Wyoming Game and Fish Department

ANNUAL BLACK BEAR MORTALITY SUMMARY

Harvest Year - 2013

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Large Carnivore Section
Wyoming Game and Fish Department

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INTRODUCTION

This document contains a summary of Wyoming’s black bear mortalities for 2008 through 2013. Mortalities are categorized by cause, including: legal and illegal harvest, damage removals, road-kills, and other miscellaneous causes of death (i.e., natural mortalities). Throughout this document the term “total mortalities” refers to a combination of all causes of death while the term “harvest”, when not prefaced by “legal” or “illegal,” refers to legal and illegal kills combined.

Since 1994, the Wyoming Game and Fish Department (WGFD) has used a female harvest limit system to regulate black bear harvest. Harvest limits and hunting seasons are assigned to either individual or grouped hunt areas (Appendix I). Bear Management Unit (BMU) or hunt area harvest levels are monitored and regulated by requiring all successful black bear hunters to present the skull and pelt of their harvested bear to WGFD personnel within 72 hours of taking the animal. Harvested female bears are counted against the female harvest limit for the hunt area(s) in which they were killed. Upon meeting its seasonal female harvest limit, a hunt area(s) is closed to harvest for the remainder of that season. To more effectively distribute hunting pressure and allocate harvest opportunities among spring and fall seasons, female harvest limits are split into spring and fall components. Harvest in excess of a BMU/hunt area’s spring harvest limit is subtracted from the fall harvest limit for the same BMU/hunt area. Conversely, the remainder of unfilled spring harvest limits is transferred to the associated fall harvest limit. An up-to-date, running tally of harvested female black bears and BMU/hunt area closures is maintained by WGFD and made available to hunters via a telephone hotline and Department website.

The Large Carnivore Section of the WGFD reviews Wyoming’s black bear harvest and other causes of black bear mortality annually. Mortality statistics are compiled in an annual mortality report and compared to past trends and established management criteria. Currently, hunting seasons and harvest limits are set for 3-year periods to better determine effects of the harvest limit on the black bear population in that area. At the end of the 3-year period, adjustments may be made to more effectively manage local bear populations. Through this process, many changes have been made to WGFD’s black bear management. BMU/hunt area boundaries have been revised and new hunt areas have been created. Additionally, changes have been made to hunting season opening and closing dates, female mortality limits, and total season length. These changes are made through the public input process in an adaptive management framework.

Mortality data for years prior to 2013 may vary from previous reports. These differences reflect mortalities reported too late to be included in the previous annual report. The figures in this document supersede those presented in previously published annual mortality reports.
BLACK BEAR MORTALITY ANALYSIS

2013 Statewide Mortality

Harvest year 2013 was the third and final year of the current 3-year hunting season cycle. Many of the harvest limits were increased for this cycle (Table 1). Another notable change was creation of a new statewide hunt area (area 35) to include all portions of the state that were previously not within a hunt area. In addition, the size of 2 hunt areas (areas 10 and 19) was enlarged to include adjacent areas inhabited by black bears (Figure 1).

Total mortalities and mortalities by sex were very consistent for all three years of the 2011–2013 cycle (Figure 2). Average to below average winter snowpack in 2013 resulted in the normal pattern of higher harvest during the spring season than during fall, as spring hunter access was not impaired by snowpack (Table 2 and Figure 3). As a result, 7 harvest limits were met in the spring; an increase from 2011 and 2012 (Appendix II).

The 423 total mortalities in 2013 included 392 legally harvested bears (93%), 19 damage removals (4%), 6 road-kills (1%), 3 illegal kills (1%), and 3 miscellaneous mortalities (1%). Total mortality decreased 3% from the 2012 total of 436, and was very near the 2009-12 average total mortality of 419. Abundant naturally-available foods in 2013 resulted in fewer conflicts and decreased damage removal mortalities from 2012 (Figure 4). Nine of the 19 (47%) damage mortalities were females.

Due to geographic separation of black bear populations, variations in habitat quality and bear density, and an uneven distribution of hunting pressure, caution is warranted when interpreting statewide harvest statistics. Therefore, more specific harvest criteria are presented by BMU in each of the following sections of this report. In BMUs with low harvest, interpreting harvest statistics based on subsets of sex, age class, or season can result in extremely variable results that are difficult to interpret due to small sample sizes. For this reason, 3-year running averages are used in the harvest criteria.
Table 1. Annual female black bear harvest (legal/illegal harvest), female harvest limits, and percent of annual harvest limit filled, by BMU, 2009-2013.

