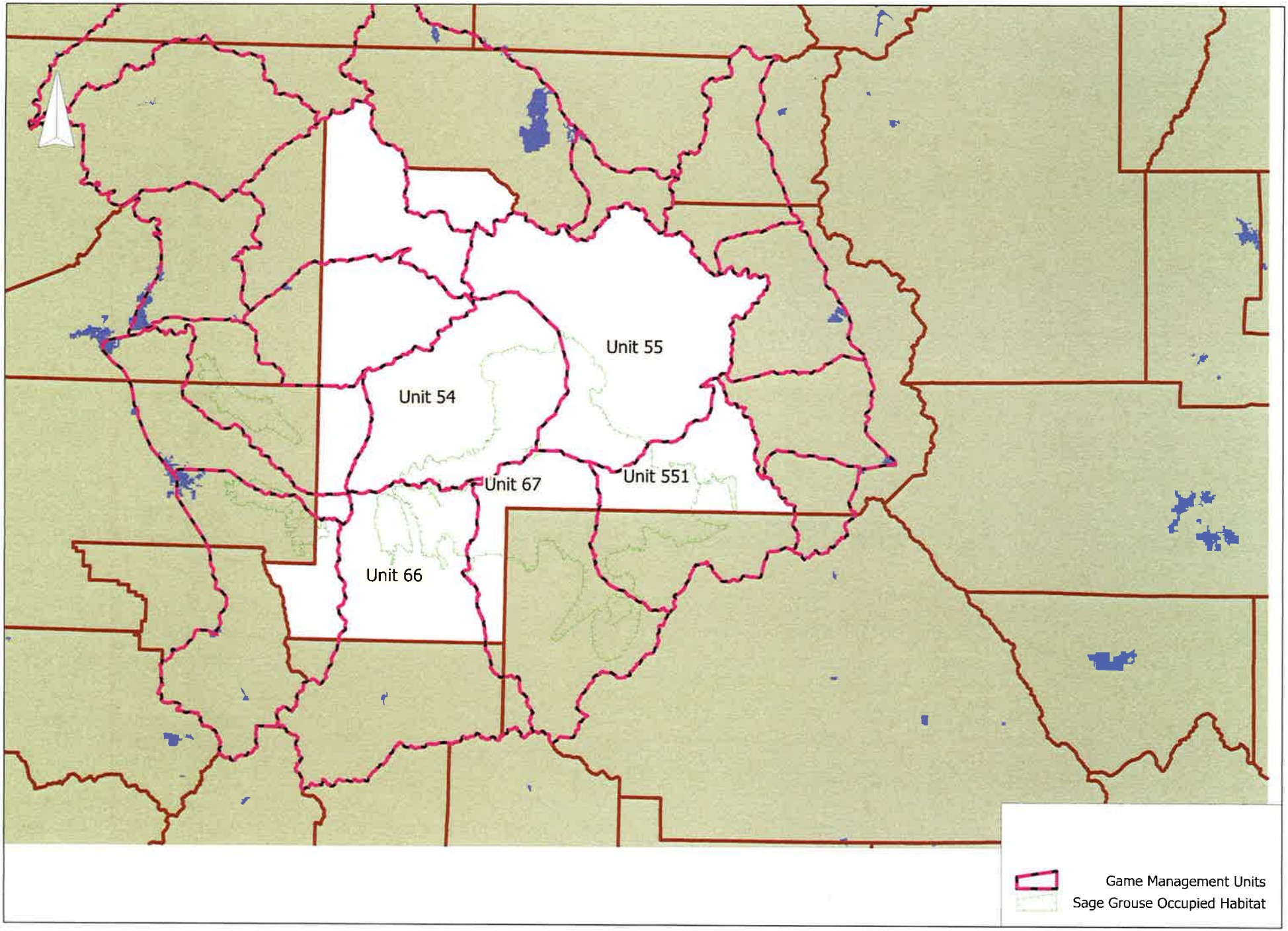
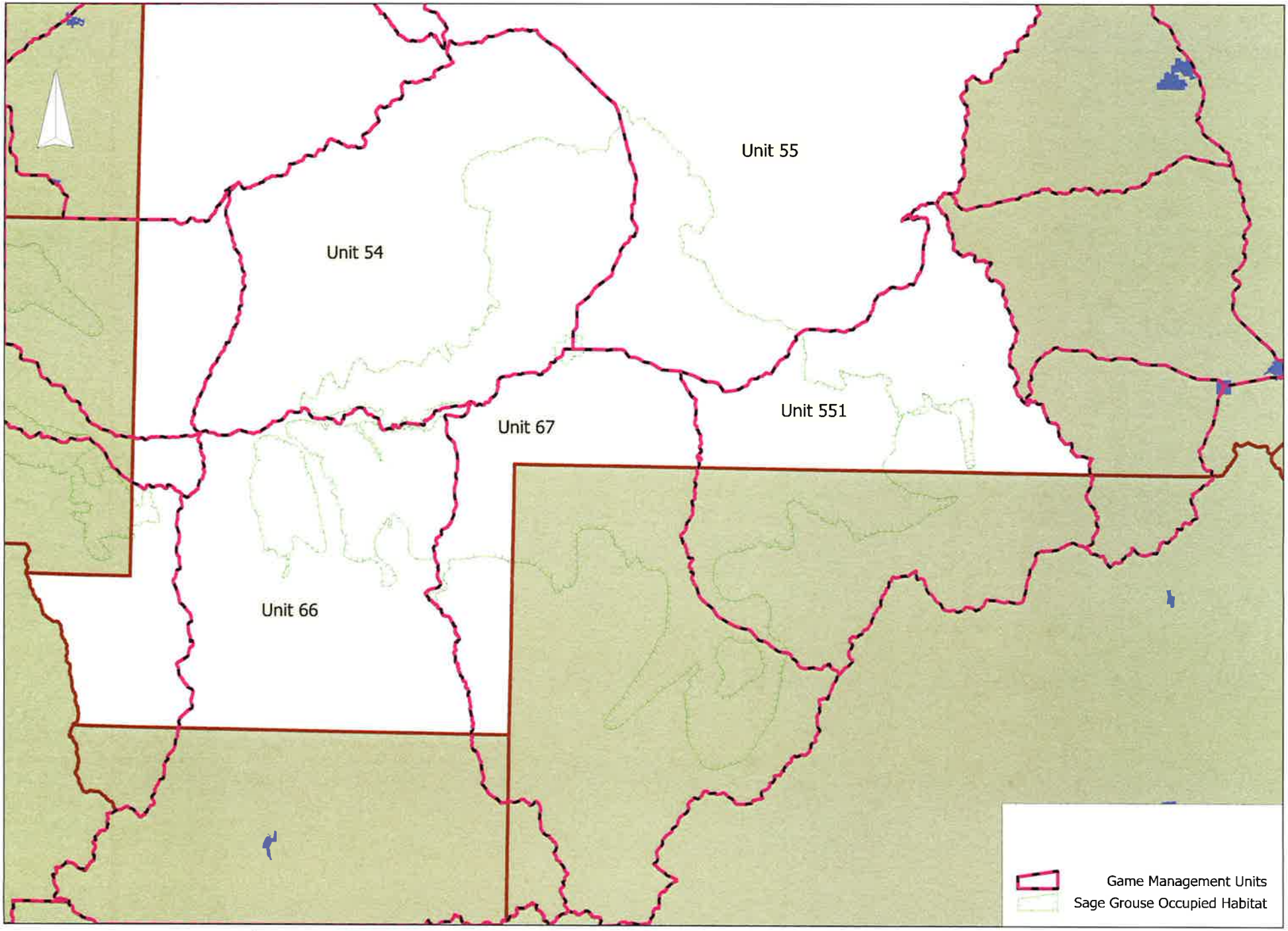


