

BIG SANDY DATA ANALYSIS UNIT

D-46

Game Management Units

107, 112, 113, 114, 115, 120, 121

DEER MANAGEMENT PLAN

PREPARED FOR

THE COLORADO DIVISION OF WILDLIFE

BY

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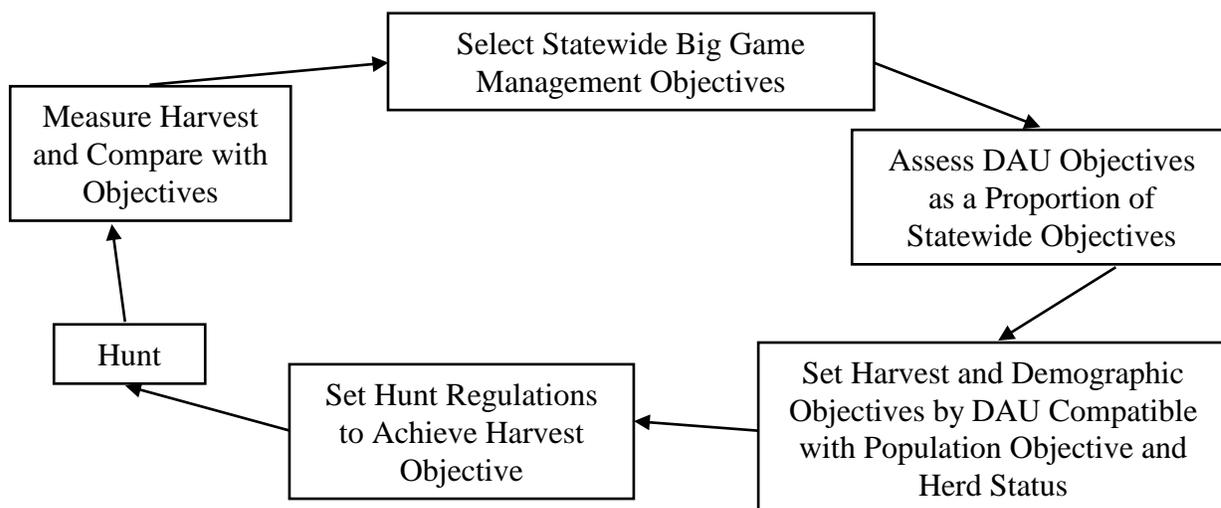
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## DATA ANALYSIS UNIT PLANS

Historically, big game seasons were set by tradition and /or political whims. Seasons that resulted did not reflect what was occurring with wildlife populations or habitat. To a degree big game seasons are still traditional and/or political, but in response to a growing demand for finite wildlife resources, the Division of Wildlife must be more accountable. Managing our wildlife resources by management objectives creates accountability. The current approach is to make decisions on big game numbers by Data Analysis Unit (DAU) five years in the future. Planning is now taking place for the 2004 objective. Numbers established for the 2004 long term objectives are based on historic population estimates tempered by current conditions including land use changes and game damage conflicts.

DAU's are utilized to manage populations of big game animals. Each DAU is established to contain a discrete population of animals utilizing geographic boundaries that minimize movements between DAU's. Each DAU may contain one to 10 or more Game Management Units (GMU) to which specific management practices are applied to reach the DAU population and sex ratio goals. DAU management plans are designed to support and accomplish the objectives of the Division of Wildlife Long Range Plan and meet the public's needs and desires for their wildlife recreation while minimizing human/wildlife conflicts.

**Figure 1.** Colorado's Objective Cycle of Big Game Management and Harvest.  
(Adapted from Conolly in Walmo 1981, pp263)



The objective approach is an annual and long term cycle of data collection, analysis and decision making that culminates each year in hunting seasons. The cyclic objective setting approach is designed to base the decision making process on the collection and analysis of data, primarily harvest data and inventories. It also focuses decision makers, the Division staff and the Wildlife Commission on population goals.

The DAU Plan process is designed to examine the public desires, habitat condition and herd capabilities and result in the setting of long term goals for big game populations. The public, other agencies and organizations and landowners are involved in this process through public meetings, written requests for comments and the Colorado Wildlife Commission.

