

Chapter 2: Oregon Mule Deer Distribution and History

Oregon's mule deer is one of two subspecies of *Odocoileus hemionus* (*O.h.*) occurring in the state. The Columbian black-tailed deer (*O.h. columbianus*) occurs primarily in western Oregon whereas the Rocky Mountain mule deer (*O.h. hemionus*) occurs primarily in eastern Oregon. Although the subspecies have been shown to be evolutionarily distinct, their respective distributions overlap along the crest of the Cascade Mountain range and the subspecies' can hybridize along the entire area of overlap (Latch et al. 2011, Heffelfinger and Latch 2023), albeit at varying frequencies. For management purposes, the Department considers mule deer to be distributed from the crest of the Cascade Mountains, east to the Idaho border between the Washington border in the north and the California and Nevada borders in the south (Figure 1).

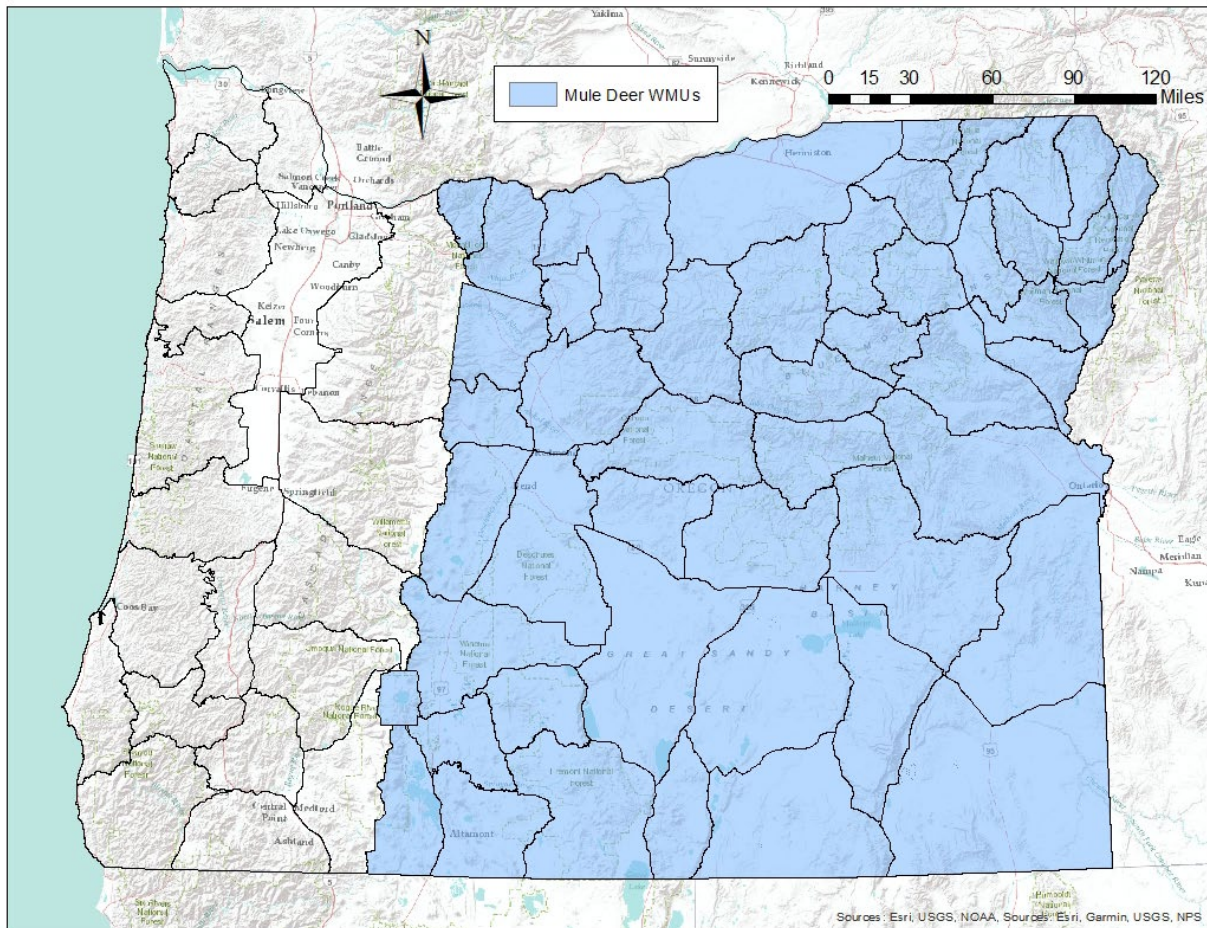


Figure 1. Distribution of mule deer (*Odocoileus hemionus hemionus*) in Oregon.

As a landscape generalist species, mule deer populations are sensitive to changes in habitats and environmental conditions. As such, populations in Oregon have fluctuated through

time. The early European explorers found mule deer scarce in Oregon but by the mid-1800s populations were beginning to increase (Mace et al. 1995). As European settlement increased, populations of mule deer and all wildlife began to decline into the late 1800s and regulations were imposed in 1899 that established hunting seasons and bag limits. Populations remained low through the late 1920s and early 1930s. Bailey (1936) reported mule deer populations occupying U.S. National Forest lands in eastern Oregon ranged from an estimated 28,654 in 1926 to 46,000 in 1933. The presumption was that National Forests accounted for 75% of the extant mule deer population at the time (Bailey 1936), thus the population likely ranged from about 38,000 – 74,000 between 1926 and 1933.

Deer populations continued to increase from the 1930s through the 1950s, with trend count data showing a peak population in the late 1960s. High populations, declining winter range conditions, and a series of severe winter conditions led to minor population fluctuations through the 1970s but ultimately the population peaked at an estimated 306,000 mule deer in 1981 (Figure 2). Oregon’s mule deer population has been declining since the 1981 population peak with a 2022 population estimate of 162,600 animals (Figure 2).