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Figure 2. Annual statewide black bear mortalities (all causes) by sex, 2009-2013. There was 1 mortality of unknown sex in 2009 and 2 in 2012.

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<td>F</td>
<td>M</td>
<td>F</td>
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<td>M</td>
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<td>F</td>
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<td>M</td>
<td>F</td>
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<td>GREYS RIVER</td>
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<td>M</td>
<td>F</td>
<td>M</td>
<td>F</td>
<td>M</td>
<td>F</td>
</tr>
<tr>
<td></td>
<td>14, 15, 16, 17 &amp; 30</td>
<td>19</td>
<td>22</td>
<td>15</td>
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<td>23</td>
<td>9</td>
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<td>F</td>
<td>M</td>
<td>F</td>
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<td>JACKSON</td>
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<td>22</td>
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<tr>
<td>ABSARO KA</td>
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<td>14</td>
<td>7</td>
<td>14</td>
<td>6</td>
<td>12</td>
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<td>0</td>
<td>0</td>
<td>1</td>
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</tbody>
</table>
Figure 4. Annual statewide non-harvest black bear mortalities by year, 2009-2013.
JACKSON BEAR MANAGEMENT UNIT (101)

2013 Black Bear Mortality

During 2013, harvest and total mortalities for BMU 101 decreased for the third consecutive year (Figures 5 and 6) despite an increase in the harvest limit beginning in 2011 (Table 1). As in 2012, just over half (56%) of annual legal harvest occurred in the fall (Table 2). The percent of adult males has increased over the past 3-year cycle (Figure 7) and the percent of females in the harvest has been stable since 2000 (Figure 8). The percent of adults in the female harvest remained in the ‘reduction’ range in 2013 (Figure 9). While it may seem to contradict the other criteria, the significant amount of refuge habitat surrounding this BMU provides a source population and the prohibition of baiting in a majority of the BMU means that bears are harvested more in proportion to their availability in the population, not by their vulnerability to harvest. This criterion likely reflects an abundance of older-age females in the population and not a deficit of males and subadult females. The adult male and female harvest criteria provide evidence for this. In 2013, hunt area 20 had the highest harvest in the BMU, and may be experiencing more hunting pressure and effects of harvest. However, the overall pattern of mortalities and harvest criteria (Table 3) indicated that the black bear population in BMU 101 experienced light to moderate harvest.
Figure 5. Number of black bear mortalities of all causes in Jackson BMU by sex, 2009-2013.

Table 3. Harvest criteria for Jackson BMU legal black bear harvest. Criteria are presented by objective as percent adult male in the total harvest, percent female in the total harvest, and percent adult female in the female harvest. Data represent 3-year running average values of current year and previous 2 years.

<table>
<thead>
<tr>
<th>Year</th>
<th>Objective</th>
<th>% Adult(^a) Males in Total Harvest</th>
<th>% Females in Total Harvest</th>
<th>% Adult(^a) Females in Female Harvest</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Population Reduction</td>
<td>&lt; 25%</td>
<td>&gt; 40%</td>
<td>&gt; 55%</td>
</tr>
<tr>
<td></td>
<td>Stable Population</td>
<td>25 – 35%</td>
<td>30 – 40%</td>
<td>45 – 55%</td>
</tr>
<tr>
<td></td>
<td>Population Increase</td>
<td>&gt; 35%</td>
<td>&lt; 30%</td>
<td>&lt; 45%</td>
</tr>
<tr>
<td>2011 – 2013</td>
<td></td>
<td>33.4</td>
<td>34.3</td>
<td>61.6</td>
</tr>
</tbody>
</table>

\(^a\) Adults classified as males and females ≥ 5 years of age based on tooth cementum annuli.
Figure 6. Legal harvest of black bears in Jackson BMU, 1994-2013.

Figure 7. Percent adult males in the total legal black bear harvest in Jackson BMU, 1994-2013.
Figure 8. Percent females of the total legal black bear harvest in Jackson BMU, 1994-2013.

Figure 9. Percent adult females of the total female legal harvest in Jackson BMU, 1994-2013.
GREY’S RIVER BEAR MANAGEMENT UNIT (102)

2013 Black Bear Mortality

Total black bear mortalities and hunter harvest in BMU 102 have remained relatively steady since 2009 (Figures 10 and 11). Harvest criteria continue to indicate impacts to the male cohort of the black bear population and the percent females in the harvest has moved into the ‘reduction’ range for the third consecutive year (Table 4, Figures 12 and 13). However, the percent of adults in the female harvest is still low (Figure 14), indicating that the impacts to the female black bears in the BMU are still mostly absorbed by the subadult age class.

