.
- **Success Hunter (Successful Hunters)**: Point estimate of number of Active Hunters that successfully Hunted with Hounds to take a Species at a given Location.
- **Percent Success**: Success Hunter divided by Active Hunter. An estimate of the percent of active hunters that successfully Hunted with Hounds to take a Species at a given Location.
- **Total Harvest**: Point estimate of the total number of animals taken while Hunting with Hounds, of a given Species at a given Location.
- **Mean Harvest**: Total Harvest divided by Active Hunter. An estimate of the number of animals taken by an average active Furbearer Hunter with Hounds, for a given Species at a given Location.
- **% Take 1 (Percent of Harvest of Bag Size 1)**: An estimate of the percent of Harvest where only one animal was taken, of a given Species, at a given Location, while Hunting with Hounds. The percent of harvest within the 8 bag size classes (% Take 1 … % Take 30+) provide a frequency distribution of number of animals harvested which can be compared across Locations and between Species.
- **% Take 2-3 (Percent of Harvest of Bag Size 2-3)**: An estimate of the percent of Harvest where 2 to 3 animals were taken, of a given Species, at a given Location, while Hunting with Hounds.
- **% Take 4-6 (Percent of Harvest of Bag Size 4-6)**: An estimate of the percent of Harvest where 4 to 6 animals were taken, of a given Species, at a given Location, while Hunting with Hounds.
- **% Take 7-10 (Percent of Harvest of Bag Size 7-10)**: An estimate of the percent of Harvest where 7 to 10 animals were taken, of a given Species, at a given Location, while Hunting with Hounds.
- **% Take 11-15 (Percent of Harvest of Bag Size 11-15)**: An estimate of the percent of Harvest where 11 to 15 animals were taken, of a given Species, at a given Location, while Hunting with Hounds.
- **% Take 16-21 (Percent of Harvest of Bag Size 16-21)**: An estimate of the percent of Harvest where 16 to 21 animals were taken, of a given Species, at a given Location, while Hunting with Hounds.
- **% Take 22-29 (Percent of Harvest of Bag Size 22-29)**: An estimate of the percent of Harvest where 22 to 29 animals were taken, of a given Species, at a given Location, while Hunting with Hounds.
- **% Take 30+ (Percent of Harvest of Bag Size 30 or more)**: An estimate of the percent of Harvest where 30 or more animals were taken, of a given Species, at a given Location, while Hunting with Hounds.
- **Species % Comp. (Species Percent Composition)**: Total Harvest of a given Species, divided by Total Harvest of ALL Furbearer Survey Species, while Hunting with Hounds within a given Location, expressed as a percent. Provides an estimate of the percent Furbearer Survey Species composition of Hunting with Hounds Harvest at a given Location.

Table 6: Confidence Bounds, All Furbearer Activities Combined
This table repeats the following statistical estimates, computed without regard to Type of Furbearer Activity, accompanied by lower and upper 80% Confidence Bounds on the estimates:

**Active Trappers/Hunters, Activity Days, Successful Trappers/Hunters, Total Harvest.**

**Table 7: Confidence Bounds, Trapping and Snaring Activities**

This table repeats the following statistical estimates, computed from the Trapping and Snaring section of the Furbearer Survey, accompanied by lower and upper 80% Confidence Bounds on the estimates:

**Active Trappers, Activity Days, Traps Set, Trap Days, Successful Trappers, Total Harvest.**

**Table 8: Confidence Bounds, Hunting (without hounds) Activities**

This table repeats the following statistical estimates, computed from the Hunting without hounds section of the Furbearer Survey, accompanied by lower and upper 80% Confidence Bounds on the estimates:

**Active Hunters, Activity Days, Successful Hunters, Total Harvest.**

**Table 9: Confidence Bounds, Hunting with Hounds Activities**

This table repeats the following statistical estimates, computed from the Hunting with Hounds section of the Furbearer Survey, accompanied by lower and upper 80% Confidence Bounds on the estimates:

**Active Hunters, Activity Days, Successful Hunters, Total Harvest.**

**Notes Applying to All Furbearer Tables:**

- **Species are presented in the following order:** All Species Combined, Beaver, Otter, Muskrat, Mink, Marten, Fisher, Wolverine, Bobcat, Weasel, Skunk, Coyote, Fox, Raccoon, Badger, Other, Unknown. *(Lynx season is closed.)* Furbearer Survey returns were edited for obvious errors and interpretation problems, but beyond that, reported Species were not edited based on expected Location.

- **Counties are presented in alphabetical order after the Furbearer District to which they belong.** Furbearer Districts approximate MFWP administrative Regions 1..7.

- **If no trapping or hunting effort was reported for a given Species, at a given Location, for a given Activity, no record for that combination of identifying columns will appear in the table.** This explains why certain Species for a given type of Activity will have no row of statistics for a given Location.

- **Undefined values are indicated with the flag –0.0.** It occurs when a Harvest of zero is used in the denominator of a ratio.

- **Out of format range values are indicated with #######.** These entries occur when the numerator of a ratio, relative to the denominator, is so large that the ratio is essentially meaningless.

- **The page numbers** in the lower right hand corner indicate the consecutive page in the Furbearer Report. The page numbers in the upper right of each table title header indicate a page within a given table. Each table will have pages numbered beginning with 1.

- **The date March 21, 2005** printed throughout this report and in the title of the tables indicates the date the statistical estimates presented in this Furbearer Report were generated. This provides a version stamp in the event the statistics are regenerated using modified source data or analysis methods.