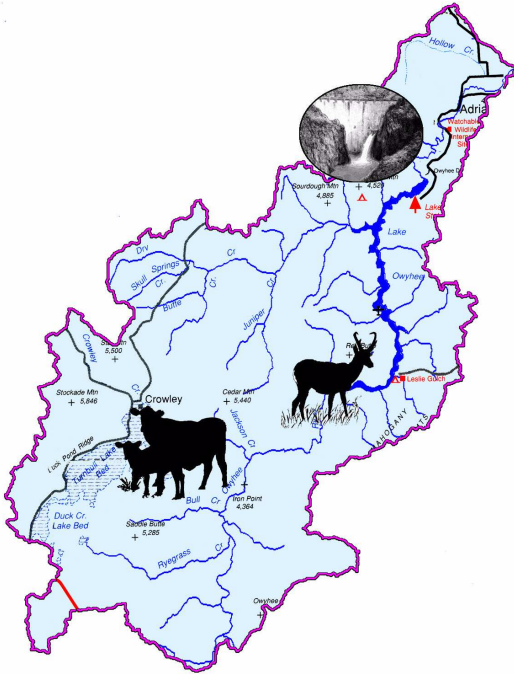


# Lower Owyhee Watershed Assessment

## X. Wildlife

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### Contents

## X. Wildlife, lower Owyhee subbasin

We are all familiar with the large game animals such as elk, deer and pronghorn that bring hunters to the lower Owyhee subbasin and surrounding region. This component discusses not only data on large mammals but also on birds, reptiles, and amphibians.

### A. Historic animal populations

Early trappers in the Owyhee uplands comment upon the lack of large game. The hired hunters accompanying trapping parties were unable to find game for days on end. (See the at contact section of the history component of this assessment.) The Native American diet also suggests that large game was not abundant. The ethnographic record of Northern Paiute groups indicate that they depended upon many small animals, especially rabbit, and edible plant seeds and roots. When Omer Stewart visited with two Northern Paiute of the Tagö-töka band the list of animal foods they traditionally ate included porcupine, jack rabbit, cotton tail rabbit, white rabbit, kangaroo rat, mouse, muskrat, woodrat, woodchuck, squirrel, ground squirrel, chipmunk, raccoon, elk, bobcat, badger, beaver, mountain sheep, antelope and mule deer.<sup>64</sup> The use of this wide range of animal resources indicates that large game was neither plentiful nor a reliable food. This was not a new condition, as indicated by archaeological excavations. The Native Americans who lived at Birch Creek, along the Owyhee river several thousand years ago ate shellfish, fish, plant seeds and small animals, like rabbit and marmot, in addition to deer and bighorn sheep.<sup>1,2</sup>

### B. Large mammals

#### 1. Pronghorn, *Antilocapra americana*

Pronghorn are animals frequently seen in southeastern Oregon (Figure 10.1). However, historically in eastern Oregon the density of pronghorn, also referred to as antelope, was much lower than areas of the northern plains. "In 1881 more than 55,000 antelope hides were reportedly shipped down the Yellowstone River to St. Louis . . . [and] an 1885 estimate for a small portion of southwest Wyoming was 30,000."<sup>23,4</sup> Pronghorn were heavily hunted and the population dropped until the 1920's when the trend reversed with the onset of wildlife management. By 1970 the United States population of pronghorn was estimated to be over 400,000.<sup>23</sup>

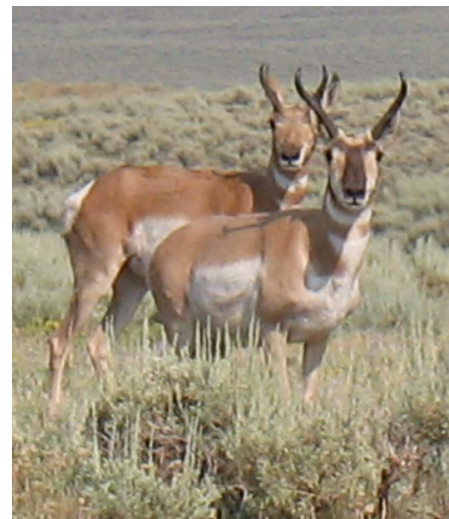


Figure 10.1 Pronghorn

Pronghorn inhabit sagebrush and grass communities and graze in areas where they can see for long distances. Pronghorn are not closely related to deer and have no close relatives in the old world. They are not related to the antelope of the African savanna.<sup>28</sup> Deer and elk have antlers which they shed annually. Like cattle or bighorn sheep, pronghorn have horns. Unlike cattle or bighorn sheep which never shed their horns, pronghorn shed the horn sheath

annually.<sup>17,35</sup> Pronghorns regrow the sheaths by July, before the September rutting season.<sup>35</sup> Pronghorn fawns are born starting in mid-May. Does, female pronghorn, typically have twins. Adults weigh between 75 and 130 pounds and stand 31-40 inches high at their shoulder.<sup>17</sup>

Pronghorn are the fastest land animal in North America.<sup>35,23</sup> They move quickly across open country and make long horizontal jumps. They do not have the vertical jumping ability of deer. When pronghorn are confronted with a fence they will find a way to go around or under it rather than jumping over it.<sup>17,23</sup> BLM publishes information on how to make under-fence openings for pronghorn passage on the range.<sup>82</sup> Pronghorn use their speed and sharp eyesight to avoid predators.

Pronghorn prefer to eat forbs. During the winter months when forbs are less available, they tend to eat shrubs.<sup>27</sup> Pronghorn are social animals and live in groups with the main exception being when does separate from the group to give birth. During the year, pronghorn will use many regions. "Late summer water shortages often restrict distribution as waterholes dry and pronghorn utilize those that remain."<sup>35:88</sup>

In the Owyhee wildlife management unit (WMU) of the Oregon Department of Fish and Wildlife (ODFW) (Figure 10.2), there were 2,692 pronghorn counted by air in 2006.<sup>35</sup>

## **2. Mule deer, *Odocoileus hemionus***

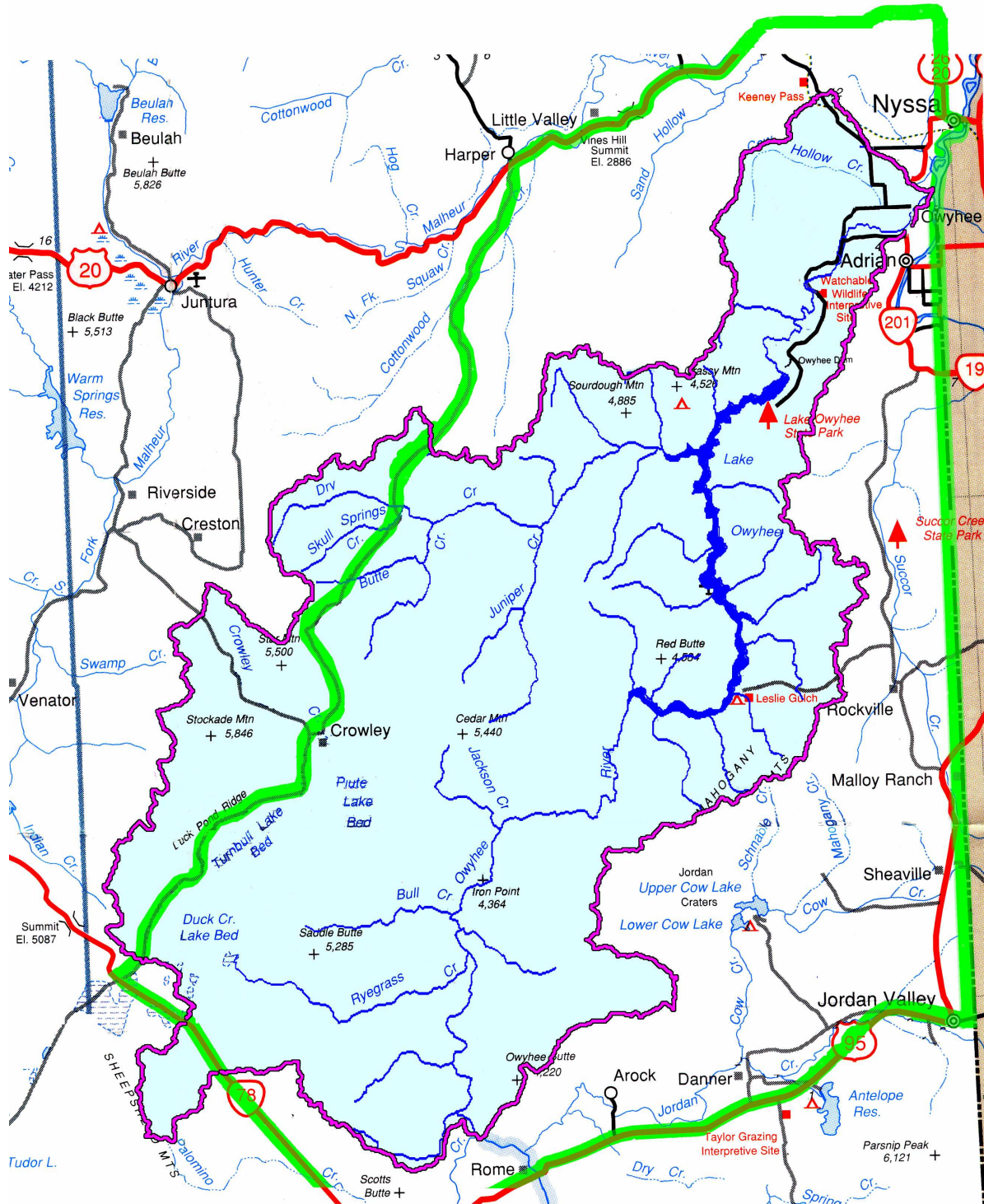
Mule deer are found throughout the lower Owyhee subbasin. Does, female deer, start reproducing when they are a year and a half old and they typically have twin fawns. Fawns are born from mid-May to June. Does can live for up to 15 years. Male mule deer, bucks, typically have shorter lives due to the rut and hunting.<sup>42</sup>

Mule deer eat a wide variety of plant material. During the winter they eat shrubs. During the early part of the century, the grasslands were overgrazed and sagebrush and other shrubs increased. The increase in shrub vegetation helped the mule deer population statewide. "Scientific studies of the 1930s reported that between 1926 and 1933 Oregon's mule deer population ranged from 39,000 to 75,000 animals. The estimated population in 1996 was 260,700, which was 18 percent below the established statewide management objective of 317,400 mule deer."<sup>42</sup>

In the Owyhee WMU of the ODFW, there were 2,445 mule deer observed in 2004.<sup>32</sup> The population objective for the Owyhee WMU is a post-winter (April) population of 5,000 deer.<sup>85</sup>

## **3. Elk, *Cervus elaphus nelsoni***

Rocky mountain elk are found east of the Cascades and sometimes they can be found in the lower Owyhee subbasin. For the last several years there have generally been no more than 100 head of elk in the subbasin.<sup>85</sup> However, herds are migratory and prefer to spend the summer in cool, moist meadowlands, generally in the mountains.<sup>42</sup> In the lower Owyhee subbasin elk tend to migrate between Mahogany Mountain and the southwestern Idaho Owyhee front. Elk are most commonly seen in the winter when they are seeking forage on rangelands with shrub growth or alfalfa in



**Figure 10.2. Boundaries of the Oregon Department of Fish and Wildlife Owyhee management unit outlined in green in relationship to the lower Owyhee subbasin in blue.**

agricultural fields. In Oregon damage complaints due to elk ranged from 100 to 250 in the 1990's.<sup>44</sup>