Separate analyses of hunt areas 14-17 and 30 show a slight decrease in legal harvest in each of the past 2 years, but an increase in the female proportion of that harvest (Figures 15 and 17). The proportion of adult males in the harvest mirrors the trend of the BMU, with impacts increasing around 2011 (Figure 16). While the impacts to females have increased since 2011, the proportion of adults in the female harvest is still relatively low (Figure 18).

Analyses for hunt area 11 are difficult due to the small number of bears taken annually in this area. However, the percent of females in the harvest has been below 40% for this harvest cycle, indicating a relatively low impact on the female portion of the population for that hunt area.

Continuation of the harvest trend (impacts to females in this BMU, specifically in areas 14, 15, 16, 17, and 30), may reduce the subadult cohort to the point where adult females make up a higher proportion of the harvest. These impacts to the reproductively important cohort could affect the population’s ability to rebound from harvest reductions.
Figure 10. Number of black bear mortalities of all causes in Grey’s River BMU by sex, 2009-2013.

Table 4. Harvest criteria for Grey’s River BMU legal black bear harvest. Criteria are presented by objective as percent adult male in the total harvest, percent female in the total harvest, and percent adult female in the female harvest. Data represent 3-year running average values of current year and previous 2 years.

<table>
<thead>
<tr>
<th>Year</th>
<th>Objective</th>
<th>Harvest Criteria</th>
<th>% Adult$^a$ Males in Total Harvest</th>
<th>% Females in Total Harvest</th>
<th>% Adult$^a$ Females in Female Harvest</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Population Reduction</td>
<td></td>
<td>&lt; 25%</td>
<td>&gt; 40%</td>
<td>&gt; 55%</td>
</tr>
<tr>
<td></td>
<td>Stable Population</td>
<td></td>
<td>25 – 35%</td>
<td>30 – 40%</td>
<td>45 – 55%</td>
</tr>
<tr>
<td></td>
<td>Population Increase</td>
<td></td>
<td>&gt; 35%</td>
<td>&lt; 30%</td>
<td>&lt; 45%</td>
</tr>
<tr>
<td>2011 – 2013</td>
<td></td>
<td></td>
<td>12.5</td>
<td>44.8</td>
<td>28.4</td>
</tr>
</tbody>
</table>

$^a$Adults classified as males and females ≥ 5 years of age based on tooth cementum annuli.
Figure 11. Legal harvest of black bears in Greys River BMU, 1994-2013.

Figure 12. Percent adult males in the total legal black bear harvest in Greys River BMU, 1994-2013.
Figure 13. Percent females of the total legal black bear harvest in Greys River BMU, 1994-2013.

Figure 14. Percent adult females of the total female legal harvest in Greys River BMU, 1994-2013.
Harvest Criteria by Harvest Limit – Hunt Areas 14, 15, 16, 17, 30

Figure 15. Legal harvest of black bears in hunt areas 14, 15, 16, 17, and 30 of Greys River BMU, 1994-2013.

Figure 16. Percent adult males in the total legal black bear harvest in hunt areas 14, 15, 16, 17, and 30 of Greys River BMU, 1994-2013.
Figure 17. Percent females of the total legal black bear harvest in hunt areas 14, 15, 16, 17, and 30 of Greys River BMU, 1994-2013.

Figure 18. Percent adult females of the total female legal harvest in hunt areas 14, 15, 16, 17, and 30 of Greys River BMU, 1994-2013.
ABSAROKA BEAR MANAGEMENT UNIT (201)

2013 Black Bear Mortality

Overall, 2013 mortalities matched 2010 for the highest total of mortalities recorded since 1986 and legal harvest was 1 bear higher than the 2010 total of 56 (Figures 19 and 20). The harvest limit for hunt areas 23, 25, 26, and 27 was reached for the first time since 2001. Most harvest in this BMU (29 of 57; 51%) continues to come from hunt area 25. The percent of adult males in the harvest remains high and the percent of females in the harvest is continually below 40%. The percent of adults in the female harvest is high and in the ‘reduction’ range (Table 5 and Figures 20-23). However, similar to the Jackson BMU, the significant amount of refuge habitat surrounding this BMU provides a source population. The prohibition of baiting in a majority of the unit reduces hunter selectivity, suggesting bears are harvested more in proportion to their availability in the population, not by their vulnerability to harvest. This criterion likely reflects an abundance of older-age females in the standing population of the BMU and not a deficit of males and subadult females.