Scale = 1:1100000

Tuesday, November 06, 2012



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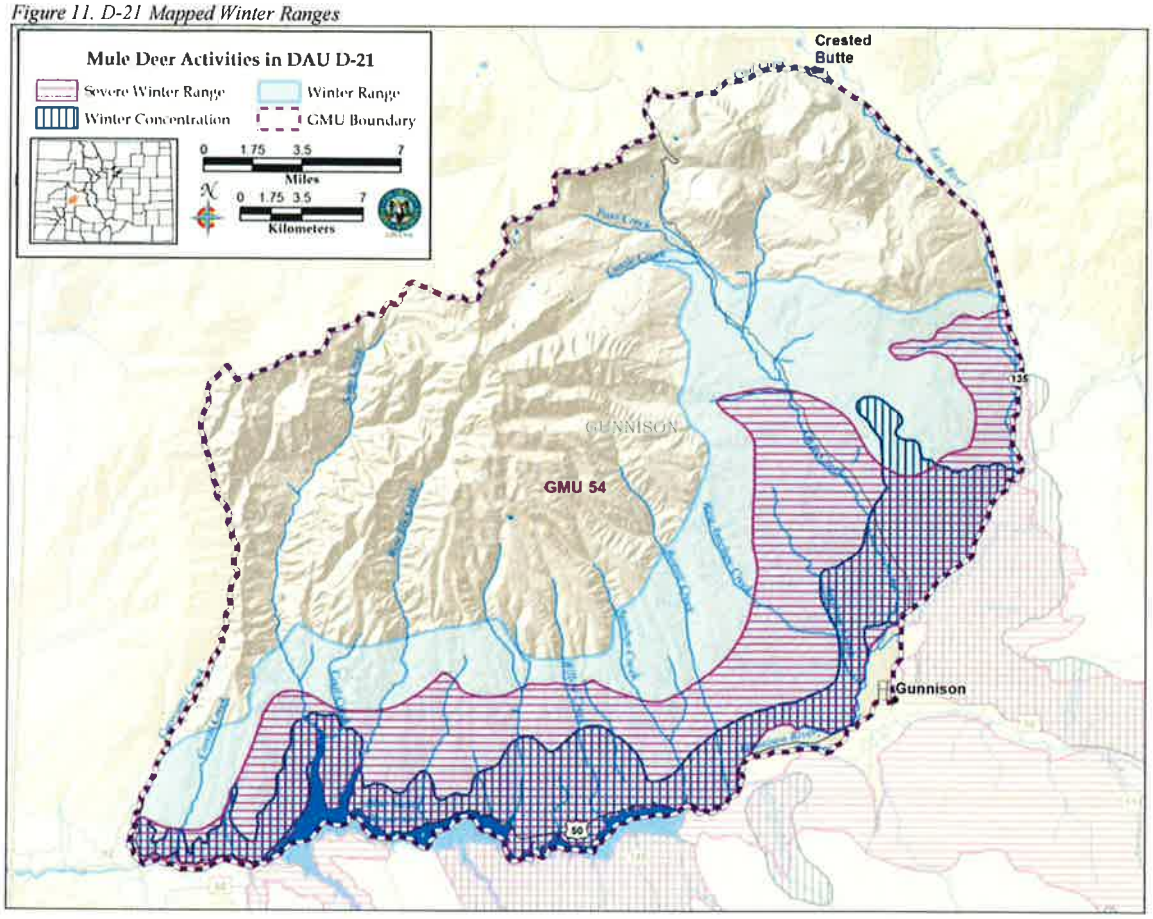
Tuesday, November 06, 2012

Figure 11. D-21 Mapped Winter Ranges



For many years, local resource managers have expressed concern about the current condition of big game winter ranges in the Gunnison Basin. Data have been collected throughout the area by federal land managers, but there remains a paucity of current and comprehensive analysis. However, two habitat assessment projects have been conducted in the Gunnison area over the last 10-15 years which are worthy of mention.

Habitat Assessment Project:

In the late 1990's, Roy Roath et al. (1999) attempted to quantify winter range condition in important winter range areas within the Gunnison Basin. This project, referred to as the "Gunnison Basin Habitat Assessment Project", was intended to aid Colorado Parks and Wildlife in DAU planning efforts that were underway at the time. There were a variety of facets to the project, but the main objective of the study was to determine "whether the standing herd of grazing animals is in balance with the current forage resource and whether current use is compatible with long term sustainability of that forage resource." Due to various constraints, the team was not able to assess all of the DAU's in the Gunnison Basin and chose to focus on GMU's 54 & 55 north of Highway 50. The results of the assessment indicated that winter range forage resources were not in good condition, and suggested that big game populations in the Basin had exceeded winter range carrying capacity. Dry Mountain Loam range types, which made up the majority of the study area, were in the poorest condition of any of the range types measured by the assessment team. The results section of their report states, "The relative health and productivity of both species of sagebrush are low. Many if not most of the sagebrush plants show little annual growth of leaves and new leaders. Some sagebrush plants and nearly all of the palatable shrubs, like bitterbrush and mountain mahogany, show excessive cumulative use." The results of this project led to local contention; however they were quite useful in fostering discussion regarding the inextricable link between big game populations, habitat condition and the concept of carrying capacity.