"Although elk are now firmly established in Oregon, this has not always been the case. Numbers were so low at the turn of the century due to market hunting for meat,



teeth, and antlers that all hunting was prohibited from 1908-1932. Protection and management resulted in the increase and spread of elk populations until hunting again became possible by 1933."<sup>42</sup>

#### 4. Bighorn sheep, *Ovis canadensis californiana*

The number and extent of bighorn sheep range within the lower Owyhee subbasin prior to white settlement is unknown. However, the population was likely low in comparison to deer and pronghorn because few bighorn sheep were consumed by native inhabitants.<sup>2</sup>

California bighorn sheep were killed off in Oregon by 1915. The domesticated sheep population transmitted diseases to bighorn sheep and the bighorn sheep were hunted as game. In 1954, 20 bighorn sheep from British Columbia were moved to Hart Mountain. Animals trapped at Hart Mountain have been moved to various Oregon locations. In 1965, 17 bighorn sheep were introduced to Leslie Gulch (Figure 10.3).<sup>41</sup> This was followed in 1987 by transplants of 15 bighorn sheep into Painted Canyon east of the Owyhee Reservoir and 16 bighorn sheep at Red Butte west of the Owyhee Reservoir. The transplanted populations have been successful. However in recent years there have been concerns about the health of the populations because fewer lambs are surviving. Since the original population of Leslie Gulch bighorn sheep was only 17 individuals, there is concern that the population is inbreeding; there is a lack of genetic diversity.<sup>41</sup> The ODFW has introduced one new group of bighorn sheep from a genetically diverse background. In 2001, 15 bighorn were introduced to Leslie Gulch, from the Santa Rosa Mountains in Nevada.<sup>41,85</sup> An ongoing goal of the ODFW in 2001 was to determine how successful this introduction of bighorn sheep was at joining the existing population and mating.<sup>41,85</sup>



Figure 10.3. Bighorn sheep in Leslie Gulch.

ODFW figures from 2006 have the lower Owyhee canyon population at 170 (44 rams, 90 ewes and 36 lambs). This is the second largest population of California bighorn sheep in the state behind the population on the Lower John Day River.<sup>17</sup> Currently bighorn sheep are found in the Lower Owyhee subbasin, especially in the area of Leslie Gulch. Figure 10.4 shows habitat designated for bighorn sheep by the Southeastern Oregon Resource Management Plan (SEORMP).<sup>4</sup>

Bighorn sheep are social and live in groups. During most of the year ewes and lambs live in one group and rams in a separate group. These groups only meet during the rut. "In Oregon, the rut usually begins in October, peaks during November, and ends by early December."<sup>41</sup> Group size averages 9 individuals for ewe-lamb groups and 5 individuals for ram groups.<sup>17</sup>

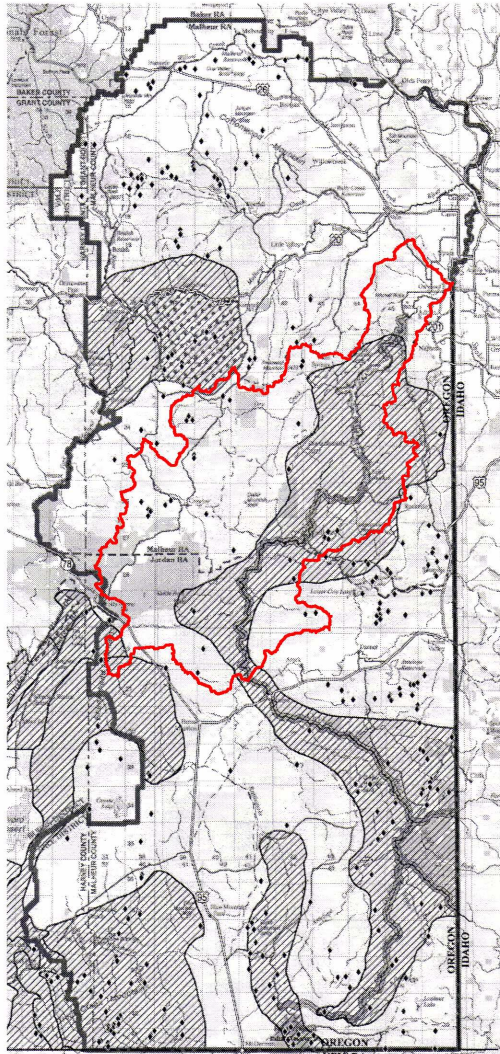


Figure 10.4. Areas of Malheur County that are designated as bighorn sheep range by the southeastern Oregon resource management plan. (4, Map WLDF-2)

"In general, bighorn sheep prefer rugged, open habitat that provides high visibility of their surroundings. Cliffs, rimrock, and rocky outcrops are important habitat components for bighorn sheep survival. These habitats are particularly important for lambing and escape from predators. Bighorn sheep do not normally use tree cover to the extent that deer or elk do, but it is not unusual to find them seeking shade under conifers, juniper, or mountain mahogany where available."<sup>41</sup>

Bighorn sheep diet consists of grasses, forbs and shrubs and they prefer young plant growth.<sup>17</sup>

Bighorn sheep use water "during daylight hours with early morning and late afternoon being the favored periods."<sup>17:25</sup> Ewe and lamb groups are observed within 1 and 1.6 kilometers (.6 to 1 mile) of water during the summer. Rams range further from water sources and have been documented as far as 4.8 kilometers (3 miles) away from water.<sup>17</sup>

Diseases of domesticated sheep still pose a risk to bighorn sheep. Pneumonia, soremouth and scabies can be transmitted between them.<sup>41</sup> Pneumonia is often fatal to bighorn sheep. To reduce the chance that bighorn sheep will contract diseases the BLM has established buffer zones around bighorn sheep habitat. Domestic sheep can not graze within the buffer zones. However, some studies of sheep pneumonia in Idaho have not found a direct link between infection in domestic sheep and in bighorn sheep.<sup>86</sup>

Cougar will prey on bighorn sheep lambs.

## 5. Wild horses, *Equus caballus*

Horses entered the western United States in the 1500s from horses that escaped Spaniard entrepreneurs and explorers. Historically wild horses were captured and

broken for ranching use, agricultural use, and supplying the military. Wild horses are also called feral horses. They are not considered wildlife by the ODFW.

**a. Protection of wild horses**

The Wild Horse and Burro Act of 1971 established protection for populations across the west. The text of the act specifies that:

"The Secretary [of the Interior] is authorized and directed to protect and manage wild free-roaming horses and burros as components of the public lands, and he may designate and maintain specific ranges on public lands as sanctuaries for their protection and preservation, . . . The Secretary shall manage wild free-roaming horses and burros in a manner that is designed to achieve and maintain a thriving natural ecological balance on the public lands. He shall consider the recommendations of qualified scientists in the field of biology and ecology, some of whom shall be independent of both Federal and State agencies . . . All management activities shall be at the minimal feasible level and shall be carried out in consultation with the wildlife agency of the State wherein such lands are located in order to protect the natural ecological balance of all wildlife species which inhabit such lands, particularly endangered wildlife species. Any adjustments in forage allocations on any such lands shall take into consideration the needs of other wildlife species which inhabit such lands."<sup>66</sup>

In addition, this legislation specified that the biology and ecology of wild horse populations be studied. We have been unable to find the document specified by the act:

"For the purpose of furthering knowledge of wild horse and burro population dynamics and their interrelationship with wildlife, forage and water resources, and assisting him in making his determination as to what constitutes excess animals, the Secretary shall contract for a research study of such animals with such individuals independent of Federal and State government as may be recommended by the National Academy of Sciences for having scientific expertise and special knowledge of wild horse and burro protection, wildlife management and animal husbandry as related to rangeland management. The terms and outline of such research study shall be determined by a redesign panel to be appointed by the President of the National Academy of Sciences. Such study shall be completed and submitted by the Secretary to the Senate and House of Representatives on or before January 1, 1983."<sup>66</sup>

**b. Use of rangelands by wild horses**

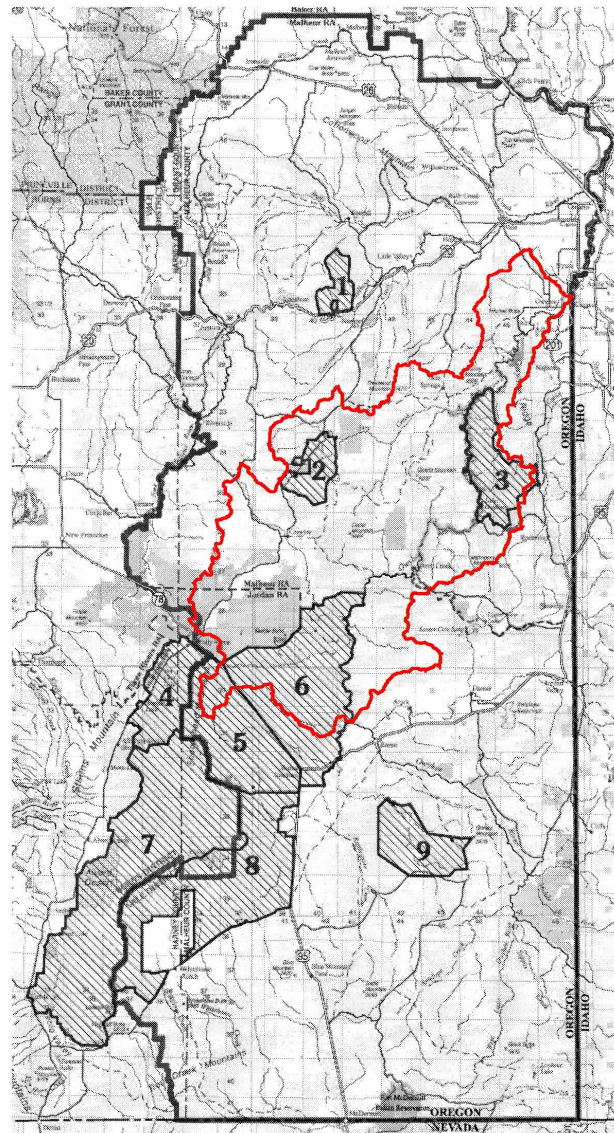
The lower Owyhee subbasin is home to wild horses. The area east of the Owyhee Reservoir has been home to wild horses for an extended period of time. In the 1940s the herd reached a population of 2,400 head. The BLM has designated an area east of the Owyhee Reservoir as the Three Fingers Herd Management Area (HMA). The Three Fingers HMA and the Cold Springs HMA lie within the lower Owyhee



subbasin. Most of the Sand Springs HMA lies within the lower Owyhee subbasin (Figure 10.5).<sup>6</sup> The Southeastern Oregon Resource Management Plan places the Three Fingers herd size appropriate management level as between 75 and 150 head, the Cold Springs HMA level as between 75 and 150 head, and the Sand Springs management level as between 100 and 200 head.<sup>4</sup>

In 1986 Ganskopp and Vavra published their studies of wild horses in the Owyhee Breaks, the same area as the BLM Three Fingers HMA.<sup>6</sup> Within this region they observed 6 distinct herds (Figure 10.6). Each herd was a group of horses that used a distinct range. During their two years of observation only one band of horses moved between herds. The home ranges of the 6 herds are shown in Figure 10.6. Each herd used a area between 12 and 28 square kilometers (4.6 and 10.8 square miles). The ranges used by wild horses did not shift by season. Within their home ranges, the horses were observed using all habitats except steep, south facing slopes with no grasses. The horses did not stay significantly closer to water during dry summer months.<sup>6</sup> Horses preferred forage is grasses.<sup>27</sup> When going to water, horses drank at the first and last daylight.<sup>6</sup>

Wild horses foal between March and July. Wolfe's figures suggest that the population structure of wild horse bands leans toward many young horses, with foals comprising 13-19% of the horse population and one to two year olds comprising 20-27%. In their first year, 28-70% of foals survive.<sup>81</sup> In 1975 the Three Fingers herd foal survival rate was 52%.<sup>81</sup> Adult survival rate for wild horses ranges between 80 and 85% per year. Based on mortality rates, Wolfe suggests a population starting with 200 head doubles every 10 to 18 years.<sup>81</sup> This is more conservative than other estimates. Ganskopp and Vavra observed a 13% annual increase in the Three Fingers herd (equal to doubling every 6 years).<sup>6</sup> Meanwhile, the BLM estimated increases at 18 to 25% annually with herd doubling every 3 years.<sup>6</sup>



2. Cold Springs HMA    3. Three fingers HMA  
6. Sand Springs HMA

Figure 10.5. Areas of Malheur County designated as wild horse herd management areas in the southeastern Oregon resource management plan.