Separate analyses for hunt areas 23, 25, 26, and 27 reinforces the interpretation of the BMU-wide harvest criteria, with a high percent of adult males, a low percent of females, and high proportions of adults in the female harvest (Figures 24-27).

Because hunt area 32 is largely unsuitable habitat for black bears and was established to provide opportunity for hunting and to address occasional conflicts through hunting, analysis of harvest criteria for this hunt area were not performed.

Overall, a continued high percent of adult males in the harvest and the percent of females in the harvest continually below 40% indicate a healthy and stable black bear population experiencing moderate to low harvest pressure.
Figure 19. Number of black bear mortalities of all causes in Absaroka BMU by sex, 2009-2013.

Table 5. Harvest criteria for Absaroka BMU legal black bear harvest. Criteria are presented by objective as percent adult male in the total harvest, percent female in the total harvest, and percent adult female in the female harvest. Data represent 3-year running average values of current year and previous 2 years.

<table>
<thead>
<tr>
<th>Year</th>
<th>Objective</th>
<th>% Adult&lt;sup&gt;a&lt;/sup&gt; Males in Total Harvest</th>
<th>% Females in Total Harvest</th>
<th>% Adult&lt;sup&gt;a&lt;/sup&gt; Females in Female Harvest</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011 – 2013</td>
<td>Population Reduction</td>
<td>&lt; 25%</td>
<td>&gt; 40%</td>
<td>&gt; 55%</td>
</tr>
<tr>
<td></td>
<td>Stable Population</td>
<td>25 – 35%</td>
<td>30 – 40%</td>
<td>45 – 55%</td>
</tr>
<tr>
<td></td>
<td>Population Increase</td>
<td>&gt; 35%</td>
<td>&lt; 30%</td>
<td>&lt; 45%</td>
</tr>
</tbody>
</table>

<sup>a</sup> Adults classified as males and females ≥ 5 years of age based on tooth cementum annuli.
Figure 20. Legal harvest of black bears in Absaroka BMU, 1994-2013.

Figure 21. Percent adult males in the total legal black bear harvest in Absaroka BMU, 1994-2013.
Figure 22. Percent females of the total legal black bear harvest in Absaroka BMU, 1994-2013.

Figure 23. Percent adult females of the total female legal harvest in Absaroka BMU, 1994-2013.
Harvest Criteria by Harvest Limit – Hunt Areas 23, 25, 26, and 27

Figure 24. Legal harvest of black bears in hunt areas 23, 25, 26, and 27 of Absaroka BMU, 1994-2013.

Figure 25. Percent adult males in the total legal black bear harvest in hunt areas 23, 25, 26, and 27 of Absaroka BMU, 1994-2013.
Figure 26. Percent females of the total legal black bear harvest in hunt areas 23, 25, 26, and 27 of Absaroka BMU, 1994-2013.

Figure 27. Percent adult females of the total female legal harvest in hunt areas 23, 25, 26, and 27 of Absaroka BMU, 1994-2013.
BIGHORNS BEAR MANAGEMENT UNIT (301)

2013 Black Bear Mortality

Legal black bear harvest and total mortalities in BMU 301 decreased in 2013 from an all-time high in 2012 (Figures 28 and 29). The proportion of males in the harvest remains in the ‘population reduction’ zone, as it has since the mid-1990’s (Figure 30). While the percent of females in the harvest was in the population reduction zone from 2007-09, it has remained in the stable range since 2010 (Figure 31). The proportion of adults in the female harvest has fluctuated around the stable to increase range, with wide variation due to relatively small sample sizes (Figure 32).

Separate harvest criteria analyses of hunt areas 1, 2 and 3, 4 show similar patterns (Figures 33-40). The percent of adult males in the harvest remains relatively low and in the reduction range for hunt areas 1,2 and 3,4. However, the percent of females in the harvest has remained near or below 40% of the harvest, with wider fluctuations in hunt areas 3,4 due to smaller sample sizes. Analysis of harvest criteria for hunt areas 5,6 is difficult due to very low harvest in those hunt areas.

The status of the black bear population in BMU 301 appears to be relatively stable with hunter harvest likely impacting males, but the female cohort is less affected (Table 5). The low percent of adults in the female harvest indicates the reproductively important adult female cohort is less affected by harvest and is still able to provide recruitment into the population.
Figure 28. Number of black bear mortalities of all causes in Bighorns BMU by sex, 2009-2013.