Figure 11. D-22 Mapped Winter Ranges

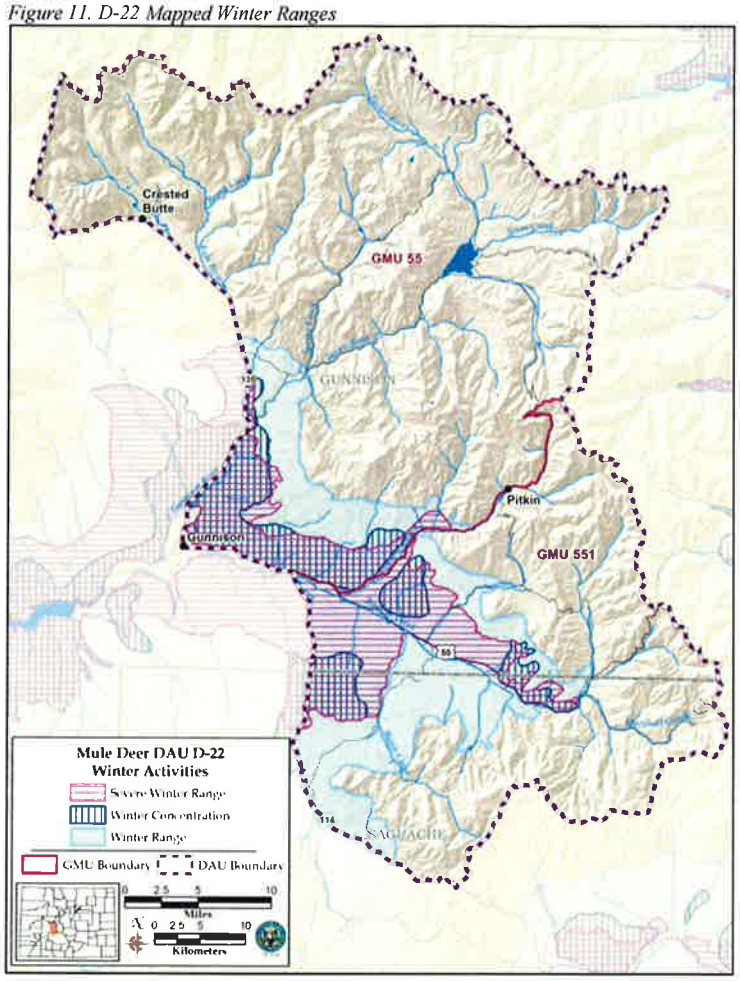


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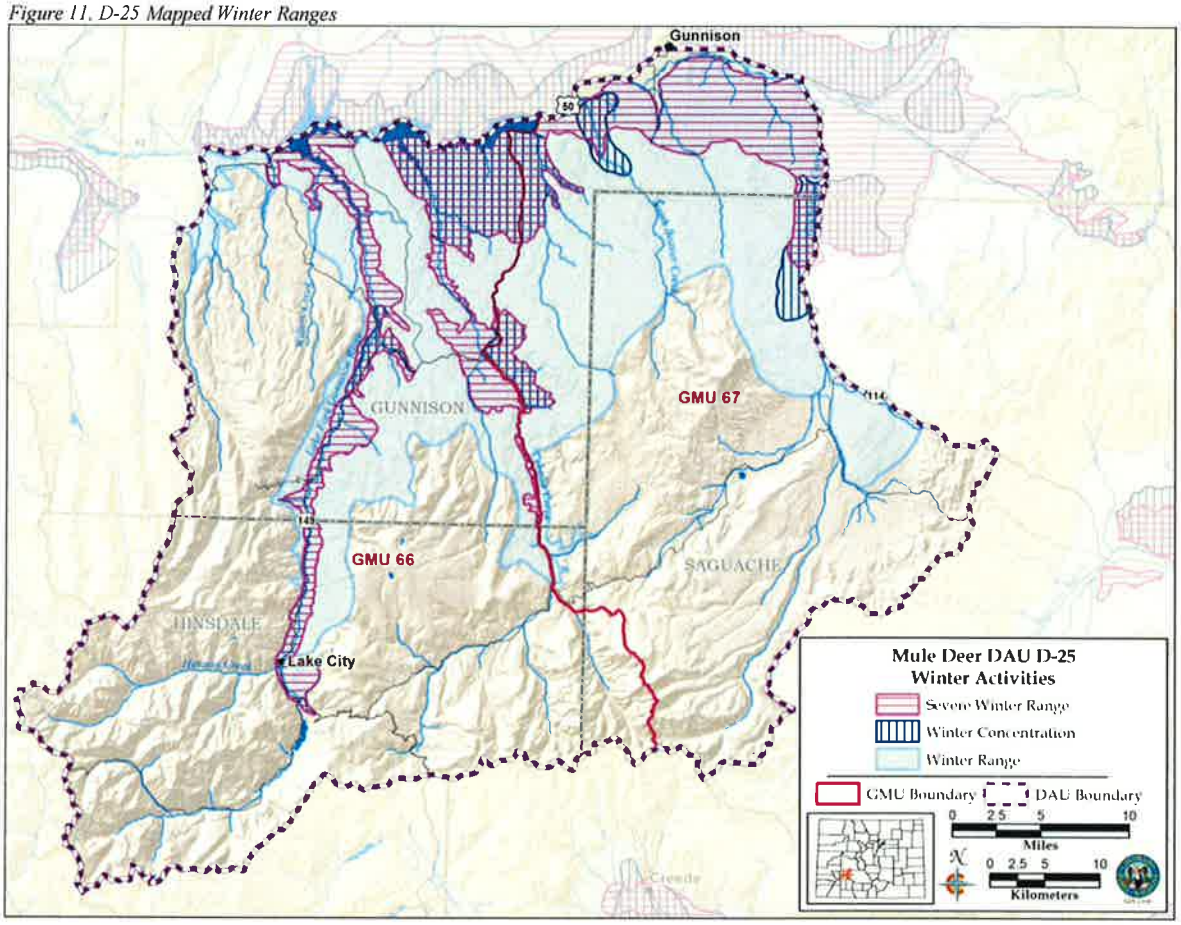
Figure 11. D-25 Mapped Winter Ranges



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Mule Deer Forage Requirement Calculations
Gunnison Basin
Estimates by Jim Cochran
November 6, 2012

Assumptions:

1. Average mule deer weight: 125lbs
2. One deer equals 0.2 cattle aum (animal unit month – same as a domestic sheep)(this was not used in the calculations, but if used would result in a larger deer weight than I used)
3. Average annual forage requirement/day: 2% (dry matter)
4. Average moisture content of forage: 60% (averaged over the year – subject to confirmation by NRCS)

DAU 21 proposed objective (ave.):	5,250
DAU 22 proposed objective (ave.):	5,250
DAU 25 proposed objective (ave.):	5,650
	16,150 deer

16,150 x 125lbs = 2,108,750lbs (live weight) deer
2,108, 750 x 2% body weight/day = 40,375lbs forage/day (dry weight)
40,375 lbs ÷ 60% = 67, 292 lbs forage/day (wet weight) (33.6 tons forage per day)
33.6 tons/day x 365 days/year = 12,264 tons (24,528,000 lbs) forage consumed by mule deer annually

Mule Deer Herd Management Plan
Data Analysis Unit D-21
West Elk Herd
Game Management Unit 54

Revised by Brandon Diamond
Colorado Parks & Wildlife
300 West New York Avenue
Gunnison, C0 81230

September, 2012

DAU D-21 (West Elk)
EXECUTIVE SUMMARY
September 2012

Game Management Unit: 54

Land Ownership: 60% USFS, 22% Private, 11% BLM, 4% State, 3% NPS

Post-hunt Population:
Current Objective (2007): ***6,500-7,500*** Post-hunt 2011Estimate: ***4,400***
DRAFT PREFERRED ALTERNATIVE: 5,000-5,500

Post-hunt Sex Ratio:
Current Objective (2007): ***40-45:100*** Post-hunt 2011 Observed: ***45:100***
DRAFT PREFERRED ALTERNATIVE: 35-40 Bucks:100 Does

Figure 1. D-21 Post-hunt Population Estimates 1980-2011

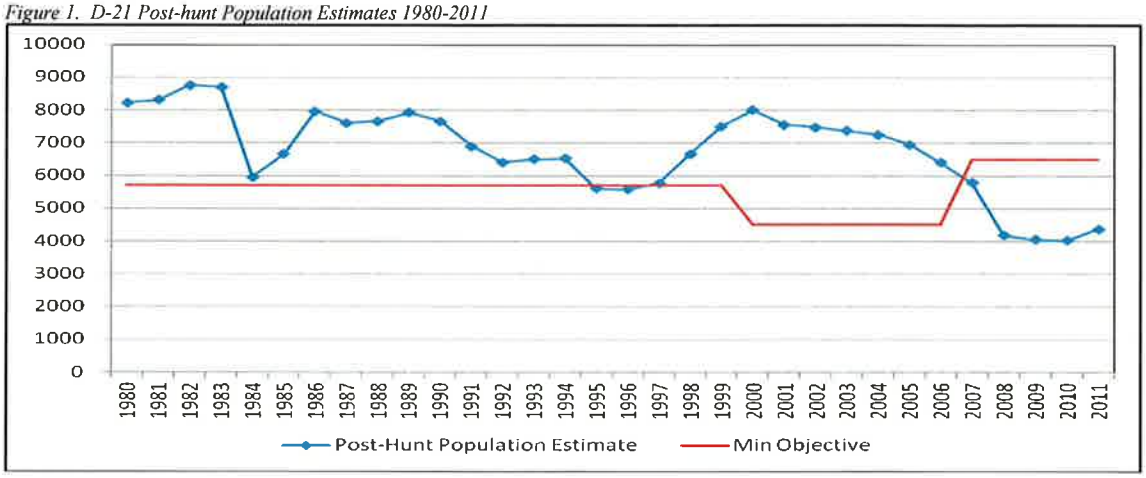


Figure 2. D-21 Harvest 1980-2011

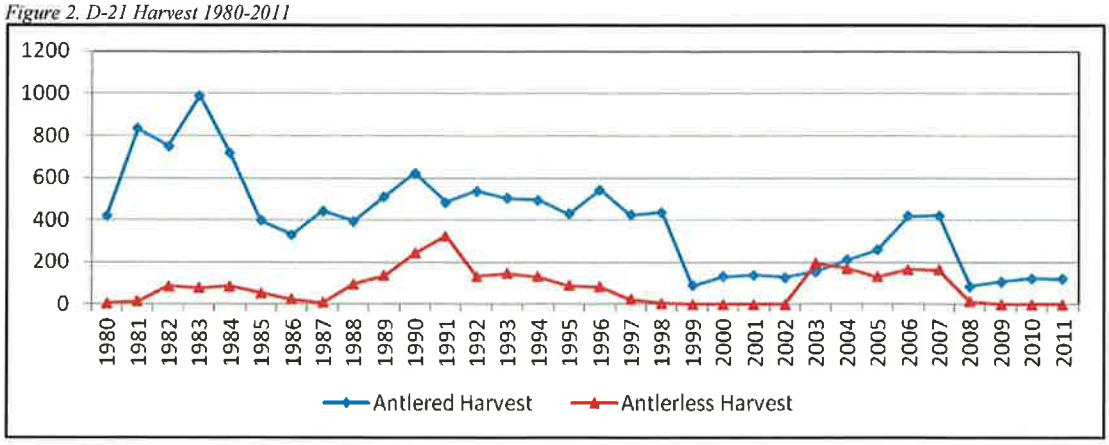
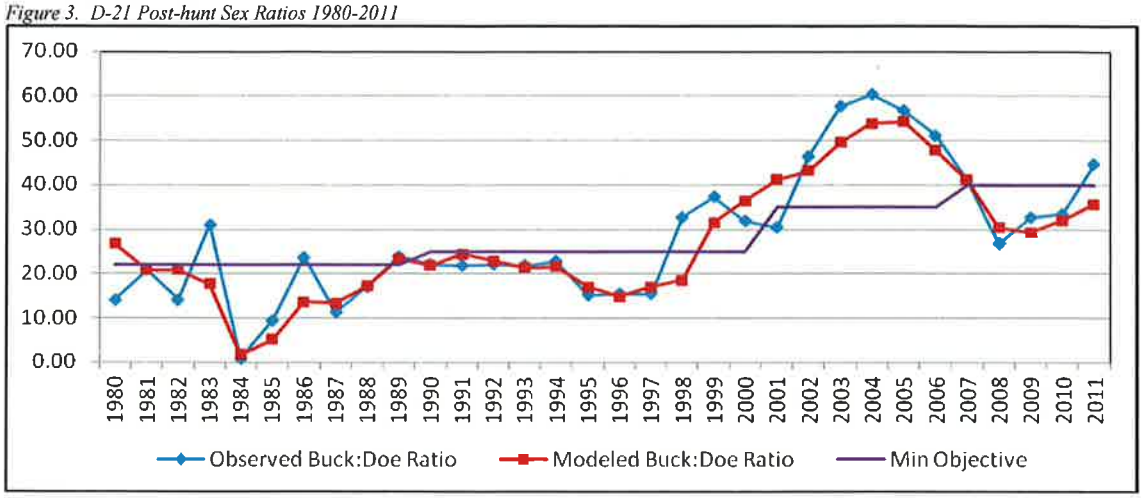