(4, map WLHS-1)



There are no natural predators of the wild horse. Foals are sometimes lost to cougars, but adult horses are not attacked.<sup>81</sup> The lack of natural predators leaves control of horse populations in human hands. The BLM is responsible for periodic horse gathers. For each gather they must receive approval of the Secretary of the Interior and seek homes for the captured horses.<sup>66</sup>

The most recent gather of the Three Fingers herd is discussed in a 2006 document seeking permission for a gather.<sup>6</sup> In July 2006 the herd was composed of 246 horses. In addition to reducing the herd to 75 head with the gather, the BLM expressed plans to inject female horses left in the herd with a two year birth control drug before they were released. The BLM blamed items of concern like riparian area degradation, heavy use of grasses, competition with bighorn sheep for forage, and increased trampling of *Lepidium davisii* (Davis's pepperweed) on the excessive wild horse population.<sup>6</sup>

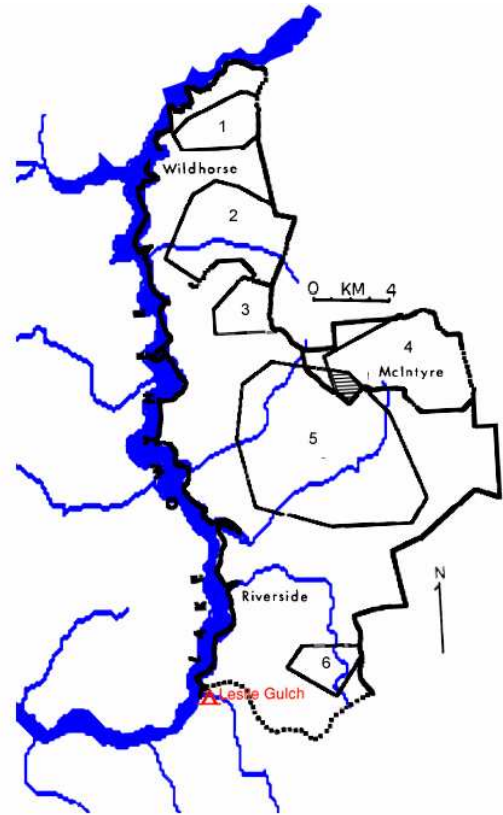


Figure 10.6. Location of 6 wild horse herds to the east of the Owyhee Reservoir. Grouped together they are called the Three Fingers herd.

"Colonies of *Lepidium davisii* would receive an increase in trampling as a result of the increase in wild horse numbers. This increased use would have negative impact on the species. Competition for forage between bighorn sheep and wild horses would increase as horse numbers increased. Riparian vegetation browsing, eroding banks by trampling, and increased water temperatures due to lack of bank cover and shade is primarily due to wild horse use during the hot season."<sup>6:14</sup>

For the Three Fingers HMA the allocation of AUM's is split as follows:<sup>6</sup>

3,362	for livestock
1,800	for wild horses
12	for pronghorn
79	for deer
0	for bighorn sheep

In 2006 the BLM planned to remove all the estimated 125 wild horses from the Sand Springs HMA for two growing seasons. After two growing seasons 100 horses including at least twenty mares treated with the fertility control drug PZP would be returned to the Sand Springs HMA. The removal of the horses was said to be necessary to support fire rehabilitation and to restore a natural ecological balance. Vegetation and soils in riparian zones were deemed to be extremely stressed in the summer when the horses concentrated at the few available water sources while wildfire

had destroyed most of the available forage within reasonable traveling distance of the herd's main water sources.<sup>84</sup>

The BLM estimated that there were 75 head of wild horses in the Cold Springs HMA in June 2006. The last gather in the Cold Springs HMA was conducted in July 2005.<sup>83</sup>

"The rational management of feral equid populations is hampered by a paucity of reliable information on ecology of free ranging horses and burros."<sup>81:354</sup>

## 6. Bison, *Bison bison*

In Oregon, bison are classified as domestic livestock.<sup>85</sup>

When Euro-American explorers and settlers passed the Rocky Mountains they noticed that there were no bison and yet the grasslands looked similar. One of the earliest conclusions was that the Native American populations must have hunted them out because the Nez Perce and Shoshone cultural groups of the Columbia Plateau and Snake River plain made yearly trips to Montana or Wyoming to hunt the bison.<sup>25,14</sup> The Nez Perce and Shoshone historic hunting trips were possible because they used horses to make the journey and return with large quantities of dried bison meat. In eastern Washington, the Native American groups crossed the Bitterroot mountains to hunt bison. Prior to AD 1500, when Native Americans began using horses, there is no evidence that these groups depended on bison hunting.

Archaeology and ethnography provide us with a picture of where bison grazed the grasslands west of the Rocky Mountains between 6000 and 4000 BC when the climate was slightly moister. From 4000 BC the population of bison declined steeply.<sup>24</sup> Bison were always abundant on the great plains, but not to the west of the Rocky Mountains. The mapping of bison kill sites over the last 10,000 years (Figure 10.7) shows how few kill sites have been found west of the continental divide.<sup>24</sup> There are more sites where bison skulls have been found, however they have not been dated.<sup>87</sup>

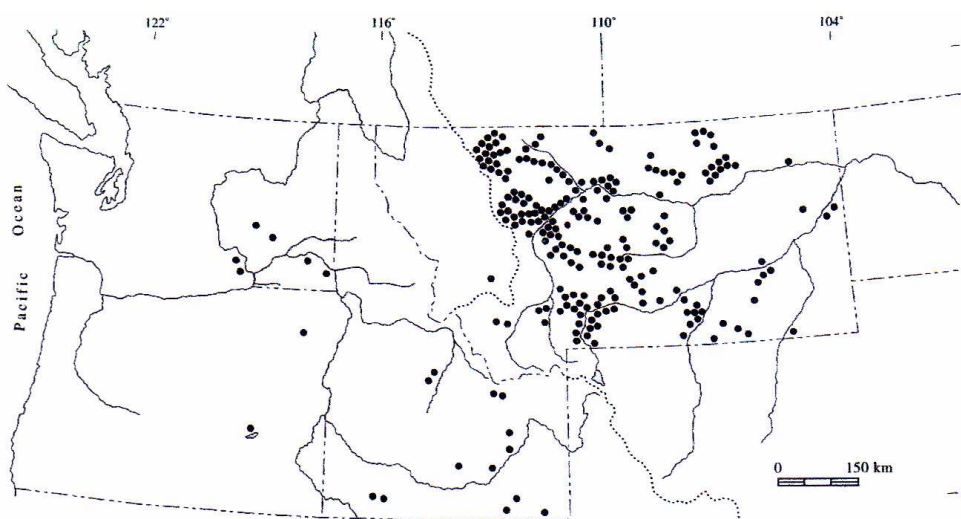


Figure 10.7: Bison kill sites from the last 10,000 years, mapped by frequency of archaeological sites where bison were slaughtered.<sup>(24: Figure 4)</sup>

W.F. Schnabel records discussions in 1889 with a Native American chief who was 110 years old. He remembered when he was a boy the last of the bison were killed during a hard winter. This would have been sometime in the late 1700s.<sup>87</sup> In 1916, another

chief told Vernon Bailey that his grandfather had told him about the buffalo going away, probably around 100 years previously. That would put the last of the bison in the region about 1816.<sup>87</sup>

"So far as I know, there has never been a trace of buffaloes found west of the main range of the Rockies, except one report that I got thirty or forty years ago from a pioneer named Jonathan Keeney. In 1843-4 he wintered near the sirtk [sic] of Lost River, in central Idaho, near where. . . Mackay now stands. He told me a bunch of thirty or forty head perished there that winter. Montana and Alberta were probably their greatest headquarters".<sup>21</sup>

Occasionally bison wandered into the intermountain west. Ethnographic accounts discuss the rare bison in northeastern California and along the Snake River plain. However these animals quickly died out. There are two limiting factors that kept bison from inhabiting the intermountain west in any consistent manner. Bison can not dig through deep snow to reach forage when the snow has crusted over and will die if no forage is exposed. Secondly, if they survive the winter, the cows need to produce milk for their calves in June when many of the native grasses have died back and do not provide adequate nutrition.<sup>12</sup>

Bison should not be considered a native species present in the lower Owyhee subbasin at the time of Euro-American contact.

## **7. Cougars, *Puma concolor***

Cougars, also known as mountain lions, made their homes in almost every Oregon habitat.

"Early pioneers saw these animals as a threat, and bounties were paid for mountain lions killed beginning in 1843. By the 1960's mountain lions were eliminated from much of the state, and only about 200 mountain lions remained in all of Oregon. The Oregon legislature repealed the state bounty system in 1961, and in 1967 changed the status of cougars to a "game mammal" regulated by the Oregon Department of Fish and Wildlife."<sup>40:1-2</sup>

The cougar population rebounded. ODFW implemented controlled hunting seasons to manage cougar populations. "Since December of 1994, it has been illegal to hunt mountain lions with dogs."<sup>40</sup> The 2006 population estimate for cougars in Oregon is 5,100.<sup>43</sup> The cougar density map for Oregon, Figure 10.8, shows that southeastern Oregon has a lower density of cougars than the forested mountains of the state.<sup>40</sup> ODFW currently allows hunting of cougars during 10 months of the year. In addition, recent laws allow landowners to kill cougars that are causing problems:

"Landowners can kill mountain lions that have killed, or are in the act of attacking livestock. While no permit is needed under these circumstances, statutes require that a person killing a mountain lion report the kill to their local ODFW office or Oregon State Police. Landowners are limited to their own property for damage control actions."<sup>40:3</sup>



Cougars are very large animals with adult females weighing between 75 and 105 pounds, and males between 130 and 170 pounds.<sup>40</sup> Most cougar births are between April and July following a three-month pregnancy. Cougars use protected locations as living sites, such as rock outcroppings.<sup>40</sup> Cougars are solitary animals, but cubs will stay with their mother for two years. Most cougars hunt during the night and they prefer large wildlife, such as deer and big horn sheep, but will kill smaller animals. Occasionally cougars kill livestock.