Table 6. Harvest criteria for Bighorns BMU legal black bear harvest. Criteria are presented by objective as percent adult male in the total harvest, percent female in the total harvest, and percent adult female in the female harvest. Data represent 3-year running average values of current year and previous 2 years.

<table>
<thead>
<tr>
<th>Year</th>
<th>Objective</th>
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<th>% Females in Total Harvest</th>
<th>% Adult$^a$ Females in Female Harvest</th>
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<tbody>
<tr>
<td>Population Reduction</td>
<td>&lt; 25%</td>
<td>&gt; 40%</td>
<td>&gt; 55%</td>
<td></td>
</tr>
<tr>
<td>Stable Population</td>
<td>25 – 35%</td>
<td>30 – 40%</td>
<td>45 – 55%</td>
<td></td>
</tr>
<tr>
<td>Population Increase</td>
<td>&gt; 35%</td>
<td>&lt; 30%</td>
<td>&lt; 45%</td>
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</tr>
<tr>
<td>2011 – 2013</td>
<td>16.5</td>
<td>32.6</td>
<td>38.6</td>
<td></td>
</tr>
</tbody>
</table>

$^a$ Adults classified as males and females $\geq 5$ years of age based on tooth cementum annuli.
Figure 29. Legal harvest of black bears in Bighorns BMU, 1994-2013.

Figure 30. Percent adult males in the total legal black bear harvest in Bighorns BMU, 1994-2013.
Figure 31. Percent females of the total legal black bear harvest in Bighorns BMU, 1994-2013.

Figure 32. Percent adult females of the total female legal harvest in Bighorns BMU, 1994-2013.
Figure 33. Legal harvest of black bears in hunt areas 1 and 2 of Bighorns BMU, 1994-2013.

Figure 34. Percent adult males in the total legal black bear harvest in hunt areas 1 and 2 of Bighorns BMU, 1994-2013.
Figure 35. Percent females of the total legal black bear harvest in hunt areas 1 and 2 of Bighorns BMU, 1994-2013.

Figure 36. Percent adult females of the total female legal harvest in hunt areas 1 and 2 of Bighorns BMU, 1994-2013.
Harvest Criteria by Harvest Limit – Hunt Areas 3 and 4

Figure 37. Legal harvest of black bears in hunt areas 3 and 4 of Bighorns BMU, 1994-2013.

Figure 38. Percent adult males in the total legal black bear harvest in hunt areas 3 and 4 of Bighorns BMU, 1994-2013.
Figure 39. Percent females of the total legal black bear harvest in hunt areas 3 and 4 of Bighorns BMU, 1994-2013.

Figure 40. Percent adult females of the total female legal harvest in hunt areas 3 and 4 of Bighorns BMU, 1994-2013.
SIERRA MADRE BEAR MANAGEMENT UNIT (401)

2013 Black Bear Mortality

The doubling of the harvest limit for this BMU in 2011 (Table 1) resulted in a significant increase in harvest that has decreased annually year through 2013 (Figures 41 and 42). In the third year of the harvest cycle, the proportion of adult males in the harvest continued to decrease (Figure 43), a pattern that has been evident in the 3-year average since 2009. The percent of females in the harvest has increased slightly over the past 3 years into the stable range (Figure 44), but still remains below 40% of the total harvest. The percent of adults in the female harvest has fluctuated greatly due to small sample size (Figure 45), but is generally low.

In spite of significant increases in black bear mortality in the past three years, harvest criteria for this BMU have remained relatively consistent and suggest moderate harvest pressure that is impacting males but females are less affected (Table 6). Immigration from the adjacent black bear population in Colorado is likely providing an influx of bears, specifically dispersing subadult males. With 64% of the total harvest comprised of males, and 70% of those males classified as subadults, this cohort is making up much of the harvest and is likely having a mitigating effect which has allowed this BMU to maintain the current trend in harvest criteria.
Figure 41. Number of black bear mortalities of all causes in Sierra Madres BMU by sex, 2009-2013

Table 7. Harvest criteria for Sierra Madre BMU legal black bear harvest. Criteria are presented by objective as percent adult male in the total harvest, percent female in the total harvest, and percent adult female in the female harvest. Data represent 3-year running average values of current year and previous 2 years.

