

North American White-tailed Deer



Photos of subspecies O.v. borealis (Northern Woodland) by John R. Ford.

Distribution & Subspecies



Distribution and Subspecies of the North American White-tailed Deer

By Dale Deckman

The white-tailed deer is native to North America. Because deer played such a vital role in the development of this continent, scientists, biologists, and researchers have over time, studied this animal more than any other big-game specie. Through this culmination of research and data, we've classified deer through a system of taxonomy developed by Carolus Linnaeus, a Swedish born naturalist who lived more than 200 years ago. The Latin categorizing and verbiage not only aids the scientist, but also allows all deer enthusiasts an opportunity to understand how whitetail distribution and a regional population has been affected by factors like spatial isolation, geophysical variations, climates, and inter-genus competition.

Before we continue, it is important to know some basic information regarding white-tailed deer and other members of the deer or Cervidae family.

Taxonomically speaking, all deer belong to the order Artiodactyla, better known as even-toed animals. Including dewclaws, deer have four toes per foot. They belong to the class Mammalia, or warm blooded mammals, and also fit the phylum Chordata, better known as animals that have backbones. If we continued to classify deer, we'd say they belong to the suborder Ruminantia because they are ruminants or cud chewers with a four-chambered stomach that facilitates digestion. As mentioned, they are members of the deer or Cervidae family, and specific to the American continent fall under the genus *Odocoileus*, more specifically mule and white-tailed deer. Further breakdown shows that the whitetail owns the species name *virginianus* exclusively.

Time, regionality and distribution have allowed us the opportunity to take our taxonomy even further by giving whitetails in North

America a trailer or tag at the end of the usual scientific name *Odocoileus virginianus*. The addition, known as the subspecies name, has been attached to whitetail populations in some 30 specific regions where they exist, more specifically, about 16 such names exist north of the Mexican/United States border.

It is interesting to note that science has offered some explanation as to the differences denoted by the subspecies tag, as deer are most often classified according to their size, weight, region they populate, color variations, and diet. Some basic rules to keep in mind when considering a whitetail subspecies are Allen's Rule and Bergmann's Rule.

Allen's Rule - Simply stated, this biological principle says that in the more northern ranges of the whitetail, regions likely to be colder, the outer parts or extremities of a deer, including legs, tail, and ears, tend to be shorter than in the regions of the south where the climate is more mild and warmer, and where deer more often have larger or enlarged legs, tail, and ears.

Photos on this page of subspecies O.v. ochrourus (Northern Rocky Mountains) by Donald M. Jones





Photo of the subspecies O.v. borealis (Northern Woodland) by John R. Ford.

Subspecies Characteristics

Whitetails are known to exist in all 48 contiguous states, Canadian Provinces, and throughout Mexico, Latin America, and much of South America. Their geographic success is most likely a product of evolution, genetic superiority, wary behavior, adaptability, and improved range.

The increased range of the whitetail in the past couple of hundred years is due almost exclusively to the activities of man. As we worked to clear tracts of forest for housing, communities, and farming, what we were successful in doing was to roll back plant succession. By eliminating the climax vegetation, that which is of little value to deer, we opened new tracts of land whereby vegetation beneficial to deer emerged. As more lands were settled, more space was available for deer expansion.

Subspecie Regions

The map of North America on *Page VII* shows in detail the range of the whitetail, where the subspecies exist, and

when studied more closely, gives the accurate impression that North American whitetails inhabit most of the continent.

Before examining each region specifically, it should be mentioned that in nearly all areas, deer numbers are increasing. However, also of interest is the fact that in regions one and two, they are expanding their range and in some cases competing with other members of the deer family for available food, water, and escape cover. It is important to note that in much of the Rocky Mountain, Pacific Northwest, Southwestern deserts, and in many of the plains states, whitetails and mule deer coexist. Though not always in the same habitats, whitetails historically preferred lower elevations, riverbeds, etc., while the mule deer is typically found in the higher elevations. In recent years however, the range of the whitetail has spread to include much of the former habitat used only by mule deer.