## **8. Coyotes, *Canis latrans***

Coyotes are close relatives to the domesticated dog. Coyotes are omnivorous. This means that they eat both meat and plants. While they will hunt small animals like rabbits, grouse and mice, they also eat fruits, vegetables and grasses.<sup>78</sup> Coyotes are also known to prey upon deer and pronghorn fawns and domesticated sheep. Coyotes in turn are prey for cougars and wolves.<sup>78</sup>

Coyotes breed in January or February and have pups in April or May. Generally litters are 5 to 6 pups.<sup>78</sup>

## **9. Bobcats, *Lynx rufus***

Bobcats are smaller than cougars. An adult bobcat is 25-30 inches long with a 5-inch tail and weighs between 15 and 35 pounds. Bobcats are most active from dusk to dawn. They prefer to eat small mammals and birds.<sup>88</sup> In eastern Oregon voles, rabbits, hares, mice, and woodrats are most frequently eaten. However birds comprise about 13 percent of their diet. Occasionally they eat carrion.<sup>89</sup>

Bobcats are well adapted to scrubby country and rocky or brushy arid lands.<sup>88</sup> There are bobcats in the lower Owyhee subbasin.<sup>89</sup> They are generally solitary animals, except when a female is accompanied by kittens. Bobcats generally stay within a two-mile radius.<sup>88</sup>

“The status of the bobcat has evolved through several stages since Oregon was first settled by immigrants. Early pioneers saw these animals as a threat, and bounties were paid for bobcats killed, beginning in 1843. By the 1930s bobcats were much less abundant and, under the pressure of constant hunting, declined through the late 1960s. The Oregon legislature repealed the State bounty in 1961, and in 1967 changed the status of bobcat to a "furbearer" regulated by the Oregon Department of Fish & Wildlife.”<sup>88</sup>

## **10. Wolves, *Canis lupus***

There are wolves in the lower Owyhee subbasin. The authors of this assessment saw one west of the Owyhee River on the playas near Chalk Basin. Ranchers have also reported seeing wolves.

“Wolves were not manually re-introduced into Oregon . . . Rather, wolves are expected to naturally disperse over the state line from Idaho into Oregon. Wolves that enter the state will be protected by both the federal and state Endangered Species Act and managed under ODFW's Wolf Plan. The goal of Oregon's wolf plan is to ensure

wolves' long-term survival and conservation in Oregon while minimizing conflicts with humans, primary land uses and other Oregon wildlife."<sup>90</sup>

Wolves were eradicated from Oregon by the 1940s. Concern about livestock losses led to the establishment of the first Oregon bounty on wolves in March 1843. The last wolf bounty was paid in 1946 and wolves were considered exterminated. In 1974, wolves were protected as an endangered species under the federal Endangered Species Act.<sup>90,91</sup>

### C. Hunting

The Oregon Department of Fish and Wildlife is responsible for the management of hunting. The ODFW establishes the dates of the season during which people can hunt as well as issuing hunting permits. The number of permits issued is determined by the animal population and management goals. In general, male animals are hunted. The dominant males in the wildlife population control reproductive access to females and impregnate more than one female. As such, fewer males than females are needed to maintain a healthy population. Controlled hunts of doe/fawn are used when there are concerns about increasing population or wildlife destruction of property, primarily agricultural damage to high value crops.

Controlled hunting of bighorn sheep rams is allowed by ODFW and the tags issued do not exceed 15% of the ram population.<sup>34</sup> Lower Owyhee canyon hunting in 2006 allowed for 4 hunters over the course of two separate hunt times and a total of 4 rams were taken.<sup>41</sup> The 4 rams represented 9% of the total ram population.

In 2006 the number of tags issued in the Owyhee unit was as follows:

<b>Animal</b>	<b>Hunt type</b>	<b>Tags issued</b>	<b>Area limitation</b>
Pronghorn	Bow hunt	83	
	Centerfire firearms	107	
Bighorn sheep		4	Lower Owyhee
Buck deer	Bow hunt	general season	
	Centerfire firearms	660	
Antlerless deer, controlled		11	Mitchell Butte
		15	NE Owyhee
Controlled elk		28	

Unlike game animals, predators are covered by different hunting regulations. The cougar season is ten months long and many more tags are issued than the number of animals that are expected to be taken. Cougar hunting is discussed at length in the subsequent section. Coyotes are classified as small game and require a hunting license. There is open season all year and there are no bag limit restrictions. In addition, "a landowner or landowner agent does not need a hunting or trapping license to take predatory animals on land they own, lease, lawfully occupy, possess, or have charge of or dominion over."<sup>36:7</sup>

## D. Cougar population and local concerns

The cougar population in southeastern Oregon has been on the rise since hunting with dogs was outlawed in 1994 by a ballot initiative vote. Following the change in cougar hunting, the number of complaints related to cougars has risen.<sup>39</sup> The available statistics are for the state as a whole. In 1993 there were 95 livestock related complaints and no safety related complaints. These numbers peaked in 1999 with 421 livestock related complaints and 556 safety related complaints in the state of Oregon. By 2003 these numbers had fallen off to 320 livestock related complaints and 322 safety related complaints.<sup>39</sup>

Residents and ranchers in Malheur county are concerned with the rise in cougar population because the animals venture closer to homes and prey more frequently upon livestock. Additionally cougars main prey are deer and elk. This can lead to wildlife populations shrinking if there are too many cougars. The degree of cougar predation on other "sensitive species" is unknown

The ODFW accommodated the hunting season for cougars following 1994. Hunter success without dogs was predicted to decrease greatly, which it did.<sup>39</sup> In an informal 2006 survey of hunters, most cougars were taken when hunters were out for deer or elk, and not deliberately hunting cougar. In 1995, cougar season was expanded to 7 months, and by 2001, cougar season was 10 months in length. The 2007 season is ten months with hunting open Jan. 1 - May 31 and Aug. 1 - Dec. 31. Additionally, in all of eastern Oregon a second cougar tag is available. Another attempt to deal with increasing cougar populations is a decrease in tag prices from \$50 to \$10, approved by the Oregon legislation in 1997. Tag sales increased exponentially; over 34,000 cougar tags were sold in 2003 (248 cougars were killed statewide in 2003).<sup>40,39</sup> Both cougar and additional cougar tags cost \$11.50 for 2007. Cougars can also be taken by ranchers without tags if they are attacking livestock.

"In 1999, the Oregon Legislature adopted legislation allowing persons to legally take cougars posing a threat to human safety without a permit (ORS 498.166). In 2003, ORS 498.012 was modified to expand allowable take of wildlife causing damage, including cougars, to also allow take of animals posing a public health risk, or causing a public nuisance."<sup>39:39</sup>

The lower Owyhee subbasin is within the ODFW southeast Oregon zone for cougar hunting (Figure 10.8). Since 2002, the quotas for the number of cougars which could be killed in the zone have been on the rise from 61, to 87 in 2005, and to 120 for 2007. In 2006 the calculation of cougar deaths was expanded to include all known cougars. Despite the quota of 120, only 38 kills by hunters and 15 other kills were registered in 2006 for the southeast Oregon zone. As of March 9, 2007 there have been 12 kills by hunters and 8 other kills. In no year since 2002 have hunters reached more than 60% of the quota established by the ODFW.

The 2006 ODFW cougar management plan is a step in the direction of cougar control as it acknowledges the urgent need to reduce cougar related complaints in relation to both livestock and safety to pre-1994 levels, and maintain healthy



populations of other wildlife.<sup>39</sup> The lack of success in cougar hunting is discouraging since the state cougar population has risen to an estimated 5,100 cougars in 2006 from 3000 in 1994. While the 2006 ODFW plan allows for administrative removal of cougars in target areas, it is yet unclear how this will affect the population. Cougar population and the interaction of cougars with livestock and people will continue to be a concern in southeastern Oregon.

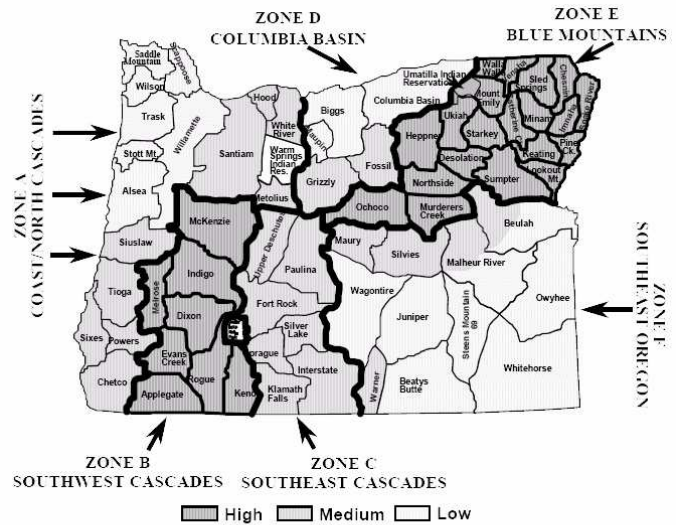


Figure 10.8. Oregon Department of Fish and Wildlife's cougar management zones. Shading represents 2006 density of the cougar population. (43: Figure 1)

## E. Competition on rangeland

Food, preferred habitat, and water can all be factors limiting the use of rangelands by livestock and wildlife. Species compete when one of these three factors limits their ability to thrive or reproduce. For cattle, competition for resources can affect their condition, and hence affect their economic value to ranchers even if they manage to reproduce.

To understand species competition, many types of data are necessary such as animal biology, detailed habitat ecology, predation, and local environmental patterns. Animal populations are limited by drought conditions and harsh winters. Both drought and winter storms are beyond human control. Much of this information has not been specifically developed for the lower Owyhee subbasin.

This section considers the overlapping use of forage, habitat and water on rangelands. Specifically it will focus on the preferences of different species.

### 1. Forage

Forage quality and quantity controls the numbers of livestock and wild game that the rangelands can support. Rangeland forage is composed of grasses, forbs and shrubs. While all of the large game are herbivores, they have different dietary preferences. Grasses, forbs and shrubs vary in the amount of protein and fiber they supply. In general forbs are highest in protein and consumption of grasses requires the animal to process a large amount of fiber to extract nutrition.

#### a. Digestion

Cattle have digestive systems designed to retain forage for a long time in order to extract the nutrients. Their complex digestive process and chewing of their cud makes them ruminants. While bighorn sheep, deer and pronghorn are also ruminants, they are smaller animals with smaller stomach and intestinal tract sizes. These smaller animals generally focus their foraging activities on plants with higher nutrient value.

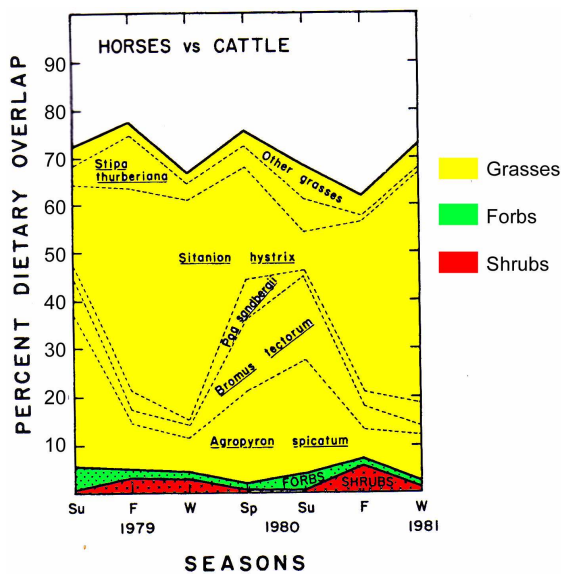
Horses are not ruminants, but their diet focuses primarily on grasses.