Figure 3. D-21 Post-hunt Sex Ratios 1980-2011



Population

The current model estimates suggest that there was a larger deer population in D-21 during the early 1980's, which declined as a result of the severe winter of 1983-84. Although not as high as pre-1983-84 levels, the deer population in D-21 increased to over 8,000 estimated animals during the late 1980's before experiencing a gradual decline during the first half of the 1990's. Following statewide license limitation in 1999 and a series of exceptionally mild winters, the mule deer herd in D-21 increased substantially. More recently, the population in D-21 has declined considerably as a result of the severe winter of 2007-2008. Prior to the 07-08 winter, the population had hit a recent high and was actively being reduced through sustained antlered and antlerless harvest. Since 2008, hunting license allocation has remained extremely conservative, with no antlerless hunting occurring. The 2011 post-hunt population estimate for D-21 was approximately 4,400 animals on a moderately increasing trend.

Sex Ratio

During the early to mid-2000's, extremely conservative license allocation produced some of the highest buck to doe ratios in the state, and hunting licenses became highly sought after. The ratio increased to an observed high of 60:100 post-season 2004. The post-season 2007 sex ratio had been intentionally reduced to 41:100, and was within the DAU plan objective range of 40-45:100. Mortality during the 07-08 winter reduced the sex ratio in D-21 to 27:100 post-season 2008, well below the management plan objective. After nearly five years of conservative license allocation, the observed buck:doe ratio post-hunt 2011 was approximately 45:100.

Hunter & Harvest Trends

Between 1986 and 1998, the average number of deer hunters in GMU 54 was approximately 2,800 (buck and doe hunters combined). The average number of hunters in D-21 between 1999 and 2011 was around 430. The average buck harvest from 1986 through 1998 was 473, with the total harvest averaging 585 animals. Between 1999 and 2011, the average buck harvest was 184, with a total harvest of 248. The highest documented harvest in the DAU occurred in 1983 with 1,068 deer harvested, including 990 bucks. The lowest annual harvest took place in 1999, with a total of 88 antlered deer taken. Success rates have varied over time, but have averaged around 55% since 1999 across all seasons. In 2011, an estimated 121 bucks were taken by 296 hunters.

Model Revision

The previous DAU plan for D-21 was approved by the former Wildlife Commission in 2007; however subsequent model updates post-season 2008 created a disparity between existing DAU plan objectives and revised population estimates. This in turn has necessitated DAU plan revisions. CPW occasionally revamps population models in order to produce the most defensible, science-based estimates possible. The downside to this process is that management plan objectives often have to be revised, which typically leads to considerable public scrutiny. Population models are subject to change over time; however, in most cases

those changes will not influence the on-going management philosophy for a given DAU, nor will they change the actual number of animals "on-the-ground." Although DAU plans are tied to a specific population objective, it is often more productive to focus on population trends rather than specific year to year variation.

Key Issues

Many issues surround mule deer management in the Gunnison Basin, and they generally fall into either a biological or socio-political category. Many of the issues raised during this planning process are similar to those discussed in 2006 during the previous planning effort. There are a number of important factors influencing mule deer population dynamics in the Gunnison Basin other than hunter harvest. Some of these factors include, but are not limited to, winter severity, habitat condition, competition with elk, and human development. Wildlife managers are continuously monitoring and evaluating these factors in order to incorporate them into management objectives and annual license setting processes as necessary.

Key Issue: Winter Range Carrying Capacity

Like many places in the Rocky Mountain west, spring and summer ranges in D-21 are much more expansive than the limited winter range. Most winter range areas occur many miles from summer range and can only be reached following lengthy migrations. Winters may be severe in the Gunnison Basin and the quantity and quality of winter habitat clearly presents a potential bottleneck for herd productivity and sustainability. Although superbly adapted to Rocky Mountain climates, mule deer in the Gunnison area are periodically subjected to severe winters which may result in significant mortality. The winters of 1978-79, 1983-84, 1996-97, and 2007-08 are recent examples of how unforgiving winters may be in the area. In general, dramatic population fluctuations are no longer acceptable to the general public and big game hunters, based on the emotional response to seeing large numbers of animals die, and the potential impacts to hunt quality and opportunity. The same may be said for local economic interests that rely on predictable levels of wildlife related tourism. CPW maintains a policy pertaining to feeding big game animals during severe winters, and supplemental feeding programs have been initiated during the four winters previously mentioned with variable success. The winter of 2007-08 was particularly severe and has had lasting repercussions locally. Mule deer management in the Gunnison Basin is ultimately constrained by severe winters.

Key Issue: Hunter Opportunity

A key element of mule deer management is the public's desired level of hunting opportunity. Some hunters prefer to hunt every year, whereas others would wait five or more years in order to hunt in a highly sought after unit. Some hunters forego multiple years of hunting in order to build preference points, while others are willing to buy expensive landowner vouchers in order to hunt every year. Trophy mule deer bucks remain one of the most sought after big game animals in the western United States, and hunters are continuously seeking opportunities to hunt trophy deer. In 1999 there were 921 first choice applicants for buck licenses in D-21. In 2007, there were 2393 applicants for either-sex and antlered licenses, which amounted to more than a 250% increase. Demand for limited deer licenses in the Gunnison Basin has declined since the winter of 07-08, however it is likely that there will be a resurgence of interest when future management objectives are achieved. In 2011, there were 802 first choice applicants for buck licenses in GMU 54. The potential trade-offs between quality management and hunting opportunity have been discussed at length with the public during this planning process.

Public Process

Considerable public scoping has occurred so far in this process through meetings, on-line surveys, written comments, emails, phone conversations, and face-to-face communications. As expected, the majority of individuals engaged have been resident deer hunters. Input on future management objectives has been diverse; however there does appear to be a majority opinion regarding future management of this herd. Population and sex ratio are discussed separately below:

Population: It is evident that most hunters are interested in seeing the D-21 deer population increase. This is not surprising following the declines that resulted from the 2007-08 winter. The population is currently nowhere near where it was prior to 07-08 so there is certainly potential to grow the herd. CPW does not support increasing this population back to mid-2000 levels, but would support a modest increase. The

those changes will not influence the on-going management philosophy for a given DAU, nor will they change the actual number of animals "on-the-ground." Although DAU plans are tied to a specific population objective, it is often more productive to focus on population trends rather than specific year to year variation.

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Population: It is evident that most hunters are interested in seeing the D-21 deer population increase. This is not surprising following the declines that resulted from the 2007-08 winter. The population is currently nowhere near where it was prior to 07-08 so there is certainly potential to grow the herd. CPW does not support increasing this population back to mid-2000 levels, but would support a modest increase. The

reality, however, is that it will take several years to grow the population assuming average winter severity and average or above average survival rates. Limited doe hunting will not be possible if management aims to increase the D-21 population.