<table>
<thead>
<tr>
<th>Year</th>
<th>Objective</th>
<th>Harvest Criteria</th>
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<td>% Adult&lt;sup&gt;a&lt;/sup&gt; Males in Total Harvest</td>
</tr>
<tr>
<td>2011 – 2013</td>
<td>Population Reduction</td>
<td>&lt; 25%</td>
</tr>
<tr>
<td></td>
<td>Stable Population</td>
<td>25 – 35%</td>
</tr>
<tr>
<td></td>
<td>Population Increase</td>
<td>&gt; 35%</td>
</tr>
</tbody>
</table>

<sup>a</sup> Adults classified as males and females ≥ 5 years of age based on tooth cementum annuli.
Figure 42. Legal harvest of black bears in Sierra Madres BMU, 1994-2013.

Figure 43. Percent adult males in the total legal black bear harvest in Sierra Madres BMU, 1994-2013.
Figure 44. Percent females of the total legal black bear harvest in Sierra Madres BMU, 1994-2013.

Figure 45. Percent adult females of the total female legal harvest in Sierra Madres BMU, 1994-2013.
2013 Black Bear Mortality

The female harvest limit for BMU 402 was increased to 4 females (2 spring, 2 fall) prior to the 2011 season. In addition, this BMU was enlarged to include all areas south of Interstate 80 and west of Highway 430 from Rock Springs to the Colorado and Utah borders. One subadult male, one male of undetermined age, and two adult female black bears were legally harvested in 2013. All 4 bears were taken during the spring season. Small sample sizes prevent interpretation of harvest data and their relationship to the harvest criteria for BMU 402.
LARAMIE PEAK BEAR MANAGEMENT UNIT (501)

2013 Black Bear Mortality

Black bear mortalities and harvest in BMU 501 have decreased annually since a high in 2010 (Figure 46 and 47). However, during this time the percent of adult males in the harvest has decreased and the percent of females has increased into the reduction range (Table 7, Figures 48 and 49). The proportion of adults in the female harvest has fluctuated around 45% (Figure 50), indicating that while it appears there has been a reduction in males and harvest is starting to focus on females, subadult females are currently absorbing most of the female harvest.

Separate analyses of hunt area 7 provide parallel results (Figures 51-54). In both cases it is apparent that harvest has had the effect of reducing males and is now impacting females, with a slightly higher proportion of adults in the female harvest. Limits have been met before the end of the season for both spring and fall seasons in 2012 and 2013 (Appendix II), but this is more likely the result of fewer males left in the population and not an abundant bear population. A bear population made up of a high proportion of females will result in a high proportion of females in the harvest and limits will be met early in the season. Unlike hunt areas and BMUs bordering black bear populations in adjacent states, this BMU has a much lower opportunity for immigration from potential source populations. Therefore, the ability for the black bear population in this BMU to rebound from overharvest is much lower.

Hunt area 33 was created in 2008 to address black bear management issues specific to the Casper Mountain area. Harvest there is normally quite low so a separate analysis of harvest data for this hunt area was not conducted.
Figure 46. Number of black bear mortalities of all causes in Laramie Peak BMU by sex, 2009-2013.

Table 8. Harvest criteria for Laramie Peak BMU legal black bear harvest. Criteria are presented by objective as percent adult male in the total harvest, percent female in the total harvest, and percent adult female in the female harvest. Data represent 3-year running average values of current year and previous 2 years.

<table>
<thead>
<tr>
<th>Year</th>
<th>Objective</th>
<th>Harvest Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>% Adult\textsuperscript{a} Males in Total Harvest</td>
<td>% Females in Total Harvest</td>
</tr>
<tr>
<td></td>
<td>&lt; 25%</td>
<td>&gt; 40%</td>
</tr>
<tr>
<td></td>
<td>25 – 35%</td>
<td>30 – 40%</td>
</tr>
<tr>
<td></td>
<td>&gt; 35%</td>
<td>&lt; 30%</td>
</tr>
<tr>
<td>2011-13</td>
<td>17.0</td>
<td>47.5</td>
</tr>
</tbody>
</table>

\textsuperscript{a} Adults classified as males and females \( \geq 5 \) years of age based on tooth cementum annuli.
**Figure 47.** Legal harvest of black bears in Laramie Peak BMU, 1994-2013.

**Figure 48.** Percent adult males in the total legal black bear harvest in Laramie Peak BMU, 1994-2013.
Figure 49. Percent females of the total legal black bear harvest in Laramie Peak BMU, 1994-2013.

Figure 50. Percent adult females of the total female legal harvest in Laramie Peak BMU, 1994-2013.
Harvest Criteria by Harvest Limit – Hunt Area 7

Figure 51. Legal harvest of black bears in hunt area 7 of Laramie Peak BMU, 1994-2013.