**b. Do cattle and wild game eat the same forage?**

Overlap in the ecological zones used by cattle and wild game is not sufficient to determine or reject ideas of competition.

Competition between species is evaluated in terms of the overlap in diets as well as the availability of resources. McInnis and Vavra say that, "competition must be judged on the basis of 2 criteria: (1) 2 species compete when they share a resource in short supply, and (2) in using the resource, each species reduces the other's population performance to levels below what these measures would be in the absence of the other species."<sup>27:65</sup> To look at competition between species we must know what animals of each species eat and how important those foods are to the animals' reproductive capabilities. Our knowledge is spotty at present and requires additional study. However, diet alone can indicate if animal species do or do not compete.

McInnis and Vavra examined the diet of cattle, wildhorses and pronghorn from fecal matter.<sup>27</sup> They studied animals near Burns Junction from the summer of 1979 through the winter of 1981. They found that cattle eat a diet composed primarily of grasses (89%). Forbs made up 4% of their diet and shrubs 7%. The diet of wild horses was also predominantly grasses (88%). "Unlike horses and cattle, pronghorn consumed mainly forbs and shrubs throughout the year. Mean annual dietary composition of grasses, forbs, and shrubs was 13%, 44%, and 42%, respectively."<sup>27:62</sup> McInnis and Vavra also looked at dietary overlap between the animals for each season. The yearly average dietary overlap between horses and cattle was 70% (Figure 10.9).



**Figure 10.9. Overlap in horse and cattle diet from summer 1979 to winter 1981.**  
(Adapted from 27:Figure1)

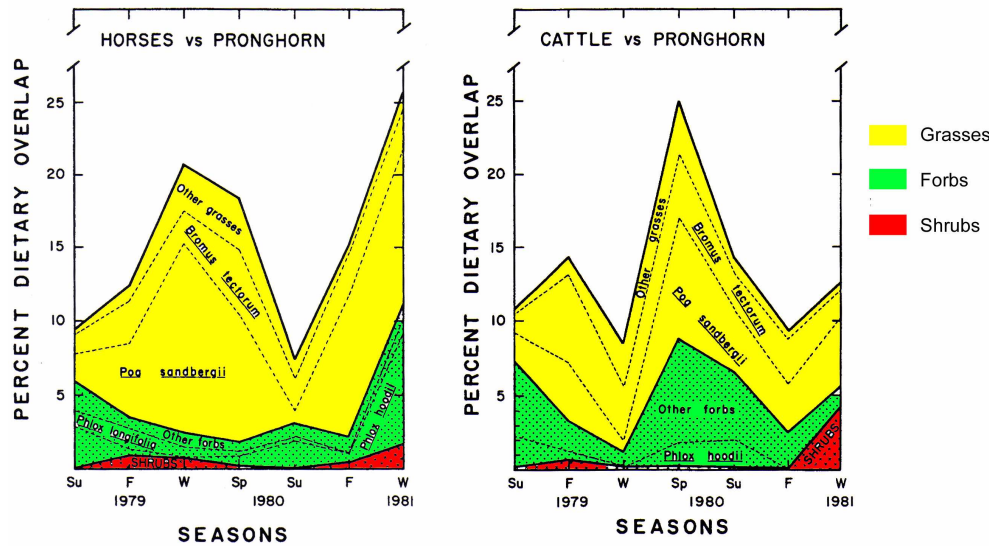
In contrast, horse and cattle diets only overlapped pronghorn diet 16% and 14%, respectively (Figure 10.10).<sup>27</sup>

Deer will graze on grass during some seasons. During the growing season they prefer forbs and browse, the stems and leaves of woody plants.<sup>32</sup>

Two limiting factors on animal population are infant mortality and winter starvation. Infant mortality has many causes, but if the nursing mothers do not get enough protein in their diets, they cannot raise healthy infants. Forbs are higher in protein than grasses. Climatic conditions are a factor in winter starvation as well as the availability of winter forage. These factors must be understood to gauge animal competition for forage.

**2. Habitats preferred by animals**

Use of the same vegetation or ecological zone is the most common measure of species competition. While this measure is often used in management and plans,<sup>6,8</sup> the actual use of habitat by most species is more complex. Habitat use often varies by



**Figure 10.10. Dietary overlap between pronghorn, which primarily eat forbs, and horses and cattle. Note that in no season between summer 1979 and winter 1981 did dietary overlap exceed 26%.**

(Adapted from 27: Figures 2 and 3)

stage of post-fire vegetation succession and topography. On the sagebrush steppe, Holechek found topography to be a factor in species distribution.<sup>19</sup> Cattle preferred slopes of less than thirty degrees and mule deer preferred more rugged range.<sup>19</sup> Pronghorn prefer habitat which

offers a wide view of their surroundings, open areas that are distinguished by a combination of flat to rolling topography and lower vegetation.<sup>17,18</sup>

Holechek comments favorably on the success of the Vale Project in increasing wildlife.<sup>19</sup> Range was managed so it was not an unbroken landscape of grasslands. Mule deer use of the range is controlled by distance from cover as well as the presence of browse. Deer seldom venture more than 400 yards from cover, such as big sagebrush.<sup>19</sup> Additionally, deer use of rangelands has been shown to decline in areas where open grassland covers more than 500 acres. Holechek suggests that the best management for mule deer can be provided with patchy burns so that the range is a mosaic of brush and grasses or with brush control in strips.<sup>19</sup> This is similar to the idea of increasing edges between plant communities or succession stages to increase animal species diversity.<sup>26</sup>

The large size and number of recent wildfires that have occurred in the lower Owyhee subbasin has substantially reduced the amount of mule deer habitat and has correspondingly reduced deer numbers.<sup>85</sup>

### 3. Use of rangeland water

At waterholes, the question of competition is whether or not the use of the water by one species chases another species away.

The availability of year-round water sources in the lower Owyhee subbasin has been greatly increased with the building of stock ponds, watering troughs, and guzzlers (see the rangeland component of this assessment). These projects have improved the distribution of water. Under conditions where more water has been made available, it is very unlikely that competition for water has increased. Many stock ponds do not fill or go dry during drought years.



#### 4. Cattle grazing to improve game habitat

Cattle grazing that favors the production of forbs is beneficial to mule deer. Holechek observed that cattle grazing favored production of arrowleaf balsam root and western yarrow, two of mule deer's preferred forbs. Studies of mule deer winter range in Utah and Oregon have shown that early summer grazing by cattle or sheep can be effective in reducing understory competition and increasing browse production.<sup>19</sup>

Vavra and Sheehy propose that controlled cattle grazing can improve winter foraging habitat available to elk.<sup>77</sup> Elk avoid bunch grasses with last year's dead chaff. So, during the winter they may be forced off the range by insufficient forage as well as by snow. There are two ways in which cattle grazing will leave winter forage for elk. The first is that cattle grazing removes old bunchgrass chaff so that if there are fall rains the new forage growth will be above the chaff. The second is by well timed early spring grazing. If cattle graze very early in the spring, but are removed from the pasture when there is still enough soil moisture to allow for some bunchgrass regrowth, that regrowth will provide elk with winter forage.

Cattle grazing may also work well alongside pronghorn use of the range. "Moderate cattle grazing seems complementary to pronghorns because cows, preferring grasses, leave the forbs for the pronghorn".<sup>18:12</sup>

The suggestions of Holechek and of Vavra and Sheehy need to be tested in controlled ranges. Their ideas may apply to species besides mule deer and elk.

#### F. Small mammals

The lower Owyhee subbasin is home to many small mammals. The only scientific information for these mammals comes from lists or maps indicating that the lower Owyhee subbasin is part of the species' range. Many small mammals, such as badger, mice, rabbits, bats, shrews and voles, live in sagebrush steppe environments. These species have not been studied within the subbasin. None are known to be threatened or endangered. The few that have been mentioned in literature are discussed below.

The American beaver (*Castor canadensis*) is the only small mammal listed by the Northwest Habitat Institute as a focal species within the Owyhee basin.<sup>29</sup> Beaver live along perennial streams where the streams pass over flat ground.

The pygmy rabbit (*Brachylagus idahoensis*) lives in areas where there are dense clumps of big sagebrush and loose soil.<sup>11</sup> The sagebrush provides cover and the rabbit digs its burrows in the soil.<sup>11</sup> The BLM lists the pygmy rabbit as a sensitive species. Roberts surveyed a portion of the Snake River plain in Idaho from a vehicle and found nine active rabbit burrow systems.<sup>57</sup> Based on the loss of big sagebrush habitat to farming, Roberts concludes that the pygmy rabbit population is decreasing.<sup>57</sup> In other areas of Idaho, such as Lemhi and Custer counties there are many active burrows (more than 100 reported in a single survey).<sup>57</sup> Documentation of current or past populations of pygmy rabbit in the lower Owyhee subbasin were not found.

The preble's shrew (*Sorex preblei*) is found near streams in dry areas. While rare, its biology and the locations it lives in the intermountain west are poorly known.<sup>11</sup>

The Merriam's ground squirrel (*Spermophilus canus*) is found in arid sagebrush and grasslands and in some agricultural areas.<sup>11</sup> These squirrels mostly eat green vegetation.

Bats in Owyhee County Idaho have been studied in juniper woodlands.<sup>52</sup> Bats often need both places to roost during the day and moist locations, like stock ponds that produce insects. The sampling project only found bats where there were usable daytime roosts. The diversity of bats found in any one location was low, possibly due to competition for roosting space.<sup>52</sup>

The ODFW has investigated the distribution and number of kit fox in southeastern Oregon, however the range where these animals have been found is to the south of the lower Owyhee subbasin.<sup>13,22</sup>

## **G. Game birds**

The game birds found in southeastern Oregon are blue grouse, ruffed grouse, pheasant, chukar, valley quail, sage grouse, and partridge.

Although the naturalists John Townsend and Thomas Nuttall recorded the species of birds they encountered crossing through Oregon territory in 1834,<sup>67</sup> some of the earliest recording of species of birds in eastern Oregon was done by George Willet during the summer of 1918. George Willet spent most of his time around Malheur Lake, but he also made stops between Malheur Lake and Klamath Falls.<sup>80</sup>

### **1. Common pheasant (*Phasianus colchicus*)**

A native of Asia, the common pheasant, also known as the ring-necked pheasant, was introduced around the world as a game animal.<sup>79</sup> They were introduced to North America in 1913. In 1918, pheasants were observed as common in the meadow lands around Burns.<sup>80</sup> In the lower Owyhee subbasin, pheasant are found mostly near cultivated farm ground below the Owyhee Dam. The male pheasant is colorful while the female is a duller brown. Pheasant are short distance fliers and prefer to run.<sup>79</sup> Pheasants lay eggs between April and June and the incubation period until chicks hatch is 23-26 days. Hunting of pheasants is often done with dogs to flush the birds.<sup>79</sup> Pheasants often nest in alfalfa fields and the nests are disrupted by the first cutting of alfalfa.

### **2. Valley quail or California quail (*Callipepla californica*)**

The valley quail is not a native species to the lower Owyhee subbasin, however it was found nearby in central Oregon.