Sex Ratio: It appears, based on public comments, that an apparent majority of GMU 54 hunters are willing to sacrifice hunting opportunity for high sex ratios, and that there is an interest in maintaining or increasing the current buck:doe ratio. The sex ratio in D-21 is already quite high; therefore additional hunting opportunity may already be possible. Future license allocation will be driven by management plan objectives and the array of other factors influencing mule deer population dynamics. There has been discussion during this planning process of creating three separate management "regimes" for the three DAU's in the Basin. Some have suggested one DAU be managed for maximum quality, one be managed for maximum opportunity, and one be managed somewhere in the middle. The idea was certainly worth considering, but after considerable discussion, CPW managers decided that maintaining a similar management philosophy between the DAU's provided the greatest degree of equity for constituents across the board.

In conclusion, there are a multitude of objectives that could be selected for managing the D-21 population; however after thorough consideration, CPW respectfully recommends the following alternatives:

- **Post-hunt Population Objective = 5,000-5,500 (*DRAFT PREFERRED*)**
- **Sex Ratio Objective = 35-40 bucks : 100 does (*DRAFT PREFERRED*)**

Potential advantages:

- This management scenario will continue to provide high quality buck hunting and maintain older age classes of males
- This management scenario is expected to maintain the balance between hunt quality and opportunity
- Most survey respondents indicated they would prefer to hunt every five-years or less; this alternative strives to achieve that public desire
- A slightly reduced sex ratio objective potentially allows for increased license allocation; this is expected to help partially mitigate future preference point requirements
- Following severe winters, slightly shorter recovery periods are anticipated for restoring the male segment of the population (ie. sex ratio objective)
- Post-rut bucks may enter winter in better condition, thus increasing survival
- Success rates will likely remain high across all seasons
- This population level is expected to be well below the winter range carrying capacity during most winters, thus reducing the overall utilization of key forage species

Potential disadvantages:

- This scenario recognizes the public demand for a larger deer population, but will preclude antlerless hunting until the objective has been reached and maintained
- National publicity is expected to keep preference point requirements at their current level; however it is likely that point requirements may increase over time
- Although reduced from the former plan objective of 40-45:100, restoring a buck:doe ratio of 35-40 following a severe winter will still require an extended recovery time
- Severe winters will result in reduced overall hunting opportunity for indeterminate periods of time
- Hunters should be cognizant that winter feeding programs are not sufficient for maintaining older age classes of mule deer bucks, and should expect that the number of mature bucks will be reduced as a result of severe winters; recovery times will be variable
- Many negative comments were received during public scoping related to the current landowner voucher program, and other social issues. Selecting these management objectives is not likely to result in changes to these programs or issues over time. Hunters should expect that both the biological and social landscapes will look very similar to what they have over the last 10 years in D-21

Mule Deer Herd Management Plan
Data Analysis Unit D-22
Taylor Park Herd
Game Management Units 55 & 551

Revised by Brandon Diamond
Colorado Parks and Wildlife
300 West New York Avenue
Gunnison, CO 81230

September 2012

DAU D-22 (Taylor Park)
EXECUTIVE SUMMARY
September 2012

Game Management Units: 55 & 551

Landownership: 76% USFS, 12% BLM, 12% Private, <1% State

Post-hunt Population:
Current Objective (2007): ***6,500-7,500*** Post-hunt 2011 Estimate: ***4,400***
DRAFT PREFERRED ALTERNATIVE: 5,000-5,500

Post-hunt Sex Ratio:
Current Objective (2007): ***40-45:100*** Post-hunt 2011 Estimate: ***32:100***
DRAFT PREFERRED ALTERNATIVE: 35-40 Bucks:100 Does

Figure 1. D-22 Post-hunt Population Estimates 1980-2011

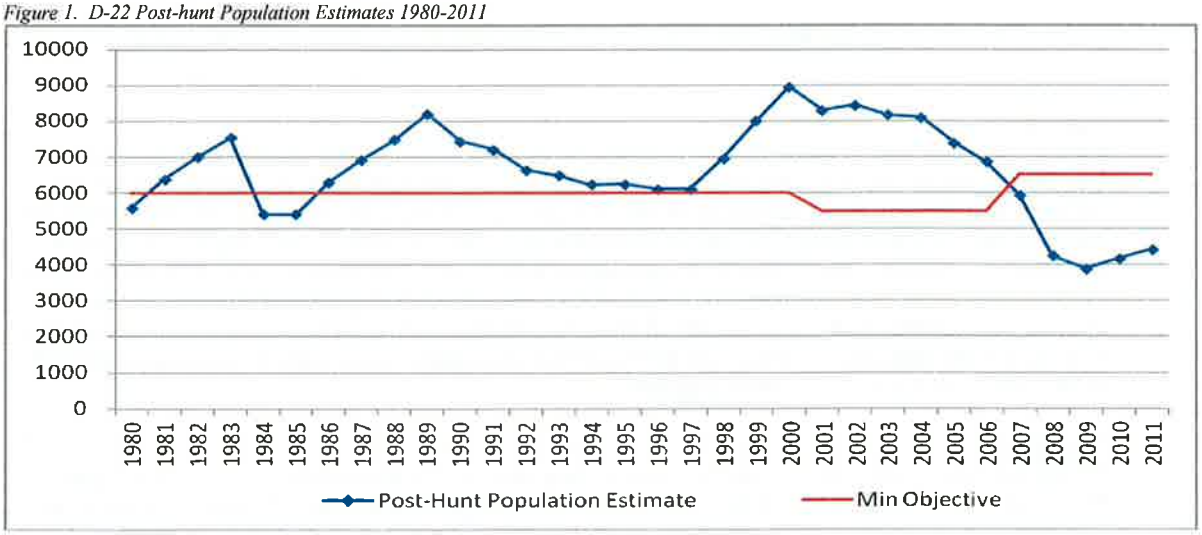


Figure 2. D-22 Harvest 1980-2011

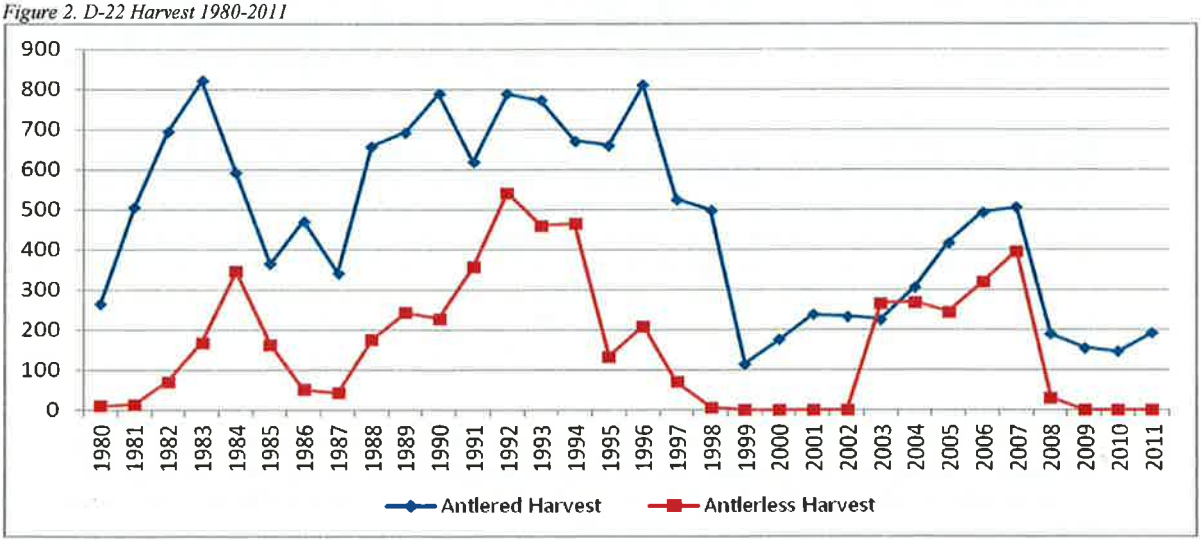
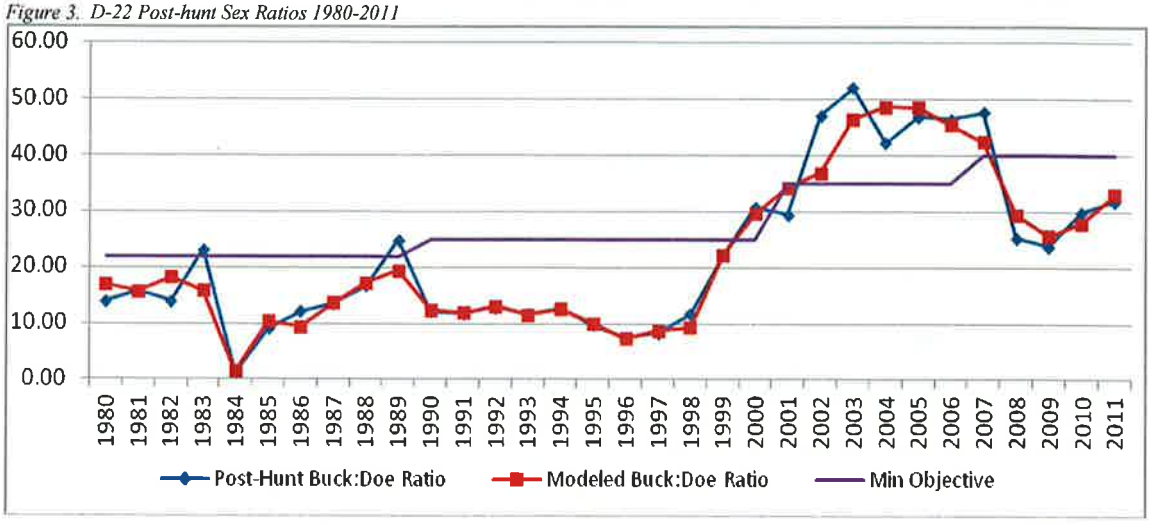