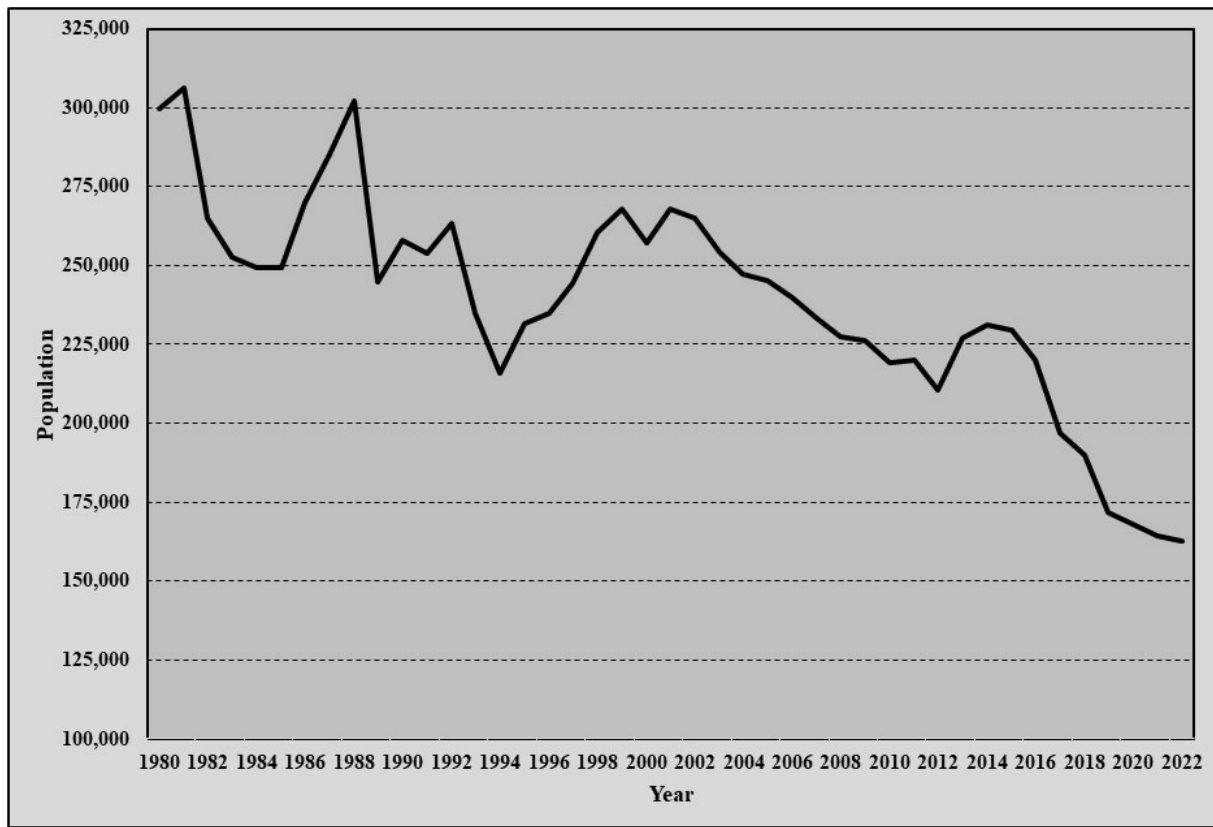


Figure 2. Trend in Oregon’s mule deer population 1980 – 2022.

Mule deer management in Oregon was essentially unregulated through the 1800s with the first 3 ½ month season (July 15 – October 31) imposed by the legislature in 1901. Early in the 20th century deer continued to be scarce, the season was shortened to 2 ½ months (August 15 – October 31), and several state managed refuges were created in 1913. In 1923 the season was again shortened (September 10 – October 20) and bag limits were restricted to only buck with at least forked antlers. Deer populations began to respond to these restrictions and overutilization of winter ranges began to become apparent. In 1938 the legislature allowed for issuance of antlerless deer tags to stem damage to winter ranges. However, only 270 of the 1,250 tags were purchased.

In 1941 the Oregon Legislature granted regulatory authority for wildlife to the Oregon State Game Commission. In 1948, the Commission created a deer tag, requiring hunters to have a hunting license and a deer tag to hunt deer. Voluntary report cards were issued with deer tags for increased monitoring of deer hunting and harvest. It also was in 1948 that the commission established the standard of opening the rifle deer season the Saturday closest to the 1st of October.

As populations continued increasing through the 1950s and 1960s, hunter's choice seasons were added to the last 3-5 days of the season where a hunter could harvest either sex with an unused tag, mule deer refuges from hunting were abandoned, and spike bucks became legal in the buck harvest. A key development in Oregon deer management in 1958 was establishment of Wildlife Management