"Originally found from southern Oregon south to Baja California, Mexico, the valley quail has been widely transplanted and is now found as far north as southern British Columbia and in many areas both west and east of the Cascades in Oregon and Washington."<sup>61:2</sup>

"California quail, also known as Valley quail, historically inhabited only Jackson, Josephine, Klamath and Lake counties in Oregon. However, transplants of these birds beginning in the late 1800's have resulted in a statewide distribution. Male and female California quail have

different plumage, but both have a feathered plume that droops forward and a scaled pattern to their bellies. Males have a black throat patch trimmed by white . . . , while the female has a mottled gray face pattern."<sup>46</sup>

"California quail occupy a wide variety of habitats, are often associated with agricultural activities, and [are] tolerant of human activities. When the proper food, cover and water is available, these quail can even be abundant in suburban areas. Because of these factors, California quail are the most familiar and frequently observed quail in Oregon."<sup>46</sup>

### **3. Chukar (*Alectoris chukar*)**

Chukars currently inhabit sagebrush steppe vegetation at rugged sites remote from human habitation and farming. In spite of being well adapted and commonly encountered, the chukar are not a native specie. "Birds originally introduced into North America were probably Indian chukar . . . , which occur from eastern Afghanistan east through northern India to western Nepal."<sup>55:13</sup> Today the United States distribution of chukar centers on the Great Basin.

In 1933, chukars were first introduced into Idaho in Nez Perce County. Between 1938 and 1942, 3,000 chukar were introduced into Idaho . There are now 25 counties in Idaho that have viable chukar populations. In Oregon, the first large-scale introduction of chukars was near the John Day River. Between 1951 and 1955, there were 50,000 chukars released in Oregon. A chukar hunting season was established in 1956.<sup>55</sup>

In Oregon and Idaho chukars lay their first eggs in March-April and the hatch dates are throughout the summer.<sup>55</sup> Chukars may renest if their first nest or brood is lost.<sup>85</sup> Estimates of brood size vary from 8 to 12 young. Chukar habitat has been described by major plant species, but there is little detail. "In general, habitat use during the summer is greatly influenced by water availability, i.e., chukars concentrate at water sources during early morning and late evening hour."<sup>55:18</sup>

Chukar population is strongly influenced by natural climate and the availability of food.<sup>55</sup> A winter with thick snow cover and cold temperatures will result in population loss. Likewise plentiful plant growth from high precipitation will result in greater bird populations as they have more of the food they like to eat. Studies in Nevada showed that chukar populations between 1951-69 oscillated with low populations correlated with the lack of food following droughts.<sup>55</sup> The chukars preferred food is cheatgrass, both leaf blades and seeds.<sup>85</sup>

### **4. Grey partridge (*Perdix perdix*)**

Grey partridge is not a native specie. The populations of grey partridge in North America probably come from partridge which originated in Hungary, Czechoslovakia, and Austria and are also known as Hungarian partridge. In the United States the primary distribution of grey partridge is on the northern great plains. In the western United States, the population is mainly concentrated in agricultural valleys.<sup>55</sup>

"Serious efforts to introduce grey partridge in the United States began in 1900 when 97 birds were released in the Willamette Valley, Oregon . . . By 1914, grey partridge had been released into 23 counties in Oregon, and by 1934 the birds were established over much of the eastern part of Oregon . . . Grey partridge first appeared in Idaho in the early 1900s."<sup>55:14</sup>

Grey partridge are monogamous birds. During a single summer a pair of partridge can lay as many as 4 nests. The best grey partridge habitat seems to be in areas where cereal grains dominate.<sup>55</sup> The birds prefer cover during the summer and in the winter are often found in fields amid stubble.<sup>55</sup> The foods preferred by partridge are "mostly insects in summer, seeds of wild plants in late summer and fall, [and] seeds of crop plants in winter and early spring."<sup>55:22</sup> Long term population trends of grey partridge in North America are unknown.<sup>55</sup>

## **5. Sage grouse (*Centrocercus urophasianus*)**

Sage grouse are found within the lower Owyhee subbasin. Sage grouse are ground-nesting birds which can weigh up to seven pounds.<sup>71</sup> They are dependent upon sagebrush for cover and roosting locations during the spring through fall. Many sage grouse are migrating birds. They winter in the southwestern United States and northern Mexico.<sup>76</sup> However, some sage grouse populations do not migrate and winter at lower elevations without snow within sagebrush communities.<sup>7</sup> Current data on population trends and bird distribution during non-breeding periods is lacking.<sup>76,60</sup> Sage grouse "are not adequately sampled by existing programs such as the Christmas Bird Count or the USGS Breeding Bird Survey."<sup>76:2</sup> Monitoring of these aspects of sage grouse biology is necessary to enhance regional assessments and management plans.

Annual mating rituals, and the associated aggregation of birds, allow researchers to observe the range and population of sage grouse. "During the spring, males gather at traditional breeding areas, called 'leks,' or strutting grounds, for elaborate mating rituals. Leks are usually open areas such as meadows, low sagebrush, or even roads surrounded by sagebrush."<sup>63:1</sup> Leks are generally small open areas, from 1/10th to 10 acres in size and surrounded by sagebrush. In general, open areas surrounded by dense vegetation are preferred as the dense vegetation can provide a refuge from predators, such as raptors, to which the birds are exposed in the middle of a lek.<sup>7</sup> The distribution of known leks in the lower Owyhee subbasin can be seen in Figure 10.11.

Sage grouse hens have nest sizes averaging between 6 and 9.5 eggs and very rarely have a second nest during the summer.<sup>9</sup> There are no data on juvenile mortality. It has been estimated that 2.25 juvenile birds per female must survive until the fall to maintain stable sage grouse populations.<sup>9</sup>

Sage-grouse can be found in 11 states and two Canadian provinces.<sup>54</sup> In 2004, Schroeder et al. compiled a map for the current distribution of sage grouse on the basis of data such as lek locations and harvest questionnaires.<sup>60</sup> Figure 10.12 represents the approximate distribution in the year 2000.<sup>60</sup>



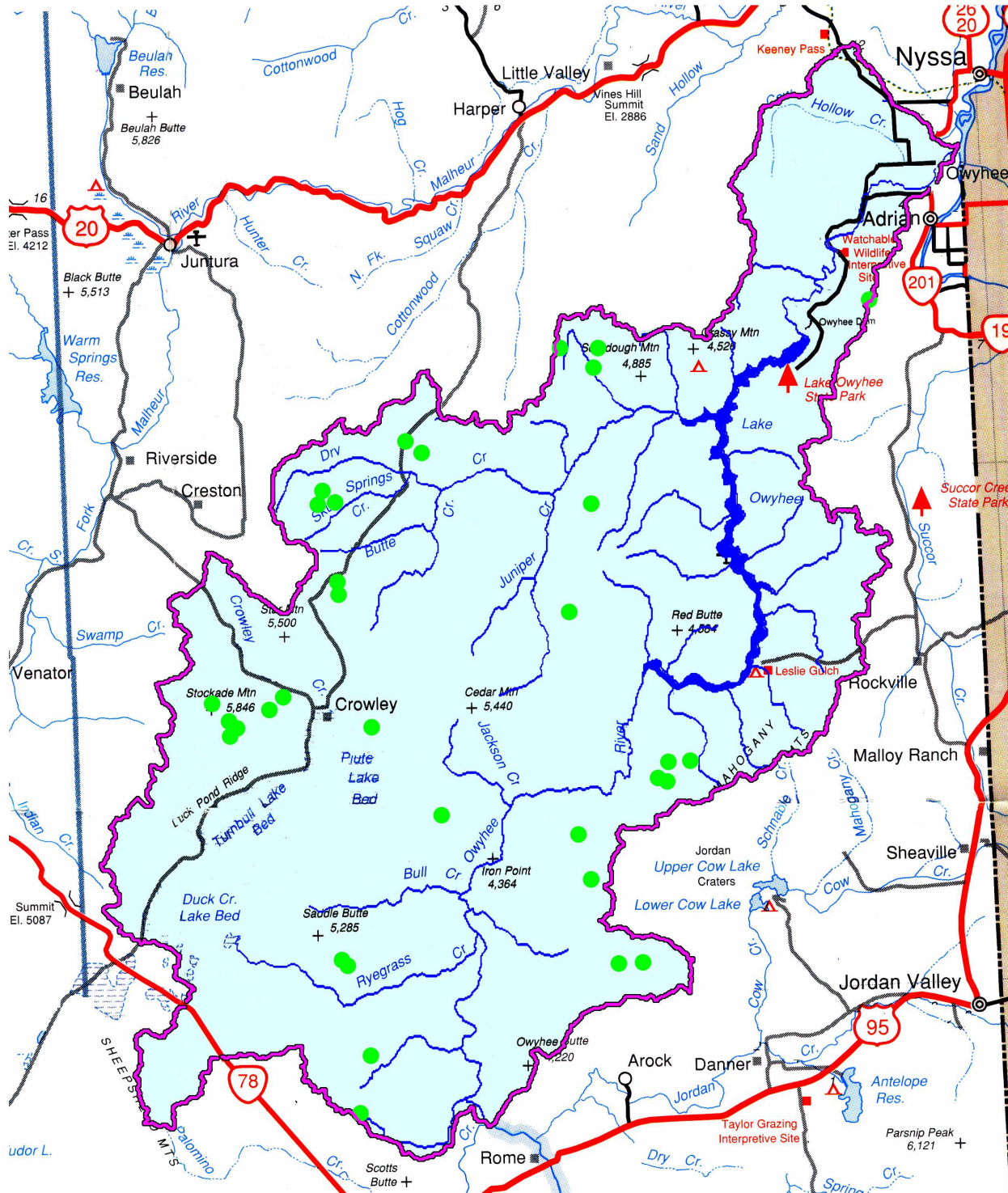


Figure 10.11. Sage grouse leks in the lower Owyhee subbasin.

**a. Diet**

Dietary overlap between cattle and sage grouse is minimal as cattle primarily consume grasses and sage grouse consume forbs. "However, the potential for dietary

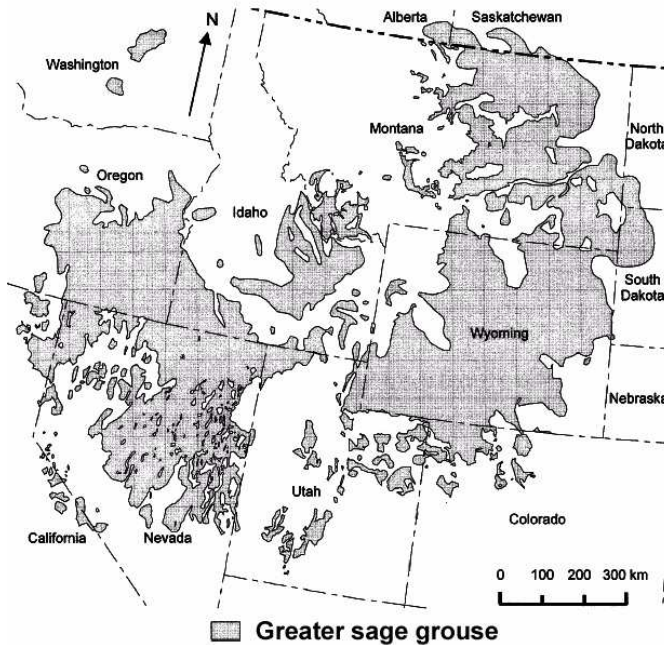


Figure 10.12. Distribution of sage grouse in western North America in 2000. Note that the Owyhee drainage is still within the sage grouse range while the northeastern corner of Oregon is not. (Adapted from 60:Figure2)

overlap with sheep is considerably greater.<sup>1128:25</sup> Prior to laying eggs (March-April), sage grouse hens sampled in Lake County, Oregon had diets composed of 18-50% forbs by weight, despite sagebrush, a shrub, being the most common food type eaten by hens.<sup>3</sup> In other grouse species, the richer the hen's diet, provided by forbs, the greater reproductive success was demonstrated. In Lake County a second year of study with decreased forb growth due to the climate was associated with poorer reproductivity.<sup>3</sup> Sage grouse in the Great Basin they eat almost only sagebrush in winter.<sup>7</sup> It has been suggested that the availability of appropriate winter food may be a greater limiting factor on sage grouse population than summer range.<sup>65,7</sup> The

diet for sage grouse chicks is yet again different, as they eat mainly insects for their first month of life. The insects provide a high protein diet.<sup>63,7</sup>

### **b. Habitat**

The "ideal sage grouse habitat has a 15% to 25% sagebrush canopy cover and good grass and forb cover,"<sup>63:2</sup> with sagebrush between 30 and 60 centimeters in height.<sup>7</sup> This type of habitat has open areas where nutritious forbs can grow as well as cover for nesting.