Figure 52. Percent adult males in the total legal black bear harvest in hunt area 7 of Laramie Peak BMU, 1994-2013.
Figure 53. Percent females of the total legal black bear harvest in hunt area 7 of Laramie Peak BMU, 1994-2013.

Figure 54. Percent adult females of the total female legal harvest in hunt area 7 of Laramie Peak BMU, 1994-2013.
SNOWY RANGE BEAR MANAGEMENT UNIT (502)

2013 Black Bear Mortality

Total mortalities and harvest have been very consistent in this BMU since 2001 (Figure 55 and 56). The harvest limit for BMU 502 was decreased by one female for the 2011–2013 cycle (Table 1). The current harvest trend suggests that the adult male and percent female criteria are moving back into the stable range, indicating an upward trend in the black bear population for this BMU (Table 8, Figures 57 and 58). The percent of adults in the female harvest remained in or near the stable range (Figure 59), but small sample size results in major fluctuations in this harvest criterion.

Immigration from the adjacent black bear population in Colorado likely provides a source of bears that contribute to the upward trend of this population. Overall, the effects of harvest on the black bear population in BMU 502 appear to be moderate with a decreasing impact on the female cohort of the population.
Figure 55. Number of black bear mortalities of all causes in Snowy Range BMU by sex, 2009-2013.

Table 9. Harvest criteria for Snowy Range BMU legal black bear harvest. Criteria are presented by objective as percent adult male in the total harvest, percent female in the total harvest, and percent adult female in the female harvest. Data represent 3-year running average values of current year and previous 2 years.

<table>
<thead>
<tr>
<th>Year</th>
<th>Objective</th>
<th>Harvest Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>% Adult(^a) Males in Total Harvest</td>
<td>% Females in Total Harvest</td>
</tr>
<tr>
<td></td>
<td>Population Reduction</td>
<td>&lt; 25%</td>
</tr>
<tr>
<td></td>
<td>Stable Population</td>
<td>25 – 35%</td>
</tr>
<tr>
<td>2011 – 2013</td>
<td>Population Increase</td>
<td>&gt; 35%</td>
</tr>
</tbody>
</table>

\(^a\) Adults classified as males and females ≥ 5 years of age based on tooth cementum annuli.
Figure 56. Legal harvest of black bears in Snowy Range BMU, 1994-2013.

Figure 57. Percent adult males in the total legal black bear harvest in Snowy Range BMU, 1994-2013.
**Figure 58.** Percent females of the total legal black bear harvest in Snowy Range BMU, 1994-2013.

**Figure 59.** Percent adult females of the total female legal harvest in Snowy Range BMU, 1994-2013.
WIND RIVER RANGE BEAR MANAGEMENT UNIT (601)

2013 Black Bear Mortality

Total black bear mortalities and legal harvest in BMU 601 increased for the third consecutive year (Figures 60 and 61). The percent of adult males in the harvest has increased over the past 3 years (Figure 62), while the percent of females in the harvest has remained low (Figure 63). The percent of adults in the female harvest has fluctuated around 50% (Figure 64). Overall, BMU-wide harvest criteria show a relatively stable black bear population encountering light to moderate harvest (Table 9).

Separate analyses of hunt area 13 reveals an increase in harvest during the past 3 years (Figure 65). The percent of adult males in the harvest has decreased, but there is high variability in this criterion (Figure 66). The percent of females in the harvest has been below 40% since 2006 (Figure 67), and the low percent of adults in female harvest (Figure 68) indicates a relatively low impact to the female portion of the population for this hunt area. The harvest criteria for this hunt area indicate that the male cohort of the population may be beginning to experience impacts of harvest pressure, but the female cohort is still relatively lightly impacted.

Similar analyses for hunt area 19 shows a slight increase in the harvest from 2012 (Figure 69) with a high and increasing proportion of adult males in the harvest (Figure 70). The proportion of females in the harvest remains around 35% (Figure 71). A high proportion of adults in female harvest (Figure 72) indicate that the light hunting pressure and significant amount of refuge habitat on the Wind River Reservation adjacent to BMU 601 coupled with the prohibition of baiting in areas of wilderness in this hunt area likely provide a source population for immigration. This criterion likely reflects an abundance of older-age females in the population and not a deficit of males and subadult females. These criteria suggest the black bear population in this hunt area is experiencing light harvest pressure.