## **BIG SANDY DAU**

### **PHYSIOGRAPHY**

Deer Data Analysis Unit (DAU) D-46 is located in east central Colorado and is comprised of Game Management Units (GMU) 107, 112, 113,114, 115, 120 and 121 (Figure 2). Prior to 1986 this DAU consisted of Big Game Units 99 (currently GMU 107), 103 (currently GMU's 112, 113, 120 and 121) and 104 (current GMU's 114 and 115). The Big Sandy DAU lies within portions of Cheyenne, Crowley, Kiowa, Kit Carson, Lincoln and Washington Counties bounded on the north by U.S. Highway 36; on the east by Colorado Highway 59 and U.S. Highway 287; on the south by Colorado Highway 96; and on the west by Colorado Highway 71. This DAU covers 4,243 square miles ranging in elevation from about 5,735 feet north of Limon to about 4,265 feet north of Eads. Topography is primarily flat prairie to rolling hills with a small amount of riparian habitat along the Big Sandy Creek and South Republican River. Precipitation averages about 12-14 inches per year mainly as spring snows and summer rains.

Major rivers and streams are Gordon Creek, North and South Fork of the Arkansas River, Hell Creek, South Fork of the Republican River, Sand Creek, Big Sandy

Creek, Big Spring Creek, Horse Creek and Rush Creek. Lakes within D-46 are Kinney Lake, Flagler Reservoir, Karval Reservoir and the Hugo Ponds.

Of the 4,243 square miles in the Big Sandy DAU, the Division of Wildlife controls about 5 square miles (about 0.11% of the DAU) which includes the Hugo State Wildlife Area (SWA) which has two parts: the Clingensmith Tract (2,240 acres); and the Kinney Tract (320 acres), Karval SWA (235 acres) and Flagler SWA (400 acres). The Bureau of Land Management controls about 5.2 square miles (0.11% of the DAU), the State Land Board controls about 215 square miles (5% of the DAU) and the remaining 4,017 square miles (94.6%) is in private ownership.

Agriculture is the predominant land use in D-46, primarily livestock grazing and corn, wheat, alfalfa, milo, millet, sunflowers and sorghum being the main crops. Large expanses of prairie have been plowed and put into winter wheat production. The Conservation Reserve Program (CRP) is removing fields from crop production back to grasslands which provides excellent habitat for deer.

## **POPULATION DYNAMICS**

### **Deer Distribution**

Mule deer and white-tailed deer are found in the Big Sandy DAU. Both species may be found through out the DAU (Figure 3) but most common in riparian habitats. Both species are being observed at significant distances from typical deer cover types such as trees and shrubs. These animals have adapted very well to living on the prairie in small gullies, CRP fields, windbreaks, around abandoned farm buildings and in river and creek drainages. White-tailed deer seem to be increasing in numbers and seem to adapt to the CRP fields very well. These animal are most successful when near croplands and often find cover in growing corn fields that provide both cover and food.

Concentration areas are often in river bottoms where these animals occasionally cause conflicts with landowners due to crop depredation. Depending on the severity of winter storms, deer may concentrate in riparian areas or in gullies, but if snows are deep enough the deer often move out of the bottom lands onto windswept ridges and during these times may feed on stacked hay or stored grain. As with most wildlife populations there is a distribution problem as deer tend to live where there needs are met.

## Population Numbers

The deer population (mule deer and white-tailed deer numbers are combined in the total population estimate) has increased from an estimated 1250 post-hunt 1975 to a high of 3,025 in 1993 to an estimated 2,450 animals post-hunt 1998 (Figure 4). For many years deer were protected by landowners and the numbers increased rapidly. As deer numbers increased and started to cause conflicts with landowners, more hunters were given access to hunt and the population has decreased. Since 1988 the population goal has been 2,200 animals post-hunt. Population numbers and sex ratios are derived from field observations and harvest data. These data are entered into the POP II population modeling program (Fossile Creek Software, 1992 v 7.03, Fort Collins CO) which generates population estimates and projections. Utilizing the population projection, the 1999 post-hunt population in D-46 should be about 2,240 animals.