Simulation of habitat by Pederson et al. suggests the effects of fire and sheep grazing on sage grouse.<sup>51</sup> High-frequency and large fires are predicted to have a negative effect on sage grouse habitat while burning small areas on an infrequent basis should improve habitat.<sup>51</sup> As sheep eat forbs, it is suggested that moderate and heavy grazing by sheep will always result in habitat competition.<sup>51</sup>

Livestock grazing has been a concern in the conservation of sage grouse.<sup>28</sup> Overgrazing by livestock has the potential to decrease the quantity of vegetation, decrease perennial ground cover, or destabilize soils so there is greater erosion of topsoil.<sup>28</sup> These situations can degrade the sage grouse habitat, but at the same time the effects of overgrazing are detrimental to longterm ranching operations. Another conservation concern is that cattle grazing removes understory protection provided by grasses and increases the quantity of sagebrush on the ranges.<sup>9</sup> However, experimentation has not linked grazing practices to sage grouse population levels.<sup>9</sup>

### **c. Historic sage grouse range and population**

Encounters with sage grouse on the northern great plains were noted by both Meriweather Lewis in 1805 and William Clark in 1806.<sup>60</sup> However, sage grouse were not encountered in great numbers.<sup>53,49</sup> From this early historic time period there are no good records for the distribution of sagebrush, however Schroeder et al. have produced a map of **potentially** appropriate pre-Euro-American settlement habitat for sage grouse (Figure 10.13).<sup>60</sup> The existence of appropriate habitat for sage grouse is not equivalent to a large population; in fact many of the early explorers report near starvation conditions due to lack of game (see the at contact section of the history component of this assessment).<sup>53,49</sup> The construction of the historic habitat map was based on recorded sightings of sage grouse during settlement and the locations where museum specimens were collected. Records from the 1840s on, during early settlement and ranching operations, place the distribution of sage grouse both in the Great Basin and on the great plains from the far western portions of North Dakota and South Dakota through eastern to central Montana and Wyoming.<sup>60</sup> During the same time period it was remarked that sage grouse primarily ate sagebrush. Many of the collections of museum specimens were made in the late 1800s and early 1900s.<sup>60</sup>

### **d. History of ranching and sage grouse**

Between 1860 and 1880 the western rangelands of the United States were fully stocked with cattle and sheep. "Livestock grazing on the sagebrush steppe set in motion significant habitat changes that initially favored sage grouse and mule deer."<sup>49</sup> During this time period large populations of sage grouse were noted.<sup>53</sup> The heavy grazing of livestock depleted the supply of perennial grasses on the range and was beneficial to the growth of shrubby vegetation. These human induced changes to western rangeland along with the suppression of coyote and cougar populations would have had beneficial effects on the sage grouse population.<sup>49</sup>

There is no evidence that current livestock grazing practices have been associated with the declines in sage grouse population documented over the last forty years. "To the contrary, studies on the Sheldon National Wildlife refuge showed summer sage grouse broods preferred the forage on moderate to heavily grazed meadows more than on ungrazed meadows."<sup>49</sup> As grazing on federally managed land has diminished over the last half of a century and predator populations have increased, it is clear that sage grouse populations are not regulated by grazing alone.<sup>49</sup> The role of predator species and disease in sage grouse population trends requires much greater attention.

### **e. Current sage grouse range and population**

Current projections of sage grouse population, and many other species, take as a fact that before European settlement the western rangelands were abundant in wild game. All potential habitat is assumed to have been populated.

From Schroeder et al.'s projected historic range, they examine changes in sage grouse range. "We estimated the area of current occupation of Greater Sage-Grouse to be 668,412 km<sup>2</sup> [256,938 mi<sup>2</sup>], . . . or approximately 56% of the presettlement distribution of **potential** habitat"<sup>60:369</sup> (emphasis added). The areas of the intermountain

west which have experienced the greatest changes in sage grouse distribution are northeastern Oregon, eastern Washington and southern British Columbia. Populations are also absent from northwestern Utah, and along the Snake River plain there are no sage grouse, despite it being a portion of the projected pre-Euro-American range.<sup>60</sup>

The USGS reports that, "populations of greater sage-grouse have declined by 33% from their long-term average population size and have been lost from much of their historic range."<sup>76:1</sup> The ODFW uses lek counts to measure population trends. In Idaho, populations have declined about 40% from the long term average since monitoring began in the 1960s.<sup>64</sup>

In Oregon, the state harvest of sage grouse during the hunting season exceeded 10,000 animals in 1952, 1953, 1958, 1959, and 1962.<sup>59</sup> Since 1979, controlled hunting has harvested less than 500 birds per year. In 2002, the ODFW estimated that the minimum sage grouse population in Oregon is 20,000 birds.<sup>59</sup> Game bird harvest and population data are not broken down by region of the state.

Since 1990 the Vale district BLM has reported over 250 leks and monitored the number of males using some of these leks.<sup>58</sup> However, we do not know if the average number of males using a lek reflects actual trends in sage grouse populations. Population trends for Oregon sage-grouse are only available for the entire state.<sup>10,59</sup>

Crows, ravens, fox and coyote all prey on sage grouse.<sup>86</sup>

There is no documentation of pre-Euro-American sage grouse populations or distributions for the lower Owyhee subbasin. Therefore changes in population and distribution can only be assessed in comparison to recent data.

#### ***f. Sage grouse protection***

The sage grouse are not listed on the federal threatened and endangered species list. The sage grouse are not listed on the Oregon endangered species list.

Efforts to list the sage grouse as an endangered species have been predicated on the assumption that the 'eastern' and 'western' birds belong to different populations. While the sage grouse have sometimes been separated into eastern and western subspecies, there is no genetic evidence indicating that they are different.<sup>71</sup> Petitions to list both 'subspecies' under the threatened and endangered species act failed as the US Fish and Wildlife Service failed to find sufficient evidence that the populations are different. In the one response the service writes, the "petition to list 'eastern' sage-grouse as endangered failed to show these grouse are either a subspecies or a distinct population segment from other sage-grouse populations."<sup>71</sup> The service denied the request to list 'western' sage grouse in February 2003 and to list 'eastern' sage grouse in January 2004.<sup>71</sup>

Subsequent to failure to list either 'subpopulation' of sage grouse on the threatened and endangered species list, a petition was filed for the listing of greater sage grouse. In an April 15, 2004 News Release, the U.S. Fish and Wildlife Service found that further review of the status of the greater sage grouse was warranted.<sup>72</sup> Review of the status of a species is not equivalent to listing a species, rather this sets off a 12 month investigation into the status of the species so that the service can make



an informed decision about whether or not the species should be listed. The greater sage grouse was not granted listing status in January of 2005.<sup>70</sup>

## **H. Game bird hunting**

The ODFW sells an upland game bird validation. This validation permits hunting of Oregon blue grouse, ruffed grouse, pheasant, chukar, valley quail, sage grouse, and Hungarian partridge. Sage grouse hunting requires a separate permit. For the Owyhee unit in 2006 there were 100 sage grouse permits.<sup>37</sup>

## **I. Raptors**

Within the lower Owyhee subbasin there are various hawks, golden eagles, bald eagles, prairie falcons, and possibly peregrine falcons.

Pagel carried out an analysis of cliffs in 2001 for potential nesting sites for peregrine falcons. While he was not searching for active nests, he believes two pairs may be nesting in the Vale BLM district.<sup>50</sup>

## **J. Threatened and endangered species**

Threatened and endangered species are protected by both federal and state law. Information on the statutes is important as they are the last-ditch efforts in wildlife conservation, if land management is unsuccessful.

### **1. Federal protection**

The Endangered Species Act of 1973 designated preservation for animals and plants “identified as in danger of extinction, or likely to become so within the foreseeable future”.<sup>69</sup> In the lower Owyhee subbasin, the only native animal species listed as threatened or endangered is the bald eagle. The bald eagle is listed as threatened. California bighorn sheep is a candidate species, but is not yet listed. The threatened designation “means any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range”.<sup>69</sup>

The endangered species list specifically focuses on the California populations of bighorn sheep. It specifies that the subspecies, the Sierra Nevada bighorn sheep population is listed as endangered, and that its only range is California.<sup>76</sup>

The Oregon bighorn sheep are also excluded from state listings.<sup>45</sup> As such, hunting of the Oregon population of bighorn sheep is legal.

In 1999 the bald eagle was proposed for removal from the list of threatened species.<sup>73</sup> No ruling has yet been made as to whether the bald eagle will be removed or will remain on the threatened species list.<sup>73</sup> The range of the bald eagle within the lower Owyhee subbasin is along the Owyhee River as the main component of eagle diet is fish.<sup>11</sup>

### **2. State protection**

The Oregon Legislature enacted the Oregon Endangered Species Act (ESA) in 1987 and amended it in 1995 through House Bill 2120.<sup>31</sup> In March 2007, the only species of the lower Owyhee subbasin included on the list was the bald eagle.<sup>45</sup>

The Oregon Fish and Wildlife Commission is responsible for this list:

"The Commission must . . . conclude that the natural reproductive potential of the species is in danger of failure due to limited population numbers, disease, predation, or human caused factors. In addition, the Commission is required to determine that at least one of the following exists:

- that most populations are undergoing imminent or active deterioration of their range or primary habitat;
- that overutilization for commercial, recreational, scientific, or educational purposes is occurring or is likely to occur, or
- that existing state or federal programs or regulations are inadequate to protect the species or its habitat.

"To the extent possible, the Commission must assess the relative impact of human actions on the species' decline. The Commission may choose not to list a species that otherwise meets the above criteria for a number of reasons. These reasons include: the species is secure outside of Oregon; the species is listed, or under consideration for federal ESA listing; and the species is not of cultural, scientific or commercial significance to the people of Oregon.

"The Commission may remove a species from the list if it no longer satisfies these criteria. The Commission is required to consult with affected state and federal agencies, cities and counties, Indian tribes, the Oregon Natural Heritage Advisory Council, other states, and interested persons when making its determinations. Listings and de-listings are rulemaking actions which must take place in a public forum, with opportunity for the public to comment."<sup>31:3</sup>

## **K. GAP Analysis Program, USGS**

"The goal of the GAP Analysis Program is to keep common species common by identifying those species and plant communities that are not adequately represented in existing conservation lands. Common species are those not currently threatened with extinction. By identifying their habitats, GAP Analysis gives land managers and policy makers the information they need to make better-informed decisions when identifying priority areas for conservation."<sup>75</sup>

The GAP program is based on working with a GIS database to describe land cover type, distribution on vertebrate species, and land ownership.<sup>48</sup> The creation of a database of this sort is dependent upon use of existing scientific data and research. "Individual distribution of 457 vertebrate species were predicted using habitat association."<sup>48:iv</sup> Vegetation types were classified into 30 wildlife habitats in the first version of mapping and 31 wildlife habitats in the second. This modeling was used to produce the maps for the *Atlas of Oregon Wildlife*.<sup>48</sup>

The GAP program database allows mapping of predicted wildlife habitats and predicted wildlife distributions.<sup>48</sup> However, to know what animals actually live in an area, studies must be conducted on the ground.