Units (WMUs) to better distribute harvest and better direct antlerless harvest in remote and less popular areas. Separate archery hunting seasons were established in some areas, but hunters could still hunt during rifle seasons. The first muzzleloader season was held during winter 1967 – 1968.

Management strategies continued to evolve through the 1970s and 1980s. Population fluctuations due to severe winters led to shortening the mule deer buck season to 7 days. In 1975, buck harvest was restricted to 2-point or better for all mule deer bucks except in four WMUs where 4-point or better was required. Separate tags for mule deer and black-tailed deer were created in 1976, forcing deer hunters to choose a subspecies, to reduce pressure on mule deer. The concept of a single weapon was introduced in 1979 which forced hunters to begin choosing which type of weapon they would hunt deer with. The entire state was also opened to general

archery hunting in 1979. The first use of a limited permit entry system occurred in 1979 for the Steens Mountain and Trout Creek Mountains 4-point buck areas.

The first mule deer population and post hunting season buck ratio (bucks:100 does) management objectives (MOs) were established by the Commission in 1981. Population MOs were set for each WMU with buck ratios set primarily by WMU or sub-unit areas in some cases. The eastern Oregon total population MO was 318,750 deer, 12,715 animals higher than the estimated population of 306,000 mule deer. Post-season buck ratio objectives were set at either 12, 15, or 25 bucks per 100 does. During the 1980s, antler restrictions were dropped due to their ineffectiveness at increasing or maintaining desired buck ratios.