Figure 3. D-22 Post-hunt Sex Ratios 1980-2011



Population

Current model estimates suggest that the population experienced several population peaks; one during the late 1980's, and one more recently during the early 2000's. Several significant population declines are evident; one following the severe winter of 1983-84, and one following the winter of 2007-08. Following statewide license limitation in 1999 and a series of exceptionally mild winters, the mule deer herd in D-22 increased substantially. More recently, the population in D-22 has declined as a result of the severe winter of 2007-2008. Prior to the 07-08 winter, the population was actively being reduced through sustained antlered and antlerless harvest. Since 2008, hunting license allocation has remained extremely conservative, with no antlerless hunting occurring. The 2011 post-hunt population estimate for D-22 was approximately 4,400 animals on a moderately increasing trend.

Sex Ratio

During the early to mid-2000's, extremely conservative license allocation produced some of the highest buck to doe ratios in the state, and hunting licenses became highly sought after. The ratio increased to an observed high of 52:100 post-season 2003. The post-season 2007 sex ratio remained over objective at 48:100; however mortality during the 07-08 winter reduced the sex ratio in D-22 to 25:100 post-season 2008, which was well below the management plan objective of 40-45:100. After nearly five years of conservative license allocation, the observed buck:doe ratio post-hunt 2011 was approximately 32:100.

Hunter & Harvest Trends

Between 1986 and 1998, the average number of deer hunters pursuing deer in GMUs 55 & 551 was approximately 4300 (buck & doe hunters combined). The average number of hunters in D-22 between 1999 and 2011 was estimated to be around 600. The average buck harvest from 1986 through 1998 was 638, with the total harvest averaging 868 animals. Between 1999 and 2011, the average buck harvest was 261, with a total harvest of 378. The highest documented harvest in the DAU occurred in 1992 with 1330 deer harvested, including 789 bucks. The lowest annual harvest took place in 1999, with a total of 115 antlered deer taken. Success rates have varied since 1980, but have averaged around 59% since 1999 across all seasons. In 2011, an estimated 192 bucks were taken by 349 hunters.

Model Revision

The previous DAU plan for D-22 was approved by the former Wildlife Commission in 2007; however subsequent model updates post-season 2008 created a disparity between existing DAU plan objectives and revised population estimates. This in turn has necessitated DAU plan revisions. CPW occasionally revamps population models in order to produce the most defensible, science-based estimates possible. The downside to this process is that management plan objectives often have to be revised, which typically leads to considerable public scrutiny. Population models are subject to change over time; however, in most cases

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Key Issue: Winter Range Carrying Capacity

Like many places in the Rocky Mountain west, spring and summer ranges in D-22 are much more expansive than the limited winter range. Most winter range areas occur many miles from summer range and can only be reached following lengthy migrations. Winters may be severe in the Gunnison Basin and the quantity and quality of winter habitat clearly presents a potential bottleneck for herd productivity and sustainability. Although superbly adapted to Rocky Mountain climates, mule deer in the Gunnison area are periodically subjected to severe winters which may result in significant mortality. The winters of 1978-79, 1983-84, 1996-97, and 2007-08 are recent examples of how unforgiving winters may be in the area. In general, dramatic population fluctuations are no longer acceptable to the general public and big game hunters, based on the emotional response to seeing large numbers of animals die, and the potential impacts to hunt quality and opportunity. The same may be said for local economic interests that rely on predictable levels of wildlife related tourism. CPW maintains a policy pertaining to feeding big game animals during severe winters, and supplemental feeding programs have been initiated during the four winters previously mentioned with variable success. The winter of 2007-08 was particularly severe and has had lasting repercussions locally. Mule deer management in the Gunnison Basin is ultimately constrained by severe winters.

Key Issue: Hunter Opportunity

A key element of mule deer management is the public's desired level of hunting opportunity. Some hunters prefer to hunt every year, whereas others would wait five or more years in order to hunt in a highly sought after unit. Some hunters forego multiple years of hunting in order to build preference points, while others are willing to buy expensive landowner vouchers in order to hunt every year. Trophy mule deer bucks remain one of the most sought after big game animals in the western United States, and hunters are continuously seeking opportunities to hunt trophy deer. In 1999 there were 1854 first choice applicants for buck licenses in D-22. In 2007, there were 3765 applicants for either-sex and antlered licenses, which amounted to more than a 200% increase. Demand for limited deer licenses in the Gunnison Basin has declined since the winter of 07-08, however it is likely that there will be a resurgence of interest when future management objectives are achieved. In 2011, there were 1660 first choice applicants for buck licenses in GMU's 55 and 551. The potential trade-offs between quality management and hunting opportunity have been discussed at length with the public during this planning process.

Public Process

Considerable public scoping has occurred so far in this process through meetings, on-line surveys, written comments, emails, phone conversations, and face-to-face communications. As expected, the majority of individuals engaged have been resident deer hunters. Input on future management objectives has been diverse; however there does appear to be a majority opinion regarding future management of this herd. Population and sex ratio are discussed separately below:

Population: It is evident that most hunters are interested in seeing the D-22 deer population increase. This is not surprising following the declines that resulted from the 2007-08 winter. The population is currently nowhere near where it was prior to 07-08 so there is certainly potential to grow the herd. CPW does not support increasing this population back to mid-2000 levels, but would support a modest increase. The

reality, however, is that it will take several years to grow the population assuming average winter severity and average or above average survival rates. Limited doe hunting will not be possible if management aims to increase the D-22 population.

Sex Ratio: It appears, based on public comments, that an apparent majority of hunters are willing to sacrifice hunting opportunity for high sex ratios, and that there is an interest in maintaining or increasing the current buck:doe ratio. It should be pointed out, however, that although 81% of survey respondents indicated they would like to see the number of bucks in the unit increase, 47% of respondents indicated they would not give up hunting opportunity to maximize the number of older aged bucks in the unit. Furthermore, 89% of respondents indicated they would like to draw a license on a frequency of five years or less. This suggests that there is still misunderstanding relative to the trade-offs between managing for high sex ratios and annual levels of hunting opportunity. The sex ratio in D-22 remains below the current sex ratio objective of 40-45:100. Future license allocation will be driven by management plan objectives and the array of other factors influencing mule deer population dynamics.