Bergmann's Rule - Animals tend to be larger as you travel further away from the equator. As the animal becomes larger or when body mass increases, proportionally the surface area of the animal decreases which results in less loss of body heat. This rule is vitally important to deer subspecies living in both the warm tropical flats of Florida as well as the cold climax forests of northern Minnesota.

REGION I

Subspecies found:

(1. *O.v. leucurus*, 2. *O.v. ochrourus*, 3. *O.v. couesi*.)

1) The subspecies **leucurus** consists of two isolated pockets of whitetails found in south-central Oregon near the Umpqua River and southern Washington/northern Oregon border along the Columbian River. The Columbian White-tailed Deer National Wildlife Refuge was established in 1972 to protect the small populations of deer and allow biologists the opportunity to study the group. Further investigation has shown that it is highly likely the Columbian Whitetail and the Columbian Blacktail have interbred and produced a hybrid deer. The weather in these isolated areas is generally mild with abundant rainfall. The deer has experienced dramatic increases in population, and was removed from Oregon's Endangered Species List in 1996, growing from about 2,000 animals in the early 1970s to an estimated 6,000 in 2002.

2) The subspecies **ochrourus** resides in western Canada and the Northern Rocky Mountains of the United States. The deer are typically robust in size, fairly dark in color, live in higher plains, as well as fairly high up some of the mountain ranges. This subspecies is the northernmost whitetail with sizeable populations found in Alberta and southern British Columbia. Although few, some sightings have been recorded in the southern part of the Northwest Territories. In the United States, this subspecies is found in good numbers in most of the Rocky Mountain states. Deer in these regions compete with other ungulates for food resources, and winter can be an especially tough season for whitetails.

3) The Arizona whitetail often called the Coues deer has been given the subspecies name **couesi**. This deer is common to the desert southwest landscape. It lives primarily in Arizona and in smaller pockets of New Mexico, but its range extends well into Mexico. Not heavily sought after by big-game hunters, the populations in this region are relatively small when comparing land area, and for the most part seem stable. Competition with livestock for limited resources can affect whitetail productivity, especially during the arid season. This animal is small in size when comparing it to some of the northern subspecies.

REGION II

Subspecies found: (4. *O.v. dacotensis*)

4) Widely distributed throughout much of western and central Canada, Wyoming, Montana, Colorado, the Dakotas, and even western Minnesota, the subspecies **dacotensis** is highly prized as a big-game animal and is gaining popularity in many western states. Often overlapping with the whitetails of the Pacific Northwest and the subspecies *borealis* to the east, this whitetail is typically a lighter color than some eastern varieties and can display truly magnificent antlers. The Dakota whitetail is often found on the plains, riverbottoms, and foothills, but has also been spotted in some of the higher mountainous areas of the Bighorn Mountains and substantial numbers are found in the Black Hills of Wyoming. Their diet is usually dictated by the season; forbs, grasses, and





photo of subspecies *O.V. texanus* (Texas) by George Barnett

browse dominate the menu. During especially wet years, fawns are born in multiples of two and sometimes three.

Turn of the century deer numbers in much of this region showed decreasing numbers due in part to unregulated hunting. In the Black Hills region, a closed hunting season until the 1930s increased the population dramatically during the 40s, 50s, and 60s. Hunting seasons were developed and the deer have been closely managed since.

REGION III

Subspecies found:
(5. *O.v. texanus*, 6. *O.v. macrourus*)

5) The subspecies **texanus**, better known as the Texas whitetail is incredibly diverse. The distribution of this animal includes most of Texas from the gulf prairies and oak savannas, to the South Texas Plains, to the mountainous regions of the Big Bend. Like many southern populations of whitetails, this subspecies is typically smaller in body size than it's northern relatives. However, Texas whitetail bucks often qualify for the record books by virtue of their antler size and mass. In the heart of the state is the Edwards Plateau, an area several hundred miles across with very heavy deer densities, as many as 40 per square mile. Nearly all of the available hunting lands in Texas are privately owned and managed. Most opt for trophy-sized buck management as opposed to harvesting either sex. The coyote is the greatest threat as a natural predator to Texas deer. They can take substantial numbers of newborn fawns during the spring and summer months.