Severe winter losses in the mid-1980s led to increased hunting restrictions and six WMUs in northeast Oregon were closed to deer hunting in 1984 and 1985. The use of limited entry buck hunting began to expand considerably during this period to maintain buck ratios. In 1986 the Landowner Preference Program (LOP) was created by the Oregon Legislature which guaranteed that landowners could get deer and elk tags in recognition of their contribution to wildlife and wildlife management. Tags were allocated to landowners based on the acreages owned and were valid only on their property. LOP tags were in addition to those allocated by the Commission.

In 1990 the first Mule Deer Management Plan was adopted by the Commission (ODFW 1990) due to concerns over declining mule deer populations and increasing hunting pressure. The extensive public process identified habitat loss and degradation as the number one issue affecting mule deer in Oregon. The most significant result of this plan was implementation of limited entry hunting for all rifle buck hunts for mule deer. During the planning process MOs were also reviewed resulting in only minor adjustments to reflect existing population sizes for a total population MO of 317,400 (Table 1), and the addition of desired benchmarks for fawn ratios (fawns:100 does) indicative of levels for population maintenance. The plan also called for imposition of a statutory limitation on number of non-resident hunters receiving controlled hunt tags which was implemented in ORS 497.112 (9). In 1997, the Oregon Legislature created the Guide and Outfitter tag program. This program allows registered guides and outfitters in Oregon to separately apply for and draw non-resident tags in January that can subsequently be marketed to clients. These non-resident tags effect the number of non-resident tags available during the regular June controlled hunt drawing.

Table 1. Trend in established management objectives (MOs) for mule deer populations, post season buck ratios, and winter fawn ratio benchmarks by year in Oregon. Unit specific information will be added at a later date.

Unit #	Unit Name	Population MO				Post Season Buck Ratio MO (Bucks:100 Does)				Fawn Ratio Benchmark
		1981	1990	2005	2016	1981	1990	2005	2016	Fawns:100 Does
31	Keno		3,200	3,200	3,200		15	15	15	35
32	Klamath Falls		6,200	6,200	6,200		12	12	15	35
33	Sprague		2,200	2,200	2,200		12	12	15	35
34	Upper Deschutes		2,200	2,200	2,000		15	15	15	35
35	Paulina		16,500	16,500	16,500		15	15	15	40
36	Maury		5,200	5,200	5,200		12	15	20	35
37	Ochoco		20,500	20,500	20,500		12	15	15	35
38	Grizzly		8,500	8,500	8,500		12	15	20	35
39	Metolius		6,200	6,200	6,200		25	25	25	35
40	Maupin		3,000	3,000	3,000		12	12	15	35
41	White River		9,000	9,000	9,000		25	25	25	35
42	Hood		400	1,400	1,400		25	25	25	35
43	Biggs		5,300							
43	East Biggs		(2,000)	3,500	3,500		12	12	12	35
43	West Biggs		(3,300)	3,300	3,300		12	12	15	35
44	Columbia Basin		1,000	10,000	10,000		12	12	12	35
45	Fossil		14,000	10,000	10,000		12	12	12	50
46	Murderer's Creek		9,000	9,000	9,000		15	15	15	40
47	Northside		15,500	15,500	15,500		15	15	15	40
48	Heppner		13,500	12,000	12,000		12	12	12	50
49	Ukiah		6,700	8,500	8,500		15	15	15	40
50	Desolation		2,500	2,500	1,500		15	15	15	40
51	Sumpter		7,000	7,000	7,000		15	15	15	35
52	Starkey		3,000	3,000	3,000		15	15	15	40

Table 1 Continued. Trend in established management objectives (MOs) for mule deer populations, post season buck ratios, and winter fawn ratio benchmarks by year in Oregon. Unit specific information will be added at a later date.