In conclusion, there are a multitude of objectives that could be selected for managing the D-22 population; however after thorough consideration, CPW respectfully recommends the following alternatives:

- **Post-hunt Population Objective = 5,000-5,500 (*DRAFT PREFERRED*)**
- **Sex Ratio Objective = 35-40 bucks : 100 does (*DRAFT PREFERRED*)**

Potential advantages:

- This management scenario will continue to provide high quality buck hunting and maintain older age classes of males
- This management scenario is expected to maintain the balance between hunt quality and opportunity
- Most survey respondents indicated they would prefer to hunt every five-years or less; this alternative strives to achieve that public desire
- A slightly reduced sex ratio objective potentially allows for increased license allocation; this is expected to help partially mitigate future preference point requirements
- Following severe winters, slightly shorter recovery periods are anticipated for restoring the male segment of the population (ie. sex ratio objective)
- Post-rut bucks may enter winter in better condition, thus increasing survival
- Success rates will likely remain high across all seasons
- This population level is expected to be well below the winter range carrying capacity during most winters, thus reducing the overall utilization of key forage species

Potential disadvantages:

- This scenario recognizes the public demand for a larger deer population, but will preclude antlerless hunting until the objective has been reached and maintained
- National publicity is expected to keep preference point requirements at their current level; however it is likely that point requirements may increase over time
- Although reduced from the former plan objective of 40-45:100, restoring a buck:doe ratio of 35-40 following a severe winter will still require an extended recovery time
- Severe winters will result in reduced overall hunting opportunity for indeterminate periods of time
- Hunters should be cognizant that winter feeding programs are not sufficient for maintaining older age classes of mule deer bucks, and should expect that the number of mature bucks will be reduced as a result of severe winters; recovery times will be variable
- Many negative comments were received during public scoping related to the current landowner voucher program, and other social issues. Selecting these management objectives is not likely to result in changes to these programs or issues over time. Hunters should expect that both the biological and social landscapes will look very similar to what they have over the last 10 years in D-22

Mule Deer Herd Management Plan
Data Analysis Unit D-25
Powderhorn Herd
Game Management Units 66 & 67

Revised by Brandon Diamond
Colorado Parks & Wildlife
300 West New York Avenue
Gunnison, C0 81230

September, 2012

DAU D-25 (Powderhorn)
EXECUTIVE SUMMARY
September 2012

Game Management Units: 66 & 67

Landownership: 37% USFS, 42% BLM, 19% Private, 2% NPS, <1% State

Post-hunt Population:
Current Objective (2007): ***4,500-5,500*** Post-hunt 2011 Estimate: ***5,300***
DRAFT PREFERRED ALTERNATIVE: 5,400-5,900

Post-hunt Sex Ratio:
Current Objective (2007): ***40-45:100*** Post-hunt 2011 Estimate: ***39:100***
DRAFT PREFERRED ALTERNATIVE: 35-40 Bucks:100 Does

Figure 1. D-25 Post-hunt Population Estimates 1980-2011

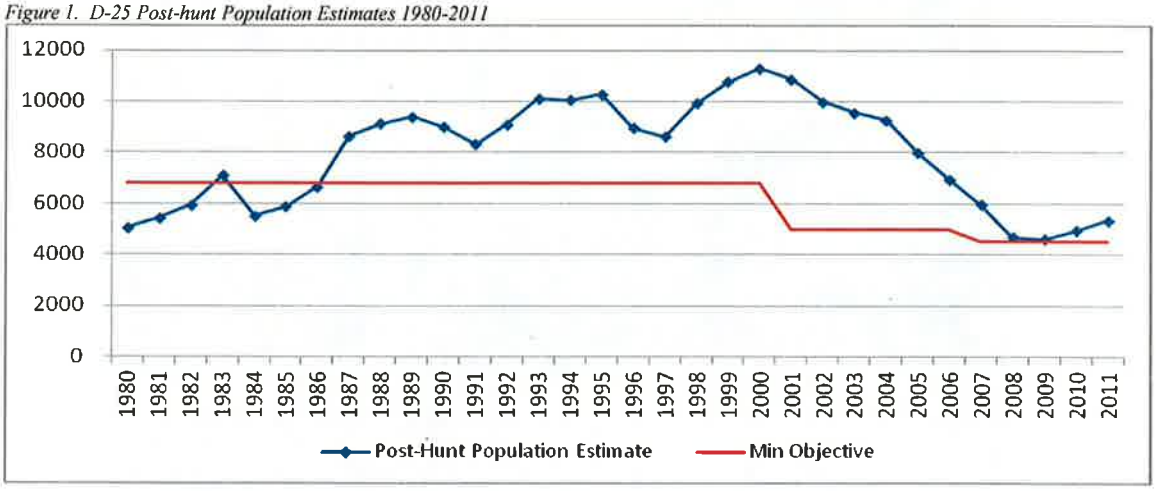


Figure 2. D-25 Harvest 1980-2011

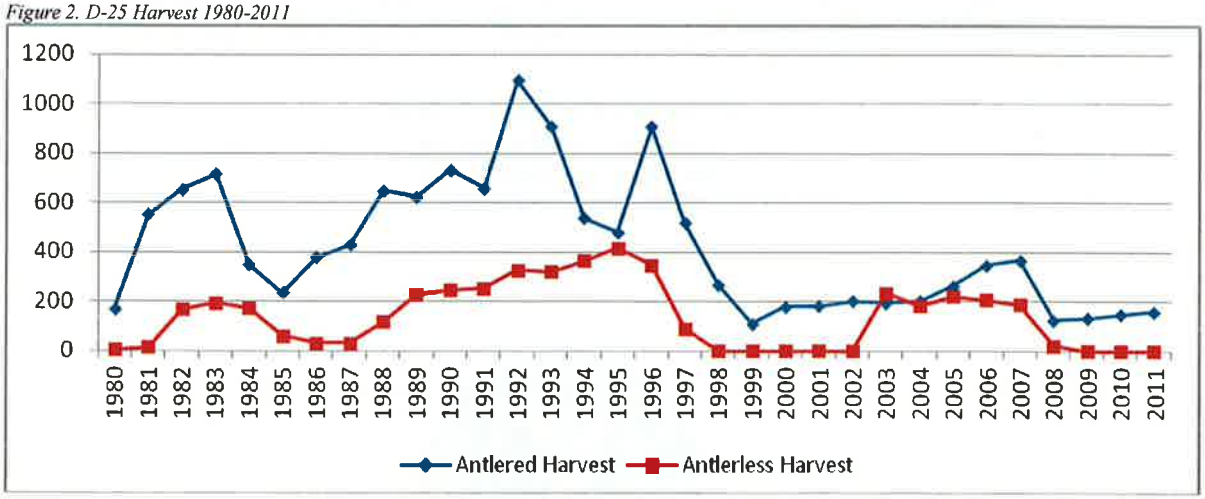
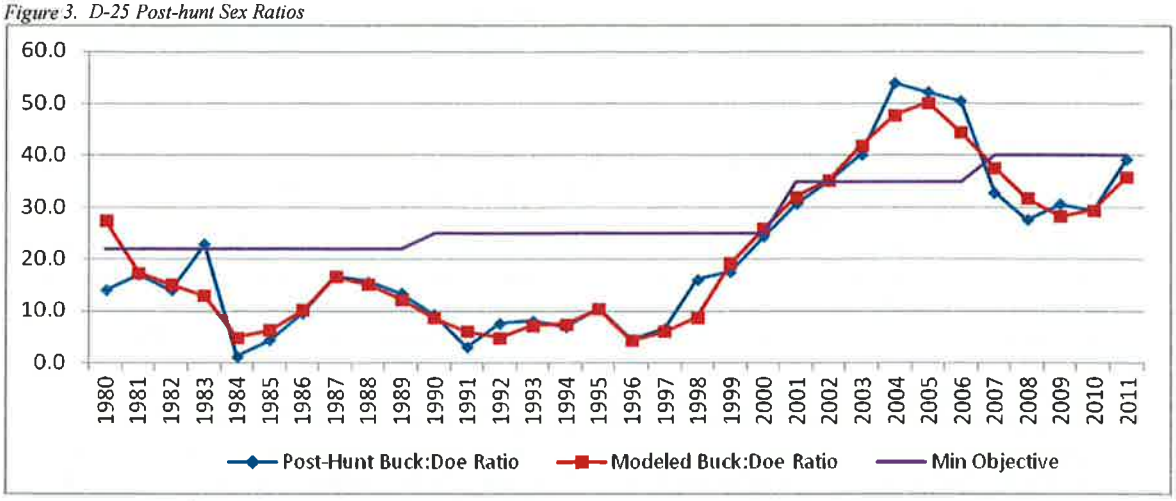


Figure 3. D-25 Post-hunt Sex Ratios



Population

Similar to other deer herds in the Gunnison area, the D-25 population declined following the severe winter of 1983-84, increased during the late 1980's, and then remained stable/increasing during much of the 1990's. Following statewide license limitation in 1999 and a series of exceptionally mild winters, the mule deer herd in D-25 increased substantially, and current model estimates suggest the population peaked during the early 2000's. More recently, the population in D-25 has declined as a result of the severe winter of 2007-2008. Prior to the 07-08 winter, the population was actively being reduced through sustained antlered and antlerless harvest. Since 2008, hunting license allocation has remained extremely conservative, with no antlerless hunting occurring. The 2011 post-hunt population estimate for D-25 was approximately 5,300 animals on a moderately increasing trend.