6) Living in the south central plains of the United States is the subspecies **macrourus**. By central plains we speak of the Texas panhandle, plus parts of New Mexico, Oklahoma, Colorado, Kansas, and Nebraska. More than 90 percent of the land in this region is privately owned and has been altered to accommodate agriculture and livestock grazing. Today, this subspecies thrives in it's altered environment, but not too many years ago, about the year 1900, deer were nearly eliminated in this region because of improper management. By the late 1940s and 1950s deer numbers increased, huntable populations returned, and today, this animal is a prized resource.

REGION IV

**Subspecies found: (7. *O.v. Mcilhennyi*,
8. *O.v. osceola*, 9. *O.v. seminolus*, 10. *O.v. clavium*)**

7, 8, & 9) Three subspecies are found along the gulf coast of the United States extending from Texas through Louisiana, Alabama, Mississippi, and all of Florida except the Keys. Deer owning the tag, **mcilhennyi**, **osceola**, and **seminolus** live in the narrow band of this coastal region where the land topography can vary from salt marshes, sandy beaches, and swamps near the gulf, to rolling hills and hardwood forests inland. Some early records indicate that deer in this region played an especially important role in feeding and clothing settlers. This region, like most other areas whitetails now

occupy failed to reduce harvest of the animal as their populations declined. From the beginning of the eighteenth century until about 1920, these three subspecies of deer decreased in numbers. After the second World War, with the intervention of modern management practices, the deer have made an amazing comeback. Southern deer typically aren't large animals, but in comparison to the next subspecies we discuss, they probably look larger than life.

10) The physically smallest subspecies is the Florida Key Deer, subspecies *clavium*, which lives on a few islands in the Florida Keys. Florida banned hunting of Key deer in 1939, but earlier unregulated hunting, poaching, hurricanes, droughts and habitat



Photo of subspecies *O.v. clavium* (Florida Key) by Jeff Davis.

destruction drove the Key deer to the edge of extinction. Placed on the Endangered Species List in 1967, a population of 600-800 now exist. Mature does weigh 45 to 65 pounds, and full-grown bucks range from 55 to 75 pounds. The shoulder height is 24 to 30 inches. At birth fawns weigh 2 to 4 pounds. The face of a Key Deer is slightly wider and they have shorter noses, both traits that add to the juvenile appearance of the adults. Key deer can tolerate brackish water for short periods of time, but fresh water is necessary for their survival. Many of the islands in the Keys do not have reliable supplies of natural fresh water, which limits their range.

REGION V

Subspecies found:

(11. *O.v. nigribaris*, 12. *O.v. hiltonensis*, 13. *O.v. venatorius*, 14. *O.v. taurinsulae*, 15. *O.v. virginianus*)

11, 12, 13, & 14) These four whitetail subspecies are found on isolated islands and in small pockets off the Atlantic coast of South Carolina. The common name of these deer are the Blackbeard Island, Hiltonhead Island, Hunting Island, and Bulls Island white-tails.

15) The Virginia whitetail, subspecies name **virginianus**, is

common throughout many south Atlantic states. Because this area of the United States was settled early, the records surrounding the whitetail here are abundant. We know that deer skins were traded and exported by the thousands during the mid-1870s, to the point where through commercialism, whitetails nearly disappeared. We also know that in an effort to reintroduce deer into the depleted areas during the 1930s and 1940s, the imported animals came from as far away as Wisconsin and Texas to help reestablish the breeding pool.