Unit #	Unit Name	Population MO				Post Season Buck Ratio MO (Bucks:100 Does)				Fawn Ratio Benchmark
		1981	1990	2005	2016	1981	1990	2005	2016	Fawns:100 Does
53	Catherine Creek		4,300	4,300	4,300		15	15	15	40
54	Mt. Emily		5,000	5,000	5,000		15	15	20	40
55	Walla Walla		1,900	1,900	1,900		15	15	15	40
56	Wenaha		1,500	4,000	4,000		12	12	12	35
57	Sled Springs		5,000	11,000	11,000		12	12	12	35
58	Chesnimnus		3,600	5,700	5,700		12	12	12	35
59	Snake River		6,400	6,400	6,400		25	25	25	35
60	Minam		5,000	7,000	7,000		25	25	25	35
61	Imnaha		5,300	7,000	7,000		15	15	15	35
62	Pine Creek		2,500	3,700	3,700		15	15	15	35
63	Keating Lookout		4,600	4,600	4,600		15	15	15	35
64	Mountain		3,200	5,000	5,000		15	15	15	35
65	Beulah		13,700	15,000	15,000		12	12	15	35
66	Malheur River		13,700	15,000	15,000		12	12	15	25
67	Owyhee		5,000	5,000	5,000		15	15	15	35
68	Whitehorse – 68									
68	E Whitehorse		5,500	3,200	3,200		15	15	15	35
68	Trout Crk Mtns			2,800	2,800		25	25	25	35
69	Steen's Mountain		11,000	11,000	11,000		25	25	25	35
70	Beatys Butte		2,300	2,800	2,800		15	15	15	25
71	Juniper		2,300	2,300	2,300		15	15	15	25
72	Silvies		11,800	12,000	12,000		12	12	15	35
73	Wagontire		1,400	2,500	2,500		15	15	15	35

Table 1 Continued. Trend in established management objectives (MOs) for mule deer populations, post season buck ratios, and winter fawn ratio benchmarks by year in Oregon. Unit specific information will be added at a later date.

Unit #	Unit Name	Population MO				Post Season Buck Ratio MO (Bucks:100 Does)				Fawn Ratio Benchmark
		1981	1990	2005	2016	1981	1990	2005	2016	Fawns:100 Does
74	Warner		5,500	5,500	5,500					35
74	N. Warner					25	25	25		
74	S. Warner					15	15	15		
75	Interstate		14,800	14,800	14,800	15	15	15		35
76	Silver Lake		10,300	10,300	10,300	12	12	15		35
77	Fort Rock		11,200	11,200	11,200	15	15	15		35
	Totals/Averages	318,750	317,400	344,200	343,000	15.5	15.7	16.5		35.9

The Mule Deer Management Plan was revised in 2003 with an open public process (ODFW 2003). Issues and associated management strategies identified in this revision focused on improving data collection methodologies (biological and harvest data), addressing factors affecting populations such as predation, habitat loss, disease, illegal take, and high levels of disturbance on seasonal ranges. The 2003 plan also directed a review of management objectives that was completed in 2005. The total population MO increased by 26,800 to 344,200. Buck ratio MOs were increased from 12 to 15 in three WMUs. Mule deer management objectives were reviewed again ten years later with only minor changes, reducing total population MO by 1,200 to 344,200 in 2017. Buck ratio MOs were increased from 12 to 15 in 7 WMUs and from 15 to 20 in two WMUs. The estimated mule deer population was about 245,000 in 2005 and just under 200,000 in 2017.

Two modifications of the LOP program were implemented effecting mule deer management. In 2013, the Oregon Legislature increased the number of tags available to large landowners, changed the definition of immediate family, and authorized limiting the number of LOP tags available to landowners for a few special hunts, primarily late season premier buck hunts with very few tags available. In these hunts, the total number of available LOP tags were limited to either 5 tags or 10% of the number allocated by the Commission, whichever was greater. Qualifying landowners in these hunt areas had to apply for and draw a tag during the June drawing to hunt their property: for some of these hunts, not all landowners were guaranteed a tag. In 2017, the Oregon legislature further limited mule deer LOP tags out of concerns for dwindling populations that were often well below population MOs, and the perception that the number of additional LOP tags were outpacing the number of regular controlled tags available to other hunters. After an extensive work group, the Commission adopted a tiered approach to allocating mule deer LOP tags based on population status relative to the population MO. For populations within 80% or more of MO, tags are allocated as directed by acreage owned. If a population is 60% or less of the established MO, the tags available in the landowner drawing is either 5 tags or 10% of Commission authorized tag numbers. For population between 61% and 80% of MO the tags available in the landowner drawing is either 5 tags or 15% of Commission authorized tag numbers.