Sex Ratio

During the early to mid-2000's, extremely conservative license allocation produced some of the highest buck to doe ratios in the state, and hunting licenses became highly sought after. The ratio in D-25 increased to an observed high of 54:100 post-season 2004. In 2005 and 2006 the sex ratio exceeded 50:100. Post-season 2007, the sex ratio was unexpectedly low at 33:100 (*likely biased for unknown reasons*); however a substantially reduction occurred during the 07-08 winter, with an observed ratio of 28:100 post-season 2008. After nearly five years of conservative license allocation, the observed buck:doe ratio post-hunt 2011 was approximately 39:100.

Hunter & Harvest Trends

Between 1986 and 1998, the average number of deer hunters pursuing deer in GMUs 66 & 67 was approximately 3300 (buck & doe hunters combined). The average number of hunters in D-25 between 1999 and 2011 was estimated to be around 410. The average buck harvest from 1986 through 1998 was 630, with the total harvest averaging 844 animals. Between 1999 and 2011, the average buck harvest was 202, with a total harvest of 283. The highest documented harvest in the DAU occurred in 1992 with 1,424 deer harvested, including 1,096 bucks. The lowest annual harvest took place in 1999, with a total of 111 antlered deer taken. Success rates have varied over the years, but have averaged around 66% since 1999 across all seasons. In 2011, an estimated 161 bucks were taken by 226 hunters.

Model Revision

The previous DAU plan for D-25 was approved by the former Wildlife Commission in 2007; however subsequent model updates post-season 2008 created a disparity between existing DAU plan objectives and revised population estimates. This in turn has necessitated DAU plan revisions. CPW occasionally revamps population models in order to produce the most defensible, science-based estimates possible. The downside to this process is that management plan objectives often have to be revised, which typically leads to considerable public scrutiny. Population models are subject to change over time; however, in most cases those changes will not influence the on-going management philosophy for a given DAU, nor will they

change the actual number of animals "on-the-ground." Although DAU plans are tied to a specific population objective, it is often more productive to focus on population trends rather than specific year to year variation.

Key Issues

Many issues surround mule deer management in the Gunnison Basin, and they generally fall into either a biological or socio-political category. Many of the issues raised during this planning process are similar to those discussed in 2006 during the previous planning effort. There are a number of important factors influencing mule deer population dynamics in the Gunnison Basin other than hunter harvest. Some of these factors include, but are not limited to, winter severity, habitat condition, competition with elk, and human development. Wildlife managers are continuously monitoring and evaluating these factors in order to incorporate them into management objectives and annual license setting processes as necessary.

Key Issue: Winter Range Carrying Capacity

Like many places in the Rocky Mountain west, spring and summer ranges in D-25 are much more expansive than the limited winter range. Most winter range areas occur many miles from summer range and can only be reached following lengthy migrations. Winters may be severe in the Gunnison Basin and the quantity and quality of winter habitat clearly presents a potential bottleneck for herd productivity and sustainability. Although superbly adapted to Rocky Mountain climates, mule deer in the Gunnison area are periodically subjected to severe winters which may result in significant mortality. The winters of 1978-79, 1983-84, 1996-97, and 2007-08 are recent examples of how unforgiving winters may be in the area. In general, dramatic population fluctuations are no longer acceptable to the general public and big game hunters, based on the emotional response to seeing large numbers of animals die, and the potential impacts to hunt quality and opportunity. The same may be said for local economic interests that rely on predictable levels of wildlife related tourism. CPW maintains a policy pertaining to feeding big game animals during severe winters, and supplemental feeding programs have been initiated during the four winters previously mentioned with variable success. The winter of 2007-08 was particularly severe and has had lasting repercussions locally. Mule deer management in the Gunnison Basin is ultimately constrained by severe winters.

Key Issue: Hunter Opportunity

A key element of mule deer management is the public's desired level of hunting opportunity. Some hunters prefer to hunt every year, whereas others would wait five or more years in order to hunt in a highly sought after unit. Some hunters forego multiple years of hunting in order to build preference points, while others are willing to buy expensive landowner vouchers in order to hunt every year. Trophy mule deer bucks remain one of the most sought after big game animals in the western United States, and hunters are continuously seeking opportunities to hunt trophy deer. In 1999 there were 1474 first choice applicants for buck licenses in D-25. In 2007, there were 3225 applicants for either-sex and antlered licenses, which amounted to more than a 210% increase. Demand for limited deer licenses in the Gunnison Basin has declined since the winter of 07-08, however it is likely that there will be a resurgence of interest when future management objectives are achieved. In 2011, there were 1820 first choice applicants for buck licenses in GMU's 66 and 67. The potential trade-offs between quality management and hunting opportunity have been discussed at length with the public during this planning process.

Public Process

Considerable public scoping has occurred so far in this process through meetings, on-line surveys, written comments, emails, phone conversations, and face-to-face communications. As expected, the majority of individuals engaged have been resident deer hunters. Input on future management objectives has been diverse; however there does appear to be a majority opinion regarding future management of this herd. Population and sex ratio are discussed separately below:

Population: It is evident that most hunters are interested in seeing the D-25 deer population increase. This is not surprising following the declines that resulted from the 2007-08 winter. The population is currently below where it was prior to 07-08 so there is certainly potential to grow the herd. CPW does not support increasing this population back to mid-2000 levels, but would support a modest increase. The reality, however, is that it will take several years to grow the population assuming average winter severity and

average or above average survival rates. Limited doe hunting may or may not be possible if management aims to substantially increase the D-25 population.

Sex Ratio: It appears, based on public comments, that an apparent majority of hunters are willing to sacrifice hunting opportunity for high sex ratios, and that there is an interest in maintaining or increasing the current buck:doe ratio. It should be pointed out, however, that although 74% of survey respondents indicated they would like to see the number of bucks in the unit increase, 39% of respondents indicated they would not give up hunting opportunity to maximize the number of older aged bucks in the unit. Furthermore, 84% of respondents indicated they would like to draw a license on a frequency of five years or less. This suggests that there is still misunderstanding relative to the trade-offs between managing for high sex ratios and annual levels of hunting opportunity. The sex ratio in D-25 is essentially at the current sex ratio objective of 40-45:100. Future license allocation will be driven by management plan objectives and the array of other factors influencing mule deer population dynamics.

In conclusion, there are a multitude of objectives that could be selected for managing the D-25 population; however after thorough consideration, CPW respectfully recommends the following alternatives:

- **Post-hunt Population Objective = 5,400-5,900 (*DRAFT PREFERRED*)**
- **Sex Ratio Objective = 35-40 bucks : 100 does (*DRAFT PREFERRED*)**

Potential advantages:

- This management scenario will continue to provide high quality buck hunting and maintain older age classes of males
- This management scenario is expected to maintain the balance between hunt quality and opportunity
- Most survey respondents indicated they would prefer to hunt every five-years or less; this alternative strives to achieve that public desire
- A slightly reduced sex ratio objective potentially allows for increased license allocation; this is expected to help partially mitigate future preference point requirements
- Following severe winters, slightly shorter recovery periods are anticipated for restoring the male segment of the population (ie. sex ratio objective)
- Post-rut bucks may enter winter in better condition, thus increasing survival
- Success rates will likely remain high across all seasons
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Potential disadvantages:

- This scenario recognizes the public demand for a larger deer population, but will preclude antlerless hunting until the objective has been reached and maintained
- National publicity is expected to keep preference point requirements at their current level; however it is likely that point requirements may increase over time
- Although reduced from the former plan objective of 40-45:100, restoring a buck:doe ratio of 35-40 following a severe winter will still require an extended recovery time
- Severe winters will result in reduced overall hunting opportunity for indeterminate periods of time
- Hunters should be cognizant that winter feeding programs are not sufficient for maintaining older age classes of mule deer bucks, and should expect that the number of mature bucks will be reduced as a result of severe winters; recovery times will be variable
- Many negative comments were received during public scoping related to the current landowner voucher program, and other social issues. Selecting these management objectives is not likely to result in changes to these programs or issues over time. Hunters should expect that both the biological and social landscapes will look very similar to what they have over the last 10 years in D-25