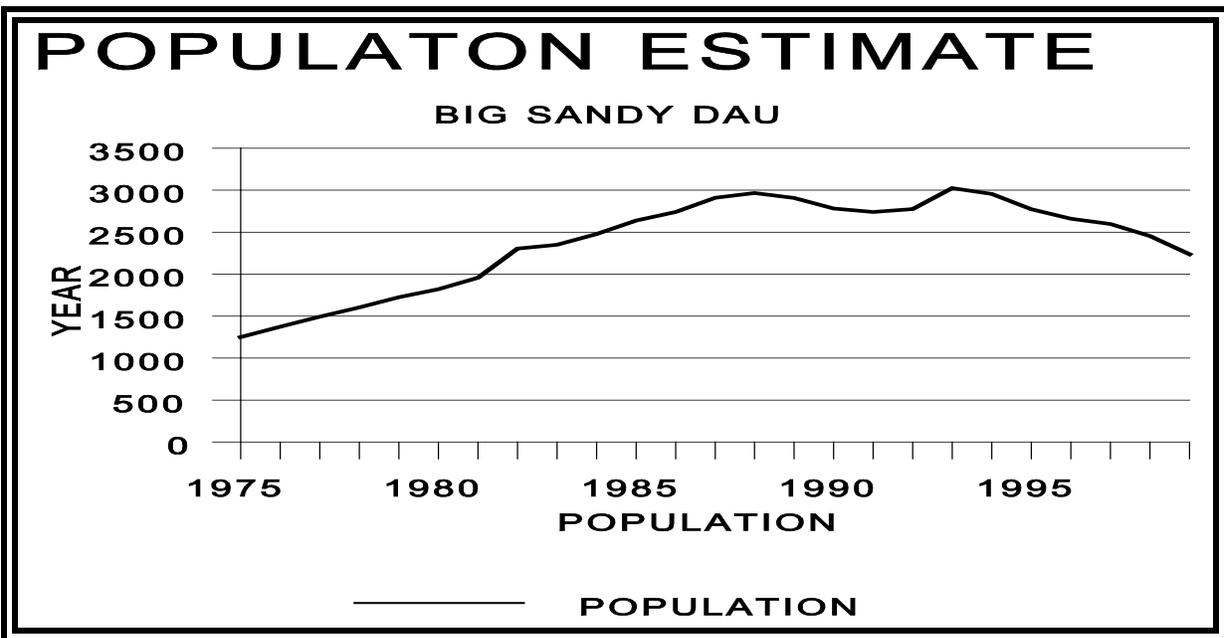


Figure 4. Population numbers for Big Sandy DAU 1979-1999. The 1999 figure is a projection based on the estimated 1999 deer harvest.

## **Post-hunt Sex Ratio**

Post-hunt sex ratios have been derived from field observations and the POP II model. Currently the model is projecting 48 bucks per 100 does post-hunt 1998. The sex ratio has been as low as 42 bucks per 100 does and reached 56 bucks per 100 does in 1990 and 1991. This ratio remains high as much of the hunting pressure is placed on the female segment of the population to reduce the population to the current goal of 2,200 animals with a buck:doe ratio of 50 bucks per 100 does.

## **Harvest**

Deer harvest is totally dependent upon landowners allowing access to hunters. There is not enough public land to make a significant contribution to deer hunting/harvest. As the deer population has increased more landowners have allowed more hunters on their property as deer have started to cause conflicts. This results in increased harvest and allows control of the population. Since 1979 harvest (Figure 5) has averaged 327 deer per year (15 young, 134 does, 178 bucks), with the smallest harvest occurring in 1979 with 107 (8 young, 23 does, 76 bucks) harvested to the largest harvest in 1996 when 517 (15 young, 256 does, 246 bucks) were harvested. For the years 1989 through 1998, hunter success has averaged 71% with the lowest success in 1997 at 63% and the highest success in 1996 with 81% of the hunters successful. In this 10 year span the success rate has fallen below 70% only in 1997 (63%) and 1992 (67%). As license numbers have been increased to reduce the population, there have been significant numbers of left-over licenses and in 1998 185 doe licenses remained after the draw. Well over 50% of the doe licenses were taken on second choice. This situation has improved since 1995 when 214 licenses were left-over. With totally limited licenses it is expected that there will be fewer left-over licenses in this DAU.