Throughout most of the first two decades of the 21st century, hunting seasons were managed to track population trends with no significant changes to season structure. Out of concerns for increasing summer temperatures and increasing frequencies of late season wildfires, in 2020 the Commission changed the criteria for opening the main firearm (any legal weapon) buck season from the Saturday closest to the 1st of October that was established in 1948, to the 1st Saturday in October. Implemented beginning in 2021, this precludes opening of the rifle season in September and allows for the latest opening day to occur the 7th of October. Archery hunting also changed for mule deer in eastern Oregon. During an extensive regulation simplification process, it became apparent that a statewide archery general season with unlimited tag sales was no longer appropriate given the dramatic declines observed in mule deer populations, archery hunter numbers, and archery hunter distributions. In 2021 the Commission changed all of eastern Oregon to limited entry, controlled seasons for archery mule deer hunts.

Although harvest records were not kept during the settlement and early regulatory periods for wildlife in Oregon, mule deer hunting was important to residents and was undoubtedly an important source of protein. In 1928, there were 57,000 hunting licenses sold. The first report for number of mule deer harvested was provided by the State Game Supervisor in 1934, indicating that 6,506 mule deer were harvested. By 1946 the number of hunting licenses sold had increased to 192,000.

With creation of a deer tag and associated harvest report cards in 1948, the Game Commission began monitoring deer hunting and harvest numbers. Capitalizing on the increasing mule deer populations, the number of mule deer hunters and associated harvest reflected the increasing trends in mule deer populations through the 1950s and 1960s. Hunter numbers peaked at 180,150 in 1970 while harvest peaked at 89,020 in 1968 (Figure 3). Hunter numbers and harvest dropped through the mid-1970s in response to winter conditions but rebounded into the early 1980s. Since the early 1980s, hunter numbers and associated harvest have steadily declined in response to reductions in opportunities available as mule deer populations have declined (Figure 3). The most recent completed survey indicated there were 40,603 mule deer hunters in 2021 which was 23% of the peak number of hunters in 1970 (180,150). The decline in number of mule deer harvested is even more dramatic with only 13,892 mule deer harvested (18% of 1970).