REGION VI

Subspecies found: (16. *O.v. borealis*)

16) ***Odocoileus virginianus borealis*** is most likely the largest of the whitetail subspecies and occupies lands from central to eastern Canada south through Minnesota, Wisconsin, and Illinois. Traveling east it can be found throughout Indiana, Ohio, Pennsylvania, New York, and up the Atlantic coast to Maine, Nova Scotia and beyond. Over much of the present day range of this animal, where prairies and farms now exist, hardwoods once stood. By eliminating some of the climax forests through fire and by the axe, the region is now suitable to sustain healthy deer numbers.

Conclusion

We should consider the fact that when we speak of white-tailed deer subspecies, we cannot simply disregard the concept that many ranges of the subspecies overlap and the genetic pool in these areas are likely mixed. Only in areas where specific populations are isolated, either from one side of a large river to the other, islands too far apart, or canyons too deep to traverse do we see true genetic isolation yielding a true subspecies. In most of the range now occupied by the subspecies *virginianus* for example, transplanted deer from several different regions were imported some 50 to 60 years ago to help shore up and reestablish dwindling deer numbers. Though it would be difficult to prove, the subspecies bloodline here is probably mixed. 🦌

Photo of subspecies *O.v. leucurus* (Columbian) by Sue & Eric Hansen.



SUBSPECIES AND DISTRIBUTION

Distribution of white-tailed deer (*Odocoileus virginianus*) subspecies in North America

Note, the locations shown are for reference only and are not precise. Due to substantial cross-breeding as a result of efforts to restore herds following their severe reductions in the late 19th and early 20th century, the differences in subspecies is difficult to establish.



REGION I

- 1.) *O.v. leucurus* - southwestern Washington and the western quarter of Oregon.
- 2.) *O.v. ochrourus* - British Columbia to western Alberta, south through western Montana, Idaho, eastern Washington and Oregon, western Wyoming, northern Utah, and possibly a fringe of the border between northern California and Nevada.
- 3.) *O.v. couesi* - central Arizona south through Mexico and southwestern New Mexico.

REGION II

- 4.) *O.v. dacotensis* - southern Northwest Territories west into central Saskatchewan and Manitoba, and south through Alberta, the Dakotas, eastern Montana, central Wyoming, northern Colorado, and western Minnesota.

REGION III

- 5.) *O.v. texanus* - Nebraska, Kansas, Oklahoma, Texas, western New Mexico and Colorado, and southeastern Wyoming.
- 6.) *O.v. macrourus* - Iowa, Missouri, Arkansas, northern Louisiana, eastern Texas, Kansas and Nebraska, and southeastern South Dakota.

REGION IV

- 7.) *O.v. mcilhennyi* - southeastern Texas and southern Louisiana.

- 8.) *O.v. osceola* - midwestern Florida, north into southern Alabama and Mississippi.
- 9.) *O.v. seminolus* - Florida.
- 10.) *O.v. clavium* - Florida Keys.

REGION V

- 11.) *O.v. nigribarbis* - Blackbeard Island, Georgia.
- 12.) *O.v. hiltonensis* - Hilton Head Island, South Carolina.
- 13.) *O.v. venatorius* - Hunting Island, South Carolina.
- 14.) *O.v. taurinsulae* - Bulls Island, South Carolina.
- 15.) *O.v. virginianus* - Kentucky, West Virginia, Virginia, Tennessee, North Carolina, South Carolina, Georgia, Mississippi, and Alabama.

REGION VI

- 16.) *O.v. borealis* - from central Ontario and Quebec south to southern Illinois, and from central Minnesota to the East Coast.

REFERENCES: Some of the information used in this educational booklet was taken in part from the published work of Leonard Lee Rue III and his book titled "*The Deer of North America*," copyright 1978. Other information was also obtained from the book titled "*White-tailed Deer - Ecology and Management*" published by the Wildlife Management Institute, copyright 1984.

Throughout the years, *Whitetails Unlimited* has built a reputation based on conservation measures tailored to our nation's wildlife and natural resources, with major emphasis on the white-tailed deer.

WTU has established strategies and implemented programs to sustain traditional values and promote the philosophy that wildlife is a cherished resource. Our belief is that future programs must continue to be fostered to ensure that the delicate balance between man and nature is maintained.



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