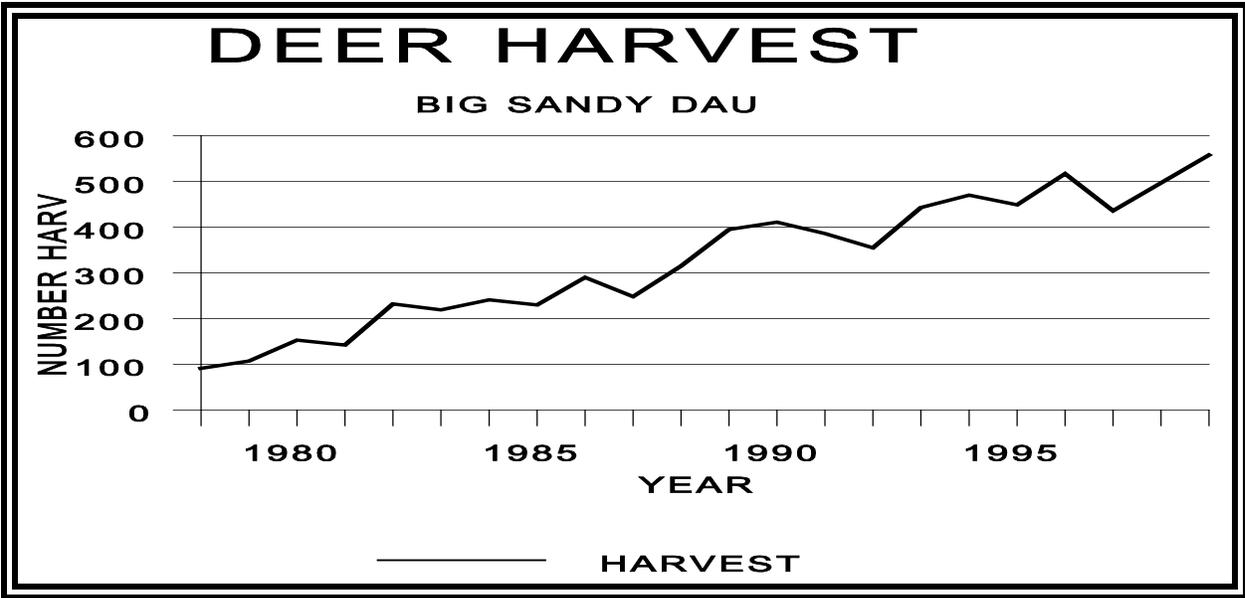
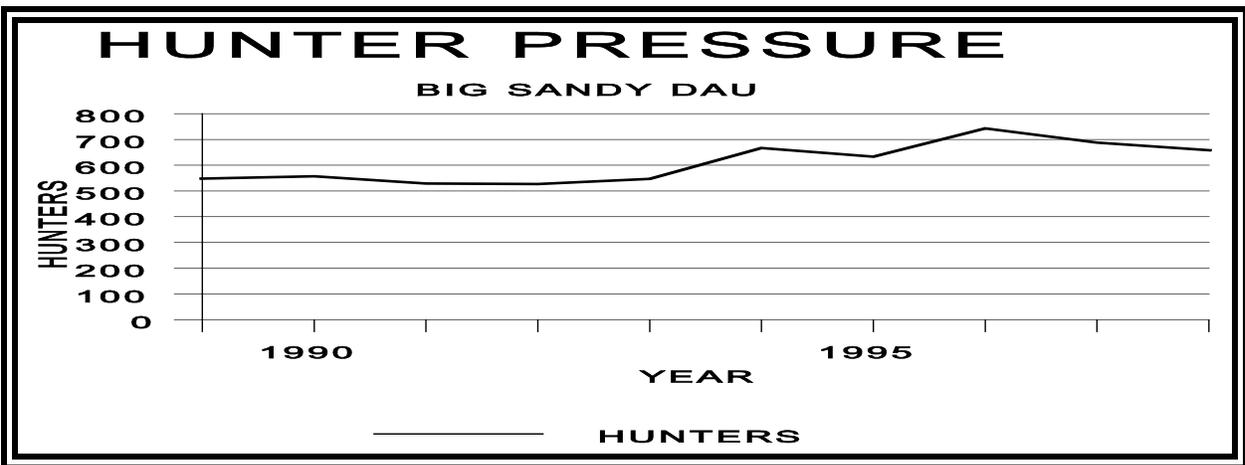


Figure 5. Deer harvest in the Big Sandy DAU 1978 through 1999. The 1999 data point is the projected harvest.