Very low sample sizes for hunt areas 28 and 31 precluded separate analyses for these hunt areas.
Figure 60. Number of black bear mortalities of all causes in Wind River BMU by sex, 2009-2013.

Table 10. Harvest criteria for Wind River BMU legal black bear harvest. Criteria are presented by objective as percent adult male in the total harvest, percent female in the total harvest, and percent adult female in the female harvest. Data represent 3-year running average values of current year and previous 2 years.

<table>
<thead>
<tr>
<th>Year</th>
<th>Objective</th>
<th>% Adult&lt;sup&gt;a&lt;/sup&gt; Males in Total Harvest</th>
<th>% Females in Total Harvest</th>
<th>% Adult&lt;sup&gt;a&lt;/sup&gt; Females in Female Harvest</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011 – 2013</td>
<td>Population Reduction</td>
<td>&lt; 25%</td>
<td>&gt; 40%</td>
<td>&gt; 55%</td>
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<tr>
<td></td>
<td>Stable Population</td>
<td>25 – 35%</td>
<td>30 – 40%</td>
<td>45 – 55%</td>
</tr>
<tr>
<td>2011 – 2013</td>
<td>Population Increase</td>
<td>&gt; 35%</td>
<td>&lt; 30%</td>
<td>&lt; 45%</td>
</tr>
</tbody>
</table>

<sup>a</sup> Adults classified as males and females ≥ 5 years of age based on tooth cementum annuli.
Figure 61. Legal harvest of black bears in Wind River BMU, 1994-2013.

Figure 62. Percent adult males in the total legal black bear harvest in Wind River BMU, 1994-2013.
Figure 63. Percent females of the total legal black bear harvest in Wind River BMU, 1994-2013.

Figure 64. Percent adult females of the total female legal harvest in Wind River BMU, 1994-2013.
Harvest Criteria by Harvest Limit – Hunt Area 13

Figure 65. Legal harvest of black bears in hunt area 13 of Wind River BMU, 1994-2013.

Figure 66. Percent adult males in the total legal black bear harvest in hunt area 13 of Wind River BMU, 1994-2013.
Figure 67. Percent females of the total legal black bear harvest in hunt area 13 of Wind River BMU, 1994-2013.

Figure 68. Percent adult females of the total female legal harvest in hunt area 13 of Wind River BMU, 1994-2013.
**Figure 69.** Legal harvest of black bears in hunt area 19 of Wind River BMU, 1994-2013.

**Figure 70.** Percent adult males in the total legal black bear harvest in hunt area 19 of Wind River BMU, 1994-2013.
Figure 71. Percent females of the total legal black bear harvest in hunt area 19 of Wind River BMU, 1994-2013.

Figure 72. Percent adult females of the total female legal harvest in hunt area 19 of Wind River BMU, 1994-2013.
STATEWIDE HUNT AREA 35

During the 2011 season-setting process, hunt area 35 was created to include all areas of Wyoming that previously did not fall within any previously-established hunt areas. This area is not considered quality black bear habitat and contains few bears. However, black bears, especially subadult males dispersing from higher quality habitats, may move through and occasionally take up residence in some of the smaller, more isolated mountain ranges and riparian habitats of the state. Area 35 was created to provide hunting opportunity for these ranges. The area has no harvest limit and a season running from April 15 to June 15 and August 1 to October 31 (Appendix I).

There were 3 black bear mortalities in hunt area 35 in 2013, 1 during the spring season and 2 during the fall. The spring mortality was a subadult female killed in a damage management action along the Powder River near the Montana border northwest of Gillette. The 2 fall mortalities were legally harvested bears; an adult male killed in the Shirley Mountains and an adult female killed along the northeastern boundary of hunt area 2 near the Montana border.

<table>
<thead>
<tr>
<th>Black Bear Management Units</th>
<th>Hunt Areas</th>
<th>Season Dates</th>
<th>Female Mortality Limits</th>
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<td>Statewide (999)</td>
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<td>April 15-June 15</td>
<td>August 1-Oct. 31</td>
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**Appendix II.** Black bear season closure dates for spring and fall seasons, 2011–2013. Yellow cells indicate season closure due to the harvest limit reached prior to the closing date of the season in the regulations.

<table>
<thead>
<tr>
<th>MGMT UNIT</th>
<th>HUNT AREA</th>
<th>Spring 2011</th>
<th>Fall 2011</th>
<th>Spring 2012</th>
<th>Fall 2012</th>
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<th>Fall 2013</th>
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<tr>
<td>STATEWIDE</td>
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* Indicates a hunt area with unlimited harvest