## L. Reptiles and amphibians

Amphibians live close to moist environments. What distinguishes an amphibian from a reptile is that amphibians spend one stage of their life underwater breathing through gills. Both frogs and toads which were once tadpoles are amphibians. Their reliance on wet environments means that within the lower Owyhee subbasin the greatest diversity of amphibian species can be expected below the Owyhee dam. An example of this distribution comes from a 1985 study that found that the "Woodhouse's toad and the northern leopard frog appear to be largely restricted to the lower portions of the Owyhee drainage in Oregon. Woodhouse's toad was found in fairly large numbers below the Owyhee River dam."<sup>20:29</sup> Amphibians spend their winters in cold climates burrowed or partially burrowed into creek or pond banks in a state of dormancy, encystment, which is similar to hibernation.

Common reptiles are lizards and snakes. Reptiles are cold blooded. During the summer we see them sunning on rocks or the road to raise their body temperature. During the winter most reptiles hibernate. Reptiles are much more common than amphibians in dry areas.

Within the lower Owyhee drainage, St. John conducted an on the ground survey of reptiles and amphibians in 1985.<sup>20</sup> The one known nonnative species in the lower Owyhee subbasin is the bullfrog (*Rana catesbeiana*).

### 1. Amphibians

Species of amphibians found in the lower Owyhee subbasin are:

Woodhouse's toad (*Bufo woodhousei*)  
Spadefoot toads (*Scaphiopus intermontanus*)  
Western toad (*Bufo boreas*)  
Pacific treefrog (*Hyla regilla*)  
Northern leopard frog (*Lithobates pipiens*)  
Columbia spotted frog (*Rana luteiventris*)

Amphibians are found only in riparian zones. Depending upon winter burrowing preferences the adult frogs and toads will be found along waterways with slow moving water and sandy or muddy shores.

#### a. *Columbia spotted frog (Rana luteiventris)*

Columbia spotted frogs "are found from Alaska and British Columbia to Washington east of the Cascades, eastern Oregon, Idaho, the Bighorn Mountains of Wyoming, the Mary's, Reese, and Owyhee River systems of Nevada, the Wasatch Mountains, and the western desert of Utah."<sup>68</sup> "The Columbia spotted frog inhabits wetlands, ponds, and low gradient streams with permanent water. . . . Breeding sites generally have quiet water with muddy substrates and associated springs."<sup>5</sup> Columbia spotted frogs are known to occur in the lower Owyhee subbasin along Dry creek.

The Columbia spotted frogs found in Owyhee County, Idaho are considered to be part of the Great Basin population. In 1993 the Great Basin population of the Columbia spotted frog was placed on the candidate list for the threatened and endangered species list by the U.S. Fish and Wildlife Service (USFWS).<sup>68,5</sup> Genetic evidence suggests that there are three subspecies of the frog.<sup>68</sup> There is some evidence that frog populations within the Great Basin are isolated and may be declining.<sup>5</sup>

In 2006, the Columbia spotted frog was proposed as a candidate for conservation measures in Owyhee County, Idaho.<sup>68</sup> The location for the proposed conservation efforts is the Sam Noble Springs allotment in Owyhee County. This action is a proactive measure called a Candidate Conservation Agreement with Assurances; the frogs were not placed on the federal threatened and endangered species list. "Under a Candidate Conservation Agreement with Assurances, participating landowners voluntarily implement conservation activities on their property to benefit species that are proposed for listing under the Act . . . by assuring them they will not be subjected to increased property use restrictions, beyond those identified in the agreement, if the species is listed in the future under the Act."<sup>68</sup> This agreement is possible before a species is placed on the threatened and endangered species list. The proposed agreement for Columbia spotted frog in Owyhee County, "is intended to reduce all threats to the [Columbia spotted frog] that are controllable in the State of Idaho within the project area."<sup>68</sup>

Within the lower Owyhee subbasin the Columbia spotted frog has only been documented along Dry Creek. Columbia spotted frog populations along Dry creek were initially surveyed in the late 1990s and this was followed by five years of population monitoring. "Results from this long term monitoring suggest that frog population levels are correlated with precipitation; frog numbers increased in 2004 and 2005 coincident with higher annual precipitation."<sup>5</sup> At the moment there are no definitive management practices for protecting frog populations. Frogs use different areas along the creek for breeding, feeding and hibernation. They need slow water channels or oxbows with muddy bottoms for breeding, stream bank vegetation for cover from predators, and muddy spring or pond banks for hibernation. In general Columbia spotted frogs prefer higher elevations than most of the lower Owyhee subbasin.

"In the Dry Creek corridor, livestock grazing is the predominant land management action, but the magnitude and nature of grazing's influence on Columbia spotted frogs has not yet been determined."<sup>5</sup> One of the Columbia spotted frog's major competitors is the bull frog. In 1985 no bullfrogs were reported above the Owyhee Dam.<sup>20</sup>

## 2. Reptiles

Reptilian species which have been documented within the lower Owyhee subbasin include:

Desert collared lizard (*Crotaphytus bicinctores*), habitat: "Prefers sandy, arid slopes with scattered large boulders."<sup>20:12</sup>

Long-nosed leopard lizard (*Gambelia wislizenii*), habitat: Often found in grass-free areas with sandy or loose soil as "Open, grass-free areas are required for running and foraging."<sup>20:12</sup>

Western fence lizard (*Sceloporus occidentalis*), habitat: "Shows a marked preference for open, sunny, south-facing hillsides with many rocks for basking and cover."<sup>20:14</sup>

Side-blotched lizard (*Ute stansburiana*), habitat varies, but these are often the most common lizard.

Desert horned lizard (*Phrynosoma platyrhinos*), No habitat data.

Western whiptail (*Cnemidophorus tigris*) habitat: "The whiptail is commonly found in arid locations, often where the soil is sandy, with large bushes (usually greasewood and sagebrush). Like the leopard lizard, these lizards require open, grass-free areas for running and foraging. The whiptail is most commonly encountered along dry, sandy washes where there were many bushes"<sup>20:18</sup>

Racer (*Coluber constrictor*), habitat: "Racers are usually found in brushy and grassy areas. They particularly seem to favor situations on the edge of tangled, brushy thickets where they can quickly retreat when threatened."<sup>20:19</sup>

Striped whipsnake (*Masticophis taeniatus*), habitat: "The favored habitat of these snakes is arid, brushy locations, usually never far from rocks."<sup>20:20</sup>

Gopher snake (*Pituophis melanoleucus*), found in most habitats.

Western terrestrial garter snake (*Thamnophis elegans*), habitat: These snakes are aquatic and generally found in riparian areas.

Night snake (*Hypsiglena torquata*), habitat: "These snakes are found in rocky areas in arid canyon lands. Night snakes especially seem to favor layered rimrocks and ledges that offer crevices and talus for daytime retreats."<sup>20:25</sup>

#### **a. Western rattlesnakes (*Crotalus viridis*)**

Rattlesnakes are found throughout the lower Owyhee subbasin. There are no population data on the rattlesnake. Rattlesnakes are found in various habitats.<sup>20</sup> They hibernate during the winter on rocky southern exposures, normally in large numbers. During the summer the snakes spread out. The rattlesnakes in the lower Owyhee subbasin have been described as belonging to the Great Basin subspecies, *Crotalus viridis lutosus*.

#### **b. Western ground snake (*Sonora semiannulata*)**

One of St. John's special interests was the western ground snakes. In Oregon, ground snakes are known to be in only four to five places in the southeastern part of the state. And, "because of their secretive habits, little is known of their distribution and life history in Oregon."<sup>20</sup> These snakes are largely subterranean and nocturnal.

"The western ground snake was recorded at two different sites, both in the lower Owyhee drainage. A juvenile was found in the Red Butte



area, and five adults and two juveniles were found near Snively Hot Springs. The Red Butte specimen does not constitute a new record, as other researchers and I have found many *Sonora* at this location in the past. However, the Snively Hot Springs site is a slight northward range extension.<sup>20:29</sup>

"In Oregon, the ground snake seems to be confined to the arid, upper Sonoran life zone. Whenever I found *Sonora*, the habitat is a rock-scattered slope, usually where the soil is sandy. The plant life in these areas is a mixture of various grasses and low, well-separated shrubs (greasewood, hopsage, and shadscale). The most profitable time to search for ground snakes seems to be in the spring when there is still a small amount of surface moisture beneath rocks. These little snakes especially seem to favor slopes along the edges of large washes where there are rocks for cover and a loose, sandy-gravelly soil."<sup>20:24</sup>

## M. Insects

There is one species of bee, *Andrena winnemuccana*, which is rare and has a distribution limited to the northern Great Basin and Owyhee Uplands.<sup>62</sup> Very little is known about its biology. *Andrena winnemuccana* "has been collected only once, at Owyhee Dam in Malheur County, OR".<sup>62:2</sup> This bee is not on any threatened or endangered species list.

## N. Nonnative wildlife species

Nonnative species have been introduced to Oregon. Some of these species are game birds, such as pheasant and chukar. The introduction of nonnative wildlife is of concern when these species out-compete native species. The ODFW estimates that at least 96 nonnative species of fish and wildlife occur in Oregon and that 62 of these species have established self-sustaining populations.<sup>30</sup> The occurrence of nonnative species which occur within the lower Owyhee subbasin has not been systematically studied.

## O. Unknowns

How do the forage preferences of different wildlife species affect the availability of different types of forages at different times of year? How does this affect competition between wildlife species and competition of wildlife species with domestic cattle?

To what extent do wild horses compete with bighorn sheep forage preferences in the lower Owyhee subbasin?

To what extent are current numbers of wild horses competing with cattle for forage? What are the effects of wild horse populations being maintained within the BLM targets?

What specific ranching practices will improve rangeland forage production? How can cattle grazing improve forage for wildlife? When will grazing of grasses encourage the growth of forbs? How can cattle grazing be used to stimulate the growth of winter

forage? Can cattle grazing be used to control invasive species that out-compete the forbs necessary in wildlife diets?

What types of shelter do different types of wildlife need? Bands of shrub vegetation, rocky areas?

We do not have enough scientific data to determine if competition for natural resources is limiting the reproductive capabilities of rangeland species.

We know little about the ecology of free ranging horses. Is the BLM managing to keep horse stocking rates within the parameters they have set? How often should wild horses be gathered?

How many cougar are actually in the lower Owyhee subbasin?

At what level does the cougar population significantly affect wildlife populations?  
Ranching?

What levels of coyotes pose a problem? What types of control programs might be necessary?

Are enough of the range fences adapted for the passage of pronghorn?

Do fences interfere with the movement of bighorn sheep?

Ground studies are needed to verify the GAP program database.

The magnitude and nature of grazing's influence on Columbia spotted frogs has not yet been determined.

The occurrence of nonnative animal species within the lower Owyhee subbasin has not been systematically studied.

How are wildlife populations being influenced by the expansion of weeds? Are restrictions on weed control placed on BLM past lawsuits having unintended negative effects on the native food supplies required by native wildlife?

Are wild horses competing for forage not only with bighorn sheep and cattle but also sensitive species?

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