**Hunting Pressure**

Figure 6. Hunter pressure in the Chico Basin DAU 1987 through 1997.



Hunting pressure has averaged 610 hunters for the last 10 years and varied from a low of 527 hunters in 1992 to a high of 743 hunters in 1996 (Figure 6). Numbers of hunters fluctuate yearly but the overall trend is for increasing numbers of hunters. This DAU can probably accommodate more hunters and as deer distribution changes additional hunting opportunities may become available.

### **Current Herd Management**

The 1998 post-hunt population estimate is about 2,450 and if harvest objectives are met the population should be at the current goal of 2,200 animals in 2000. There are few game damage complaints in this DAU, and most are concerned with growing crops and occasionally stacked hay or stored grain. There are occasional complaints of damage caused by deer in shelter belts. Hunters have been directed to areas having game damage complaints to reduce numbers of deer in those areas. A late season (December 1-14) is available in GMU 107 to increase harvest on deer in agricultural areas as these animals become available after the crops are harvested and landowners are willing to allow access. There is an increasing demand for buck licenses during this late hunt as large buck become more vulnerable during the breeding season.

### **Issues and Strategies**

Adequate deer census techniques are unavailable. The number of deer in the plains areas of Colorado need to have a better method of determining population estimates. Additional resources are needed to fund additional aerial surveys east of I-25. Additional research is needed to develop better deer census techniques that will provide adequate data for plains deer units.

Game damage is of concern. To date complaints have been alleviated by utilizing fencing around stack yards and some growing crops. Other problems are solved by using scare or hazing techniques.

Hunter access is limited. The problem is compounded by hunters or sportsman organizations leasing properties. These leases are often by outfitters who cater to hunters after large bucks and these properties are then unavailable to the harvest of does. Large ranches have been purchased by individuals or corporations that close the property to hunting. Education of these individuals and those managing corporate properties is ongoing.

### **Development of Alternatives**

To gather input from the public, organizations, governmental agencies and DOW field personnel, letters were sent to all District Wildlife Managers that cover this DAU, Governmental Agencies and organizations (Appendix A and B), interested individuals and 2 public meetings were held. There were no written comments about this DAU from any group or agency. The following public meetings were held:

<u>Location</u>	<u>Date</u>	<u>Number of Attendees</u>
Limon	May 25	2
Burlington	May 26	11

All participants at the public meetings voiced a desire to have more deer in the Big Sandy DAU, with support to either 2,500 deer or 3,000 deer as the new objective. All supported keeping the buck:doe ratio goal at 50 bucks:100 does. DOW personnel requested raising the population goal to 2,500 for this 5-year period and if the landowners do not have an increasing number of game damage complaints then increase the goal to 3,000. The majority of meeting participants supported the 2,500 option.

### **Preferred Alternative**

The preferred alternative for the population goal is 2,500 deer, which is an increase of 300 deer from the population goal set in 1988. The preferred sex ratio goal is 50 bucks:100 does, the same as the sex ratio goal set in 1988.

## **BIG SANDY DEER DAU PLAN**

### **EXECUTIVE SUMMARY**

**DAU:** D-46 Big Sandy Deer

**GMU's:** 112, 113, 114, 115

**Current Population:** 2,200

**Old Population Objective:** 2,200

**New Population Objective:** 2,500

**Current Sex Ratio:** 46 bucks:100 does

**Old Sex Ratio Objective:** 50 bucks:100 does

**New Sex Ratio Objective:** 50 bucks:100 does

#### **Changes from current objectives/management:**

The current population objective is increased 300 above the previous objective. This is 300 deer above the projected 1999 post-hunt population. The sex ratio objective does not change.

Management will be directed at slow population growth and maintaining 50 bucks:100 does. Game damage complaints will be monitored to ensure this population increase does not significantly increase complaints.

#### **Significant issues raised by the public and how the plan addresses those issues:**

There is concern that outfitters trespass onto private land with their clients. Increasing numbers of white-tailed deer, not enough white-tailed deer, should manage for mule deer. If there are problems harvesting enough does separate buck and doe seasons or have a 2 deer season. These issues are not addressed in this plan as the DAU is not managed for one species of deer over another. This may become more important in the future. Problems harvesting does, does not require the suggested changes at this time but may in the future. Trespass is regarded as a law enforcement problem and will be addressed by DOW officers.