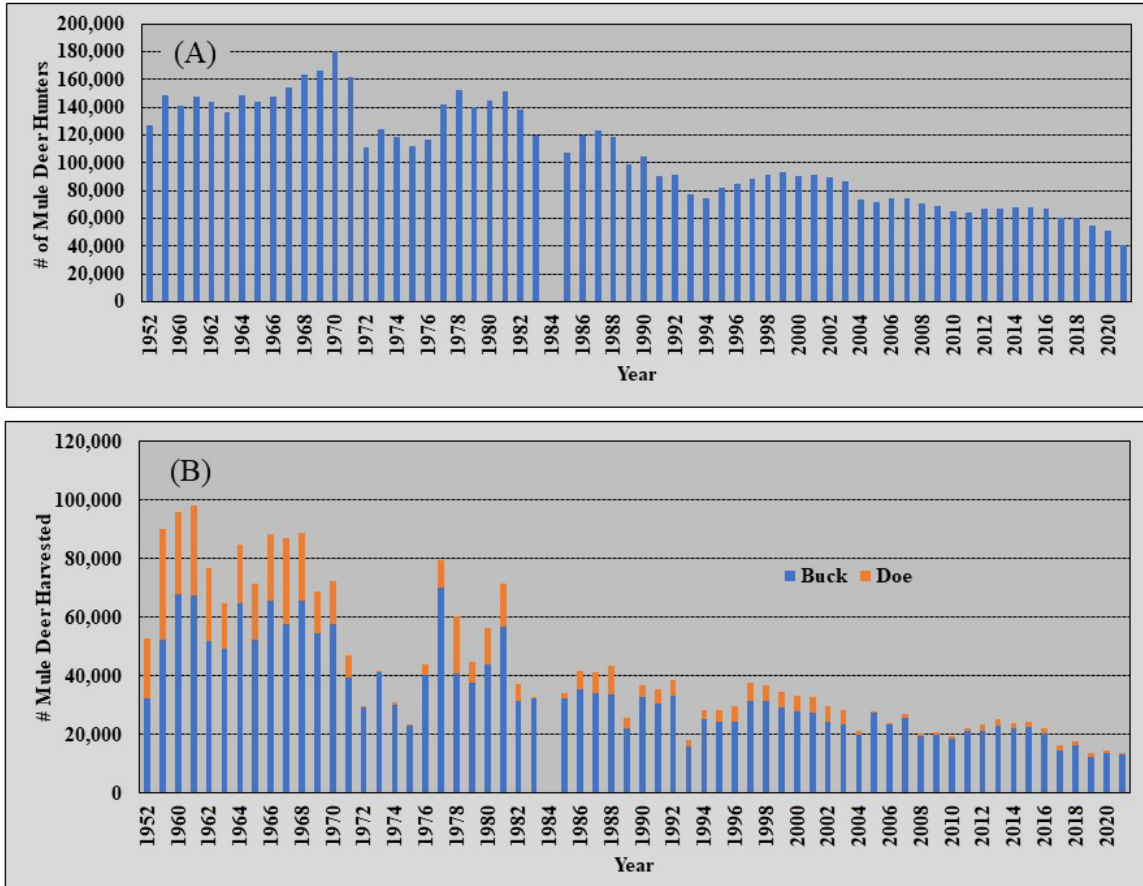


Figure 3. Trend in number of mule deer hunters (A) and mule deer harvest (B) in Oregon from 1952 through 2021.

In 2009 following a series of public meetings, the Oregon Department of Fish and Wildlife Director tasked staff to develop a process emphasizing mule deer management and address their declines. As a result, the Oregon Mule Deer Initiative (MDI) was created with the purpose of addressing the problems that are affecting mule deer populations. Initially focusing on 5 WMUs, Department biologists, with the help of local action plan committees developed action plans for each MDI unit. Local committees consisted of representatives from hunting associations, landowners, state and federal land management agencies, and county government (ODFW 2011). The action plans outlined factors effecting mule deer populations and prioritized objectives and strategies to help improve conditions for mule deer. For each MDI, six objectives were addressed: 1) habitat management, 2) predator management, 3) disturbance and harassment, 4) law enforcement, 5) disease and parasites, and 6) population management.

MDI implementation started in January 2010 and during the first five years 394,975 acres, miles, or other treatment units were implemented in 10 WMUs or comparison areas for a

total cost of \$27.4 million dollars (ODFW 2015). Building on efforts from the first five years of MDI, the Department added four new focal MDI areas. During the five-year period from 2015 – 2019, mule deer focused actions were implemented within the range of mule deer in Oregon with the overall intent to maintain momentum in actions focused on mule deer restoration and apply what was learned from initial efforts to additional mule deer units. During the second phase of implementation (2015 – 2019), 74 distinct actions totaling 387,086 acres, miles, or other treatment units were implemented in 14 WMUs. Total cost to implement these actions was nearly \$25.5 million dollars (ODFW 2020).

ODFW has long recognized that in many cases the WMU based management scale does not meet with the year-round needs of a mule deer herd (Cupples and Jackson 2014). Deer are often counted on winter ranges in one WMU but are not present in that WMU during the hunting season, resulting in a lack of population-level relationships between seasonally collected data sets (harvest, buck ratio, spring population). This lack of relationship prohibits development of reliable population estimates and limits reliable harvest allocation.

In 2014, the Department initiated an effort to identify and map mule deer herd ranges across their Oregon distribution (ODFW 2023). Global Positioning System (GPS) radio collars were deployed on nearly 1,700 adult mule deer does. Herds were delineated to include the year-round use areas of mule deer based primarily on movements between winter and summer ranges (Figure 4). Defining mule deer populations based on observed animal movements will allow ODFW to collect data, estimate populations, and implement management on a more meaningful biological scale. Biological data previously collected at smaller WMU scales often included multiple populations or only a portion of populations, and did not synchronize well with other management practices such as allocation of harvest. ODFW will use these herd ranges in the future as the scale for data collection, population estimation and modeling, and overall management of mule deer populations.

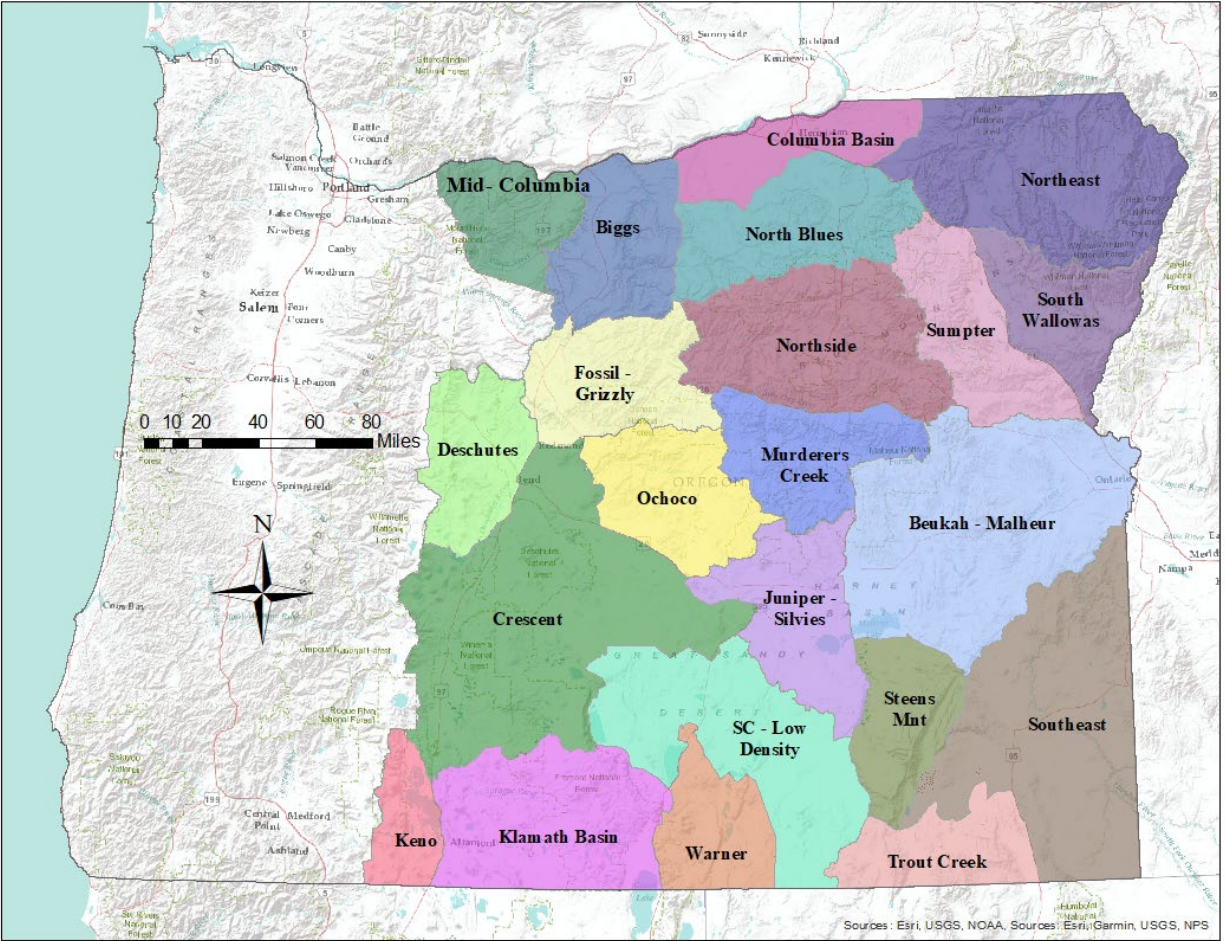


Figure 4. Mule deer herd ranges identified in Oregon.